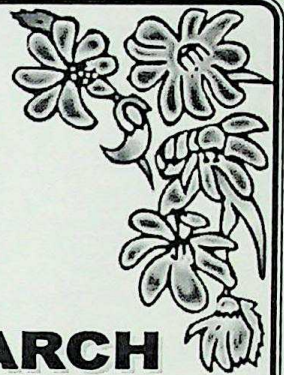


CHAPTER - I



INTRODUCTION, RESEARCH METHODOLOGY AND REVIEW OF LITERATURE



CHAPTER – I

INTRODUCTION, RESEARCH METHODOLOGY AND REVIEW OF LITERATURE

1. ROLE OF FISHERIES IN INDIAN ECONOMY

India has been one of the top seven fish producing countries of the world during last decade. At present India's fish production touches 3.8 million tonnes. Out of the present production about 62 per cent comes from the marine sector and 38 per cent from the inland sector, while that of the world fish production about 88 per cent and 12 per cent comes from sea and inland waters respectively. Apart from fish production the country have earned foreign exchange worth Rs. 3270 crores during 1994-95. The added fish production has helped the much needed protein rich food to the people. It has been estimated that an average Indian needs 56 gram of fish in his balanced diet. To meet the requirement, the country requires over 15 million tonnes of fish each year. Considering the vast potential, the aquaculture sector can boost up their fish production to meet the protein requirement of the country.

The fisheries sector occupies a prominent place in the country's economy. Fish culture is becoming more and more alluring due to its low capital investment, short gestation period and generation of high profit. Its importance from social and economic view point goes to augmentation of nutritional level, employment generation, earning foreign exchange. It is a suitable proposition for rural development and to improve economic condition of the rural people. Above all, development of aquaculture (Blue Revolution) is one of the means to achieve the much needed social goal of "Food for All" and "Work for All". Aquaculture is an economic means for low cost protein food production, when capture fisheries is

3. MARINE FISHERIES SCENARIO

India with a coastline of 7517 km. continental shelf of 0.451 million sq. km. and Exclusive Economic Zone (EEZ) of 2.02 million sq. km. has a rich marine fishery potential. Marine fishery scientists estimated the potential yield of Indian EEZ at a level of 4.5 million tonnes. India is now harvesting a little over one third of estimated potential of EEZ. Even this quantity comes largely from coastal waters. The present contribution from the off-shore fishery sector is less than one per cent of the total marine fish landings. However, the export of marine products has grown at a rapid pace in the last three years and the trend is likely to continue in future. Marine products export have gone up from Rs. 13.75 billion in 1991-92 to around Rs. 3750 crores in 1994-95, thereby showing a healthy growth of 30 per cent. The potential is however; still very great if right promotional policies for the deep sea fisheries development are adopted.

4. MECHANIZATION IN INDIAN FISHING INDUSTRY

Most of the fishermen in developing countries, including India use fairly primitive boats powered by sail or oar, as their ancestors have done for hundreds of years. The range of a fishing boat is thus determined by the wind force or sheer human muscular power. Along many coasts, there are good fishing grounds just beyond the effective range of sailboats or canoes. In many cases these rich grounds can be reached if the fishermen exert a special effort or if the wind is particularly steady. Once on these grounds a skillful man may catch as much as in few hours as less ambitious inshore fishermen might catch in a whole day. But price for these few hour of good fishing is not only toil, but danger. What if storm strikes when his crude boat is far off shore? What if night falls and land

marks disappear before the lights of the village are safely in sight? But even if all does go well, the fishermen frequently enters harbour, after hours with sail and paddle under the tropical sun, only to find that much of his prize catch is a putrid, unmarketable mess.

Mechanization is the obvious answer to this problem. The long term solution is a fleet of well designed; diesel powered fishing boats, coupled with an extensive training programme. Progress on these lines is of necessarily slow, because of the costs involved for developing nations.

5. EMPLOYMENT POTENTIAL

Fisheries make a big contribution to food security and provide gainful employment to millions of people. At least 60 million people, living in 3,638 villages are traditionally full-time fishermen and women. About 5 lakh women are employed in pre and post harvest operations in the marine fisheries sector in total work force of 12 lakh people. All these fishermen are depending on fishing for their livelihood. In India, marine fishing from the time immemorial has been the privilege of certain coastal communities. Out of the total fishermen about 21.21 million are occasional fish workers. In Maharashtra, about 3 million people are dependent on fisheries for their livelihood. The certain castes are invoved in fishing occupation.

6. PRODUCTION AND EXPORT OF MARINE PRODUCTS

The data regarding the total fish production, the value of export is shown in the table No.1. This gives the significance of fisheries in Indian Economy.

**Table No. 1: Production and Export of Marine Products
(1950-1951 to 2004-05)**

Year	Fish production in Million Tonnes			Export of Marine Products	
	Marine	Inland	Total	Quantity 000 Tonnes	Value Rs. Crore
1950-51	0.5	0.2	0.7	20	2
1960-61	0.9	0.3	1.2	30	4
1970-71	1.1	0.7	1.8	40	35
1980-81	1.5	0.9	2.4	80	235
1990-91	2.3	1.5	3.8	140	893
2000-01	2.8	2.8	5.6	503	6296
2001-02	2.8	3.1	5.9	458	5815
2002-03	3.0	3.2	6.2	521	6793
2003-04(p)	3.0	3.4	6.4	412(p)	5739
2004-05(p)	3.1	-	6.5	-	-

Source: Department of Animal Husbandry, Economic Survey, 2004-05

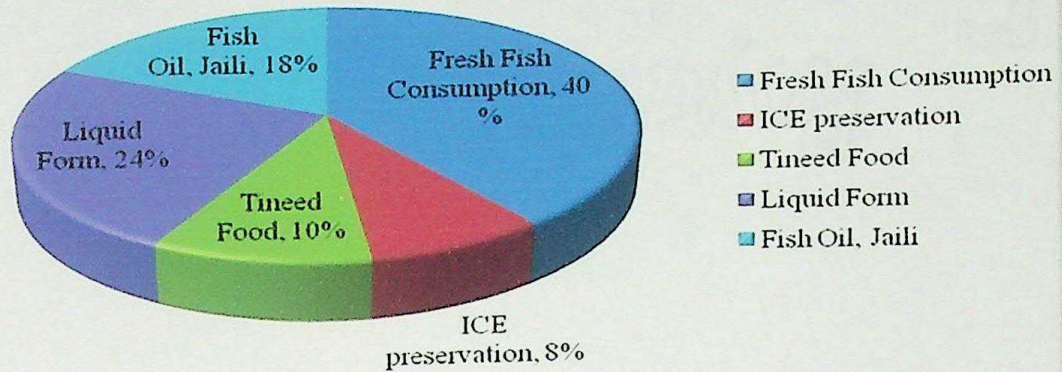
7. PATTERN OF FISH CONSUMPTION IN WORLD

Out of the total sea fish catch nearly 40 % of the fish is consumed in its fresh form; while rest of fish catch is preserved in one or the other form. In the world about 8% of the fish is preserved in ice for distance marketing purpose; 9% is preserved tinned food and 24% is preserved liquid form and 18% is stored in fish oil and jali. The countries like USA, Japan, Norway, Germany, Canada, Denmark, South Africa and U.K. etc, are in fisheries industries.

Forms of Consumption OF Fish and Fish Products in World

Sr. No.	Fish of Consumption/ Forms of Preservation	Percent
1.	Fresh Fish Consumption	40
2.	ICE preservation	8
3.	Tinned Food	10
4.	Liquid Form	24
5.	Fish Oil, Jali	18
Total		100

Fish of Consumption and Forms of Preservation



8. GLOBAL CONCERN FOR FISHERIES MANAGEMENT

Most Western writers attribute the current interest in fisheries management to the declaration of the Exclusive Economic Zone (EEZ) by coastal states, both before and after the passing of the Law of the Sea in December 1982. The extension of coastal states' jurisdiction to the 200 miles limits has indeed set in motion a new wave to economic thinking in coastal states belonging to both the developed and developing world.

9. MARINE FISHING POLICY, 2004

The comprehensive Marine Policy was launched in November 2004 to facilitate sustainable deep sea-fishing. The Policy considers that the development of fisheries can go a long way to tackle the problem of food as well as unemployment in the coastal areas. The policy objectives are :

1. To augment the marine fish production of the country upto the sustainable level in responsible manner so as to boost export.

2. To ensure socio-economic security of the artisan fishermen whose livelihood solely depends on this vocation.
3. To ensure sustainable development of marine fisheries with due concern for ecological integrity and bio-diversity.

The fishermen welfare, environment aspect, supply of infrastructure (ice, fuel, repair of vessels, etc.), legislative support, post harvest are the additional objectives of the policy. The Policy states that the fishing is sole livelihood of about 12 lakh fishermen households along coastline and this policy attaches to priority ensuring their social security and economic well-being. The present study ~~has~~ examined the achievement made in this respect i.e. welfare of fishermen.

10. FISHERIES IN MAHARASHTRA

Fishing is an important activity of the coastal people of Maharashtra. Next to Kerala, Maharashtra has the largest fish output in the Republic of India. Nearly 12.77 percent of the total coastline of India is in Maharashtra. Annually, more than 22 lakh tonnes of fish is caught. The total annual income from the fish catch is estimated at about Rs. 12 crores. Nearly half of the fish catch is consumed fresh, and the rest cured; and a small percentage is converted into fish meal and fish manure. About 1.5 lakh men living in 350 fishing villages are engaged in fishing activities. About 12,000 boats are engaged in fishing; out of these nearly 1,800 have been mechanized. About 90% of the boats and almost the entire fleet of mechanized trawlers are engaged in sea-fishing, particularly in Thane, Sindhudurg, Ratnagiri and Raigad Districts of Maharashtra.

The fishermen mostly engaged in coastal and inshore fishing are using country-crafts. The off-shore fishing in deeper water is recently developed.

11. SOCIO-ECONOMIC AND ENVIRONMENTAL CONDITIONS OF FISHING COMMUNITY

Fishermen are one of the weakest among the weaker sections of the community in India, and Maharashtra is no exception. Most of the fishing community has no sufficient capital to purchase a mechanized boat and other fishing equipments, and hence they are working with the rich fishermen, who are having of other occupations such as trading, transport, hotel, money-lending etc. Hence, the ordinary fishermen are being exploited by middlemen, who act as money-lenders, traders and contractors. The weakness of fishermen lies in their illiteracy, poverty and lack of knowledge of technology in the field of fisheries. The housing, health and sanitation conditions are also very poor. This situation is further worst due to lack of institutional support both in respect of infrastructure and finances. The fishing community is residing near the sea and there are no all weather roads, hence the banking authorities also rarely visit such places and dare to finance. The banks finance only to co-operative fisheries societies, but not individual members. Only 6 lakh fishermen have been enrolled as members of co-operatives. Again, these co-operatives are controlled by vested interested leaders. Therefore, the socio-economic condition of such community is not improved till to date.

12. THE PROBLEM

Though the marine fisheries are fairly well-developed in Maharashtra, yet many of the fishermen are using country-craft, they are engaged mostly in coastal and inshore fishing. But the offshore fishing in deep water is made only by big entrepreneurs. The small craftsmen bring the fish catch on sea-shore and they are surrounded by fish dealers,

mainly from Mumbai, who buy all the fish for Mumbai market, then the fish is sold to the merchants across the Ghats, who come to these places, and a very small and inferior quality of fish is left out for local market. The small fish such as sardine and shrimp are dried on the sands and sold at low cost to retain consumer by the fishermen. The fishermen do not venture to enter into the sea from June to August; of course few fishermen fish in the river and creeks; but the most common and liked varieties are only 10-11. Thus, this shows that fishing is seasonal, exploited by traders and having risk and not up to sufficient income level.

About 55 percent fishermen use mechanized wooden boats and 45 percent use non-mechanized boats. The fishermen families had an ordinary roof over their head. About 90 % live in thatched houses, 2 % in tiled houses and remaining in mud-houses. The income level of fish workers presents a dark picture. Almost all the families except Boat owners are below poverty line. They are away from clean environment. In Maharashtra, the fishing community is still neglected though there are Government Schemes helping for them.

13. OBJECTIVES OF THE PROJECT

The specific objectives of the proposed research project were be as under :

1. To study socio-economic conditions of the fishing community mainly female boat owners, and fish seller, boat labourers.
2. To study the environmental conditions of fishing community in coastal area.
3. To analyze the role of fisheries cooperative to improve the life of fishing community.
4. To evaluate the role of NCDC, NABARD, and Government schemes on the life of fishermen.

5. To study the present marketing system of fish produce.
6. To offer suggestions for the better practices in improving the life of fishing community.

14. UNIVERSE OF THE STUDY

The study covers the three districts of Konkan region of Maharashtra, i.e. Sindhudurg, Ratnagiri and Raigad districts.

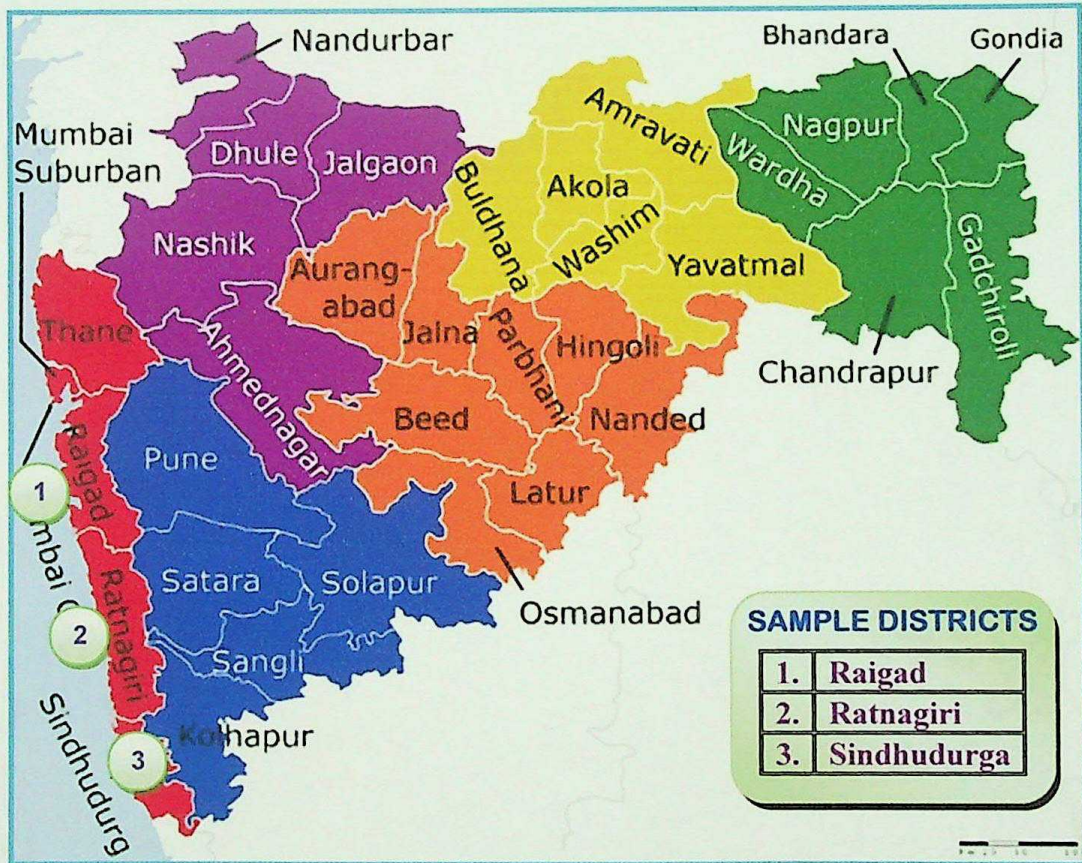
Konkan

Konkan is the coastal tract between the Sahyadri on the east and the Arabian sea on the west. It is a narrow strip of land extending from the Damanganga river to Goa. It is about 550 kms. in length and 50 to 70 kms. in breadth. Occasionally, the maximum breadth is about 100 kms. in the Ulhas basin. Konkan is composed of five districts, vis. Thane, Mumbai, Raigad, Ratnagiri and Sindhudurg. Longitudinally, it extends between $15^{\circ}.45'$ to 17° N latitudes. The general features of the relief, climate and vegetation are common all over the Konkan area. But the cultural landscape introduces regional variation. Historically, the Konkan was always a zone of contact between India and Western countries. All religion people are found in this area. However, majority of them are Hindu. Earlier Konkan was having the prosperous ports. The main activities in these region are agriculture, fishing and transport, etc. All these areas were under the Maratha, Mongal and British rules.

The region has most unbalanced sex ratio of the state. The predominance of female is declining due to outward migration of working male population.

The villages are generally small. They are larger in the coast, but with larger number of hamlets in the interior. All the districts has considerable number of tribal population belonging to Warli, Thakur,

MAHARASHTRA STATE



Koli, and other groups. Nearly, 2.62 lakhs of the population belong to this category.

15. PARAMETERS OF STUDY

The following are the parameters of study;

15.1 Various Aspects to be Covered

The following social aspects of fishing community are covered in the study.

1. Caste
2. Poverty and Poverty Alleviation Programmes
3. Literacy and Education
4. Population and Family Welfare
5. Medical Health Care
6. Development of Women and Children

15.2 Economic Aspects

1. Employment
2. Wages
3. Income
4. Indebtedness
5. Markets for fish produce
6. Price for produce
7. Government Loans-subsidies
8. Property Rights
9. Transport facilities
11. Competition for capitalist fishing

15.3 Environmental Aspects

1. Housing conditions

2. Working conditions and hardships
3. Health and sanitation conditions
4. Occupational Diseases
5. Water supply

16. METHODOLOGY AND DATA COLLECTION

For the present study the following three types of respondents were selected :

1. Fishermen Families
 2. Co-operative Fisheries Societies
1. The fishermen's families were included in the study. About 305 fishing families in different community were covered in the study. Each district had given appropriate weightage. The income, consumption, savings, investment and indebtedness of the respondents were studied.
 2. There are nearly 191 fisheries co-operatives in the three sample districts. Out of the total (191) societies, 47 societies were selected. The work done by them for the socio-economic development of fishing community was assessed.

For the purpose of data collection, four separate schedules were prepared and were filled in the field work during the year 2008-09.

16.1 Hypothesis of the Project

The Study had consider the following hypothesis :

1. Mechanization of the fishing boats is responsible for poor socio-economic conditions of the traditional fishing community.
2. The economic earnings of the fishing community is unstable and depends only on fishing, which is seasonal in nature.

3. The fluctuations in prices of fishing products have created the higher magnitude of instable income of fishing community.
4. The fishing community has remained still poor.
5. The fisheries cooperatives are not managed property.

16.2 Tools Used for Collection of Data

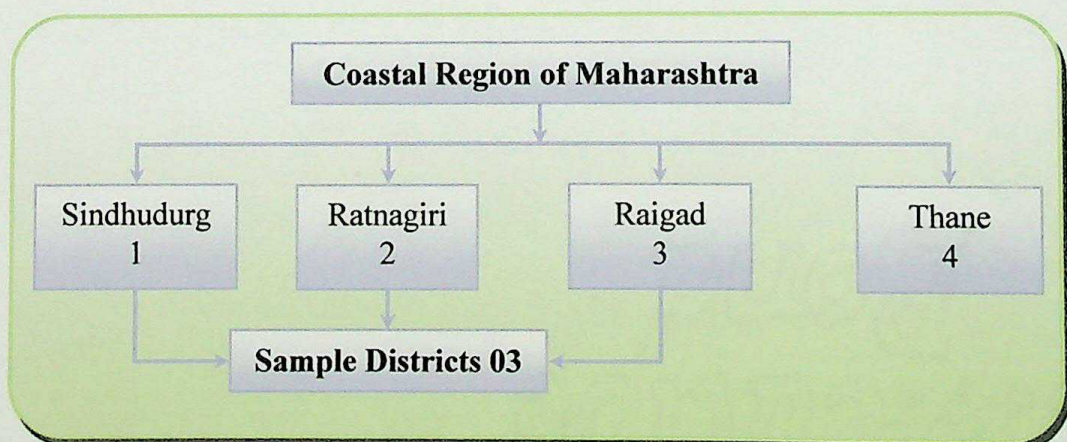
The following tools and techniques were used for the collection of relevant data for this project :

1. Questionnaire : For obtaining the general data of fishing community, co-operative societies and private companies a special schedule were constructed.
2. Case studies : A case study method was used to get the in-depth study of the fishing community. District wise case studies were included in the project.
3. Sources of Secondary Data : Office records of Fisheries Department, NCDC, Banks were referred. The books, journals, newspapers, government, reports were used.

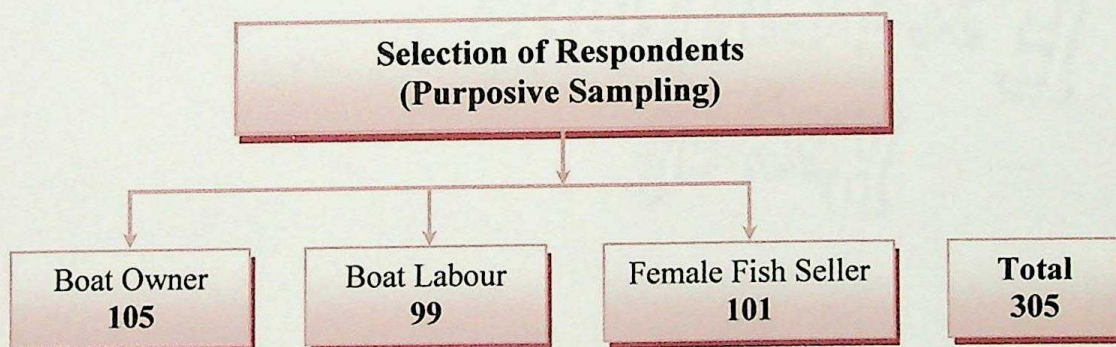
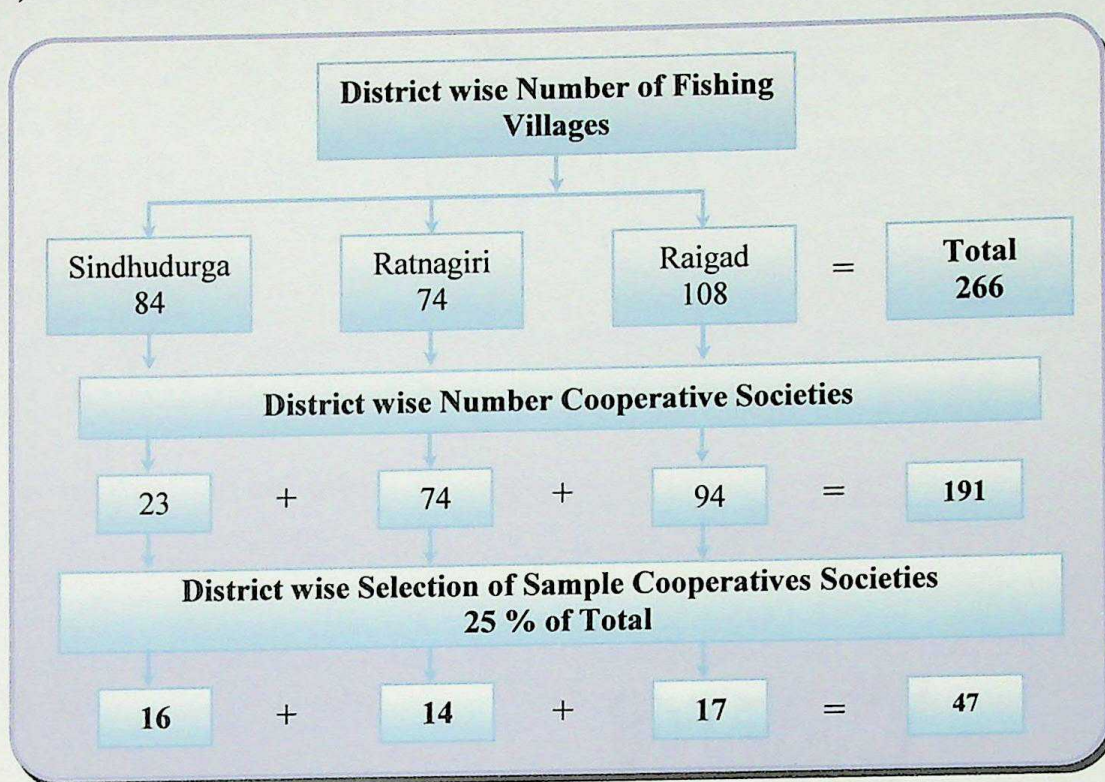
The following research design was adopted for the data collection

16.3 Research Design

A) SELECTION OF DISTRICTS



B) SELECTION OF VILLAGES



Sr. No	District	Type of Respondents			Total
		Owner	Labour	Seller	
1.	Sindhudurga	40	30	37	107
2.	Ratnagiri	31	37	30	98
3.	Raigad	34	32	34	100
Grand Total		105	99	101	305

In Short,

- 305 Fishing Families
- 47 Cooperatives Societies

17. SIGNIFICANCE OF THE STUDY

The present study is socio-economic study. Hence, it has covered the social and economic as well as environmental factors responsible for improving the life of fishing community. *Everybody likes fish, but nobody likes the fisherman or fisherwomen.* What are reasons behind this situations? Can the fishing community will live in a better standard of life? What measures can be suggested to do all these things? The answers to these questions were found in the study.

18. CHAPTER SCHEME

The chapter scheme of the project is as under :

1. Introduction, Research Methodology and Review of Literature.
2. Profile of Ratnagiri, Sindhudurg and Raigad Districts.
3. Significance, Development and Problems of Fisheries Cooperatives India Asia.
4. Role of NCDC, NABARD, MPEDA, etc. in the Development of Fisheries Cooperatives in India.
5. Economic Conditions of Sample Boat Owners in Konkan Region.
6. Socio-Economic Conditions of Fisheries Labourers in Sample Villages.
7. Socio-Economic Conditions of Female Fish Sellers in Sample Villages.
8. Role of Sample Cooperatives in the Development of Fisheries in Coastal Region of Maharashtra.
9. Conclusions and Suggestions

REVIEW OF LITERATURE

1. INTRODUCTION

A review of previous studies on fisheries is essential to get a bird's eye view about the fishing sector in general and the socio-economic conditions of fishing community in particular. There are several studies regarding the fisheries, but most of them are in science pertaining to production, breed, fish diseases, use of fish in diet, etc. But there are very few studies in economics covering the income, expenditure, marketing, indebtedness of fishing; etc. Some of studies are briefly reviewed; which will decide the further course of action to the researcher and policy makers.

Before, we go for review of literature, it will be appropriate to study some of theories of fisheries management.

2. THE BIOLOGICAL THEORY OF FISHERIES MANAGEMENT

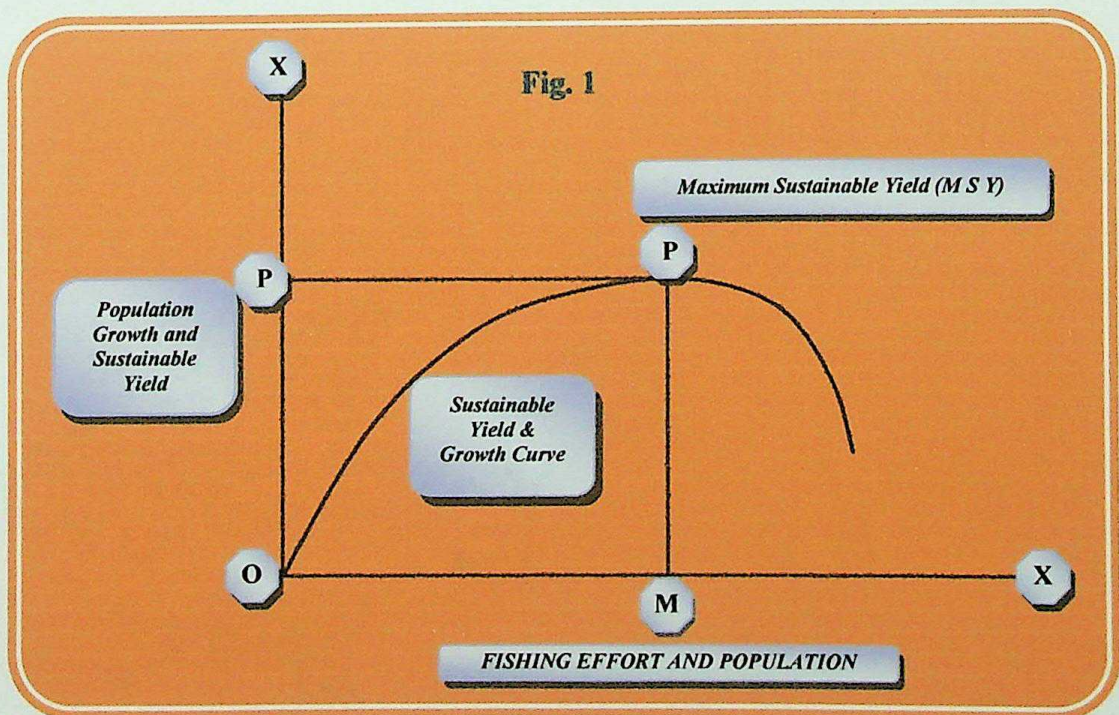
The biological theory of fisheries management had its origin in Europe following the great expansions of the Northern fisheries, after the first industrial revolution.

A formal theory of fisheries management based on biological parameters was formulated by Milner B. Schaefer, an American biologist, in 1954. The Schaefer model in its simplest form presents the relationship between sustainable yield, population and fishing effort. It postulated that the biomass of an unexploited fish-stock increases at various rates depending on its initial weight, recruitment, individual growth and mortality rates, the last being a negative factor. Now, given level of population, catch is a function of population. Here, catch responds to changes in population and fishing effort. But it further recognizes that changes in population are caused by changes in fishing effort, as the latter

original stock. Hence, if the objective of management is to maximize the catch, it should regulate fishing effort at such levels where it can reap the maximum net addition to the stock. Maintaining effort at such levels ensures the protection of stock as well. The relationship between sustainable yield, population growth and fishing effort is shown in Figure,1.

Sustainable yield is the maximum at point P on the sustainable yield (growth) curve, where the population growth be less on either side of M. on the left of M due to under fishing and right of M due to overfishing. Management should avoid both these situations.

The biological theory of fisheries management has been further sophisticated by Bevatron and Holt and Gulland. The original model has been improved by incorporating dynamic variables like the interaction between recruitment, individual growth, mortality, predation, etc. and their impact on catch and population. It is worth recognizing here that the biological theory which had its moorings in the overfishing problem had ultimately led to the two of the most fundamental objectives of fisheries management, viz., full utilization and conservation.



2.1 The Neo-Classical Theory of Economists

Alfred Marshall, as the champion of the early neo-classical school of economists, makes some critical reference to the problems of supply, demand, cost and price of fish in the long run. Marshall writes in an earlier chapter on the "Fertility of Land".

In river fisheries, the extra return to additional applications of capital and labour shows a rapid diminishing on. As to the sea, opinions differ. Its volume is vast, and fish are very prolific, and some think that a practically unlimited supply can be drawn from the sea by man without appreciably affecting the numbers that remain there; or in other words, that the law of diminishing returns scarcely applies at all to sea-fisheries; while others think that experience shows a falling off in the productiveness of those fisheries that have been vigorously worked especially by steam trawlers.

The most remarkable and widely discussed treatise on the subject of fisheries management under common property condition came from Francis T. Christy Jr. and A.D Scott. Christy and Scott analyzed the working of the common property system in marine fisheries and found it less than optimum in the long run. They argued that in the common property system with no restrictions on entry, the fishing effort will continue to increase until there is any true profit to be shared and this combined with the prevailing natural limits to the productivity (growth) of the stock will lead to the taking of more fish from the stock and the resulting fall in the sustainable yield from the stock. With given prices and costs, this will lead to a situation where the industry total cost will be rising in proportion to effort and the revenue falling with the fall in the sustainable yield. These two forces will ultimately take the industry to a situation of loss and sometimes even to the extinction of the fishery.

2.2 A Holistic Theory of Fisheries Management

A holistic theory of fisheries management takes into account all the elements of the system, in their varied state of performance and in their dynamic relations with each other and the ensuing changes in the elements, to the system, and in its functioning. It should also be possible for this theory to lay down principles governing the functioning of the system and offer tools for its governance; for its direction, control and betterment. It is normative in this role. More precisely, this theory should be not merely 'functional' or 'problem-solving' but 'system-changing' and 'system-developing'.

Viewed in this perspective, the different theories of fisheries management outlined above expect the modern theory, belong to the problem-solving category. They are all of the 'critical management' type developed to maintain the system by removing a crisis- a crisis of overfishing in the biological theory of fisheries management, a crisis of over-capitalization in the neo-classical theory of the economists and the crisis of extended jurisdiction by coastal states in the global theory of fisheries management. In the classical theory of Adam Smith, it was again, the challenge of protectionism and the threat to free trade that made Smith to speak, so eloquently on the buss bounty system in England. In all these cases, management theory was called upon the find single solutions to single problems. How far they have succeeded in devising solutions is history of world fisheries management. No attempt is made here to review this aspect. It may, nevertheless, be said that they have offered some partial solutions and have met with partial success.

2.3 Objective of Development Fisheries

Without being too prosaic and very comprehensive the objectives of fisheries management in the developed fisheries may be listed thus :

(1) conservation of natural resource (fish stock), (2) prevention of economic waste, (3) protection of investment (4) prevention of conflict and (5) protection of environment. Most of these goals are protective or preventive in nature.

R. Koradandy has explained some of Smith's observations which are worth quoting in this regard. In chapter XI of Book I of *Wealth of Nations*, while discussing the effects of various technical improvements, Smith notes :

As population increases, as the annual produce of the land and labour of the country grows greater and greater, there comes more buyers of fish, and those buyers, too, have a greater quantity and variety of other goods, or, what is the same thing, the price of a greater quantity and variety of other goods to buy with. But it will generally be impossible to supply the extended market without employing a quantity of labour greater than in proportion to what had been requisite for supplying the narrow and confined one.

Adam Smith's interest in the management of the fishing industry takes him to an analysis of the 'bounty' (subsidy) system prevailing in England at that time. Speaking on this system Smith points out.

Something like a bounty upon production, however, has been granted upon some particular occasions.

The above observation of Smith on various issues of policy, ranging from uncertainty to resource productivity, technical improvement, prices, profits and the subsidy system, all make them the essential components of a theory of fisheries alive and is indeed guiding fisheries management in the free market world today¹.

Christy and others (1996) has analyzed the Problem of Over-Fishing

There is also a problem of over-fishing and over capitalization. There is always a optimum level. This has increased wastage of labour and capital. This labour and capital can be transferred to some other production and to some other area. The economic wastage was due to the bionomic nature of the fishery, with a revenue curve having a reduced slope after a point of time and the cost curve having a continuous increase in its slope with rising fishing efforts. Under the prevailing common property system this was inevitable consequence of free entry and the task of management is to restrict efforts to the margined revenue obtained from fishing. This can put in another word as to remove the excess capacity in the industry².

It is cautioned by **Dr. Vinaya Deshmukh**, the senior scientist, Central Marine Fisheries, Research Institute, Kochi, that due to over fishing the Indian fishing will come in danger by the 2048. The uncontrolled fishing and pollution has badly affected the fish production. He had also stated that there is a need to protect the fisheries cooperatives and the support measures are much needed to the fishing community³.

There are number of peasant and fisheries resistance movement against the Special Economic Zones in Maharashtra. Several of the movements are anti-displacement movements. In Maharashtra The Reliance Maha Mumbai SEZ is taking place which is spread over three talukas of Pen, Panvel and Uran of Raigad District. Most of the villages are dominated by the Agri Community (BOC Caste), However, Koli and Katkari are Scheduled tribes and Scheduled Caste respectively who are residing in the coastal and hilly areas of these talukas. These communities

do not possess their own land. They are dependent for their livelihoods on the sea or the forest. The Koli community catches fish from the sea, and Katkari and others collect forest produce like fuel-wood, wild fruits, honey, medicinal plants, etc.

The SEZ are being flooded in Raigad district of Maharashtra. About 50,000 acres of land is covered in SEZ, and nearly 50,000 farmers are badly affected. Since last 05 years several hunger strikes have taken place to protest the SEZ. The Gram Panchyat had filed their written objections to the industrial projects as well as SEZ had badly affected the fisheries in coastal area. People of coastal area see no future in SEZ. If this is not stopped the fishermen community will also commit suicide⁴.

Since last 15 to 20 year fishing community in Mumbai had protested the development schemes due to the advance effects on their fishing activities. Fishing village viz Navapur, A lewadi, Tumbhwali, & Ram Grampachyats had opposed the transportation of coal and other raw material, as this affects badly the water quality. The Tarapur Atomic Energy Project has also created the problems before the fishing community. The same situation is seen in Dhanu, Palgher and Vasai talukas of Thane, Ratnagiri Districts. **The Editor of Daryawardhi" Journaly. Mumbai (2009)**, had raised this issue several times; but it is of no use⁵.

Chauhan R.S. (2009) has made an attempt on the fisheries to be kept in ponds. In his book (Hindi) 'Integrated Rural Fisheries and Goose Keeping' writes that the farmers with small land can take for fisheries along with goose keeping which is economical and environment friendly. He says that in one acre of wet land fisheries gets about Rs. 32409 net profit per year⁶.

Azad Gulab Sing (2008) in his article 'A Critical Study of Fisheries Cooperatives in India' had written that fisheries cooperatives in India have not progressed well due to lack of professional management lack of planned market and due to negligence of proper training⁷.

Mishra P.C. and Salim S. (2004) in their article 'Role of Cooperative in Fisheries Development of West Bengal' has come to the conclusion, that due to lack of regular funds, lack of members cooperation, absence of training programmes for members as well as to the employees and inefficient managerial ability were the main causes behind the improper functioning of fisheries cooperatives in west Bengal. These reasons are more or less in every state⁸.

A Case study of Fish Cooperatives in Goa has been written by **D'Cruz S. (2005)**. In his article published in Indian Cooperative Review, he has opined that there is a need for three tier Cooperative Fisheries Societies as it will facilitate the easy flow of funds and link the primary cooperatives. The state federation will handle the transportation, preservation and marketing of fish to the state level federation and it will also provide consultancy and training facilities to primary fisheries societies. The cooperatives also supply consumers' goods and hiring the marketing, storage and processing facilities to the non members. However, in practice this shows that the fisheries cooperative structure is imperfect and this has given opportunity to private traders to exploit the poor fishing community. The fisheries co-operatives had taken initially the loan facilities of Government of India as well as state Government, but later on they had forgotten the spirit of cooperative movement⁹.

In Ratnagiri District next to agriculture and horticulture, the most important economic activity was fishing said **Nabar Sheela M. (2005)** in her book *Konkan Economy: Society in Transition (1818-1920)*. The fishermen were Kolis, Marathas, Muslims, Christians, Gavits, etc. They carry on their business very well during the fair season but during the monsoon they were handicapped owing to the roughness of the sea, creeks and rivers and on the Arabian coasts and they were helpless. These fishermen had no agricultural lands some of the poor fishermen use to hire a boat called 'Rapan' from the well to do fishermen. This shows that even 100 years back also the economic condition of fishing community was weak, but they were getting fish, but now a days due to shortage of fish the life of fishermen has come in danger¹⁰.

Vepa S. S. (2009); author of *Begring the Brunt : Impact of Rural District on Women* (Sage), and visiting Professor of Madras School of Economics, Chennai says the debt burden of the poor is increasing. She says that as per the report on performance evaluation of targeted public distribution system by the Planning Commission in 2005, for one Rupee worth of income transfer to the poor. Government of India spends Rs 3.65. This is the average cost of reaching the funds to the poor in remote area. It means Re 1 (one) of budgetary provision; the consumer subsidy is worth only 27 paise to 13.5 paise to the poor¹¹.

The book written by **Sarkar R.M. (2009)** is based on the integrated effort for highlighting the process and procedures of the indigenous fishing communities through time and space to grapple with eco-environmental setting in making their living through uninterrupted fishing operations. The life and work of Sundarban Fisher folk are centered round the interaction of man, fish and water¹².

With a view to provide employment, the Government of India had handed over the responsibility of getting oil from seas to private sector. These policies have also caused for sea-water pollution and ultimately decrease in fish catch.

Yadav Suhas (2009) had published an article on oil-production in the sea, and he has stated that in near future exploration, exploitation and refining will be that best field for youth. This situation will again add to the sea and river water pollution¹³.

Its is repeatedly said by many news paper agencies like **Daily Sakal (2009)** as well as by Environment Protection Clubs that the coastal area of Ratnagiri and Raigad district have been polluted by chemical industries. The Lote Parsuram Industries Estate has drained its effluent water into Chiplun creek. Due to industrial pollution rare species of fish such as Dolphin had found dead on the sea shore of Guhagar Taluka in Ratnagiri district. In May 2009 two Dolphin fish bodies were found floating on the sea water¹⁴.

Barbosa M.A. (2002), in his study "Fishing for a High Living" states that the mechanized fishing In Goa is done without any proper regulations. There is no license system for trawlers in Goa. Once the trawler owner registers hls trawler he need not approach any Government Department for renewal of license or permit. This harms the fishing industry in Goa as well the neighboring states like Maharashtra and Karnataka¹⁵.

Gaonkar, Rodrigues and Patil (2008), had conducted a study on Fishing in Goa, in which they have highlighted the Socio-Economic and Political Aspects of fisheries. The study reveals that the introduction of

new technology have brought positive changes like efficient and effective exploitation of marine resources, increase in production, increase in foreign exchange earnings, etc. However, few capitalists have exploited the resources, and they have replaced the traditional fishing community. Therefore, there is depletion of marine resources and conflict between the traditional and mechanized fishing folk. The study shows that deep-sea fishing is responsible for reduction in the fish stock in the sea. *The traditional fishermen were having the knowledge of preserving the fish for future generation; but the non fishermen community entrepreneurs are motivated by high returns for their huge investment. Many political leaders own the mechanized trawlers; thus they become the stumbling block in the way of taking measures for sustainable fisheries development*¹⁶.

Visvanathan Susan (2007) has tracked the life of the fishing community of Kerala. She says rapid economic progress has brought the change into the life of fishermen but the rapid progress is dangerous to sustainable fishing. In an essay titled 'workers of the sea' the author appeals that in the monsoon, the "Sea is Pregnant". And the fisher folk should not disturb the mother sea. This concept will bring the sustainable development in fishing¹⁷.

While talking about the awareness of fishermen; **Mukherjee R (2008)** says that the regular awareness programmes can also save the excessive fishing. The **Wildlife Society of Orissa (WSO)** with the help of fishing societies has creolized awareness in fishing. The scientific surveys, awareness programmes and conservation projects should be undertaken by the co-operative fishing societies. This shows that

conservation efforts are already bearing fruits one should tell the fishing community that *life is all about the balance*¹⁸.

While talking about the economic conditions of fishing community; such as Koli and Gabit, **Geersagar S.V.** describes that this community belongs to the down trodden communities in Maharashtra, and they are neglected since ages. Due to lack of capital; the middlemen and big business houses exploit this community and hence they are forced to live in abject poverty. He further states that due to poverty and hard life they are addicted to liquor-consumption and smoking¹⁹.

The study made by **Wilson (2005)** states that the fishermen have taken to agriculture and other paid job in Andaman and Nicobar Islands due to meager income. The fishermen in Konkan region cannot take such occupation because this region has no quality land available and fishermen have no land property since their ancestors²⁰.

Ingavale V.M. in his study of Konkan region concludes that fishing industry ought to accelerate as ancillary and supplementary activities for industrialization of economy, such as boat building, engine fitting and repairs, net knitting, cold storage construction, etc. Because of lack of these industries, the region has remained backward²¹.

The author **John Sommer** in his book 'Empowering the Oppressed' states that only the art of catching the fish is not important. In the absence of resources to obtain fishing nets and effective market, the knowledge of fishing is not enough. Thus without sufficient capital and equal opportunity, the poor have no chance to develop²².

The village studies made by **Sahay** cleared that no lower caste person was found in Government job. This equally true in case of the low

caste people like Bhandari, Koli, Agari, Gobit, ect. in Ratnagiri, Sindhudurga and Raigad Districts. Hence, this community is a powerless in the village economy. Many of them do not own any land. The scholars like Dumont admitted the facts that in the Jajmani system castes were supposed to be interdependent through division of labour. Each particular caste was performing distinctive functional role which were complimentary in character. The fishing community was getting food grain cash (kind) from the farming community in exchange of fish; but this system is now collapsed and therefore, the community had come into problems. Another very serious problem is that in fishing profession, many other castes and communities have entered who be-longs capital. Now days the fishing is open to all. Therefore, the traditional fishing community had got competitors who are with capital and power in the village economy. This had led to the miserable conditions of fishing community in the Konkan region²³.

The text of the National Cooperative Policy (2002) : States that the cooperative fisheries societies can also do lot of good work for the fishermen. The membership of cooperatives in terms of numbers has increased manifold, but dormant membership and the absence of active participation of members in their management have not only resulted in sickness but also encouraged the dominance of vested interests causing blockages in the percolation of benefits to the members. In large number of cases, elections and general body meetings in cooperatives are not held regularly. This practice has created apathy among members towards the management. This policy statement shows that unless there is members' awareness; no benefits will reach to the fishing community²⁴.

The study made by **Reena V; Arpita Sharma and S.K. Pandey (2007)** all from the Central Institute of Fisheries Education, Mumbai, examined that fishers in India still remains as the poorest of the poor and continue to occupy the lower rung in the social starta. It was found in their study that 80% of the fisher women had musculoskeletal complains like joint pain which is primarily occupational related, the women had also suffered from malaria as common disease²⁵.

While talking about the success behind the fisheries Co-operatives in Chhatishgarh (Inland Fisheries) **Gauraha, Varma and Bunafr** states that the cooperative societies in the state had paid wages to their member and non members on harvesting day at the tank site as cash payment. Members had received 60% of the total value of fish caught in a day. The fish catch of each member is weighted in the presence of the secretary of the society and few members of managing committee. The non members, who work as worker or helper, were getting Rs.100 per day. The authors have also mentioned some constraints in the development of fisheries cooperative i.e. the pollution of water due to sewage water in the pond, illegal residences in nearby ponds and lack of marketing facilities²⁶.

Sood Archana (2005) in her article 'A Fishermen's Cooperative par Excellence' has narrated a case of Mudialy Fishermen's Cooperative Society Amta village of Howrah District of West Bengal. She says that the Cooperative Fisheries Societies with its members' sincere efforts is able to give remunerative price to fish catch as well as it has developed to polluted sea shore into eco-environment friendly park. The society since its establishment (1961) has undertaken the activities such as pisciculture, marketing of fish, sale of fishery inputs, consumers' goods, and credit

facilities to members. Besides, society has also undertaken welfare activities for members, such as schools, houses, children's park to public etc. This has been possible due to the NCDC financial assistance. This shows that if the cooperatives are working as per their goals, there is no any problem to fisheries cooperatives²⁷.

Bapuji B Chief Director, NCDC states that the NCDC is giving the funds for fisheries development but it is the cooperatives who have to avail these facilities. Andhra Pradesh tops among all states in the country in availing a maximum assistance of Rs 185 crores during the last few years. This assistance was availed for procurement and marketing operations of agriculture produce by the Andhra Pradesh Co-operative Federation. The NCDC also welcomes the State Government move in taking up implementation of ICDP Schemes in the state. The Integrated Fisheries Development Project both marine and inland is being financed by the NCDC²⁸.

Lipton A.P.Raj, S.G and Chellappa (1986) had warned that sea erosion had occurred in some of the coastal fishing villages like Moti Danti, Nani Danti and Udwada, situated in Valsad Districts of Gujrat State during the monsoon period of 1986. Due to sea erosion many of the huts belonging to the fishermen were destroyed. The fish drying yards were also washed away. In future also such environmental pollution will occur, hence, the fisheries have to face Man made as well as natural odds. An effective steps need to take by the villagers, fishing community and the environment²⁹.

Alappat B. J, Dikshit A K and Basu Sukarta (1998) state in their article 'Threats to The Marine Environment' that oceans are under the threat of pollution from both natural and human activities. Global

warming increases the Co2 concentration in the oceans legal and illegal disposal of hazardous industrial and domestic wastes worsen the marine scenario. The oil spill has become a frequent phenomenon these days because of the increased navigation across the oceans. Considering all these polluting activities one has to think that in near future the oceans will come in danger and there by the fishing industry will come to an end³⁰.

Muzamil Jan (2006) in his study 'Empowerment of Women through Women's Cooperative bank has highlighted that number of urban banks formed by the women and for the women have helped the women. He has also mentioned that the central problem faced by women is that they have no security on their name to offer to the bank. This problem can be solved by forming the women cooperative banks at least one bank in each district. The fishing women's can get the consumption loan in the slack season, from their own bank so that they will be kept away from the money lenders³¹.

Tatyasaheb Kore, (1990) An Architecture of Warnanagar Cooperative Complex said that cooperatives lead to mutual happiness if they are run on selfless motive. The dedicated and sincere leaders can only make the cooperative venture a success. *He was of the opinion that the members in cooperatives should always be the choosers and not the beggars.* It means members needs, desire and views must be welcomed by the cooperatives. This aspect is hardly observed in present cooperative movement. That is why many of the cooperatives are at failure and fisheries cooperatives will not be an exception³².

Katar Singh (2002) Cooperative Movement Expert points out that cooperation reduces the cost or increases the benefit to the members from

undertaking an activity of common interest. So long as these two requirements are met it is likely that the members would not abandon cooperatives and cooperative movement will survive and prosper. He further supports the theory build by Coase (1937) Williamson (1985) and Staatz (1987). These authors say that cooperatives have to minimize their transaction costs in doing their business other wise no cooperatives will succeed. This point needs to well think by the cooperators of fisheries cooperatives; may it be a primary or district level federation³³.

Mariappan V. (1999) points out that there are many NCDC schemes but these are not known to the people. He said that in order to popularise the schemes, the NCDC can organize awareness programme, seminars and workshops for the cooperative fisheries people or inform about schemes through circulars, news letters or meetings. Though the corporation is sending the revised schemes at the right time to the department concerned, yet it is not reaching in the hands of lower level officers who are linking the societies and the Government³⁴.

Brahmanand P.S and Mohanty R.K (1999) has suggested the model of Rice- Fish Integration Prospects for rural development. They say that there is a tremendous scope for improvement of rice fish integration in India. It is because of the natural compatibility that exists between rice and fish in a controlled eco-system. They say the fish will eat the weeds in the rice farm, thereby rice production will increase. They have opined that rice productivity will increase by 5% by this experiment. In Sindhudurg- Ratnagiri district also it is possible, so that there will be no loss to the members, even there is no fish catch in rain season³⁵.

The Macmillan Encyclopedia of the environment (1997) gives information that there are two types of fishing that is commercial and

recreational. Commercial fishing provides an important source of protein for the world's population, as well as fish by products for use in industry and agriculture. Commercial fishing usually involves taking animals from freely moving wild populations. This practice leads to special challenges in the management of these populations and in the regulation of the industry. The recreational fishing does not have an adverse effect on the balance of nature in the rivers or lakes. The encyclopedia also states that each state in U.S.A. has fishing laws, and the laws are strictly supervised. In that country the fishing is allowed only in fixed months. The laws regulate the manner, size and number of fish that may be taken. Most states have heavy fines for fishing out of season, exceeding the limit of fish allowed or taking protected species. In our laws there are many provisions but not followed and hence there are fish famines³⁶.

Ratnakumar Frank (1999) has taken a review of fisheries cooperative in India and a case study of three villages in Nagi District in Tamilnadu. He says that fishermen families were living in poor economic and environmental conditions. He states that none of the fish worker was having income more than Rs 10.000/- per annual. The fishing policy of Government of India is not suitable, The author is of the firm opinion that traditional and small- scale mechanised sector is incapable of exploiting the deep sea, hence foreign enterprises should be invited to exploit the resources. In this respect the fisheries societies are the best organizations to ameliorate the socio- economic conditions of fish workers³⁷.

Chand M.S. (2005); has done his Ph. D. work 'Growth of Mechanization in Fishing Industries and its impact -----to Ratnagiri District. He has said that the 77 % of Boat Owners had taken advance

amount from private traders and they sell their fish to them only. He has further stated that mechanization had helped the boat owners³⁸.

Salunkhe V.A. (2009); has studied the Marketing of fish in Harne Port Area in Ratnagiri District and he had found that about 30 % of the total trips of fishing are in losses due to low catch, as fishing is nothing but hunting. Sometimes one can get the sufficient fish but many times the trips are in loss. Therefore, the Boat Owners can not even repay the diesel charges; as a result the cooperative societies have come in to losses³⁹.

Kambel T.V. (2009) : has made an extensive study on, 'An Economic Study of Fisheries Community in Vengurl Taluka' of Sindhudurga Dist. He has made a survey of 25 villages and 160 families. He has stated that out of sample boat owners 11 % were below poverty line. Another, conclusion he has drawn that 55 % surveyed families were in over dues of loan. Also, all female fish sellers' annual income was from all sources between Rs. 10,000/- to Rs. 25,000/-. Many fishing families, except Boat Owners were not consuming milk in their daily meal and even in tea⁴⁰.

The study indicates the poor economic condition of fishing community in coastal Maharashtra.

The book edited by **Gautam A., and Agarwal N.K. (1995)** on the title Recent Researches in Aquatic Environment is research oriented book, which gives information about aquatic environment such as ecology, pollution, impact assessment, conservation and management of water resources. The book contains the various water pollution problems especially inland water⁴¹.

Kulshert S.D. : has stated that out of the total biotic (41,600) in the world; 48 % are in fish category followed by 20.7 % birds 14.4 % serpents 10.8 % mammals and 6 % frogs class. This shows that maximum number of biotic is fish. Therefore, the fisheries need to be handled in careful manner in the world⁴

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