

Impact of Jobless Growth of Fisheries on Livelihood of Traditional Fishermen in Karnataka: A Study

¹CHANDRASHEKHAR MOGER, ²Dr. DHANANJAYA K.B.

¹Research Scholar, Department of Studies in Economics, Kuvempu University, Shankarghatta SHIVAMOGA

²Research Guide and Associate Professor, DOS in Economics, Sahyadri Arts & Commerce College, SHIVAMOGA

Abstract: The growing demand for fish in the developed and developing countries and the recognition of its place as a balanced diet to the rapidly growing population ensuring food security and as a foreign exchange earner are creating immense pressure on the world of fisheries. In the context of modernization and technological changes, jobless growth of fisheries sector and the livelihood of traditional fishers become problems. Modernization and technical changes in fisheries leads to unemployment of traditional fishermen because of industrial fishery. The concern over the jobless growth of fishery and the resulting threat on the livelihood of the traditional fishers in Karnataka form the subject matter of the present study. The study includes descriptive, exploratory and confirmatory research. It reveals that technological developments resulted in the declining of marine landings in Karnataka. It also identifies the employment generation issues which are directly or indirectly related to technology and modernization. The threats faced by the fishers are related to work environment, capital intensive technology, exploitation of resources, and lack of employment opportunities. It concludes that, the adopted to ameliorate the livelihood conditions of the traditional fishers must be based on the specificity of the need in each particular region. The researcher concluded that the Government should adopt a new fisheries policy aimed at supporting development of small scale community based fisheries activities to create employment and raise family incomes in the lower income coastal regions. The new policy should be part of a wider economic development programme incorporating commercial and small-scale artisanal fishers to contribute to the four themes – sustainability, poverty reduction, inequality reduction and job creation.

Keywords: Modernisation, overfishing, jobless growth, livelihood threats and community based fisheries.

1. INTRODUCTION

Fishing as an occupation is being practised in India since time immemorial and has been regarded as a supplementary enterprise of the fishermen community on the subsistence level with little external input. Fisheries sector, however, has a strategic role in food security, international trade and employment generation. With the changing consumption pattern, emerging market forces and technological developments, it has assumed added importance in India and is undergoing a rapid transformation.

Fishery is a sector that has huge potential in India, which is surrounded by coastlines on three sides. India has nearly 8,200 km of coastline with nearly 3,827 villages engaged in fishing as the main economic activity. There are nearly 2,000 fish trading centres in these areas. Fresh water reserves and reservoirs in the country also present enormous opportunities for fishing and trading activities. At the beginning of the decade, marine and freshwater resources together had fishing potential of about four million metric tonnes. Increasing yield year after year has been a positive indicator of the future growth potential in the field. To put things in perspective, India is world's third largest producer of fish and comes next only to its neighbour China in terms of fish production.¹

Marine sector helps the nations and their people to share resources and to accelerate the social and economic development. The sector generates employment and it stimulates the growth of a number of subsidiary industries and also ensures food and nutritional security. The application of modern technology acts as a powerful instrument for understanding the marine ecosystem. At the same time the application of modern technology, is linked to its deterioration and over exploitation. It is true that in wake of globalization, liberalization and privatization flow of technologies has increased. Fisheries and allied sectors are also transforming to industries at a faster pace. As a result of modernization and developmental process the sustainability of the resource and the livelihood of the small scale traditional fishers are threatened. The issues related to technological developments, modernization, jobless fisheries growth, institutional and policy failure affect the livelihood of fishers with the stagnating and declining marine resources. The study attempts to deal with the above issues along the coast of Karnataka. Modernization and increased competition for fishers resources has resulted in over fishing and destructive fishing methods. Because of this, traditional small scale fishermen communities loosing their employment opportunities and livelihood. The modernization and developed technologies which were supposed to enhance the production and productivity cause threats and warned that the exercise of policy formulation should ensure not merely growth, but growth that promotes the human development and sustainability between ecology and development. The concern over the Jobless growth in fishery sector and the resulting threat on the livelihood of the traditional fishers is the subject matter of the present study.

Indian fisheries sector has been witnessing a steady growth since first five year plan. The annual fish production rose to over 9.0 million tones during 2012-13 from around 0.75million tonnes in 1950-51². Fisheries became a focal theme of Indian five year plans of the Govt. and this resulted in the promotion and popularization of mechanized fishing vessels and modern year materials.

The Govt. of India started its attempt of modernization of fishery sector as early as 1953 when the Indo-Norwegian project came into being. After their unsuccessful attempts to introduce motors for artisanal craft, the project shifted its emphasis to new designs for mechanized boats to be operated from harbours. A few hundred gillnet boats were introduced during early 1960s. These boats had very limited impact on production and were largely complementary to the artisanal fleet. The high market price for penaeid prawns in the world market led to the introduction of small-scale trawlers. Government's interest in promoting exports gave an impetus to trawling. Finding trawling profitable, a mad rush to own trawlers were seen in the 1970s. Many new invested, to reap the profits. The Government took efforts to supply trawlers to the actual working fishermen through co-operatives. But it ended up going into the hands of middlemen and outsiders who were absentee owners who had no long term stake in fishing than only profits.

Modernization or Technological development in fisheries has also had the potential to give rise to negative consequences for those unable to access it, by: (i) creating polarization among fishermen; (ii) making traditional knowledge, processes and skills redundant leading to deskilling; (iii) increasing capital investments and concentrating ownership and thus, decision-making processes into fewer hands; (iv) increasing indebtedness; (v) leading to excessive energy intensity and increasing the dependence on fossil fuel; (vi) making the livelihood of fisherwomen precarious; and (vii) increasing exploitation levels to unsustainable levels³.

Changes due to globalization:

Fishing is comparatively a skilled occupation and it requires less waiting than agriculture and industry. The social fabric of society underwent changes with the advent of government's intervention in fisheries development. Traditional technologies got replaced by modern capital-intensive technologies shifting fishing technology from eco-friendly to eco-destructive, active gear to passive gear and low cost to high cost. The major activities undertaken by the community themselves and the structural changes that has taken place within the fish economy after commercialization process is given in the below given table.

Fish economy before and after commercialization.

Activity	Before commercialization	Specialization	After commercialization
Pre harvest			
Craft making	Traditional carpenters	Craft Engineering	Entry of boat yard
Gear setting	Handmade nets	Textile Engineering	Entry of machine made nets
Harvest skills, knowledge and expertise	Crossing the surf water currents, star location	Navigation oceanography Astronomy	More of mechanical viz wienches, trolleys ,compus,GPS,etc

Post harvest			
Disposal	Head load	Transportation	Entry of motor vehicles
Storage	Drying and salting	Processing	Entry of cold storages
Vending	Head load /cycle load	Marketing	Entry of large scale

Source: Rajan, (2002)

Before commercialization almost all activities relating to fisheries had been carried out by the community themselves and had acquainted with versatile skills and knowledge viz, craft engineering, textile engineering, navigational skills, oceanography, astronomy, engineering, transportation, processing, marketing etc. the advent of commercialization has open space for the entry of large scale trade and industry into the sector³.

Marine fisheries are one of the major industries of coastal Karnataka, it is fifth largest producer of marine fish in India. The state's resource potential is estimated at 425,000 tonnes per annum over an expanse of 87,000 km of the Exclusive Economic Zone (EEZ). The marine fish landings have increased from 80,000 tonnes in 1956 -57 to 373167 tonnes in 2012-13⁴. In the last fifteen years, fishing technology has undergone large-scale mechanization. In Karnataka the main types of crafts used in the traditional sector are plank-built boats, dugout canoes and fibreglass boats, 7 -15 metres long. These boats generally operate in the coastal zone of 0-50 metres depth. The fishing techniques in the modern fisheries sector use sophisticated electronic equipment. These technical changes in the fishing methods can be classified into craft movements (method of propulsion) and development of gear and tackling. These technical changes improved the productive capacity considerably through machine power (which enabled them to increase the fishing time), harvesting deep-sea resources and by targeting high-valued species such as crustaceans, prawns, lobsters, cephalopods, etc., through bottom trawling. The introduction of more efficient capital-intensive gears for better economic efficiency has led to competition with less efficient small-scale gears, as a result of which the catch and the number of small-scale fishing units have greatly reduced over the years⁵. The social and economic welfare implications of such developments are far reaching; The three coastal districts of Karnataka have remained underdeveloped, with high unemployment. Opportunities for alternative employment in these coastal areas are limited for people without the required skills. The low literacy levels and community attachment of small fishermen further restrict their geographical mobility⁶ (Panayotou 1985), which aggravates the hardship of traditional communities. The problem of unemployment, a negative social externality arising from mechanization of fisheries is a major issue confronting administrators of small-scale fisheries. An ideal solution, as Panayotou (1982) suggests, 'to the problems of small-scale fishermen are to be found outside the fishing sector'. However, in the presence of acute unemployment in the non-fishery sector, Panayotou maintains, 'not only is a reduction in the number of small-scale fishermen unwarranted but even restrictions for entry cannot be justified'.⁷

Fisheries in the 20th century have shifted from local activities to global market- influenced industries, employing millions and generating export income for many nations. Despite this growth, local communities still depend on fisheries resources as a source of protein and livelihood. Small scale community fisheries employ 50 of the world's 51 million fishers mostly from developing countries (Berkes et al, 2001)⁸.

Kurien and Willman (1982), analyses the economics of artisanal and mechanized fishing units, highlight the fact that fishing economy is on the vortex of a crisis. They found that ,in terms of productivity, profitability, employment and fuel efficiency the mechanized sector did not possess the merits generally attributed to it.¹⁰

Ibrahim (1986) focuses on the capitalist intrusion in the primary fishing activity and analyses its implications On employment and income. He shows that mechanisation process has adversely affected the income and employment prospects of the traditional fishermen.¹¹

Suresh Kumar (1999) unfolds the capitalist development process of the fishery sector of Kerala state and also explains the changes in labour process and the gradual marginalisation of the traditional fishermen in the development process of the fishery sector.¹²

Kurien and Rao (1988) in a study on the economic and social implications of the shift from the traditional mode to the mechanical mode of production in Visakhapatnam fisheries shows the need to introduce various management regulatory systems in order to protect the interest of both the communities without endangering the resource base and to productivity.¹³

Research Problem:

The issue of overcapacity in fishing fleets and their reduction to the levels that should be in balance with long term sustainable exploitation of resources has received global attention during the past two decades. Many countries have adopted policies for limiting the growth of national fishing capacity in order to protect the aquatic resources and to make fishing economically viable for the traditional small scale harvesting communities. In South east Asia, overcapacity is seen as the largest fisheries management problem threatening sustainability. Similarly in mechanized sector technological up-gradation in the form of size of the net and the boat has increased over the years. Modernisation of fisheries, declining fish availability, coupled with over capacity and the dependence of the traditional sector on coastal fisheries for income generation has led to the adoption of destructive fishing. All these have ultimately worsened the situation of traditional fishermen. This study intends to focus on the sustainable fisheries development of Karnataka and brings to notice the government policies and the trends of over fishing, modernization in fisheries, the market forces swaying the fishery sector and all the more to analyze the capitalist development engulfing the coastal traditional fishermen of Karnataka. Who were thrown out of scene, marginalized and deprived of, even a precarious existence.

Objectives of the study:

1. To study the modernization and technological change which have taken place in the fishing sector of the study area.
2. To study the growth in fishers sector and creation of employment opportunities for traditional fishermen.
3. To assess how for technical changes and modernization affected the socio-economic condition of the traditional fishermen.
4. To examine the threats to the livelihood security of traditional fishers
5. To make recommendation for the improvement of traditional fishermen in study area.

Hypothesis:

The main hypothesis of this study is that modernization and technological changes resulted in Jobless growth in fishing sector which affected the livelihood of traditional fishers.

2. METHODOLOGY OF THE STUDY

The study was carried out by using survey method, selecting a representative sample from the population considered. In Karnataka coastal area covered with three districts. So, Udupi, Dakshina Kannada and Uttara Kannada districts were selected and from these districts fishing villages were identified. Malpe in Udupi, Navamangalore in Dakshina Kannada and Karwar in Uttara Kannada were chosen in order to get the representation of three regions. The selection was in concurrence with the divisions based on the different technological aspects also. 20 percent of respondents selected form working in artisanal crafts, 20 percent from shore seines, 20 percent form mini purse seines, 20 percent from mini trawlers and 20 percent from traditional fish workers were selected. After conducting the pilot study the sample size was decided as 300. For the collection of primary data, in-depth interview was conducted with the help of schedules. Secondary sources of information were used to know the general trend of fisheries and species wise trend along with answers to questions related to the research. The study includes simple cross tables for description as well as to validate observed dependence among attributes.

Findings of the Study:

Social and Economic profile of the Respondents: Out of the total, 86.0 percent of the respondents are married, while 14 percent use single. Four major areas where traditional fishermen stand at a greater disadvantage compared to others in the state are 1) Habitant and housing, 2) Sanitation and health 3) Literacy and Education and Safety at Sea. Bene et al (2007) realize that a large majority of small scale fishers and fish workers are rural dwellers¹⁴

Age wise distribution:

	Uttara Kannada	Dakshina Kannada	Udupi	Total
Below 30 years	05	04	06	15(05%)
30-40 years	15	16	33	64 (21%)
40-50 years	32	42	36	110(36%)

50-60 years	41	34	20	95(31.5%)
Above 60 years	07	04	05	16 (05%)
Total	100	100	100	300(100)

Source: Primary Data

Table reveals that, 36 percent respondents belonged to the age group of 40-50years and 31.5 percent belonged to 50-60years age group. The survey data highlights the existence of Hindu community with 67.1percent, followed by 20.9percent of Christian community and 12 percent of Muslim community. The caste dimensions in the study highlights the majority of Hindu community among the fishermen community in Karnataka.

Quality of life is reflected in the level of educational attainment. Only 4 percent of the total population had secondary education. 53.1 percent of the sample did not receive any formal education. 7.1 percent were able to read and 17.3 percent could read and write. Low level of education as well as illiteracy obstructed their passage to the outside world for seeking alternate employment opportunities.

Economic variables:

Marine fisheries provide substantial employment in production and post harvest sectors. Pre harvest operations include boat building and repairing, net mending, supply and repair of engines, diesel, kerosene and essential items at the leading centers. Auctioneers at landing and wholesale centres, those involve transportation, loading, unloading, packing, distribution on ice, commission agents, wholesalers, retailers etc come under the post harvest sector(Sathiadas.1997)¹⁵

During harvesting season, the maximum earnings of the fishermen went above Rs 20000 for 2.6 per cent in the Dakshina Kannada and 2.3 percent in Udupi district. In the Uttar Kannada, it was only 0.3 percent. 61.3 per cent of the respondents received income between Rs 5000 and Rs 10000 (table 1). During off-season 38 per cent of the sample did not have any source of income. Lack of alternate employment opportunities and reluctance to take up other jobs are the major reasons for these low earnings (table 2)

Earning Pattern -In season (1)

	Uttara Kannada (%)	Dakshina Kannada (%)	Udupi (%)	Total (%)
Below 5000 Rupees	05.2	2.5	1.2	8.9
5000-10000 Rs.	22.5	20.1	19.7	61.3
10000-15000 Rs.	04	05.1	10	19.1
15000-20000 Rs.	01.3	04.0	01	6.7
Above 20000 Rs.	0.3	2.6	2.3	04
Total	33.3	33.3	33.3	100

Source: survey data

Earning Pattern-Off season (2)

	Uttara Kannada (%)	Dakshina Kannada (%)	Udupi (%)	Total (%)
No Earning	13	11	14	38
Below 1000 Rs..	10.2	08	12.8	31
1000-2000 Rs.	5.5	06	05	16.5
2000-3000 Rs.	2.3	04	02	08.3
3000-4000Rs.	02	03	0.2	05.2
Above 4000 Rs.	00	01	00	01
Total	33.3	33.3	33.3	100

Source: Survey data

Field evidence supporting depletion:

According to the observations made from the primary survey, depletion of particular fish species has been observed by the respondent which was prominent during certain years rather than seasons. All the respondents remarked that resource depletion has been affecting the day to day life in the village. Greater quantum of depletion has been identified in the inshore waters, rather than in territorial waters.

Distribution of area of depletion

Where have you Observed greater depletion	Frequency	Percent
Inshore areas	263	87.8%
Territorial waters	37	12.2%

Source: Survey data

In the Udupi and Dakshina Kannada District, depletion of certain fish species has been observed by all the respondents. 74.9 percent of the respondents observed depletion of fish was prominent in the whole year rather than seasonal. 31.6percent from Udupi and 32.9 percent Dakshina Kannada from responded that depletion of fish was prominent throughout the year.

Reasons for declining fish production and employment opportunities from the respondents' point of view.

Reasons for declining fish production and employment opportunities	Frequency	Percentage
Over exploitation of marine resources	292	97%
Intrusion of foreign trawlers	211	70%
Modern capital intensive method of fishing	300	100%
Due to high running cost, man days are declining	150	50%
Lack of sufficient convenience in harbor & processing centre	205	68%
Lack of skilled and trained laborers	155	51%
Unscientific trawling ban	219	73%
Governments disinterest	277	92%
Exploitation by middlemen	105	35%
Competition from mechanized boats	295	99%
Restless fishing activity	290	87%
Lack of proper administrative order	284	90%
Declining fish, fish not available	150	50%

Source: Survey data

Most of the mechanized boats had all latest technologies like wireless, mobile and cold stores. Path finders and sonar or eco sounders for detecting fish sources has been used in trawler boats. Large scale intrusion of foreign trawlers leading to over exploitation, Competition from mechanized boats, modern capital intensive method of fishing ,restless fishing activity, lack of proper administrative order were considered as the main reason for declining fish production and employment opportunities for traditional fishermen in the study area.

Impact of modernization and jobless growth of fisheries:

Because of modernization and introduction of mechanisation mechanized sector absorbed nearly 77.8 percent of the fisher folk from the traditional sector. and got themselves adapted to mechanised sector. All respondents opinioned that, because of modernization they lost their employment opportunities. Decrease in income of traditional fishermen, enable to catch more and different spices, lack of employment opportunities are the main impacts of modernization. The study shows that there is a inverse relationship between modernization and generation of employment opportunities.

Impact of Modernisation on traditional fishermen

	Frequency	Percentage
Decrease in Income	280	93%
less job opportunities are generated	300	100%
Thereat on livelihood	265	88.3%
Unable catch more and different species	274	91.3%
Waste of traditional Experience and skill	216	72%
Others	102	34%

Source: survey data

Effects of Modernisation:

A reduction in labor days, fall in the price of products, entry of foreigners, entry of more boat owners as well as over exploitation of sea resources were assigned to be the prime results of mechanization by the respondents. They also were much aware of the ill effects of mechanization and moaned about over exploitation of sea resources. As a result of mechanization there was huge destruction of sea resources. The entry of foreigners, exploitation by middlemen, lack of opportunity for old generation, knowledge of technical skill, increased debt etc were attributed as the effects of mechanization. The study reveals that living conditions of the respondents are very poor when compared with before modernization period.

Effects of Modernisation	Frequency	Percentage
Entry of more boat owners	240	80%
Reduction in labour days	164	54.6%
Over exploitation of resources	300	100%
Entry of foreigners	140	46.6%
Older generation loose opportunity	275	91.6%
Requires technical knowledge	180	60%
Poor living condition compared to before modernisation	300	100%

Source: survey data

Suggestions for better Development and Advancement of traditional fishing sector

Technological change which has taken place brought in improvements in the life of few has not been totally made available to traditional fishermen communities. For the betterment and advancement of fishing sector many suggestions have been put forward by the traditional fisher folk which includes banning foreign trawlers, introduction of proper licensing and registration, limiting and controlling the number of vehicles, allotting specific areas for different categories of fishing etc. Respondents opinioned that the Government should adopt a new fisheries policy aimed at supporting development of small scale community based fisheries activities to create employment and raise family incomes in the lower income coastal regions. The below given table shows, the opinion given by traditional fisher folk for bettering this sector.

Suggestions for better Development and Advancement of traditional fishing sector	Frequency	Percentage
Limit and control the number of mechanized boats	300	100%
Proper licensing and registration should be practiced	200	66%
Ban foreign trawlers	176	58%
Allot different areas specifically for different categories for fishing	300	100%
Night trawling and fishing by overnight stay should be stopped	120	40%
Suitable training should be provided for traditional fishermen	265	88%
Regulate the rushing entry of capitalists	296	98.4%
Ban equipment causing destruction	211	70%
Ban months should be changed	280	93%
Development of small scale community based fishery activities	275	91%
Introduces Employment intensive technology for traditional fishers	291	97%
Make available Financial help from Govt and other financial institution	234	78%
Govts attention should be diverted to this sector urgently	300	100%

Source: Survey data

The poor life quality of the fisher folk certainly leads to ecological imbalances, health problems, pollution problems, lack of sanitation facilities and lack of good drinking water, social and political disturbances. Preservation and sustainable resource management can be more possible where a fairly reasonable standard of living is enjoyed by the community. Gradual but steady course of development programs alone can bring out the fishers from this clustered settlement pattern, generally isolated from the main stream. Improvements in educational standards, income levels and generation of alternative employment opportunities can certainly cause changes in their lives.

3. CONCLUSION AND RECOMMENDATIONS

The havoc created by the unchecked technological advancement failed to show significant improvement in fish landings over the years despite increasing fishing efforts wherein total output cannot be increased by merely enhancing the production capacity. With increased pace of motorization the traditional non-motorized fishermen were thrown out from the scene with motorized units taking over the resources which the traditional fishermen were enjoying. A good proportion of traditional fishermen were shifted towards the motorized sector occupying the same area and resources. The economically weaker section of the fishermen as well as the fishermen who disliked to be shifted towards the motorized sector, paid the cost of resource depletion.

In the above context the present study made an attempt to see the impact of technological change and modernization on fishery sector and fishermen. The major findings of the study are discussed below.

- The sudden spurt in demand and the lucrative price offered for in foreign markets attracted investors from outside the fishing sector who had enough capital for investment, for the sake of reaping immediate returns ruthlessly exploited the marine resources leading to the depletion of many economically important fish species- a natural resource - which certainly needs time for recuperation.
- To what extent technological changes and modernization affects the humans who are solely dependent on this natural resource for a living, and how far a responsible management of conservation measure is imperative in this context. With the changes in technology, fisher folk also got themselves adapted to the new work pattern, sale and processing.
- Over exploitation of resources poor living conditions compared to before modernization and Older generation loose opportunity were the main effects of mechanization. Entry of more boat owners, increasing debt, exploitation by owners and by middlemen, entry of foreigners were the major effects of mechanization on the community inter alia further marginalization of the traditional fishing community
- Analysis show that 80 per cent of the respondents claimed that their incomes have decreased considerably, it reflected in their standard of living. Poor quality of living is one of the main reasons for over dependence on fishery. 98 per cent of the sample respondents were living in village areas rather than in towns and cities. Overcrowding, insufficient amenities of living, very low educational attainment, insufficient transport facilities to fishing villages are the major players acting on their downward swing in life.
- The traditional fishermen were sticking to fishery related occupations mainly due to lack of employment opportunities as well as other socio cultural impediments prevailing in the coastal areas.
- The mesh size used in trawl and ring seines is lower than the prescribed limit in many cases and this has to be discouraged to conserve the resources and for strict implementation of Marine Regulation Act (1980) is required for this
- Traditional technologies got replaced by modern capital-intensive technologies, shifting fishing technology from eco-friendly to ecodestructive, active gear to passive gear and low cost to high cost putting a heavy burden on the outliers of the mainstream.
- Technological changes in the fishing industry in terms of trawling and purse seining and diversification of the coastal economy has led to the unsustainable development. Main threats to sustainable fisheries in Karnataka are overcapitalization, over capacity, over investment in the harvest and post harvest sectors of the industry non-implementation of the existing rules and regulations and the lack of alternative employment generation. Hence urgent measures are required to tackle these issues so as to have sustainability of fishery resources.
- It was in the context of severe resource depletion and heavy loss to the fishery and the consequent conflicts among resource users that the government was forced to introduce trawl ban and other fishery conservation measures to safeguard the livelihood of the traditional fishermen in particular and the sustainability of the resources in general. Fisheries management experts recognise that the underlying cause of resource over exploitation in the marine fisheries is often of social, economic, institutional and political in origin. Therefore, fisheries management should address the relationship of fisheries resource to human welfare and the conservation of the resources for use by future generations. It has become increasingly evident that fisheries management cannot be effective unless the people who harvest the resources (communities and fishers) are effectively involved in the management process.

- The present study analyzed the impact of technological change and modernization on fishing sector as well as on fishing community. By analyzing the impact on fishing sector, the study explored the issue of sustainability and the need for conservation measures. The findings of the study hint on the need for specie-specific and region-specific management and institutional setup with a view to circumventing the resource reduction and livelihood threat of the community.
- The study has got a lot of policy implications. The major intervention should be in the field of conserving fishery resources. This should be fool-proof if and only if appropriate livelihood options are ascertained to the fishing community who are the outliers of the society. There are discussions and interactions to enact the Common Property Rights of fishing folk, especially in the State economy. Traditional forms that existed in the fishing sector need to be maintained. For all these, adequate policy prescriptions are required.

4. RECOMMENDATIONS

Keeping in view these learnings, the following strategies are being suggested for an accelerated fishery development with focus on poverty alleviation of the poor fishers.

- • Follow people centered not commodity centered approach • Follow system approach • Prioritize technology for the poor at national, regional and micro level • Innovate and strengthen institutions and policies • Upgrade skills of the poor fishers • Enhance investment and reorient policies to facilitate percolation of benefits from trade to all sections of the society, particularly the poor and the women • Follow ecological principles • Emphasize domestic market which is a sleeping giant • Strictly monitor the development programmes, make on-course corrections and assess the impacts of all revitalized programmes • Strengthen database and share it for better planning and policy making in the sector

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