CHAPTER I

DESIGN AND EXECUTION.
INTRODUCTION:

Fishing is one of the oldest occupations; perhaps it is older than agriculture. It is in this sense that it is termed a traditional occupation. Moreover, it provides sustenance directly and without much time loss between the effort and its result, unlike in the case of agricultural cultivation where the results are obtained after some time necessitated by the natural process involved in organic growth, fishing does not require as much input of time and equipment. Fishing however, has one important limitation, viz. the output cannot normally be stored and preserved for long.

Fish is one of the important nutritional foods. The poor people are heavily dependant on fishes for their protein. In 1988, around 253 million tons of animal protein contributed directly to human nutrition and of this marine fishery contributed most, i.e., 65 million tons, followed by cattle with 50 million tons. The FAO has estimated that in order to maintain the current levels of fish availability (at 13 kg per person per year) in the year 2010, there should be substantial increase in fish production.

In India fishing has been the occupation of one of the poorest stratum of the society. Because of the nature of the activity fishing largely remained a non-commercialized occupation. The fishermen community has a long history and they form one of the important minority communities of India. They belong to various castes and religions according to the local culture and situation. Fishing is way of life as well as the main source of income to run their
day-to-day life. The fishing community traditionally live near the coastal line and carry on fishing.

The fishing community has long history and they from one of the important minority communities of India. Marine fishing is practiced extensively in 9 coastal states i.e. West Bengal, Orrisa, Andhra Pradesh, Tamil Nadu, Kerala, Maharashtra and Gujarat and one Union Territory, Pondicherry. India is endowed with a coastline of more than 7500 k.m.s, with 2 million sq.kms of water within its Exclusive Economic Zone (EEZ). The marine resources of EEZ include shrimps, lobsters, rabs, tuna, squid, palmfred and most other varieties of fish. In the inland sector the country has more than 27000 kms of rivers, a very wide network of canals running to nearly 110000 kms. reservoirs and lakes covering 2.9 million hectares and fresh water ponds covering 1.5 million hectares. India is the seventh largest fishing nation in the world with immense potential for fish farming.

Fisheries have been an important part of the national economy for many years as a source of domestic food and rural employment. With the declaration of Exclusive Economic Zones in the 1970 the potential of these resources became more apparent. Successive development plans of the central Government have emphasized the importance of increasing production from both inland and marine resources. These have resulted in India becoming the seventh largest producer of fish in the world by 1990. The Government strategy was to increase the level of mechanization and motorization of the
fle;et, introduce new fishing technologies, improve infrastructure development and organize fish transport, storage and marketing. In later plans there was an increased focus on export markets, on improving the lives of fishing communities and expanding aquaculture to supplement captive fisheries.

An estimated nine million people in India depend on the Fishing industry. Of these, over six million are actively involved in fishing. Fisheries contribute about 1.4 percent of the GDP. In 1995-96, 296,300 mt. of marine products valued at Rs. 35,000 million were exported from India. The potential to expand production, for both domestic and export consumption, is believed to be considerable. Increases in marine production will come mainly from deep-water resources and brackish water aquaculture. The inland fisheries expansion will come mainly from more intensive aquaculture. Fish is an important part of the regular diet in many parts of the country. In 1993-94 the sea catch (world) was around 8 hectar mt. a fall from around 88 mt. In 1989, the management of sea fisheries worldwide was a disastrous failure. In the north (developed world) after 18 years of management the over fishing in developed countries waters is worse than ever.

The European Union has 40 percent more boats than it needs to catch fish. The governments in developing countries in order to increase fish output encouraged fish catches well above sustainable levels. The following table shows fish catch in major fish-producing countries for the year 1996-97.
TABLE NO. 1.1  
INTERNATIONAL FISH PRODUCTION FOR THE YEAR 1996-97  
(Fish production in Mts.)

<table>
<thead>
<tr>
<th>S.NO</th>
<th>NAME OF THE COUNTRIES</th>
<th>MARINE</th>
<th>INLAND</th>
<th>TOTAL</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>China</td>
<td>25683</td>
<td>14254</td>
<td>39937</td>
<td>36.7</td>
</tr>
<tr>
<td>2</td>
<td>India</td>
<td>3024</td>
<td>2453</td>
<td>5477</td>
<td>5.0</td>
</tr>
<tr>
<td>3</td>
<td>Bangladesh</td>
<td>991</td>
<td>991</td>
<td></td>
<td>0.9</td>
</tr>
<tr>
<td>4</td>
<td>Sri Lanka</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Indonesia</td>
<td>3782</td>
<td>799</td>
<td>4581</td>
<td>4.2</td>
</tr>
<tr>
<td>6</td>
<td>Thailand</td>
<td>2994</td>
<td>436</td>
<td>3430</td>
<td>3.1</td>
</tr>
<tr>
<td>7</td>
<td>Viet Nam</td>
<td>1153</td>
<td>434</td>
<td>1587</td>
<td>1.4</td>
</tr>
<tr>
<td>8</td>
<td>Philippines</td>
<td>2345</td>
<td>422</td>
<td>2767</td>
<td>2.5</td>
</tr>
<tr>
<td>9</td>
<td>USA</td>
<td>5146</td>
<td>347</td>
<td>5493</td>
<td>5.0</td>
</tr>
<tr>
<td>10</td>
<td>Egypt</td>
<td></td>
<td>311</td>
<td>311</td>
<td>0.2</td>
</tr>
<tr>
<td>11</td>
<td>Tanzania</td>
<td></td>
<td>307</td>
<td>307</td>
<td>0.2</td>
</tr>
<tr>
<td>12</td>
<td>Russian</td>
<td>4470</td>
<td>278</td>
<td>4748</td>
<td>4.3</td>
</tr>
<tr>
<td>13</td>
<td>Denmark</td>
<td>1832</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Brazil</td>
<td></td>
<td>256</td>
<td>256</td>
<td>0.2</td>
</tr>
<tr>
<td>15</td>
<td>Iceland</td>
<td>2228</td>
<td></td>
<td>2228</td>
<td>2.0</td>
</tr>
<tr>
<td>16</td>
<td>Myanmar</td>
<td></td>
<td>245</td>
<td>245</td>
<td>0.2</td>
</tr>
<tr>
<td>17</td>
<td>Mexico</td>
<td>1439</td>
<td></td>
<td>1439</td>
<td>1.3</td>
</tr>
<tr>
<td>18</td>
<td>Uganda</td>
<td></td>
<td>218</td>
<td>218</td>
<td>0.2</td>
</tr>
<tr>
<td>19</td>
<td>Spain</td>
<td>1346</td>
<td></td>
<td>1346</td>
<td>1.2</td>
</tr>
<tr>
<td>20</td>
<td>Pakistan</td>
<td></td>
<td>190</td>
<td>190</td>
<td>0.1</td>
</tr>
<tr>
<td>22</td>
<td>Korea</td>
<td></td>
<td>159</td>
<td>159</td>
<td>0.1</td>
</tr>
<tr>
<td>23</td>
<td>Congo</td>
<td></td>
<td>155</td>
<td>1308</td>
<td>1.2</td>
</tr>
<tr>
<td>24</td>
<td>Taiwan</td>
<td>1153</td>
<td>155</td>
<td>155</td>
<td>0.1</td>
</tr>
<tr>
<td>25</td>
<td>Kenya</td>
<td></td>
<td>153</td>
<td>7411</td>
<td>6.8</td>
</tr>
<tr>
<td>26</td>
<td>Japan</td>
<td>7255</td>
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<tr>
<td>27</td>
<td>Iran</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>28</td>
<td>Mauritius</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>29</td>
<td>Comoros</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>Ira</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>31</td>
<td>Bahrain</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>32</td>
<td>Kuwait</td>
<td>7844</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>33</td>
<td>Peru</td>
<td>6358</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>34</td>
<td>Chile</td>
<td>3415</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>35</td>
<td>Norway</td>
<td>1249</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>36</td>
<td>Malaysia</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Total | 85952 | 22707 | 108659 | 100  |

(Source: Hand Book of Fisheries Statistics, 2000)
Global and National Fisheries Scenario

Global fisheries and aquaculture production have increased from 117 million tones in 1978 to 125 million tones in 1999. As the production from captive fisheries has almost remained stable during the last decade, the increase has largely come from aquaculture. The global patterns of fish production owe much to the activities of China that accounts for 32 per cent of the world's total in terms of quantity. Other major producers are Japan, India, the United States, the Russian Federation and Indonesia. Aquaculture – Inland and marine, has emerged as a highly promising source of fin and shellfish production, growing by about 10 per cent per year since 1990. The potential of aquaculture to contribute to food production has been realized and future increases in fish production are likely to come from aquaculture. During 1999 the world fishery trade has fetched a value of US $ 53.4 billion. Developing countries registered a net fishery trade surplus of US $ 16.8 billion. (Fisheries Development mission, 2002)

National Scenario

Indian fisheries are an important component of the global fisheries and the sector has been recognized as a powerful income and employment generator. It is also a source of cheap and nutritious food. The sector’s contributions to foreign exchange earnings are substantial and
accounts for 1.4 per cent of the GDP. More than 6 million fishermen in the
country depend on fisheries for their livelihood.

The country with a long coastline of 8118 KM has an Exclusive
Economic Zone (EEZ) extending to 2.02 million Sq.Km. - 0.86 million
Sq.Km. on the west coast, 0.56 million Sq.Km on the east coast and 0.60
million Sq.Km. around the Andaman and Nicobar Islands – which is highly
suitable for developing captive and culture fisheries. With the absolute
right on the EEZ, India has also acquired the responsibility to conserve,
develop and optimally exploit the living marine resources within this area.

Inland fishery resources are vast and comprises of rivers and
canals (171 334 KM), reservoirs (3.0 million hectare), ponds and tanks
(2.36 million hectare), floodplain lakes and derelict waters (1.07 million
hectare) and brackish water areas (1.42 million hectare). The marine
fishery resources in Indian EEZ have been estimated at about 3.934 million
tones, constituting 51 per cent demersal, 43 per cent pelagic and 6 per cent
oceanic. The present production from the marine resources is estimated at
about 2.834 million tons, which is 72 per cent of the harvestable potential.
The inland fisheries sector presently contributes 2.8 million tones as against
an estimated annual potential of 4.5 million tones.

The marine fisheries are mainly exploited by traditional and smallscale
fishing vessels operating in the coastal waters up to 90 – 100 meters depth.
The deep-sea resources have largely remained under-exploited. Of the total
marine production, about 31.5 per cent comes from the east coast (Bay of Bengal) and 68.5 per cent from the west coast. During the year 2001-2001, 424 470 metric tones of seafood worth Rs. 59 571 were exported. The strategies outlined for fisheries and aquaculture development during the Tenth five year plan (2002 – 2007) have taken into account the principles of sustainable development and the growth rate has been pegged at 2.5 per cent and 8 per cent for the marine and inland sectors respectively. (Fisheries Development mission, 2002)

**Fishing Community in Tamilnadu**

Tamilnadu is the southern most maritime state of India and covers an area of 130000 Sq.Km. It has 28 administrative and revenue districts of which 11 are coastal. The total population is approximately 60.54 million, of which almost 65 percent is rural and 35 percent is urban. The official state language is Tamil.

In Tamilnadu the Fish Workers population is 8.7 lakhs who live in 591 coastal fishing villages and situated along the live along 1000 km, long coastline. Tamilnadu has two major ports at Chennai and Turicorin. Seven medium size ports and 353 fish landing centers. The fish catch of Tamilnadu was 2.59 million tones in 1998-99 which is ¼th of total Indian fish catch. The Fisher Workers co-operative societies are organized under the Tamilnadu State Apex fishermen folk co-operative federation. The fisher women co-operative societies are organized under the women’s extension service scheme of
Tamilnadu Fisheries Department. In the state of Tamilnadu there were 658 Primary Fisheries co-operatives (Marine 427, Inland 231) 5 Prawn Farming Societies, 16 Marketing societies 132 Fisheries women Co-operative societies, 10 District Co-operative Federations, and 1 State Level Federation. The important fishing gears owned by fish workers include Trawling boat; Grill net boat, long lines, short lines, Catamarans, Traps, Shore seine and others. 30 percent of the families own some fishing gear or other.

Fishermen are one of the weakest among the weaker sections and are exploited by middle men, who in this trade act as money lenders, traders and contractors. Their weakness lie in their illiteracy, poverty and lack of knowledge of technology in the field of fisheries. This situation is further worsened by lack of institutional support, both in respect of infrastructure and finances.

During the successive plan periods, the state government has implemented various development schemes for increasing fish production from both inland and marine sources, improving the Socio-Economic conditions of fishermen and generating employment opportunities in rural areas.
TABLE NO. 1.2
MARINE FISHERIES RESOURCE OF TAMILNADU

<table>
<thead>
<tr>
<th>Resource</th>
<th>Tamilnadu</th>
<th>E. Coast</th>
<th>W. Coast</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coastal length (in km)</td>
<td></td>
<td>1 016</td>
<td>60</td>
<td>1 076</td>
</tr>
<tr>
<td>Continental Shelf (in sq.km)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>41 412</td>
</tr>
<tr>
<td>Upto 50 m depth</td>
<td>22 411</td>
<td>844</td>
<td>6 952</td>
<td>23 255</td>
</tr>
<tr>
<td>51 m to 200 m depth</td>
<td>11 205</td>
<td>6 952</td>
<td>18 157</td>
<td></td>
</tr>
<tr>
<td>Exclusive Economic Zone (In million Sq.Km)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0.19</td>
</tr>
<tr>
<td>Territorial Waters (in sq.km) (Approximately)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>19 000</td>
</tr>
</tbody>
</table>

(Source: Fisheries Development mission, 2002)

Tamilnadu with its 1076 km of coastline (13 per cent of the country’s coastline), 0.19 million sq.km of EEZ (9.4 per cent of the India’s EEZ) and a continental shelf 41 412 sq.km is a leading state in fish production. The marine fisheries potential of the state is estimated at 0.719 million tones (0.369 million tones from less than 50 m depth and 0.35 million tones beyond 50 m depth) as against the all-India potential of 3.934 million tones. Of the east coast states, Tamilnadu lands the maximum catch followed by West Bengal.

The state has a fishermen population of about 0.69 million, of which 0.262 million fishermen are actively engaged in fishing from 591 marine fishing villages scattered along the coast. Presently, 10 278 mechanized fishing boats and about 49 000 traditional crafts, of which 20 000 crafts have been motorized with outboard motors, are engaged in marine fishing. There are
three major fishing harbors, two minor fishing harbors and several fish landing centers, which partially cater to the landing and berthing requirements of the marine fishing fleet.

The inland fisheries sector has about 370,000 hectare of spread area, comprising about 52,000 hectare of reservoirs, 97,000 hectare of major irrigation and long seasonal tanks, 158,100 hectare short seasonal tanks and ponds and 63,000 hectare under estuaries, backwaters and swamps, which are suitable for both capture and culture fisheries. Presently, about 4,000 hectare of water spread is being utilized for freshwater aquaculture under the programmes of the Fish Farmers Development Agencies. In shrimp farming, about 2,900 ha area is in use against 4,455 hectare developed for aquaculture.

While the contribution of marine fish production of Tamilnadu to the all India marine fish production was in the range of 13.4 per cent in 1999-2000, contribution of inland fisheries to the total fish production from inland resources of India was about 4 per cent. As against the total fishery potential of 0.965 million tones from both inland and marine resources of Tamilnadu, the present level of fish production is 0.475 million tones, which is about 49.5 per cent of the total potential. The export of marine products from the state during 2001-2002 amounted to 58,483 metric tones valued at Rs. 20,164 million.
Nagapattinam District

Nagapattinam District is the home of 125719 fish workers who live along the 200 k.m long Nagapattinam coastline. The Nagapattinam district includes three major fish production centers. These centers are Pazhayar, Nagapattinam, Arcottuthurai and some small fish landing centers. The Nagapattinam center is a mini Port Trust. The fish production per day in the Nagapattinam district is about 100 tones and the fishing industry provides employment to 75000 people either directly or indirectly to both fish workers and non-fish workers. The Nagapattinam district bordered South Arcot district in the North, Thiruvarur District in the West and Thanjavur district in the South. This district has five famous pilgrimage places, i.e. Neelayathatchi Amman Temple at Nagapattinam, Dharka at Nagore, Singaravelan Temple at Sikkal.

The development of fisheries in Nagapattinam district assumes importance in the context of its employment generation potential and income earning capacity. The development of fisheries comes under the control of the Fisheries Department. The Joint Director of Fisheries looks after the development of fisheries in the Nagapattinam district. There are also a number of Fishermen co-operative societies providing financial aid and other services to the fishermen. The Tamilnadu Fishermen co-operative Federation has also been operating an “Integrated Marine Fisheries Development Project” with financial assistance from NCDC.
PROBLEMS OF FISHING COMMUNITY

There are a number of critical issues, technical, environmental, social and economic which affect the fisheries sector. A few of these issues are briefly touched upon here.

From the middle of 1980 onwards, Government agencies promoted shrimp aquaculture with a view to improving the country’s foreign exchange earnings and to augment marine prawn production, which had reached its potential limits. The negative effects of the proliferation of aquaculture farms became evident almost immediately. The traditional access to the sea by coastal fisher folk communities was severely reduced, ground water got contaminated with salt water, water pollution resulted from dumping of effluents, conversion of paddy fields and salt pans got converted into prawn farms, destruction of mangroves and other plant varieties was common. All these factors created serious problems for fish workers communities.

The conflict between the mechanized and traditional fishing fleets have a bearing on the fisher folk’s access to resources, and thereby on the amount of catches they bring to the shore. The traditional fisher folk are negatively affected by mechanized fleets, which often fishes in the inshore waters, destroys fishing nets, sweeps the sea floor clean capturing all species of all sizes whether targeted or otherwise, and in general reduce the traditional fisher folk’s access to commercially important varieties of fish.
Deep-sea fishing is not exactly detrimental to the interests of traditional fishers. However, Government regulations and enforcement mechanisms being inadequate, fisher folk confine their activities to the depths they are permitted to fish in. The fishing areas of the deep-sea fishing vessels to some extent coincide with those of the mechanized fleet, and the latter is not very happy at the prospect of sharing the resources with the more powerful deep-sea fleet. The government’s decision to stop proceeding any further on this issue may have temporarily solved the problem, but the issue remains to be studied further, because the deep sea resources in the Bay of Bengal Region are reportedly quite substantial.

The lax quality control systems in the seafood industry have been a matter of grave concern for a long time. With stricter quality control regimes like HACCP and ISO 9000, being enforced by an increasing number of countries, it was a matter of time before Indian products faced problems. The ban on seafood from India by the European Union in 1997 brought the issue of quality control in India into sharp focus. Many processors have started strengthening quality control, and efforts are under way to improve the quality of the seafood being exported from India.

However, quality control cannot be enforced by individual agencies or processing plants. Considering the quality deterioration starts immediately after capture (by both traditional and Mechanized fleets), attention needs to be given to ensure quality at every stage: On board, at the landing centers; while
transporting to the processing unit; at the time of processing and during the post-processing. This not only means that all fishing units, traditional or mechanized, and fishing landing centers, have to be equipped to ensure quality, but the necessary infrastructure which is necessary to keep the quality such as provision of clean portable water, electricity, ice plants, ice carrying mechanisms on board, good roads and communication facilities are made available to the industry. The government, with the active participation of the industry, can only do this. So long as the necessary infrastructure for ensuring quality is not made available, traditional fisher folk will continue to be adversely affected by issues such as the ban by the European Union.

Natural disasters such as cyclones affect the productive capacity of fishermen for a long time, besides taking a toll on their assets and even their lives. On the east coast of India, cyclones are a frequent phenomenon, and they are quite destructive. Cyclones destroy infrastructure facilities such as roads, and this has an impact on the prices that fishermen get from traders.

Erosion is another important problem faced by many villages on the east coast of India. Erosion reduces the breadth of the beaches, which are generally used for fish landing, marketing and fish drying. It encroaches on the living space available in the villages, forcing the villages to move backwards – not always a harmonious process.

Besides the issues raised a number of other factors such as Industrialization, credit policies of the government and of banks, changing
market profiles for various kinds of fish, fishery products, and migrations affect fishing communities.

**PERFORMANCE OF FISHERIES COOPERATIVE SOCIETIES:**

The Fishery cooperatives, for providing effective services, need a strong and financially viable structure. It was too much to expect from the poor fishermen to provide requisite financial support to undertake input services and marketing services. Concessional finance to fisheries cooperatives have not been available in a large scale because of the State governments unwillingness to come forward to fulfill the terms and conditions of NCDC. There is no dearth of funds for fishery cooperatives but the non-existence of structure in some of the states and non-submission of projects by others have deprived the fishery cooperatives of valuable source of financial assistance at cheap rate.

The efforts of development of marine fisheries in the decade of the seventies, may have led to some improvement in fish catch and processing methods but have not contributed appreciately to the development of fishermen, their incomes and standard of living. The cooperative form of organization is ideally suited to attain these objectives and this was recognized by the Government but the results were not up to the expectation.

The growth and development of fisheries cooperatives has been generally on the same lines of the cooperative movement in the country. The over all progress of the cooperative sector in India needs to be noted here to
understand the performance of fisheries cooperatives in the proper perspective. The cooperative movement in India is nearly 100 years old but by large has remained lop-sided.

In the field of cooperative fisheries development, like in agriculture or industrial areas, there is a three tier structure, at the ground level the primary societies have individual fishermen as members, in the middle level the central societies and at the apex level, the state Societies. The pattern is not however uniform in all the states. In 1998-99 there were 17 state level federations, 108 central fisheries cooperative societies at district and regional levels and 9096 Primary Fishermen Cooperatives.

Kerala, Maharashtra, Tamilnadu and West Bengal together have 2442 fisheries societies or 56 percent at the all India level. But these four states also had a large number of societies, viz 1413 in loss or 71 percent of all the primary fisheries societies in loss. (Indian Cooperative Congress, 1999)

Review of Literature

Indian fishing industry is as old as Indian soil. India occupies fifth place in fish production in the world marine fisheries and account for about 64 percent of total production with 36 percent contributed by inland fisheries. Kerala leads the country accounting for 40 percent of the total sea fish catch and second place is cornered by Tamilnadu. Tamilnadu produces 14 percent of the total all India sea fish production. India occupies the fifth place in fish production and 6 million fish workers depend on fishing for their livelihood.
As such a number of studies have been undertaken to study fisheries and fish workers. Here, some of the important studies on the subject is presented.

Another study is the “Kerala Fishermen and the Indo-Norwegian Project”. Since 1953, the Government of Norway has offered technical and economic assistance to India in the form of a bilateral project. The Norwegian Government’s techno-economic aid project was started in 1953 in two fishing villages-Saktikulangara and Neendakara-six miles north of the town of Quilon in Kerala. Latin Catholic fishermen were residing in Neendakara. The project is intend: a) Increase the returns of fishermen’s activity, b) Efficient distribution of fresh fish and improvement of fish products, c) Improvement of the health and sanitary conditions of the fishing population, and (d) in general a higher standard of living for the community in the project. The Norwegian Government has provided both the villages with modern inputs such as mechanized boats, nylon nets and other infrastructure facilities, medical aid, water supply, etc. The villagers have received under the project capital and expertise in quantities that place them in a favourable position compared to the neighbouring ones. Mr. A.M. Klausen has made an attempt to study the above two fishing villages. His main objective is to study the reactions of both the communities towards the assistance extended to them. This is the first clear analysis of reactions of the two fishing communities, which are exposed to the new set up –‘various technological-economical stimuli’-represented by the Indo-Norwegian Project (INP). The fieldwork was carried out during 1961-62
in both the villages. As a participant observer he had both formal and informal interviews with English speaking informants. The household has been taken as the unit. Almost all the households in both the villages were covered under the study. The results of the study indicated that the two fishing communities were satisfied for the assistance given to them regarding the medical aids, water supply and also for the constructive and administrative activity. But with regard to the new fishing techniques both the communities had differently reacted. The Latin Catholics gained with the introduction of new fishing techniques whereas the 'low caste Hindu fishermen' as termed by Klausen, have failed to share the benefits of these technological changes.

"A study of Fishermen's Co-operatives" undertaken by Reserve Bank of India (1958) emphasized that the present structure of these societies is not founded on sufficiently firm footing so as to attract funds and the co-operative Central Financing Agencies are not large enough to warrant reimbursement from the Reserve Bank of India, therefore, a suggestion was made to organize these societies in group of about 10 viable Primary Societies linked to a Marketing Federation which will be responsible for marketing catches of the primary societies and recovering loans issued to the members out of sale proceeds. So that they could play an effective part in the economic emancipation of fishermen. The administrative arrangements for the promotion of fisheries development in the co-operative sector varies from state to state and now-a-days the educated members of the fishermen's community
show considerable interest in organizing welfare activities for themselves. It has been suggested that instead of having small co-operative with weak financial basis it would be more purposeful to organize Multipurpose societies and the Co-operative Federation may be run by a team of professional managers to attend to the day-to-day business transactions. Also, conventional Banks, Agricultural Finance Corporations and may give liberal financial help to fisheries.

Yet another study "Co-operation for Fishermen" undertaken by Margaret Digby (1961) stated that, while Fishermen’s Co-operatives are well-established and flourishing in some communities, they have achieved nothing like the widespread success of agricultural co-operatives, although many attempts have been made to promote them. This indicated the existence of certain problem peculiar to fisheries, which call for special study. A second reason is that, in the present world food situation, much greater attention is being given to the more effective utilization of the world's fishery resources. This is a matter of particular concern in many countries where nutritional levels are inadequate, where there is already great pressure on the land and where the more effective exploitation of fishery resources offers one valuable means of increasing income as well as supplying a much needed protective food. Several under developed countries have received International Advisors either on fisheries or on cooperation and this may be the field in which more aid can fruitfully be given, provided an expert can be found who has mastered
both fishery and co-operative techniques or a collaboration of experts can be devised.

K.M. Warrier has conducted a “Socio-economic Survey of Fishermen in Madras City”. The fieldwork was carried out in 1967 and a questionnaire was canvassed among 500 sample fishermen families. The survey reveals “the fishing industry is still in its primary stage, more a way of life for a group of people than a mode of business”. The study revealed that the housing conditions of the fishermen community are very poor and the existing literacy programmes are inadequate. The fishermen’s co-operative societies failed to realize their objectives. Moreover, the fisheries department did not succeed in altering the fishing industry. The study also brought to light the adverse effects of new fishing technology on the fishermen. But the implications of this have not been systematically analyzed. It was found that majority of the fishermen have genuine apprehension about the beneficial impact of mechanization to their community and also about the system of assigning mechanized boats, as adopted by the fisheries department. This study gives a great deal of information on the socio-economic conditions of fishermen of Madras city.

The Madras Institute of Development Studies has undertaken a socio-economic survey of small fishermen in Tamil Nadu. A sample of 125 households was selected among 50,000 families concentrated in seven Districts of Tamil Nadu, and the fishing population was then divided into five strata. A questionnaire in
Tamil was canvassed among the heads of the sample households. It is found that “the landings by the catamarans are poor and inadequate to maintain the small fishing families even at the subsistence level. The motorboat owners exploit them. The co-operative societies serve only the motorboat owners and are not beneficial to small fishermen. There is a wide and widening divergence between motorboat owners and catamaran fishermen in respect to their income levels. This is due to the varying productivity of their crafts”. There are no organized marketing centers and no transport facilities. The result is that they are at the mercy of middlemen and are mostly engaged in distress sales. The Government’s policy of giving a mechanized boat to these persons results in frequent misunderstandings between the joint owners.

The Government of India appointed the National Commission on Agriculture (NCA) on August 29, 1970. The NCA published the reports in 15 parts and Part 3 deals with fisheries. The commission focused its attention on the production trends in marine fishing in India and estimated the state wise growth rate of fish production between 1951-1972. An Examination of the important species caught in different maritime states was attempted. It made a critical study of the work done by the Integrated Fishery Project and the United Nations Development Programmer (UNDP) Pelagic Fisheries Project, which are engaged in the marine fisheries resources survey in India. The commission had made a number of recommendations for the speedy development of marine fisheries in India. It has recommended that the state Government of Kerala and
Tamilnadu formulate specific schemes particularly development of fishing effort by mechanized boats to exploit the wedge bank fishery.

A study on Indian marine fisheries under by Dr. S.L. Shanbhogue and Dr. N. Jayabalan to look into fisheries potentiality suggested that diversification of fishing in shore areas is needed to reduce the fishing pressure on the demersal resources such as shrimps. For this target fishing would be the ideal answer. The social tensions between the indigenous and mechanized fishing sectors have to be eliminated by implementing the existing Marine Fishing Regulation Act by the concerned state Governments effectively. Educating the fishermen with facts of fish stocks, meaningful fisheries forecasts, identifying the potential fishery zones, through satellite remote sensing, introduction of fish aggregating devices wherever necessary, formulation of an effective monitoring, control and surveillance system to desist the foreign vessels from poaching in the Indian EEZ are needed. For sustainable development of fisheries and to avoid depletion of the stocks, several technical regulator measures have to be implemented, if necessary.

The Tamilnadu State planning commission constituted a task force on fisheries on 1st November 1971 to make a critical examination of the current status of fisheries development in the state and formulate a 12 year plan for development of fisheries in the state with an inventory of projects both out going and new.
Another study, "Small Fishermen in Tamil Nadu." (1975) done by Selvaraj was published by Madras Institute of Development studies. The study started with the purpose of analyzing the effects of mechanization on Socio–Economic status of small fishermen of proved very inconclusive. The study failed to tally with its aims. What is of interest in the study is a few conclusions drawn on the general conditions of the small fishermen on the basis of primary data collected through a questionnaire.

The most scientific studies on small scale fisheries in east coast comes from Bay of Bengal programme (B.O.B.P), working under the auspice of the Food and Agriculture Organization of the UNO and Swedish International Development Authority, primarily aimed at small scale fisheries in Bay of Bengal Region (India, Bangladesh, Malaysia, Thailand and Srilanka) This programme has brought out a wealth of scientific information documents etc, on small scale fisheries and marine small scale fisheries of India, provides a factual presentation of base-line data on the main features of the small scale marine fisheries in India. A similar document entitled "Marine Small Scale Fisheries of Tamilnadu" A general Description" (1983) provides base line information for Tamilnadu. A major information source on catamaran fishery is "Inventory of catamarans and their fishing in Andra Pradesh and Tamilnadu" (1980) A BOBP publication basically, it is a compendium of information on materials, construction, fishing gear operation and cost of catamaran. There is
a number of other studies published by BOBP, on the technical modification of catamaran, as such.

However, an impact study carried out by R. Sathiyadas contradict this “Mechanization of indigenous crafts with outboard motors in Tamilnadu – An impact study” published by Marine Fisheries Information Service (1989), paints a very rosy picture about motorization of catamarans in Tirunelveli and Kanniyakumari districts. According to him, after motorization the gross return increases by six times, the employment opportunity in the boat by at least two times and the labourers wage by 30 percent. The study uses field data collected from eight villages in Tirunelveli and Kanniyakumari districts.

John Kurien made a preliminary study of the current situation of fishing trends in organization technology, spatial dispersion of fishing by mechanized and non-mechanized sectors production and distribution of income among the fishermen in Kerala. It is the mechanized technique, which earns good returns to the fishermen, according to the result of his study.

A study “Collective Action Leadership and success” undertaken by Samar K. Datta and Sanjeev Kapoor (1996) emphasized the view, that an efficient organization entails establishment of institutional arrangements and property rights that creates incentives to channel individual economic efforts into activities that bring collective gains. The study deals with the role of leadership in the development of fishery co-operatives. This study is divided into four sections. The final section makes a comparative evaluation of four
cases in terms of analytic framework to indicate sustainability; member centrality and member participation.

Prabakaran has made a study of the economics of fishing and living conditions of marine fishermen in Tirunalveli District. According to him it is because of their illiteracy and large numbers, their living conditions are poor and the society is relegated to backwardness.

A study by R.Balan, “Investment reduction and increase of service life of catamaran logs” examines ways and means to increase the service life of the logs suggesting chemical and physical treatment on one land and substuting alternative species for the loss.

Another study “Indian fisheries over 50 years” by Fr. Thomas Kocherry examines briefly the changes that have taken place in the India fisheries during the past 50 years and the Government’s attempts at development and their effects, particularly on the fishing communities. The first part deals with the changes and the challenges faced in marine fisheries and the second part briefly reviews impact of coastal Industrial Agriculture. The most important measures to ensure a secure future for fish and fish workers is an aquarian reform package composed of three main aspects: 1. Fishing assets to the fish workers. 2. Right over the first sale of fish. 3. Greater Social control over Export.

Rao has made a study of dry fish Marketing in Bombay the study revealed that besides the dry fish sales, the traders realized a good amount of
income by the sale of considerable quantity of nature of manure and fish oil which shows that increasing fishing activities in any form is useful to increase the income of the fisherman.

Statement of the Problem

The fish workers living along the coastline of the Tamilnadu and particularly along the coastline in Nagapattinam district have a tradition of fishing which dates back to several centuries. The centuries of living by the sea have equipped them with rare talents needed for fishing. The sea is only a natural extension of their life. The productivity of traditional fish workers is comparatively low. Several factors contributed to the low productivity, to mention a few, the financial constraints, lack of mechanized sea-faring boats, lack of marketing and processing facilities etc. But there is enormous scope for developing fishing industry in Nagapattinam district. Such a development will provide gainful employment to both fish workers and non-fish workers and help in the socio-economic development of the region. A number of agencies like co-operatives, government and non-government agencies have been involved in the development of fisheries and fishermen of Nagapattinam district for quite some time. But, there is no visible improvement or tell tale signs of improvement in the socio-economic conditions of fishermen. So, this study is undertaken to document the socio-economic conditions as well as the problems faced by the fishermen. Further this study seeks to analyze to working of co-operatives, government organization and non-governmental organizations, which are, involved in the development of fish workers.
OBJECTIVES OF THE STUDY

1. To study socio-economic conditions of fish workers in the Nagapattinam District

2. To evaluate the performance of Fish Workers Co-operative Societies in Tamilnadu.

3. To study the role of central and state governments as well as Non-Governmental Organizations in the promotion of fish workers in Nagapattinam District.

METHODLOGY:

Survey method was adopted for the study. Data for the study was collected from both primary and secondary sources. The primary data was collected from the 300 members selected from 10 coastal villages in Nagapattinam District of Tamilnadu state.

The secondary data was collected from the apex level federation of fishery co-operatives, Directorate of Fisheries, district level Fishery Co-operative Federation and from 10 selected Fishery Co-operative Societies and 4 Non-Governmental Organizations of Nagapattinam district of Tamilnadu.
Tools of Data Collection

For this purpose three sets of questionnaires were constructed and administrated to:

1. Members of the society.
2. Fishery Co-operative societies.

Tools

Questionnaires for the respondents were constructed on the basis of a pilot study conducted in the study area. The questions were reframed in certain cases and some questions relating to their socio-economic conditions were added and certain questions which were found unnecessary were deleted. The questionnaires were tested for their validity and reliability before their application.

Interviews were conducted with the help of questionnaires among the members of the selected co-operatives and also managerial personnel of the societies to get first hand knowledge relating to the various problems of fish workers, welfare schemes, economic conditions of fish workers, problems of Co-operative societies etc. Collected Data were analysed with the help of standard statistical tools. Average, percentages, Index numbers and growth rates etc. were used to analyze quantitative data.

Sampling

In the first stage two villages each from the 5 coastal taluks, were selected giving due weightage to fishing population of these villages.

In the second stage 30 fish workers were selected from each fishing village making it a total 300 sample respondents. As the pilot study as well as Marine Fisherfolk census (TN) revealed considerable uniformity in the socio-economic background of the fish workers in the Nagapattinam district, the sample size of 300 was considered adequate.
DEFINITION OF CONCEPTS

Socio-Economic Status

Any measure which attempts to classify individuals, families or households in terms of indicators, such as occupation, income, etc. One of the first major uses of socio-economic status can be found in the social class measures introduced by the British Registrar-General in 1971.

Society

According to MacIver and Page, "Society is the system of authority and right, of mutual help of many groups and divisions of controls of human behavior and efforts and methods of freedoms. They believe that society is a constantly changing and complex system. It is a network of social relationships.

Community

Louis Worth holds that historically, "Community as an expression emphasizes the unity of the common life of people."

According to MacIver, "Community is the name of settlement, village, city, tribe, or nation. When the members of a group live together and share no particular interest but the basic conditions of common life, the group is called a community. All relationship exists within the community.

Groups

According to Turner and Killen, "a group is always formed by the individuals who interact and this interaction is affected by the fact that they are
a unit. The awareness of the fact that they are a unit. The awareness of interaction and being a unit depends mainly on the criteria of the group”.

Bennet and Tumin consider “Similar goals and agreeable means are also the necessary factors along with interaction in the structure of group.

According to George Homans, ‘Group means such individuals that interact according to established patterns.

**Economic Institution**

An institution means an aggregate of fully established rules, procedures, and norms. Where as economic Institution means, rules, procedures and norms of production, distribution and consumption, working system and patterns.

Maciver and Page, Economic institution means, “the production and distribution of goods and services and procedures of competition and bargain in exchange”

Ogburn and Nimkaff held that “Economic Institution means the system of earnings and spending money.

**Family**

Maciver and Page hold that, “the family is a definite and long term group defined by several relationships that reproduce and bring up children. It may include other blood relations also but it is mainly formed by living together of man, woman and their children. The unit formed by their living together is called family”.
Marriage

Harry M. Johnson believes, “that marriage is a stable relationship which society allows to man and women in the community without losing its existence. This type of stable relationship has two conditions, namely sexual gratification and procreation.

G.P. Murdock Emphasizes, “Marriage as living together with regular sexual relationship and economic cooperation. Thus the basic elements of marriage are society sanctioned sexual relationship between man and women as husband and wife, their togetherness procreation and economic cooperation. Husband, Wife, Children’s common residence and economic cooperation form the family. As a group the family is based on rules and behavioral system. Marriage is a system that regulates the family. Therefore called an institution. Thus family and marriage are interdependent both marriage and family possess institutional structures.

Chapterisation of the report:

This study is presented in five chapters as under:

1. The first chapter deals with design and execution of study.

2. The second chapter deals with socio-economic background of the fish workers in the Nagapattinam District of Tamilnadu.

3. The third chapter deals with role of co-operatives in the socio-economic development of fish workers.
IV. The fourth chapter deals with role of Government and NGOS in fish workers development.

V. The last chapter presents a summary of major findings conclusions and Suggestions.