Chapter 2

Review Of Literature And Research Methodology
2.1. Review of Literature

All over the world fishermen generally belong to the lower strata of the society. In many cases they are victims of economic oppression and social prejudice. Their social status is comparatively very low in almost all the countries. It is not an exception even in a developed country like Japan.

The socioeconomic issues of fisherfolk, the problems of mechanization, marine species, ecological studies, the resources potential, marketing, welfare issues etc., are some of the important areas of study conducted, both at the micro and macro levels. A brief review of some of the major studies in the international, national and state level is attempted at in this chapter.

From the time immemorial fishing is the object of attention of economists all over the world. Both classical and neo classical economists seriously considered fishery as a major area of their study. They made observations relating to problems of fishing industry in their own way. Adam Smith (1979), The Father of Economics, had shown
great interest in the problems of fishing industry. His studies were related to the conditions of fishermen, their earnings, productivity, the uncertain nature of fish production, impact of technological changes etc. His learned observations are even now relevant in this modern era of fisheries development.

Fishing industry was a major concern for Alfred Marshall. His Law of Diminishing Returns is used by fishing industry to explain the expected additional returns while applying additional capital and labour. Optimal use of labour, capital and fishing effort were the major concern of the economists of the 20th century. Christy (1982) had explored the possibilities of resources exploitation by institutional arrangements.

There is a large body of literature by Food and Agricultural Organization (FAO) of the United Nations pertaining to fishing industry both in the developed and developing countries. These studies give an insight into the problems of present day fishery situations of the countries in different parts of the world. The FAO studies reiterate the following as the socio-economic problems of small-scale fishermen:

(a) The realization that small-scale fisheries are not a transitory feature of fisheries development;
(b) Increased interest in improving the socio-economic conditions of low-income groups in general; and
(c) The new opportunities for local fisheries made available by the declaration of extended fisheries jurisdictions.

The marine fisheries worldwide are characterized by the existence of small-scale or artisanal fisheries side-by-side with large-scale or industrial fisheries. Artisanal fisheries are largely owner-operated and labour-intensive which uses only little capital.

The FAO's report published in 1958 on the Technical Meeting on Cost and Earnings of Fishing Enterprises had outlined the concepts, definitions and conventions existing in different countries. It also had presented the purpose of cost and earnings in fisheries from the point of view of industry, government and other public authorities. The impacts of different types of fisheries regulation existing in its member countries were illustrated in the reports on the Economic Effects of Fishery Regulation.

The FAO made great interest in disseminating the technological developments in the field of boat building throughout its member countries all over the world. In a FAO document, Caddy and Bazigos (1985), briefly discussed fisheries administration for stock assessment.
resource management, investment planning and economic analysis, and for social and nutritional studies.

In 1994, FAO published a Report on Regional Workshop on Fisheries Development Policies (planning, marketing and credit) held at Cairo. The objectives of the workshop were to promote expertise in planning, marketing and credit, with a view to improve fisheries development in the participating countries.

In addition to this, a number of studies were conducted by individuals and institutions belonging to different countries about different aspects of the fishing industry.

The earlier studies on fisheries, the FAO mainly focused on the problems of developed countries. Only during the 1970s, it had diverted its attention to the developing countries. In the 1970s, the FAO made a study of the problems in the countries bordering Indian Ocean region under the FAO/UNDP Indian Ocean Programmes. BOBP of FAO is intended to exhibit and manifest technologies to better the plight of small-scale fishermen by creating co-operation between two or more developing countries. Panayatou et. al., (1982) had analysed the socio economic factors of the small-scale fisheries in Asian countries. In 1970's, it also had focused its attention on Indian ocean region under
the Bay of Bengal Programme (BOBP). The BOBP working paper No. 25 had given an evaluation of the Artisanal fishing crafts in Kerala.

Fishing was identified as an occupation in the Sangham period (first five centuries) in Kerala. SreedharaMenon (1967) in his book "A Survey of Kerala History" points out that the Kulasekhara epoch (930-1200) was a period of high degree of prosperity, but in fishing there was no room for generation of economic surplus and accumulation.

Many studies were concentrated on the impact of the implementation of the Indo-Norwegian Project and the technological advancement made after its implementation. Mechanized fishing was introduced in 1954 at Neendakara, in Kollam district, under the initiative of the Indo-Norwegian project (INP), and then extended to Cochin and Kannur subsequently. The initial attempt at mechanization was to motorise indigenous crafts. However, it was given up, as indigenous crafts are not suitable for mechanization, and straightaway went in for building of mechanized boats with imported Norwegian technology (Thankkappan Achari, 1969).

While exploring deep into the historical events of Kerala, P.K. Gopalakrishnan (1974) had identified the emergence of the fiduciary chiefs as exploiters of the products of labour in the fisheries sector in the coastal area in the 11th century itself.
Even though there was an increase in volume and price of the catch, a number of factors lead to the pathetic economic condition of the traditional fishermen. Smith (1979), in his article “A Research framework for traditional fisheries” had observed that in many developing countries, small-scale fishermen live close to or below the subsistence level, or, at any rate, they are among the lowest socio-economic groups in the country. Thus, the fundamental problem of small-scale fisher folk around the developing world is their persisting absolute or relative poverty, despite decades of remarkable overall fisheries development and national economic growth. They have neither adopted the advanced fishing technology nor did they find employment in the large-scale fishery or elsewhere, as it was presumed, for reasons ranging from capital market distortions and the (consequent) capital intensity of the large-scale fishery to the limited mobility of the small-scale fishermen or the lack of alternative employment. Thus, there is a need to put small-scale fisheries in the right perspective and examine the available policy options for improving their socio-economic conditions, and maximizing their overall contribution to national economic and social development. D. Thomson, (1980) had found that all over the world, even after more than three decades of fisheries development, the small-scale fishery uses one-fifth as much capital, one-fourth to one-fifth as much fuel per tonnes of fish landed and creates a hundred times more jobs per dollar invested than the large-scale fishery. There are about 10 million small-scale fisher folk landings
and around 20 million tonnes of fish annually, which accounts for almost half the world marine catch used for direct human consumption.

G. Hardin (1968), in his Classic article “Tragedy of the Commons” narrated how the natural resources, including marine resources, are destined to an inevitable ruin, if it is not in the strict domain of private or state property.

Organization of the poor is created through the endeavours of organizations and individuals to support and enable the poor. While this has existed throughout history, the 1940’s shift in colonial policies from improving the welfare of destitute groups to community development approaches as the predominant strategy to deal with the poor and the subsequent mainstreaming of participatory approaches in development practice in the 1980s. Cernea, 1991; Chambers, 1997; Grillo 1997; McGee, 2002; Watt et al, 2000; Woost, 1997 were the chief economists who stood for community development approaches. Over the period, governments and development agencies increasingly created and reinforced organizations of the poor as a primary method to reduce poverty, empower the poor through participation in their own organizations, and improve the sustainability and effectiveness of development.
Governments in developing countries are considering development assistance measures for upgrading small-scale fisheries. However, such efforts may be frustrating without a thorough understanding of the factors responsible for their currently depressed situation and the existing potential for further development. Moreover, improving the standard of living of small-scale fisher folk is but one of the objectives in a fisheries policy.

In his paper presented at the ICALARAM workshop “On Economics of Aquaculture Research”, Panayatou, (1981) had explained the dichotomy that exists between conditions of entry to and exit from a fishery. The potential entrant to a fishery may be guided, in part, by the opportunity cost concept, but the individual already engaged in fishing may find it difficult to shift his assets (craft and gear) out of the fishery. Capital is likely to be more immobile than labor under such circumstances. The no-owner has somewhat more flexibility than owners whose crafts and gears, as long as their variable costs are met. This explains why existing owners continue to fish even when the profits earned are insufficient to attract additional entrants.

Angle, P.S. (1983) had observed that there is a declining trend in the role of women in economic development of fishery in the south west coast of India; due to deepening regional dependence on external
capital, growing economic impoverishment, pollution of coastal waters, and marine resource depletion related to the nature of fishing.

Abdullah, et.al. (1997) had narrated how far co-management, as an institutional arrangement for managing fisheries resources, will effectively address some of the problems of fisheries overexploitation, dissipation and redistribution of resources rents, and conflicts among the different group of resource users.

Jayaraman, et. al., had gives some insight into the causes of the non-optimal utilization of fishery resources of India. They had pointed out that it is caused due to lack of appropriate conservation/management practices (1988) Chua,(1989), in his study made recommendations for coastal area management in the ASEAN region, based on discussions held at the Workshop which reviewed the current exploitation of coastal resources, and examined the severity of degradation of the coastal environment in the region. The most serious management issues were: fishery resource overexploitation; degradation of coastal and marine ecosystems and habitats; declining water quality and pollution; endangered marine species and coastal wildlife; and the low level of institutional capability for integrated coastal area management. Proposed guidelines are included for industrial development and environmental quality; mangrove conversion; shrimp farming and other coastal aquaculture; exploitation of fisheries
resources; coral reef protection; reversing the decline of water quality; preventing coastal erosion and sedimentation; tourism development; improving institutional arrangements and capabilities; public awareness; and upgrading legislation."

The freedom of fisherfolk from market domination directly depends on in which fishery they are in. Ostrom (1990) and Panayotou (1982: 46) observe that population pressures, and uneven accumulation of capital within the community can lead to instability and conflict.

Ostrom (1990), Bromley et.al. (1992) and Panayotou (1982) had observed that if allocation of resources are vested with the community, an open access resource with community based management is more favourable for the sustenance of the fisherfolk. Ruangrai et.al. (1992) had expressed the opinion that the community should be capable of managing its own resources.

While analyzing people's participation in fisheries, Kurien (1992) had stated that development of fishery by community management is hindered by modern technological development, due to ecosystem changes and resource depletion and ruined the commons and the commoners. Hence, a new strategy is needed to integrate ecosystem management for environmentally sustainable development. According to Christie (1993), it is possible only by involving multi sector,
independent public participation that is free from conventional
government infrastructures. However, there are no effective rules
governing the ways in which individuals, households and firms use
resources in coastal areas. The observations made by Boolnert (1994)
were that coastal laws regulating gear type, fish size, geographical and
seasonal closures are widely flaunted. Anthony (1994), had reviewed the
evolution of sustainability concepts and management paradigms in the
fishery. He had also drawn on the experience to develop an integrated
“sustainability assessment” framework, and analyses potential policy
directions for sustainable development. These management functions
had given major opportunities to fishing communities to influence their
own development, and to prevent the destruction of the resource base
which can allow community based development.

Holden, (1994) the Director of Fisheries Research in England and
Wales (1981-1994), while evaluating the policies of Great Britain, points
out that to achieve the objective of maximizing the economic benefits
from the fisheries, requires to limit the fishing capacity of the
community fleets. He further observes that a system of licensing offers
the most effective means by which to achieve this objective. And he
warns that the individual boat owners are sometimes discriminated
against the large vessel owners while such a licensing system is
introduced.
Vijayan and Kurian (1994) identified the problems of over fishing which is threatening the existence of the age-old management system in the coastal fishery. They perceived that the negative economic, social and ecological consequences of over fishing are very many and it becomes a burden for the society as a whole. In addition to profit and accumulation; ownership patterns, division of labour and sharing systems assure distributive justice in income and equal access to the fish resource. Social values are linked with and strengthened by traditions, customs, and are providing a good basis for effective fisheries management. Kurian et.al, (1994) had explained how traditional fishermen find their ways to cope with the changing situations. They find that the declining catches with increased fishing effort and unequal distribution of the value of output forced the traditional fishermen to adopt for a variety of more active fishing gear to compete with the trawlers and purse-seiners. Moreover, motorization compelled the fishermen to borrow heavily to remain in fishing, resulting in a high level of indebtedness with middlemen and merchants, and this has resulted in the loss of effective control over the sale of their fish by the fishermen. Moreover, the stakeholders in the management of the resource with the creative partnership in which rights, aspirations, knowledge, resources and responsibilities can be fully respected and enhanced.
Amarthya Kumar Sen (1989) emphatically states that the basic thrust of the ingredients for a secure future for small scale fishing communities is to create the foundation for an economy in which they can attain their set of endowments, entitlements and capabilities. Thus, the basis of such a development process should be such that which generates growth, regenerates environment, and empowers people that foster interrelationships which create self-reliance.

Social justice is the principle of rational prudence applied to an aggregate conception of the welfare of the group. The principle for the individual is to advance as far as possible his own welfare, his own system of desires; and the principle for society is to advance as far as possible the welfare of the group. The Neoclassical welfare theory states that the performance of economic goods in quantities that accord with people's relative desires for those institutions can and should be judged according to whether they provide economic goods.

Development is not a matter ultimately expanding supplies of commodities, but of enhancing the capabilities of people. Amartya Sen, 1984 has stated that the process of development is not primarily one of expanding the supply of goods and services, but of enhancing the capabilities of people focusing on capabilities forces us to see the theoretical questions and policy issues in a particular light. There is a
need to pay specific attention to the generation and security of entitlements and their conversion into capabilities.

National workshop (1997) had gone deep into the need of government intervention and cooperation with the community for the successful formulation and implementation of fisheries policies. They further observed that responsibility for management of natural resources is to be shared between government authorities and communities or other resource users. These co-management projects improve access to resources by marginalized people, and act as a vital tool for sustainable development.

Craig (1998) had argued that by granting and recognizing an individual's right to use and exploit a resource, the individual has a command over the resource, but this command depends on the state.

A desk study carried out by Groenewld et.al. (2000) had concluded that artisanal marine fisheries had characterized by low and irregular incomes; special arrangements for compensation of labour and capital inputs, with a prevalence of sharing systems rather than fixed wages; labour-intensive rather than capital intensive methods of production; exploitation of open-access resources, in competition with industrial fisheries. Moreover, fishing communities tend to have low standards of living in terms of access to safe drinking water, housing
conditions and health and family planning services. They often lack adequate infrastructure and community services such as all-weather roads and public transport, as well as access to credit and other support services, including storage/preservation, processing and marketing facilities.

Buckworth, (2001) had explained how many fisheries are depleted or have collapsed, owing to a mixture of relentless economic pressure and our inability to manage complex, uncertain systems. He had pointed out two main components to the problem. The world catch is near the limit imposed by oceanic and fresh water productivity. Many stocks are over fished, ultimately calling into question our ability to manage fisheries sustainably.

According to Hanneson (2001) the role of economic tools had to be 'maximizing the net present value of the fish catch over an indefinite time horizon, based on an incentive mechanism.

Boyce, (2001), had opined that coastal natural resources should be converted into coastal natural asset building by investment to increase the total stock of natural assets; internalization to increase the ability of the poor to capture benefits generated by their stewardship of natural assets, redistribution to transfer natural assets form others,
and appropriation to establish community rights for the poor to erstwhile open access resources.

Appollonio, Spencer (2002) had explored in detail the idea of natural constraints inherent in hierarchical ecosystems and the impact upon such systems when constraints are reduced or removed. He presents a compelling case for a new approach that holds the promise of resource sustainability in the face of enormously complicated natural and cultural forces.

Rajan, (2002), had stated that the traditional fisher folk were undertaking fishing primarily for subsistence with a sense of camaraderie and community participation. Through continuous interaction with the ocean and fish, the artisanal fisherfolk had accumulated trans-generationally a treasure of scientific knowledge on diverse marine eco-systems and fish behaviour. The new modes of fish production and distribution had resulted in loss of traditional skills and knowledge systems, and had converted into passive-gear to an active-gear technology; from a low cost to a high-cost technology; and from an eco-friendly to an eco-destructive technology.

Kurian, (2002) had opined that a blend of the indigenous technology and the positive elements of modern technology will provide artifacts and processes that can be both energy efficient as well as
economically and ecologically sustainable. He again in 2003 had observed that a healthy fishery management system and participation of the fishing community with their traditional skill and knowledge, along with new management technique is the need of the time to preserve resources and to exploit them sustainably, and to maintain the health of the ecosystem.

The study of Antonyto Paul (2003) had advocated co-management system as a healthy option for coastal fishery wherein the actual fishermen own the fishing rights, and they together with local governments manage the fishing activities in a sustainable manner.

Schrank, (2003), had discussed the concept of fishery subsidies and its application in fisheries worldwide. He also discusses the connection between fishery subsidies and their effects on sustainability and trade.

According to Titto D'Cruz.S (2004) the diversification of exploitation to new resources had an inevitable consequence of rising fishing pressure which is steadily on the rise, primarily due to the increase in fishing capacity of units in general and on artisanal ring seine units in particular.
For development agencies of trying to identify existing multiple, heterogeneous, and scattered small-scale organizations\(^1\), to minimize the pressures of accumulated vested interests in established groups, to develop targeted training that incrementally improves on existing capacities as a function of actual group needs, and to monitor and report on small, diverse, and dispersed institutional strengthening activities. It is far easier to assume a *tabula rasa*, and presume success in poverty reduction and community development by increasing the number of new organizations that are formed and the number of group training courses and other support given.\(^1\) Some tools exist to facilitate this task. (See for example Messer and Townsley, 2003). Beyond capacity building, a common focus of the support that development agencies give to the organizations of the poor is seed money, micro-credit and small grants to form revolving funds (IFAD, 2004e).

Outside organizations are inherently biased toward the poor (and non-poor), rather than the poorest members of rural communities, unless specific mechanisms are adopted to mitigate this bias. (IFAD, 2004b, 2004d). The incentive can be so great that individuals who are not really poor disguise their true economic status and enjoy the benefits.

A final weakness is that a policy of external support to the creation of organizations of the poor may actually affect the broader

\(^1\) Some tools exist to facilitate this task. (See for example Messer and Townsley, 2003.)

Bailey M. A. and M.C. Rom (2004) in their article 'a wider race? Interstate competition across health and welfare programs', viewed welfare as the income program of last resort for people with little or no other income. They observe that In Canada welfare is mainly under provincial/territorial control, so there are 12 welfare systems. In European literature welfare may be referred to as minimum income schemes. In American literature welfare may be referred to as public assistance.

Holsch K and M. Kraus,(2004) while examining the relationship between the degree of centralization in European welfare schemes and their success in reducing poverty observed that centralized system were more effective in combating poverty than much decentralized schemes although centralized schemes were not proven to run more efficiently. However, a medium degree of centralization was shown to be the most successful in reducing poverty.

discussed including multiculturalism at state and international levels; assimilation; secession; ethnic federalism; the Swiss model; the European model; affirmative action (group rights); and strict individualist welfare.

2.2. Methodology

A comprehensive survey of the studies on fishing industry is given in the above paragraphs. Now the discussion is devoted to the methodology adopted for the study.

According to Marine fisheries census conducted by CMFRI, on behalf of Government of India, there are 3,202 marine fishing villages with a total population of 3.52 million living in 7,56,212 households. The average number of households per village on all India basis is 236, with a maximum of 543 in Kerala. The fishery population per village on an all India basis is 1099; and it is 2713 in Kerala fishery villages on an average basis. In the case of number of households and density of population per village, Kerala stands the highest in all fishery villages in India. The details are given in Table 2.1 and chart 2.1.
### Table 2.1. India Profile

<table>
<thead>
<tr>
<th>State &amp; Union Territory</th>
<th>No of fishing Villages</th>
<th>No. of fishermen Families</th>
<th>Fishermen population</th>
<th>Percentage of population</th>
</tr>
</thead>
<tbody>
<tr>
<td>West Bengal</td>
<td>346</td>
<td>53816</td>
<td>269565</td>
<td>08.66</td>
</tr>
<tr>
<td>Orissa</td>
<td>641</td>
<td>86352</td>
<td>450391</td>
<td>12.80</td>
</tr>
<tr>
<td>AndhraPradesh</td>
<td>498</td>
<td>129246</td>
<td>509991</td>
<td>14.49</td>
</tr>
<tr>
<td>Tamilnadu</td>
<td>581</td>
<td>192152</td>
<td>790408</td>
<td>22.46</td>
</tr>
<tr>
<td>Kerala</td>
<td>222</td>
<td>1,20,486</td>
<td>602,234</td>
<td>17.11</td>
</tr>
<tr>
<td>Karnataka</td>
<td>156</td>
<td>30176</td>
<td>170914</td>
<td>04.86</td>
</tr>
<tr>
<td>Maharashtra</td>
<td>406</td>
<td>65313</td>
<td>319397</td>
<td>09.08</td>
</tr>
<tr>
<td>Gujarat</td>
<td>263</td>
<td>59889</td>
<td>323215</td>
<td>09.19</td>
</tr>
<tr>
<td>Goa</td>
<td>39</td>
<td>1963</td>
<td>10668</td>
<td>00.03</td>
</tr>
<tr>
<td>Daman &amp; Diu</td>
<td>22</td>
<td>5278</td>
<td>29305</td>
<td>00.83</td>
</tr>
<tr>
<td>Pondicherry</td>
<td>28</td>
<td>11541</td>
<td>43028</td>
<td>01.22</td>
</tr>
<tr>
<td>Total</td>
<td>3202</td>
<td>756212</td>
<td>3519116</td>
<td></td>
</tr>
</tbody>
</table>

Source: Marine Fisheries Census -2005

**Chart 2.1. India Profile**

![Chart 2.1. India Profile](image)
As per table 2.2 and chart 2.2, there are 6, 02,234 fishermen living in 222 fishing villages in nine coastal districts in Kerala. They are reluctant to live away from the coast because of the nature of their fishing activities and centuries old way of life. Kerala is the second highest state in India having 17.11 percent of the total fisheries population.

The density of population is high in the fisheries village as compared to other parts of the state, though there may be some variations according to local peculiarities. The density of population in the district of Kasargode is 1181, and in the district of Thiruvananthapuram, it is 3342. According to state planning board the average density of population in the fisheries villages is 2162, while the state average is only 729/square kilometer. The high density of population and the limited facilities of life make their living miserable. (People’s planning 1998).
<table>
<thead>
<tr>
<th>Districts</th>
<th>No of fishing Villages</th>
<th>No. of fishermen Families*</th>
<th>Fishermen Population</th>
<th>Percentage of population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thiruvananthapuram</td>
<td>42</td>
<td>22070</td>
<td>177488</td>
<td>21.04</td>
</tr>
<tr>
<td>Kollam</td>
<td>27</td>
<td>10922</td>
<td>99981</td>
<td>11.85</td>
</tr>
<tr>
<td>Allapuzha</td>
<td>30</td>
<td>14695</td>
<td>118558</td>
<td>14.05</td>
</tr>
<tr>
<td>Ernakulam</td>
<td>21</td>
<td>10032</td>
<td>77177</td>
<td>09.15</td>
</tr>
<tr>
<td>Thrissur</td>
<td>18</td>
<td>7307</td>
<td>74261</td>
<td>08.80</td>
</tr>
<tr>
<td>Malappuram</td>
<td>23</td>
<td>8890</td>
<td>85170</td>
<td>10.10</td>
</tr>
<tr>
<td>Kozhikode</td>
<td>34</td>
<td>11244</td>
<td>105108</td>
<td>12.46</td>
</tr>
<tr>
<td>Kannur</td>
<td>11</td>
<td>7186</td>
<td>59369</td>
<td>07.04</td>
</tr>
<tr>
<td>Kasargode</td>
<td>16</td>
<td>5832</td>
<td>46565</td>
<td>05.52</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>222</strong></td>
<td><strong>98178</strong></td>
<td><strong>8,43,587</strong></td>
<td></td>
</tr>
</tbody>
</table>

According to Table 2.2 and chart 2.2, there are 9 coastal districts in Kerala with a total fishermen population of 8,43,587. These fisheries districts are divided into three zones, namely,

- Zone 1- Thiruvananthapuram, Kollam and Allapuzha
- Zone 11- Ernakulam Thrissur and Malappuram
- Zone 111- Kozhikode, Kannur and Kasargode.

For this particular study, the central zone, consisting of three coastal districts, i.e., Ernakulam, Thrissur and Malappuram are considered. This zone has 28 percent of the total fishery population and 28 percent of the fishery villages of the state. In Ernakulam district, there are 21 marine fishing villages; it is 18 in Thrissur and 23 in Malappuram districts. In Ernakulam, the fishermen population
accounts 77,177; it is 74,261 in Thrissur and 85,170 in Malappuram. Fishermen households in these districts are 10032, 7307 and 8890 respectively.

Fishery villages in Ernakulam, Thrissur and Malappuram Districts are 21, 18 and 23 respectively. These fishery villages are under four fishery officers in each district. For this particular study, one cluster of fishery villages under a fishery officer was selected by random method. Cherai from Ernakulam, Nattika from Thrissur and Ponnani from Malappuram. Out of 6 villages of Cherai cluster, five villages were selected by random method, namely Munambam, Pallipuram, Cherai, Ayyampilly and Kuzhupully. Under Nattika cluster, there are five villages including a part of Valppad. By random method four villages selected are Valappad, Nattika, Thalikulam and Vatanappilly. In Ponnani cluster, there are seven villages. Five villages vis-à-vis Meentheruvu, Marakkadavu, Mukkadi, Thekkekadavu and Puduponnnani were selected by random method for the study.

Number of fishermen in Valappad (Chappallykadappurm) are 801, Nattika, 714, Thalikulam, 392, and Vatanappilly 258. In Puduponnani, there are 1270 fishermen, Thekkekadavu 750, Mukkadi 905, Marakkadavu, 795, and Meentheruvu, 1225. In Munambam, the numbers of fishermen are 1022, in Pallipuram, 763, Cherai, 584, Kuzhupully, 288, and Ayyampilly, 188.
Primary data required for this study were collected from the fishermen households using lottery method of simple random sample. 407 samples were collected and out of these, 107 have been weeded out, and 300 samples were selected with 100 samples from each district.

Table 2.3 provides information regarding the ownership pattern of fisherfolk in Kerala. 69 percent of families have no crafts another 69 percent have no gears. There are 66 percent of percent of families having no craft or gear. Only five percentage families have a share in crafts, and another two percent have a share in gears. Hence while selecting the respondents with different category of fishers, such as group owners of large boats, owners of small groups i.e., a membership with less than 10 members, individual owners and fish workers who have no ownership in craft or gear are considered.

Table 2.3.
Ownership Pattern

<table>
<thead>
<tr>
<th>Nature of ownership</th>
<th>Kerala</th>
<th>Percentage of Kerala</th>
</tr>
</thead>
<tbody>
<tr>
<td>No craft</td>
<td>82772</td>
<td>69</td>
</tr>
<tr>
<td>No gear</td>
<td>82554</td>
<td>69</td>
</tr>
<tr>
<td>No craft or gear</td>
<td>79438</td>
<td>66</td>
</tr>
<tr>
<td>Having share in crafts</td>
<td>5957</td>
<td>05</td>
</tr>
<tr>
<td>Having share in gear</td>
<td>2397</td>
<td>02</td>
</tr>
<tr>
<td>Total no. of Families</td>
<td>120486</td>
<td>--</td>
</tr>
</tbody>
</table>

Source: Consolidated from Marine fisheries Census-2005, Government of India.
The period of the survey extended from the month of January to May 2005 and from the month of November to December 2005.

It was very difficult to extract details regarding savings, expenditure pattern, catch and the earnings of respondents. Therefore, a resurvey was conducted in the sample villages to get adequate data in detail. Participatory observation was also adopted in some cases.

Table 2.4 and chart 2.3 give a picture of religion-wise distribution of fishermen households in Kerala. Fishermen from Hindu, Christian and Muslim religion are engaged in fishing. But their clustering in fisheries villages is differing from district to district. Fishermen from Hindu and Christian religion are more or less equal in Ernakulam district. There are only a limited number of Muslim fishermen in this district. In Thrissur district, there are more Hindu fishermen than Muslims and the fishermen from Christian religion are negligible. In Malappuram district, Muslim fishermen are dominating. The number of fishermen from Hindu religious belief is less and Christians are very negligible.
Table 2.4.

Religion-wise Distribution

<table>
<thead>
<tr>
<th>List</th>
<th>Hindu</th>
<th>Muslim</th>
<th>Christian</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thiruvananthapuram</td>
<td>254</td>
<td>6193</td>
<td>27681</td>
<td>34128</td>
</tr>
<tr>
<td>Kollam</td>
<td>4936</td>
<td>645</td>
<td>6318</td>
<td>11899</td>
</tr>
<tr>
<td>Allapuzha</td>
<td>8766</td>
<td>1082</td>
<td>11911</td>
<td>21759</td>
</tr>
<tr>
<td>Ernakulam</td>
<td>4084</td>
<td>271</td>
<td>4521</td>
<td>8876</td>
</tr>
<tr>
<td>Thrissur</td>
<td>4287</td>
<td>2262</td>
<td>49</td>
<td>6598</td>
</tr>
<tr>
<td>Malppuram</td>
<td>294</td>
<td>10166</td>
<td>2</td>
<td>10462</td>
</tr>
<tr>
<td>Kozhikode</td>
<td>8176</td>
<td>7847</td>
<td>35</td>
<td>16058</td>
</tr>
<tr>
<td>Kannur</td>
<td>2903</td>
<td>2848</td>
<td>478</td>
<td>5929</td>
</tr>
<tr>
<td>Kasargode</td>
<td>3622</td>
<td>1086</td>
<td>69</td>
<td>4777</td>
</tr>
<tr>
<td>Total</td>
<td>37022</td>
<td>32400</td>
<td>51064</td>
<td>120486</td>
</tr>
</tbody>
</table>


Chart 2.3. Religion-wise Distribution
From the field survey, the relevant information was collected through the interview method. Interview schedule was prepared after discussions with experts in the field, and after making a review of literature in that area. The schedule was prepared in such a way as to obtain information regarding the socio-economic conditions of the fishery villages; significance of the welfare and livelihood security measures implemented by the government through Fisheries Department, Kerala State fishermen welfare fund Board (KSFWFB) and Matsyafed (Kerala State Co-operative Federation for Fisheries Development); rules and regulations of the government in safeguarding the fishery practices and other general information. The study on socio-economic conditions was based on the questionnaire prepared by Yamamoto for similar studies in Asean countries, and necessary changes were made to cope with the conditions in the study area. Appropriate statistical tools were used for the analysis and interpretation of the data.

A number of agencies work under the department to fulfill the mission envisaged by the government. They include Matsyafed, Matsyaboard (Kerala State Fishermen Welfare Fund Board), Agency for Development of Aquaculture, Fish Farmer’s Development Agency (FFDA), Brackish Water Fish Farmer’s Development Agency (BFFDA) etc., for implementing various projects and schemes for the expansion of fisheries in Kerala as well as for the welfare of the fisher folk.
In Kerala, there are Fisheries Department, Fishermen Welfare Fund Board and Matsyafed functioning with the objective of improving the life of the fishermen community by giving assistance in the form of cash and kind, other and welfare schemes. The government is spending crores of rupees under various policies and schemes, but whether they are properly streamlined to help the artisanal sector is something to be looked into.

For the study, schemes of the Fisheries Department, Kerala State Fishermen Welfare Fund Board and Matsyafed which have some direct link to the marine small-scale fishermen in the state of Kerala are considered. The Schemes selected for the study implemented by different agencies are given below:

### 2.3. Schemes of Fisheries Department:

- Saving-Cum-Relief Scheme
- Housing Scheme
- Electrification (Theerajyothi)
- Sanitation

### 2.4 Schemes of Matsyaboard

- Group insurance scheme for all active fishermen
- Cash awards and scholarships for SSLC and higher education for the children of fishermen.
• Financial assistance to the dependents of fishermen in case of accidental death while fishing
• Financial assistance for the death of the dependent
• Old age pension and widow pension to registered fishermen
• Financial assistance to the dependent for the death of fishermen for meeting the funeral expenses
• Financial assistance for treatment of handicapped and mentally retarded children of fishermen
• Financial assistance to registered fishermen for treatment of fatal diseases
• Financial assistance for temporary disability due to accident
• Financial assistance to wife of fishermen for maternity care.

2.5 Schemes of Matsyafed

• Subsidized Housing Scheme
• Sanitation and Health
• Life Insurance