Chapter - 3

Research Context and Framework

3.1 Introducing the Chapter

Selection of problems is a very delicate issue in social research. It is therefore necessary on the part of the researcher to give a definite shape to a problem before trying to find out an appropriate solution. Before turning our attention to the varieties of topics that need to be taken up, several fundamental features of research process need to be understood. Acquaintance with the quality of scientific research, delineation of major objectives, identification of major target groups and elimination of misconceptions about social research are necessary. In addition to the above observations, the newness and intensity of the social problem normally attracts the attention of social researchers. While dealing with social problems, which require the attention of social scientists, the factors like, the common basis of origin, interconnection of problem, origin of problems, extent of coverage of problems, deviation of situation from and ideal one, and responsibility of particular social research are to be understood properly with a linkage with existing theories.

In view of such considerations, fishing for living in and around Chilika Lake: a sociological study of survival strategies and alternate livelihood options of fishermen community in Orissa needs special attention. Currently, issues affecting Chilika issue is a burning topic within and outside Orissa, among the environmentalists and social scientists. Each and every day new problems are arising in and around the lake. All these considerations motivated the researcher to select this topic. The study/research covers few key aspects of existing policy, current socio-economic situations of fishermen, environmental degradation effect, common property resources, social movements on the lake and its impact on the life and livelihood of fishermen.

This chapter more particularly discusses about the objectives of the study, research design, universe and sample of the study and field work and field experiences.

3.2 Objectives of the study

Against the backdrop discussed under the research gap and rationale for the present study, the current study has the following objectives

- Review the existing literature.
- Explore the socio-economic background and life style.
- Penetrate deep into their Current Livelihood Scenario.
- Delve into the impact of mechanization, Common Property and Social Movements.
• Locate the threats and stakes in terms of Environmental degradation and Natural Disaster.

• Explore the possibility of interpreting the micro data collected from the field and build macro theories on the subject and suggest measures for the alternative and sustainable livelihood.

3.3 Research Design
Research design is considered as a "blueprint" for any research. The basis of the design is to deal with four basic issues: which questions need for the study, which currently available data will be relevant, what data to collect, and how to analyze the results (Ader and Hand, 2008). The design quality depends on the research questions as well as the orientation of the researcher. The present piece of study uses descriptive and self-explanatory designs that can help to give justice to the research objectives by addressing the what and why. But primarily the study embarks upon the explanatory design which is conducted to address an issue or problem where there are few or no earlier studies to refer to. The focus is on gaining insights and familiarity for later investigations. It is used to identify and obtain information on a particular problem or an issue. Any analytic paper demands that the researcher performs a number of tasks to formulate it, which includes, coming up with a thesis statement, collecting data from primary and secondary sources, assessing and evaluating sources, using the sources to support arguments and statements, meticulously document everything the researcher has done.

During this research all these techniques have been used to come to a valid conclusion. This research was meant to provide details where a small amount of information exists and therefore, variety of techniques such as interviews, Focused Group Discussions and going through many secondary sources was involved. The research seeks to find out how the fishermen get along in the setting under question, what meanings they give to their actions, and what issues concern them. The goal is to learn 'what is going on here' and to investigate social phenomena without explicit expectations. For giving a clear account of the process followed in this piece of study, there is every need of placing a picture of the universe or sample below.

3.4 Universe and Sample of the study
The universe of the study includes all the fishermen in Orissa. The state's fishery depends on three major sources: coastal area or sea fishes, brackish water fishes, and fresh water fishes.

Orissa:
Orissa, officially spelled Orissa, is a state of India, located on the east coast of India, by the Bay of Bengal. It is the modern name of the ancient kingdom of Kalinga, which was invaded by the Mauryan Emperor Ashoka in 261 BCE. The modern state of Orissa was established on April 1, 1936, as a province in British India and consisted predominantly of Oriya speakers. April 1 is therefore celebrated as Utkala Dibasa (foundation day of Orissa). Cuttack remained the capital of the state for over eight centuries until April 13, 1948 when Bhubaneswar was officially declared as the new capital of Orissa, and still is the present capital of this state.

Orissa is the 9th largest state by area in India, and the 11th largest by population. Oriya (officially spelled Odia) is the official and most widely spoken language, spoken by three quarters of the population.

The Chota Nagpur plateau occupies the western and northern portions of the state, while along the coast are fertile alluvial plains and the valleys of the Mahanadi, Brahmani, and Baitarani rivers, which fall into the Bay of Bengal. These alluvial plains are home to intensive rice cultivation. The Central Rice Research Institute (CRRI), Asia's largest rice research Institute is situated along the bank of Mahanadi in Cuttack. One of the major nesting grounds for the Olive Ridley sea turtles can be found in the Beaches of Orissa; in Devi, Gahirmatha and Rushikulya, which are known to be the nesting sites for the L. olivacea Indian Ocean population. In 2007, around 130,000 turtles nested on the beaches of Gahirmatha. The shore lines also acts as their mating site and have attracted various scientific communities for research and studies.

The map of Orissa with its district based on its population as per census 2011 is presented below.
According to the 2011 census of India, the total population of Orissa is 41,947,358, of which 21,201,678 (50.54%) are male and 20,745,680 (49.46%) are female, or 978 females per 1000 males. This represents a 13.97% increase over the population from 2001. The population density is 269 per km². The dominant ethnic group are the Oriya people and Oriya (Odia) is the official language of Orissa and spoken as a native language by about 73% of the people. Other linguistic minorities in the state are Bengali, Hindi, Telugu and Santali. As per census 2001, Scheduled Castes and Scheduled Tribes form 16.53% and 22.13% of the state population, constituting 38.66% of the State population. Some of the important tribes are Santhal, Bonda, Munda, Oraon, Kora and Mahali. The literacy rate is 73.45% with 82.4% of males and 64.36% of females being literate, according to 2011 census. The proportion of people living below the poverty line in 1999–2000 was 47.15% which is nearly double the all India average of 26.10%.

There are 30 districts in Orissa, Angul, Boudh, Bhadrak, Bolangir, Bargarh, Balasore, Cuttack (Kataka), Debagarh, Dhenkanal, Ganjam, Gajapati, Jharsuguda, Jajpur, Jagatsinghpur, Khordha, Keonjhar, Kalahandi, Kandhamal, Koraput, Kendrapara, Malkangiri,
Mayurbhanj, Nabarangpur, Nuapada, Nayagarh, Puri, Rayagada, Sambalpur, Subarnapur, Sundargarh. Of the total 30 districts in the state, it has six maritime districts, Balasore having 80 km coastline, Bhadrak having 50 km, Kendrapara having 68 km, Jagatsinghpur having 67 km, Puri having 155 km and Ganjam having 60 km, with Puri district covering more than a third of the coastline (DOF, 1998: 61). These six districts cover 14.5 percent of the total land area of the state. According to the Handbook on Fisheries Statistics of Orissa, 2000/01 (DOF, 2002), Orissa has a total of 589 marine and 3289 inland fishing villages. According to DOF, 2002, the total number of fishers in the state is over 1 million. The total marine fishing population is about a third of a million, which, when compared to the total population of the state, is not very large. According to the Department of Fisheries (DOF 2002: 66), there are about 86,000 active marine fishers in the state. The coastline can be classified into two distinct areas (BOBP, 1984a: 9; 1986a: 1; Ayyappan and Jena, 2000: 241), first is the shallow northern coast extending northward from Rajnagar in Kendrapara district to Kirtania in Balasore district. This area has a broad shelf, gradual slope and greater tidal effect, with muddy and calm waters, and is characterized by tidal flats and extensive river deltas. Second is the southern coast extending southward from Paradeep in Jagatsinghpur district to Pattisonapur in Ganjam district, which is narrower, with broad sandy beaches and open surf-beaten shores.

Bhitara Kanika in Orissa is the second largest mangrove forest in the country, second only to the Sunderbans of West Bengal (Ayyappan and Jena, 2000: 244). The mangrove habitat acts as a nursery ground for many fish and shellfish species of commercial importance.

Chilika Lake, a brackish water coastal lake on the Bay of Bengal, south of the mouth of the Mahanadi river, is the largest coastal lake in India and the second largest in the world. It is the largest wintering ground for migratory birds on the Indian sub-continent. The lake is surrounded by three districts of Orissa, namely Khurda, Puri and Ganjam.

Khordha:
Khordha (also written Khurda) is an administrative division of the state of Orissa. It was formed on April 1, 1993 by the division of former Puri District into Puri, Khurda and Nayagarh districts. In the year 2000 the district name was changed to Khordha. The capital city of Bhubaneswar is located in this district and is the most urbanized of all the districts of Orissa. According to the 2011 census Khordha district has a population of 2,246,341. This gives it a ranking of 201st in India (out of a total of 640). The district has a population density of 799 inhabitants per square kilometre (2,070 /sq mi). Its population growth rate over the decade
2001-2011 was 19.65%. Khordha has a sex ratio of 925 females for every 1000 males, and a literacy rate of 87.51%.

Puri:
Puri, being a coastal district of Orissa, is famous for its historic antiquities, religious sanctuaries, architectural grandeur, sea-scape beauty, moderate climate. It holds a wealth of attraction for the visitors. This district comprises 1714 revenue villages. It has one subdivision, (Puri Sadar), 11 Tehsils and 11 blocks. Puri is the only municipality of the district. According to the 2011 census Puri district has a population of 1,697,983. This gives it a ranking of 291st in India (out of a total of 640). The district has a population density of 488 inhabitants per square km. Its population growth rate over the decade 2001-2011 was 13%. Puri has a sex ratio of 963 females for every 1000 males, and a literacy rate of 85.37%.

Ganjam:
Ganjam district is named after the old township and European fort of Ganjam. It is spreading over the geographical area of 8070.60 square km. in Orissa. There are 22 blocks, 475 Grampanchayats, 18 Urban Local bodies, 3229 villages. As of 2011 India census, Ganjam had a population of 3,520,151. Males constitute 50.49% of the population and females 49.51%. Ganjam has an average literacy rate of 71.88% male literacy is 81.85%, and female literacy is 61.84%. Total Child Population (Age between 0–6 years) is 11.30% of the total Ganjam Population. The sex ratio for the district is 981 and Density of Population is 429 (persons per km²).

The study was restricted within the survey of the fisher folk staying/fishing in and around Chilika Lake covering three districts such as Puri, Khurda and Ganjam districts of Orissa. Although no official statistics is available about the total fisher folk living on Chilika, a rough estimate suggests that the total fishing population shall be around 1,20,000.

Social survey can be conducted by either of the two methods: Census or Sampling. But this study has used sample methods due to certain reasons. When the whole area or population is studied, the method is called as census. A sample is the most micro unit of a population or universe. Sampling is a process, meaning taking a selected part of the large and scattered population as the complete coverage for collection of information and then draw inference from it is neither possible nor feasible. The sample is thus the miniature picture of the entire universe or population. Three factors that influence sample representative-ness are sampling procedure, sample size and participation (response).

There are two broad categories of samples: Probability and Non Probability. Drawing samples from the population in accordance with certain laws or chance in which each unit in
the universe or population has some definite pre-assigned probability of being selected in the sample is called as probability sampling. A probability sampling scheme is one in which every unit in the population has a chance (greater than zero) of being selected in the sample, and this probability can be accurately determined. When every element in the population does have the same probability of selection, this is known as an 'equal probability of selection' (EPS) design. Such designs are also referred to as 'self-weighting' because all sampled units are given the same weight.

There are six types of probability sampling such as Simple Random, Stratified Random, Systematic or Interval, Cluster, Multi Stage and Multi Phase probability sampling. Whereas convenience sample, purposive sample and quota comes under non-probability samples. The sampling process follows the following steps:

- Defining the population of concern
- Specifying a sampling frame, a set of items or events possible to measure
- Specifying a sampling method for selecting items or events from the frame
- Determining the sample size
- Implementing the sampling plan
- Sampling and data collecting
- Reviewing the sampling process

Purpose of the present research work is to assess the fishing for living in and around Chilika Lake and to study survival strategies and alternative livelihood options of fishermen community of three districts of Orissa i.e. Khurda, Puri and Ganjam. It also intends to establish a relationship between them, taking into consideration the fishermen of these three districts irrespective of caste, creed and colour as its subjects. Census method, because of its teddy, irksome and time-consuming nature, a small group is taken as the representative of the whole. Therefore, keeping in view the nature, scope and objects of inquiry, availability of funds, time factor and precision required for the sampling procedure, it became the ultimate choice and was adopted for eliciting information from the subjects pertaining to the assumed survival strategies and alternative livelihood options of fishermen community. To locate sample areas and to identify the subjects, multistage-multi-purposive sampling method resorted.

Multi-stage sampling is a complex sample design in which two or more levels of units are imbedded one in the other. For example: geographic areas (primary units), companies (secondary units), and employees (tertiary units). At each stage, samples of the corresponding units are selected. At first, a sample of primary units is selected, then, from
these selections, samples of secondary units are selected, and so on. All ultimate units (individuals, for instance) selected at the last step of this procedure are then surveyed. Multi-stage sampling is sometimes used when no general sample frame exists. In this case, a first step is to select, at random, a sample of areas, collective units, or villages from a list where they are all registered (primary units). Then, for each selected primary unit, a comprehensive enumeration of all units of lower rank is made, thus obtaining a local sample frame among which a sample of secondary units will be selected. For example, for each village of the primary sample, a list of all housing units can be established, allowing for a selection of a sample of households. Different probabilities can be used at each stage, as well as within one particular stage, for the different units to be selected. Probabilities at the successive stages multiply, so that the resulting probability for selecting one final unit is the product of the probabilities used at each step. The corresponding answers need to be weighted by the inverse of that final probability in order to obtain unbiased estimates.

Because Chilika is surrounded by three districts of Puri, Ganjam and Khurda and the fishermen from these districts depend on Chilika, the study focussed only in those Blocks, where the fishermen reside. Out of these Blocks, using the sampling technique, three blocks from Khurda, Two blocks from Ganjam and one block from Puri districts was selected for the purpose of the study. The selection of sample areas and identification of subjects were executed on the basis of the following norms, criteria and purposes.

(a) Exclusively fisher folk staying / fishing in and around Chilika lake.
(b) Proximity or distance from the immediate headquarters (District, Block, Gramapanchayat.)
(c) Fishermen strength
(d) Priority to villages / blocks / districts having fisherman of various categories and type of fisherman living in these villages.
(e) Socio-economic conditions

Utmost care was thrusted upon to envisage a balance of these norms. Since sampling was carried out at several stages like district level, block level, village level and ultimately at the fisherman level with definite purposes associated with it, the sampling procedure was technically termed as multi-stage, purposive sampling.
Each block has under its jurisdiction many villages, out of which 30 villages were selected randomly keeping the above norms into consideration. Each village irrespective of religion were selected which has various categories of fisherman who were tried for the purpose. The lists of villages are as follows:

Table 3.1 Village, Block and District Profile of the Study Area

<table>
<thead>
<tr>
<th>District</th>
<th>Block</th>
<th>Name of Village</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ganjam</td>
<td>Ganjam</td>
<td>Gajapati Nagar, Rambha, Subalia, Niladripur</td>
</tr>
<tr>
<td></td>
<td>Khalikote</td>
<td>Langleswar, Pathara, Keshpur</td>
</tr>
<tr>
<td>Khurda</td>
<td>Chilika</td>
<td>Nairi, Balugaon, Baradihi, Bhabapur, Gangadharpursasan, Kalupada, Sananairi, Sorana, Baulabandha, Balia, Jarikuda</td>
</tr>
<tr>
<td></td>
<td>Tangi</td>
<td>Tentuliapara, Chandrapur, Manalajodi, Bhusandapur</td>
</tr>
<tr>
<td></td>
<td>Banpur</td>
<td>Galua</td>
</tr>
<tr>
<td>Puri</td>
<td>Krushnaprasad</td>
<td>Alupathana, Brahmapur, Khirisahi, Mahesa, Samantarapur, Arakhakuda, Satapada</td>
</tr>
</tbody>
</table>
In the context of the research setting, identification of the respondents is really a difficult task on the part of the researcher. Therefore the researcher contacted various local personnel who are well aware of Chilika affairs. As per the research setting, in the initial stages, it was decided to take fifteen households from each village and thus intended to complete households. In order to identify the respondents and to have overall view of Chilika, support was taken from ward members and Sarpanch of the different villages, local NGO personnels, and local youth clubs members, etc.

Initially the researcher was cautioned about the possibility of non-cooperation of the respondents. However, with the support of the local personnel and self-initiatives, not much difficulty was experienced to establish rapport with the respondents. Most of the fishermen were extremely gentle and many of them were eager to share their personal feelings and experience with the researcher. Very few were suspicious and remained silent, as they thought the researcher to be from a political party or from the government department. Some of the fishermen also initially refused to share their dedicated time and insisted the researcher to travel with them in the boat when they were fishing to capture their views. To deal with these people the researcher established the rapport gradually by asking general questions and chatting with them on inconsequential topics. At times the researcher has travelled with the fishermen during the fishing to get their response.

The questions were asked in the common language Oriya. Only in one village, where there was a dominance of Telugu fishermen, the researcher faced some problem in terms of communication. However, with the support of a local youth, this problem could be addressed.

Information means the compilation of data. Data in research language mean the intended information collected on the problem or the subjects to satisfy the research question. Data are generally of two types: Primary and secondary. Primary data are those, collected from the respondents with the use of research tools or techniques such as Questionnaire, Interview Schedule, Focused Group Discussion, Observation etc. Secondary data are those collected from the published and unpublished materials such as study reports, books, journals, magazines, dailies and such other media: print, electronic and print-cum-electronic for the same purpose. Sources furnishing primary data are called as primary sources and those furnishing secondary data are secondary. The present study has gathered primary data with the use of interview and Focused Group Discussion techniques and analysing the secondary data.

The main benefits of secondary data are: It saves efforts and expenses, it is time saving, it helps to make primary data collection more specific as with the help of secondary data, we are
able to make out what are the gaps and deficiencies and what additional information need to be collected. It helps to improve the understanding of the problem and it also provides a basis for comparison of the data collected by the researcher. Secondary data are usually collected by two ways. The first source are the personal documents, such as diaries, letters, photographs, etc. The second are the public documents, such as books, manuscripts, records, census and other survey reports, various information published in the newspapers. During the research, the secondary information is taken from the published reports. While some of the reports were available on the internet, many of the reports were available in hard copy format both in the library of Chilika Development Authority as well as in University's library. Most of secondary data have been analysed and recorded in the review of literature part.

Secondly, for the purpose of data collection, structured interview method was used. The schedules were developed with an objective of ensuring due justice to the broad objectives of the study. The schedules contain around 130 questions having both closed and open ended questions to satisfy the need of both qualitative and quantitative data. Sufficient care has been taken to avoid biased responses.

In order to be effective for the purpose of research, an interview schedule should have the validity. For establishing the validity of the same, W.J. Best (1983) P 166, 167) observes that "validity is achieved to a greater degree when the interview is based upon a carefully designed structure to ensure that the significant information is elicited. The critical judgment of expert in the field of enquiry is helpful in selecting those questions that are essential to the purpose of investigation." For the present study, all efforts have been made by the scholar and the supervisor to develop and design structured questionnaire and schedules in order to increase the effectiveness of the field investigation work.

After preparation of the interview schedule, a pilot study was undertaken in two villages to ascertain the validity of the questions. In conducting the present study and especially during preparing the schedule, the researcher has gone through various authentic books written on the lake, its protection, its management and the livelihood issues of the fisher folks, etc. with adequate support of the supervisor and inputs from various stakeholders. In addition to this number of government and non-government officials associated with the lake have been consulted on the research topic and the interview method. The overall comments were incorporated in the revised schedule.

During data collection, the researcher personally went to the selected villages to meet the fishermen, enquired about various items furnished in the schedules with utmost care and filled
schedules properly. The participant observation method was also used as supplementary technique to gather relevant information from the respondents for intensive investigation. Some of the secondary data relating to the cause of ecological degradation of lake, occupational displacement of the people, role of NGO and Chilika Development Authority for the development of fishermen, social conflicts among the fishermen, were also collected with the help of village schedule along with published and unpublished sources of various government publications. Apart from this in order to find out the actual livelihood conditions and the inter-related issues, the researcher held focus group discussions with the fishermen and the local women self-help groups separately. The very purpose of these discussions was to find out the exploitation done by money lenders, if any, the exact cause of inter-related livelihood issues, impact of natural disaster on the life of fishermen, etc.

After the completion of the field work the data collected by the researcher from the required number of respondents were classified into groups on the basis of common factors. This careful classification was done to reduce the diversified expression into meaningful categories. For the purpose of the easy and systematic analysis of data all preliminary information were tabulated and classified under various sub-headings. First of all, the filled up schedules were edited and checked out for any mistakes or omission. After the editing work was completed data was coded for classification. The variables were classified into various groups for analysis of data. For the analysis, this day is unthinkable without the help of computer and some access to statistical software. Here, for analysis statistical tools like SPSS (Statistical Package for Social Science) package is used.

3.5 Data classification and consolidation

The basic information relating to a particular village was collected from the block level or sometimes from the NGOs actively involved in developmental works in that particular area as secondary data. After locating the study area, data pertaining to the research work was collected by using interview schedules. The schedule was used for fisherman in village level data collection as primary data. The major heading of the schedule are

- Personal/Socio-economic profile
- Family composition table
- Life style and livelihood scenario
• Work situation and working condition
• Natural Disaster and environmental degradation

3.6 Operationalization of the concepts

The research is mainly focused on a few key areas, livelihood, environmental degradation and natural disaster, mechanization, common property resources, social movements related to the fishermen staying in and around the Chilika Lake. All the key areas are important and have a huge importance in the fisherman’s life in terms of their survival. More importantly, these issues are interrelated and thus have fetched a number of researchers from the beginning. In order to put some more light on the topics, the concepts are further defined below:

A livelihood comprises the capabilities, assets (including both material and social resources) and activities required for a means of living. A livelihood is sustainable when it can cope with, and recover from stresses and shocks and maintain or enhance its capabilities and assets both now and in the future, while not undermining the natural resource base (Carney, 1998, p. 4).

Common property resources constitute all such resources which are meant for common use and these resources are mostly under the control of the local communities. There is a degradation of CPRs due to destructive competition among the users when a group of users are unable to control the use of its CPR under changing circumstances.

The coastal districts of Orissa are prone to frequent cyclonic storms and concurrent flood hazards causing considerable loss of human lives, domestic animals, agriculture and other properties. All the villages surrounding Chilika Lake are equally vulnerable to the natural disaster and can have an adverse impact on their lives. These issues are inter-related and can jointly or even individually impact the livelihood of the fishermen.

Social movements are a type of group action, where a large informal group of individuals or organizations come together to achieve specific political or social objectives through demonstrations or constant struggles. The lake Chilika has experienced number of social movements, which has also resulted in death of fishermen in the area. There has been an increasing conflict between the fishermen due to the decline in fisheries over the last two decades. A significant proportion of the fishing population comprises small-scale fishermen and many studies also illustrate that these people are exploited by middlemen in the process of fish marketing combined with money lending. The negative dependency gives rise to poverty and triggers indiscriminate fish catch that threatens fishery resources depletion.
Mechanisation in the fishing sector in this research means mechanization of fishing crafts. The types of fishing crafts falls under two general categories. These are non-mechanized and mechanized fishing crafts. The mechanized boats are constructed with engines operated by oil for venturing to distant areas in search of fishing grounds.

3.7 Analysis and interpretations

During the research, the researcher has basically collected two types of data: qualitative and quantitative. The way we typically define them, we call data 'quantitative' if it is measurable and 'qualitative' if it is not. Qualitative data could be much more than just words or text. Photographs, videos, sound recordings and so on, can be considered qualitative data, which we have used during our research. Interestingly, while the supporter of quantitative data types argue that their data is 'hard', 'rigorous', 'credible', and 'scientific', the qualitative proponents counter that their data is 'sensitive', 'nuanced', 'detailed', and 'contextual'.

The term quantitative data is used to describe a type of information that can be counted or expressed numerically. This type of data is often collected in experiments, manipulated and statistically analyzed. Quantitative data can be represented visually in graphs, histograms, tables and charts. During the study, most of the quantitative data have been collected through interviews and FGD. These include, number of households, number of family members, number of household assets, annual income, etc.

While natural data are numeric or quantitative, social data are qualitative. They cannot be measured, weighed or enumerated. Social relationships, behavior, customs, traditions and social events are qualitative. Thus qualitative data is extremely varied in nature. It virtually includes any information that can be captured that is not numerical in nature. During our research, we used two techniques, in-depth interviews and direct observations to get the qualitative data. The in-depth interviews included both individual interviews (e.g., one-on-one) as well as "group" interviews (including focus groups). The data was basically recorded in three ways, audio recording, video recording (through cell phones) and written notes. During the study we observed that in depth interviews are different from direct observation primarily in the nature of the interaction. Direct observations method was used to study the aspects of quality of life, behavior, customs and traditions, etc. while making an observation; few of the aspects were recorded in the form of photographs and audios.

In social sciences, triangulation is often used to indicate that more than two methods are used in a single study with a view to double (or triple) checking results. This is also called "cross examination". Triangulation is a useful technique that facilitates validation of data through cross...
verification from more than two sources. In particular, it refers to the application and combination of several research methodologies in the study of the same phenomenon. The idea is that one can be more confident with a result if different methods lead to the same result. If an investigator uses only one method, the temptation is strong to believe in the findings. If an investigator uses two methods, the results may well clash. By using three methods to get at the answer to one question, the hope is that two of the three will produce similar answers, or if three clashing answers are produced, the investigator knows that the question needs to be reframed, methods reconsidered, or both. It can be employed in both quantitative (validation) and qualitative (inquiry) studies.

In order to get more accurate results, the data triangulation method is used in the study. In doing so, both qualitative data and quantitative data have been compared to come to a conclusion. The main aim of using this technique was to explain in detail, the richness and complexity of human behaviour (fishermen) by studying it from more than one standpoint.

3.8 Field Work and Field experiences

The field work for the collection of the data was conducted over a period of six months, from May to October 2009. It took two days to cover fifteen households in each village. For travelling to the districts, the researcher used the local transport, including buses and train services. The local conveyance the researcher used was tempo, cycle and boats. Most of the interviews were done during morning, late afternoon and evening at the dwellings of the fishers. However, some of the respondents were also interviewed in the local market place and in the boats.

Field work means data collection for any study that involves talking to people or asking questions to the respondents about their activities and views. During the field work has the researcher asked questions to 450 respondents from the fishing community. In the field the researcher had mixed experiences, both good and bad. The major challenges faced by the researcher during the course of the research work are discussed below.

1. Initial non-cooperation by the respondents: The researcher at first did not get a frank opinion as the respondents had suspicion, for the researcher to be from the government dept. or local political party. Though this was not a common problem for all the villages, the researcher had this problem in some of the villages of Puri district. During initial interaction with the villagers, some of the traditional fishermen thought of the researcher to be from the Government Department. The researcher had to introduce himself in detail and also shared in detail the purpose of the research topic to gain the confidence. After getting acquainted, the respondents informed that, there are number of people who come for similar activity and
many times their comments have been misquoted. Political parties also come with their own agenda and try to push their views. Initially they also follow the similar approach, but after sometime, they try to push their personal agenda. Sometimes the NGOs also come for data collection. Repeatedly going through full survey is time consuming and thus they avoid this. They also informed that several other researchers also came for collection of data, but never disclosed their intentions and research topic; rather they just tried to get the data at the earliest and left. However, in general the fishermen are simple and very friendly in nature. They have nothing to hide and always ready to help. Followed by this close interaction, some of the respondents even accompanied the researcher in the village and offered hospitality, which was really encouraging.

2. **Problems in commuting**: Commuting to all the villages was also a problem. Many of the villages were accessible only through the boats of the villagers. These problems were faced in Mahisha and Berhampur, where the researcher had to hire boats to travel to the villages. These villages are surrounded by the lake water and the only commuting channel is by boats. While the villagers were habituated with this facility, the researcher being new to the system, had to take the help of local youths to gain first-hand information. The boat fee was also not very economical but the researcher had to hire a boat for the whole day for convenience. The boat started from Satapada and took the researcher to all the adjacent villages. Most importantly the boat which was used during the research was a fishing boat and the boatman was a fisherman by occupation. During the long journey inside the lake the fisherman shared some of the very personal stories related to Chilika and the fishermen, which made the journey even more interesting.

3. **Language Problem**: In one of the villages close to Satapada the researcher came across telugu speaking fishermen. Initially the researcher had some problems in communicating, since most of the respondents were illiterate and spoke only in a distinct local accent. Thus, the researcher had to look for a person, who knew Oriya and Telugu both. After having a brief introduction, a youth, in his thirties agreed to help the researcher with a small condition: following the interview process the researcher had to take photos of him with some of his friends and family members. As agreed, after the interview, the researcher took some photographs of the youth who helped him and shared the photos with them. This was a unique experience for the researcher as, he had never faced similar situation elsewhere. This also shows the simplicity of the respondents, who have simple wishes to fulfill and never demanded for any financial help.
4. **Initial problems in getting secondary data:** The researcher had also some problem in getting the secondary data from the government sources, as most of the CDA officials were extremely busy with their regular activities. The researcher visited the office of CDA between 2009 and 2011 mostly to get some secondary data. Initially the officials shared some of the reports published by CDA and asked the researcher to go through them. However, most of the reports were on the flora and fauna of Chilika and there was no substantial data in the reports. Followed by this the researcher made several visits and requested for some more information, to which CDA informed that, substantial data on fishery resources including socio-economic status is already uploaded in the website very recently and can be referred. This was a great help for the researcher. However initial help would have helped a lot.

5. **Misguidance by respondents:** In spite of the researcher's full efforts, some of the respondents gave confusing answers and some also tried to misguide. Many of the respondents also initially tried to hide the exact information about their family, income, land, and property. The main purpose of the researcher was to get accurate information as much as possible from the respondents. However some of the respondents were not very open in terms of giving correct information. Initially they tried to give all wrong information including some confusing answers. Realizing it, the researcher tried to ask them some very simple questions, including the name of the district, name of the head of the family, name of the local MLA, etc. By asking these questions, the researcher could ascertain, whether intentionally the respondents are trying to confuse or not. Followed by this, the researcher tried to convince them through persuasion and explained them that this is not a profit making job rather it is an academic issue and any wrong information may spoil the whole research outcome. It was surprising to notice that the respondents got convinced and tried to give correct information. In cases where they were not aware, they tried to take the views from the most appropriate person of their family and answered.

6. **Problem in getting data on local conflicts:** During the interaction, the researcher also tried to understand the causes behind the conflicts among the fishermen communities, however most of the respondents remained silent on this issue. Conflicts are common in Chilika and one of the objectives of the research was to ascertain the nature of demonstration and whether the fishermen have ever participated in such demonstrations. Most of the respondents initially were silent or tried to avoid this question. While some of them had apprehension that their views can be personalized, which may go against them, others did not want to memories those incidents. It was only during the interview the
researcher realized many of the fishermen have actually gone through a bad time during such demonstrations. It took some time for the researcher to persuade them for opening up and more importantly for providing correct answers to their questions.

7. In number of cases the researcher had to go at least three to four times to a particular respondent to get their views, which though was frustrating yet the researcher made this effort for quality input. In this stage the suggestions from the guide was also a great help. The guide actually provided some tips on convincing techniques which worked as miracle. On the other hand some of the respondents, though were highly qualified and still fishing in Chilika did not have the clarity or idea in some aspects like fishing rights of the fishermen and Chilika lease policy and were therefore not able to give answer to the open ended questions on the same.

8. During July, 2009 the researcher had to face some problems in commuting from one village to other due to heavy rain. Due to heavy rain the researcher had to spend almost half a day with one of the fisherman’s family. During this stay the researcher was treated with rice and curry. Though initially the researcher tried to avoid this but ultimately had to bow down, respecting the insistence made by the elder person from the household, who were not only friendly, but were affectionate in their approach. The rain also caused damage to some unfilled interview schedules, which were kept in the bag. As suggested by some of the respondents, next time onwards the researcher carried polythine bag to ensure the safety of interview schedules.

9. During the first week of this month, the researcher was also once chased by some of the local youths for easy earning. They wrongly thought the researcher from NGO. When the researcher revealed the purpose of the visit, then only they went away.

3.9. Chapter Plan
For the systematic analysis of the problem the present work has been divided into eight chapters. Chapter I draws a general outline of the problem. Besides the general introduction, a review of relevant literature has been given in Chapter II. Both Chapters I and II provide a historical and theoretical background to the present problem. Chapter III discusses on the research context and framework including specific methodology adopted for this research.

Chapter IV deals with the Socio-economic background of the respondents, their family structure, age, religion and education. Chapter five, six, seven and eight, captured the outcome of the research according to the objectives of the study which include Current Livelihood Scenario,
Environmental Issues and Natural Disaster, Mechanization, Common Property and Social Movements, and Conclusions with suggestions. A summary in chapter eight briefs the research findings. The following chapter plan have been followed:

Chapter-1 General Outline
Chapter-2 The State of the Art Review
Chapter-3 Research Context and Framework
Chapter-4 Socio-Economic Profile.
Chapter-5 Current Livelihood Scenario
Chapter-6 Environmental Issues and Natural Disaster
Chapter-7 Mechanization, Common Property and Social Movements
Chapter-8 Conclusion and Suggestions

3.10. Limitations of the study
In spite of all sincere efforts to make the study more scientific, it has certain limitations:

- The present work covers an analysis of the livelihood, CPR, social movement and natural disaster aspects on fishermen's life. All other aspects have not been covered within the scope of the study.

- The thesis studies the fishing for living in and around Chilika Lake: a Sociological study of survival strategies and alternate livelihood options of fishermen community in Chilika region, but the activities of non-fishermen in the thesis are not highlighted equally unlike fishermen.

- During the study, many villages have been left owing to time and resource constraints, which are equally important from fishing point of view. This is a great limitation of the study.

- The sample drawn here were not of the most representative one and the possibility of some bias cannot be ruled out

- The various external conditions and parameters may not have been reliably controlled.

- The limitations of time for submission of the thesis have restricted the scope of the enquiry to probe further.

There are some other limitations of the study which are treated general. Firstly, the literature available on the subject being limited, the researcher had no other alternative, but to depend mainly on the data collected during the discussions with the officials from CDA. Secondly certain
officials, especially those who are placed at the helm of affairs inside CDA, were not able to spare sufficient time to discuss, various issues and much more so to come out openly with arguments or counter arguments about the basic issues posed. Despite all these limitations, honest attempt has been made to make the research work as representative and authentic as possible.