CHAPTER II

METHODOLOGY

MATERIALS AND METHODS

SURVEY

The dictionary defines 'Survey' as the collection by measurement of all facts needed for determining the condition, amount etc., of something (Craig, 1981). The proposed study was carried out on the basis of scientific reconnaissance, which, for convenience, has been divided into two- the pilot and main survey.

Pilot Survey

A pilot survey was conducted, before designing the final research questionnaire, to gather first hand knowledge and information in the floodplain wetlands. The following were the major objectives of the pilot survey.

-To formulate research hypotheses and questions appropriate for better understanding the cost and return analysis of different fishing gears.

-To identify the parameters and factors to be included to test the research hypotheses and to answer research questions.

-To determine the sample size.

-To assess the various types of information required for understanding the economic viability of fishing gears in different beels of Assam.

-To assess the various types of information required for understanding the types of gears and the indigenous fishing methods of the flood plain wetlands.

-To collect information on fish diversity in the floodplain wetlands of Assam along with their ratios of major, minor and intermediate groups.

The pilot study was conducted mainly through discussions with the fishermen, a section of concerned authority, *mahaldar* and traders.

RESEARCH DESIGN

Based on the findings of the pilot study and available literatures in the concerned area, two research hypotheses and five research questions indicated in the previous chapter (chapter I) were framed. The testing of two research hypotheses and answers to the aforesaid five questions appear to provide all the information required for better understanding of different types of fishing gears and their economic viability.

QUESTIONNAIRE DESIGN

The pilot survey carried out at the beginning of the research had provided the needed inputs for the detailed designing of the questionnaire. To test the proposed research hypotheses and to answer the aforesaid research questions the following types of information were needed:

i)   Types of gears used in the beel fisheries of Assam.

ii) . Different types of indigenous fishing devices in the beel fisheries of Assam.

iii)   Types of gears, which are economically feasible.

iv)   Different mesh sizes of gears and their level of CPGH.

v)   Traditional status of fishing gears.

243147

vi)   Level of effectiveness of fishing gears across the different beels of Assam.

vii)   Mesh sizes of the gears, which are most effective in the beel fisheries of Assam.

To obtain the above-mentioned information a survey was conducted with the help of structured questionnaire. The structured questionnaire was designed to record the informant's verbal response to the questions. The questionnaire had six major sections, which deals with four research questions and two research hypotheses (one section for each *research question* and *research hypothesis*). A copy of the questionnaire has been annexed in the appendix I.

The section I was meant for collecting information related to types of gears used in the beel, which included name of the gears used in the beel, seasonal variation of the gears, types of indigenous fishing methods if any and mode of their operation, fish catch composition of each gear and so on.

The section II was divided into two parts. The first part (Section II.A) was designed to collect data relating to financial aspects of the operation of each gear. For this, the questionnaire included type of gear; number of operation per day, per month and per year; life span of gear and boat; number of labor needed for fishing and so on. Moreover, it included all relevant questions required for the collection of data and information for economic evaluation. The second part (Section II.B) was meant for the economic evaluation of *Katal* fishing.

The section III also contained two parts. The first part (Section III.A) was mainly designed to collect data for the analysis of CPGH of various mesh sizes of gill nets. Like wise, the second part of the questionnaire (Section III.B) was designed for the study of level of CPGH of all the gears other than gill nets.

14

The section IV was designed to unearth the traditional status of the gears. Altogether ten questions were administered to the respondents to obtain the requisite data for the "research question 4".

The section V of the questionnaire was designed to obtain data for testing of research hypothesis I. The levels of effectiveness of gears across the different beels were measured with the help of Section II.A. Moreover, three aspects were considered to evaluate whether the level of effectiveness influenced by the types of species available, their density and the hydrological condition of the beel.

The last section (Section six) was framed to obtain data and information on the effectiveness of mesh sizes of the gears and their level of effectiveness in different beels of Assam to test the research hypothesis II.

SAMPLE SIZE

The state has a vast water resources covering about 4.0 lakh hectare water area, out of which flood plain wetlands constitute about 25% of the total water area of the state. As per the statistics Department of Revenue, Govt. of Assam, there are 423 registered floodplain wetlands in 32 districts of Assam (Dey, 1981). Out of these, 57 floodplain wetlands in 13 districts of Assam were selected for the present study (The details about the selected wetlands are presented in Annexure I).

TOOLS FOR ANALYSIS

Analysis of economic viability of different fishing gears was carried out using some of the tools commonly used to evaluate economic viability. Those were 'Capital Turn Over Ratio' (CTOR), 'Rate of Return' to capital, 'Pay back Period' (PBP), 'Benefit-

Cost Ratio' (B-C Ratio), 'Net benefit-Investment Ratio' (N-K Ratio), 'Net Present Value' (NPV) and 'Internal Rate of Return'.

DATA COLLECTION METHOD

Data and information were collected through survey and personal observation. The survey was conducted with the help of a structured questionnaire. The survey was conducted in two phases. In the first phase, problems related to fishing in the beels, fish resources and traditional status of the gears were discussed in groups. The group discussion were conducted wetland–wise, one group for each wetland. All the fishermen involved in fishing were invited to participate in the respective group discussions and were asked to express their views and perception freely regarding afore said matters. The out come of discussions were recorded systematically in the questionnaire. These discussions were mainly the general discussions without strictly adhering to the items in the questionnaires.

In the second phase a door-to-door survey was carried out, and in that process, the fishermen who are involved in fishing were interviewed individually. Since, the fishermen are mostly illiterate the questionnaires were not distributed to get their responses. Instead, each item of the questionnaire was discussed in detail and verbal responses to the questions were recorded in the appropriate column of the questionnaire. Further, the item related to the financial matters (i.e. the selling price of fish species, cost of gears, cost of boats) were also verified to traders and gear and boat manufacturers.