Chapter 2

Research Methodology
2.1 Introduction

The chapter on research methodology encompasses research design and methodology. Research design is a framework for conducting marketing research and the methodology details the procedures necessary to pursue the objectives of the study and includes respondents sampling, data collection and data analysis.

2.2. Research Design

The present study on the "Prospects of marketing the indigenous ornamental fishes of Kerala" falls into the category of an exploratory research as described by Aaker et al., (1997). The objective of exploratory survey is to provide insights and understanding and has characteristics such as flexible and unstructured research process, loosely defined information, small and non representative sample and qualitative analysis of primary data (Malhotra, 1996). The present research seek insight into the prospects of marketing the indigenous ornamental fishes of Kerala by comparing the marketing mix variables (Product, Place, Price, and Promotion) pursued by three different categories of indigenous ornamental fish marketers of India (Exporters, Suppliers and Aquarium shopkeepers), so that the marketers of Kerala and other people intending to be marketers can emulate their marketing pattern. Four factor classification of marketing mix popularised by Mc Carthy (1981) formed the focal theme of the study. The study also tries to understand the export markets and trends.

To study the possibility of penetrating the product into the domestic
market, consumer oriented marketing championed by academics Mc Carthy (1960) and Kotler (1995) was followed. The perspective of consumer oriented marketing championed in the early 1960s by academics is based on determining what a target group of customer want, and then maximising their satisfaction with the product or service. Kotler (2001) outlined the common approach used by marketing research firms as the formal procedure for identifying the major segments in the market involving three steps namely survey stage (involving exploratory surveys or focus groups), analysis stage (comprising a factor analysis or cluster analysis) and a profiling stage.

2.2.1 Data Collection

Primary data collection was carried out at the outset to obtain data on the marketing mix, markets and marketing pattern of the three categories of marketers of indigenous ornamental fishes of Kerala. Primary data was also collected to study the consumer behaviour in ornamental fish purchase. Secondary data collection was carried out for reviewing the literature on ornamental fish trade aspects, to understand the ornamental fish trade statistics world wide, India and Kerala and to review the earlier works carried out on the indigenous ornamental fishes of Kerala. The data were collected from journals, reports, CD ROMS and the internet. The secondary data was collected from various sources that included,

1. Marine Products Export Development Authority (MPEDA), which is a statutory body under the Ministry of commerce, India.
2. Central Institute of Fisheries Technology (CIFT), & Central Institute
of Marine Fisheries Research Institute (CMFRI) in Kochi, which are the research institutes of Indian Council of Agriculture Research (ICAR).

3. Department of Fisheries in Kochi and Trivandrum, under the State Government.

2.2.2 Survey Method

The study conducted a marketer’s survey by personal interview method and a customer survey by mall intercepts (Churchil.Jr, 1995). General discussion of the mall intercept as a data collection technique was put forward by Gates and Solomon (1982) and Bush and Parashuram (1985).

2.2.3 Survey Instrument

Questionnaires were developed as basic tools for collecting primary data. It was structured in such a way that the primary objectives of the research could be addressed to (Aaker et al., 1997). The study used two separate questionnaires for marketer’s survey and customer’s survey. Unlike the unstructured questionnaire of exploratory research, this study used structured questionnaire as survey instrument in order to facilitate analysis using SPSS 13.0. The questionnaire schedule is given in annexue-2 and annexue-3.

The indigenous ornamental fish marketer’s survey questionnaire contained five sections on profile, product, place, price and promotion. The types of measurement included dichotomous, multichotomous and rank order scales.
The customer survey questionnaire consisted of five sections which aimed at obtaining customer response on profile, motives in purchasing ornamental fishes, willingness to keep indigenous ornamental fish in aquarium, comparison of indigenous and exotic fishes, attributes preferred in indigenous fishes, and low affinity towards the marine ornamental fish keeping. Type of measurements or attitude rating scales used in coding questionnaire responses were, Nominal scales (Dichotomous or Multiple choices), Ordinal scales (Rank order scales), Interval scales (Rating on likert scales) and Semantic differential scales (Chuchchil. Jr, 1995).

2.2.4 Sample Selection

In the present study, the two surveys were carried out which aimed at two different set of respondents. The first set of respondents were the marketers of India dealing with the indigenous ornamental fishes of Kerala which included three categories i.e. exporters of India and Kerala, suppliers of Kerala and retail aquarium shopkeepers of Kerala. The second set focused were the ornamental fish customers visiting the outlets marketing the indigenous ornamental fishes of Kerala.

➤ According to the list collected from the Directory of ornamental fish exporters, published by the MPEDA (Anon, 2001) there were 25 registered ornamental fish exporters in India, of which only 13 were found to be active during the study period (2000-2005). For exporters' survey, a census survey (Aaker et al., 1997) of all active exporters was carried out, as the population size itself was quite small.
Preliminary survey revealed that, aquarium outlets outside Kerala were not marketing indigenous ornamental fishes of Kerala. Hence the retail aquarium marketers were surveyed from Kerala alone. The number of all aquarium outlets in the state added up to 163, as per the directory of fisheries and ornamental fish trade (Sanjeevaghosh, 2001). A preliminary survey was conducted in order to understand the outlets which catered indigenous ornamental fishes of Kerala and 13 outlets from Kerala were short listed for further study.

The number of active suppliers of indigenous ornamental fishes of Kerala added up to nine and all of them were subjected to census survey. Hence the 13 exporters, 9 suppliers and 13 aquarium retailers added up to thirty five marketers from India who dealt with indigenous ornamental fishes of Kerala and they were personally administered the marketers’ questionnaire.

The second set of respondents for customer survey in the domestic ornamental fish market in Kerala were chosen after conducting a preliminary survey of all outlets in Ernakulam district (Anon, 2001b) which added up to 37. This was the only place in the state where aquarium shops sold all three varieties of indigenous ornamental fishes of Kerala i.e. marine, fresh water and brackish water fishes. Four outlets were chosen from the thirty seven outlets for the exploratory survey by conducting mall intercept. A convenience sample of 137 respondents was selected from
the four outlets. Small or non representative samples are the characteristics of exploratory surveys (Malhotra, 1996).

2.2.5 Data Analysis

Data collected were edited, coded and analysed using statistical package for social sciences (SPSS 13.0). Univariate and multivariate analysis (Hair et al., 1999) were carried out. In Univariate analysis simple statistical measures such as frequencies, cross tabulations and descriptive statistics such as percentages arithmetic mean, standard deviation are used for exploring the composition within the variables. Non parametric tests such as chi-square were also applied. In Multivariate analysis appropriate statistical measure such as Factor analysis, Cluster analysis and Profile analysis (Hucheson and Sofroniou, 1999) was used to arrive at conclusion.

In the analysis of marketers survey, simple cross tabulations (Aaker et al., 1997) of marketers survey results was carried out with the category of marketers (Exporters of India, Retail aquarium traders and Suppliers of Kerala). Cross tabulation is a statistical technique for studying the relationship among and between nominal variables. In cross tabulation the sample is divided into sub groups in order to learn how the dependant variable varies from sub group to sub group. Cross tabulation table require fewer assumptions to construct and they serve as the basis of several statistical techniques such as chi square (Aaker et. al., 1997).

To get an idea of the future prospects in ornamental fish exports
Prospects of marketing the indigenous ornamental fishes of Kerala

from India to the international markets, a trend analysis (Box and Jenkins, 1984) using method of least squares was carried out. The export data of ornamental fishes from India to its major markets for a period of 10 years (1993-94 to 2003-2004) was subjected to the analysis.

Customer survey in the domestic ornamental fish market aimed at identifying the important variables that initiated customers in ornamental fish purchase by a factor analysis. A profile analysis was carried out to find the factors that differentiated indigenous fishes from exotic fishes based on consumer perception. Market preferred groups of indigenous ornamental fish were identified by cluster analysis. Yet another factor analysis was carried out to find the factor due to which hobbyists kept away marine aquarium fish keeping.

Factor analysis is an interdependence technique focusing on variables and cluster analysis is an interdependence technique that focus on objects. Cluster often focuses on variables also. Factor analysis is the general name denoting a class of procedures primarily used for data reduction and summarisation. In marketing research there may be a larger number of variables most of which are correlated and which must be reduced to a manageable level. Relationships among sets of many interrelated variables are examined and represented in terms of a few underlying factors. Numerous applications of factor analysis in marketing research has been described by Malhotra (1996).

Profile analysis based on semantic differential scales is widely
used to describe the set of beliefs that comprise a person's image of an organisation or brand. The procedure is also insightful for comparing images of competing brands, stores or services. When combined with proper item analysis techniques, seems to offer the marketing researcher a most valuable research tool.

**Cluster analysis** classifies objects into relatively homogenous groups called clusters based on the set of variables considered. Objects in a cluster are relatively similar in terms of these variables and different from objects in other clusters. Cluster analysis has been used in marketing for a variety of purposes; segmenting the market, understanding buyer behaviour, identifying new product opportunities, selecting test markets, and reducing data (Malhotra, 1996). A detailed description of the methodology is presented in the respective chapters.