7. PROPOSED SOCIOECONOMIC CORE RESEARCH PROGRAMMES, PROJECTS/COMPONENTS AND JUSTIFICATION

In a country situation like Bangladesh where the number of active fishermen far exceeds that which is required under a socially optimum management, the improvements in resource productivity and in living standards could come about only if fishery-related interventions are complemented by rural development on a broader resource base (e.g. fish processing, aquaculture, mangrove felling, farming, etc.)

The planning of such integrated rural development and resource management requires a considerable amount of information as to the demographic and sociocultural characteristics of fishing communities; their occupational structure, income levels, and other indicators of well-being; the size and the quality of the resource base; the productivity, cost structure, and profitability of existing (and alternative) fishing technologies, the efficiency of the marketing system; the potency of social and institutional constraints; the potential for alternative or supplementary economic activities such as coastal aquaculture. Because of the complexity of the problem and the rather disappointing results of past government programmes, the Government is becoming increasingly concerned that their efforts to upgrade small-scale fisheries may be frustrated without such information and without a thorough understanding of the constraints under which small-scale fisheries operate and of the opportunities for further development.

7.1 Socioeconomic Conditions

A careful study of the socioeconomic conditions of small-scale fishermen is a prerequisite for the good design and successful implementation of effective assistance programmes. The main objectives of such study are as follows:

- To provide an overall picture of the structure, activities, and standards of living of small-scale fishing communities and households as a background to a more in-depth analysis at a later stage;
- To compare the standards of living of small-scale fishing households to those of other comparable socioeconomic groups (e.g., farmers), and to the national average to determine their relative positions in the national economy and establish whether government intervention to upgrade their position is needed; and
- To identify factors that account for differences in standards of living among small-scale fishing households themselves and between them and other socioeconomic groups so that policy implications are arrived at and effective policies for assistance and development can be formulated and recommended.

In order to define and measure standard of living, it is necessary to describe, in a meaningful comparative way, several of the conventional socioeconomic variables: occupational structure, family size and age structure, cash and noncash income, consumption expenditure, education, house and other consumer durables, public services, and social amenities. These variables are described and measured because they are needed to establish how well-off the fishermen are vis-a-vis each other and the rest of the country. We are then able to say whether the small-scale fishery sector as a whole, or some part of it, is among those groups of the society that need special government attention and assistance. Attempts should also be made to determine whether the fishermen's current (relative) income position, whether high or low, is not a temporary feature, i.e., we should introduce some historical perspective into the picture. Moreover, even if the past confirms the present, there is no

reason why the future should be the same: some consideration of the future prospects, especially in the light of growing population, expanding economy, rising unemployment elsewhere, or resource depletion in the immediate area, should all be taken into account.

The next step is to determine what general form government intervention should take. Should the government provide small-scale fishermen with credit and subsidies to enlarge their boats or to buy land and farming equipment; help them extend their fishing range to new fishing grounds or assist them in expanding their non-fishing activities; encourage more labour intensive fishing technology and fish processing at home; or develop more non-fishing employment opportunities. To answer questions of this sort, we need to determine what factor accounts for income differences among fishing households themselves and between them and other socioeconomic groups.

Depending on which factors are found to contribute more to the family income, the government can design its intervention policies so as to achieve the maximum effect on the small-scale fishing household's income from a given level of public expenditure. The optimum policy will often be one of a mixture of policy instruments such as promotion of both labour-intensive fishing technology as well as creation of non-fishing employment opportunities; or helping fishermen to convert their vessels into more profitable types of gear as well as helping them to move gradually out of fishing occupation. The above analysis will help select the most appropriate mix of such policies.

The foregoing is only one example of how to enhance the analytical content and policy relevance of socioeconomic research in the fisheries sector. The analysis may be more detailed. However, data availability might be a problem in certain cases. When data are available or could be obtained at reasonable cost, a detailed profitability and production analysis could be carried out to determine how profitable and productive are different fishing gears operating in different locations. Fishing income differentials arise from differences in fish prices, fishing costs and catch, which could be identified and measured by a detailed cost and earnings or profitability study (Section 7.1.3). The catch differences may then be related to and explained by differences in fishing technology, input use, fishery resource abundance as well as in the efficiency with which these are combined (Section 7.1.2).

Price and cost differences may be related to and explained by market structure, market distortions and inefficiencies, transport costs, (dis) economies of scale, etc. (Section 7.1.4). Differences in technology and in access to resources and markets may in turn be related to social and institutional constraints such as customary property rights. In the light of findings of these investigations, government policies aimed at assisting fishermen can be evaluated (section 7.1.6) and alternative policies recommended. Given the definite limits of natural fisheries in providing income and fish supplies to relatively rapidly growing population of Bangladesh, the need to develop alternative sources is inevitable. Among various alternatives, aquaculture (discussed in section 7.1.5) has a particular appeal because it could provide both income and fish/shrimp supplies and in many cases, it could be developed in the vicinity of fishing communities, thus saving in relocation costs.

7.1.1 Research Project: Socioeconomic Status of Disadvantaged Women in Rural Communities

A. Project and its Rational

Women's participation has contributed to sustaining activities in fisheries and fishery-related activities in Bangladesh. However, fisheries sector, with only 5% female employment of 10 years and above, has been lagging behind agriculture (47%) and Forestry (36%). Therefore, there is a considerable potential for their increased participation both at individual and groups levels. But to achieve this, substantial efforts are to be made for proper identification and assessment of their problems and needs and better understanding of their culture and power relation between men and women and power structure in respect of religious, political and economic matters within family and community.

This is the objective of this research project, that is to provide such information for an in-depth analysis leading to proper identification and assessment of the ways to assist the fishing community women, especially the disadvantaged women in the fishing communities establishing their groups in order that economic and social inputs may be provided. This research project would also make an attempt to assess the approaches used by different NGOs such as BRAC, CARITAS, PROSHIKA and RDRS in assisting women's groups in small-scale income generating activities. Pond fish culture is a prevailing activity of the NGO-assisted women groups to which training, credit and input supply are generally provided. Some women also take part in excavation and re-excavation of ponds, releasing fingerlings, feeding them, guarding their ponds and also making decision regarding catching and selling of fish. However, NGOs' assistance is still sporadic and small in scale. Therefore, there is a lot of scope for further assisstance to enhance the socioeconomic status of the disadvantaged women in

the fisheries sector of Bangladesh since women still remain secluded, their involvement in ownership, management and fish rearing and marketing is still minimal. This research project would be an attempt in that direction through analysis of the current situation and extraction of policy implications for the most effective assistance.

B. Information Needed in Assessment of the General Situation of Women in Small-scale Fisheries:

Income:

1. To what extent are fisheries the primary or sole source of income for men? for women?
2. What other sources, actual or potential, of income exist in the community?
    - non-fisheries cottage industries
    - trade
    - services
    - other
3. Are fisheries activities year round or seasonal?
4. Who controls the family cash income?
5. Who owns the means of production: boats, nets, traps, ovens, ponds, land, etc.?

Food security and nutrition:

1. What percentage of catches is consumed by the household and what percentage is sold?
2. To what extent are fisheries the primary or sole source of food?
3. What other sources, actual or potential, of food exist in the community?
    - farming/home gardens
    - raising livestock or poultry
    - raising fruit trees
4. Are any food and nutrition survey data available?
5. Do traditional dietary customs make the best possible use of available nutritional food?
6. To what extent is household food security achieved in the community?

Community services:

1. To what extent are basic community services available directly related to women's domestic role?
    - child-care facilities
    - water for household use
    - fuel for household use
2. Are basic educational facilities available and used by women?
3. Are population education, family planning programmes available?
4. Are basic medical facilities available?
5. Are basic financial services available (savings and credit)? Are they available to/use by women?
6. Do women have access to cooperatives and community organizations?

Division of labour:

1. To what extent are there clear, traditional distinctions between the roles of men and women?

- in fisheries activities
- in other productive activities
- in handling and control of finances
- in social/community activities

- in political/decision-making activities

2. what percentage of women's labour is devoted to domestic tasks, including collection of water and fuel?

3. In what activities are women engaged in their own right and in what activities are they directly supportive of men's activities?

4. Are they traditional restraints on women working or associating with men outside prescribed limits?

5. Are there traditional taboos that prevent women from engaging in certain types of activities on their own?

Overview

1. What are the major local resources available for development?

   - sources of food
   - cash-crop production
   - sources of income from fishing, agriculture, crafts, services, earnings sent by migrant workers
   - community services
   - cooperatives

   - other economic, social and political organization or patterns

2. Are they used to their fullest potential?

3. What are the major obstacles or constraints to local development?

   - lack of basic natural resources
   - climate and climatic disasters
   - lack of income-earning activities
   - lack of community facilities: medical, education, credit, extension, transportation, markets, etc.
   - seasonal migration
   - inefficient or destructive work patterns and methods
   - poor dietary habits, including child feeding
   - inhibiting social patterns and taboos

   - government policies, priorities, laws and regulations

4. Can these, realistically, be modified or eliminated?

5. what base-line data are available on the economic and social life of the community, including the position of women? Is it accurate and up-to-date?

6. Have other programmes or projects been launched in the area? If so, with what success?

7. Have local inhabitants, including women, been effectively consulted on *their* priorities and needs?

7.1.2 Research Project: Socioeconomic Conditions of Small-Scale Fishermen and Fish Farmers

A. Project and its Rational:

The standard of living of fishermen appears to be low both in absolute terms and by comparison to the living standards of other rural inhabitants. However, the necessary information for the formulation of government assistance programmes is lacking.

The purpose of this research is to provide such information through surveys and description of the absolute and relative socioeconomic conditions of fishermen and of fish farmers, whose numbers have been increasing rapidly in recent years. It would attempt to describe the socioeconomic conditions of fishermen and fish-pond operators, with emphasis on education, employment, income levels from fishing and non-fishing activities. Furthermore this research is to provide a comparison of standards of living and other socioeconomic conditions of fishermen and fish farmers with those of other rural inhabitants (rice farmers, etc.).

B. Sampling Methodology

A survey of 500 fishermen and 200 fish farmers is to be conducted in regions under responsibility of the four FRI Stations: Freshwater (Mymensingh), Brackishwater (Paikgacha), Riverine (Chandpur) and Marine (Cox's Bazar).

A multistage sampling techniques would be used to select sample respondents. From the recent population census, fisheries population table must first be prepared (Table 7.1). Districts with largest number of fishermen and fish farmers are to be chosen. A random sample of fishermen and fish farmers would be taken from Thanas with largest number of fishermen and fish farmers within each of the chosen districts.

For an in-depth analysis of the fishing operations and the various cash inflows and outflows in fishing households, at a later stage, a smaller sample of 70 would be selected from two sample Thanas. The fishermen within the subsample would be asked to keep records of daily catch, fishing effort, receipts, and expenditures for 1 year.

C. Absolute Socioeconomic Conditions

Under this heading, the following results are expected from the study:

Socioeconomic profile:

average age, years of experience, years of schooling and percentage of non-educated for both fishermen and fish farmers and how they vary among regions.

Labour use and sharing arrangements:

Percentage of boat owners (motorized and non-motorized), boat renters, fishermen labourer or shareworkers; the extent of labour use (size of fishing units), time allocation between fishing and nonfishing activities, fish capture and fishing-related activities (e.g., bait preparation, marketing, boat and engine repair, and net mending), nonfishing incomegenerating activities (such as boat construction, working as fishpond labourers, and farming); fishing income as a percentage share of net income; and the percentage of time the fishermen are idle can be used as a measure of incidence of underemployment.

Income levels and variations:

division of fishing income among members of the crew and the boat owner and its variations in different sharing systems, share of fishing equipment (boat and gear) and fishermen by type of fishing operation; variations of fishing income within a year; gross earnings and costs, earnings from nonfishing income-generating activities and its share in total income and its variations among the respondents.

D. Comparative Socioeconomic Conditions

For a deeper appreciation of the socioeconomic conditions of fishermen and fish farmers, it is necessary to compare their income levels, and other indicators of living standards to those of other rural socioeconomic groups, and to the national average. several indicators, including income and expenditure levels, ownership of residential lots and homes, and availability of basic home utilities must be considered. Quantitative data may be obtained from both the present and previous studies. If these studies are conducted in different years, the consumer price index must be used to adjust price changes and make the data comparable. Several measures can be used: income from the main occupation and from the secondary occupation, total household income, total expenditures, and expenditure on food.

7.2 Production Technology and Efficiency

In this area of research attempts must be made to explain the variability of catch among fishermen based on the quantities of input they use, the type of fishing gear they employ, and the location of fishing ground in which they operate. Some social characteristics that might affect management ability must also be considered.

7.2.1 Research Project: Production Technology and Economic Efficiency of Small-Scale Fisheries

There may be wide differences in fishing incomes among fishermen operating the same type of gear in different locations as well as among fishermen operating different types of gear in the same location. Even fishermen operating the same type of gear in the same location may have diverging incomes. These income differentials may be attributed to one or both of the following factors: differences among fishermen in the quantity of catch and differences in fish prices received and input prices paid. This cannot be directly determined by casual examination of the catch and price data because of the multi-species composition of catch and use of a variety of mesh sizes.

This research project would attempt to explain differences in fishing incomes arising from differences in catch, which in turn arises from differences in the use of fishing inputs, differences in resource availability among locations and resource accessibility among different types of gear, difference in technical efficiency and random factors, such as “pure” luck. In attempting to explain variations in catch in terms of the above factors, the study must estimate an input-output relationship, i.e. “fishery production function” on the basis of sample data on fishing units from different locations. It would be necessary to consider the condition of the fishery resources in the sample areas and thus, the fishery production function must combine both biological aspects (the condition of the fishery resource) and the technology employed to catch fish. This would facilitate to test the general hypothesis that differences in catch among small-scale fishermen are due to differences in production technology, variable input use, and resource abundance. These tests enable us to identify and rank the main determinants of catch and suggest ways in which catch and profit might increase.

7.3 Cost Structure and Profitability

This area of research would take a closer look at fishing incomes, analyze the composition of fishing costs, and evaluate the viability of small-scale fishing operations as a commercial activity. Fishing costs are classified into fixed and variable, cash and imputed, and domestic and external, and the shares of the individual inputs such as fuel, capital, and labour needs to be computed and compared to assess the vulnerability to external factors and to measure the relative factor intensity of different fishing technologies. Various indices of profitability would be defined to assess the short- and long-term viability of fishing operations and the degree of economic overfishing arising from the open-access status of the fishery resources.

The nine specific questions to which answers are sought are:

1. What are the relative capital and labour intensities of various fishing technologies in different locations?
2. How sensitive is the cost structure of various types of gear to fuel price increases?
3. how much of the total costs of different types of gear are independent of the day-to-day operations?
4. What is the degree of independence on credit and at what cost?
5. How are the total revenue is divided between the boat owner and the crew for different types of gear and in different locations?
6. Which types of gear and which fishing grounds are on the average more profitable?
7. Are relatively larger vessels on the average more profitable than smaller ones?
8. Do the prices of fish and fishing inputs differ substantially among vessel sizes and among locations to the extent that they have an effect on profitability? and
9. What other factors besides vessel size, gear type, location, and prices have a bearing on profits?

The basic unit of analysis here is the boat in the case of boat owner-operators and the individual labourer in the case of the crew. Fishing operations may be distinguished according to location or fishing ground and according to technology or type of fishing gear. It is important to group fishing units according to fishing gear and fishing ground because of the apparent “immobility” between gear types and between fishing grounds. For historical and economic reasons, fishermen are locked into particular types of technology and locations of operation from which it is not easy to scape, even if other types of gear and other locations are more profitable. Another such fixed factor is the size of the

vessel, which determines, to a large extent, the fishing range and catching power of the individual fishing units. Vessel size may be represented by length, tonnage, horsepower, or current value of fishing assets.

Of the nine questions raised, the first four can be answered by describing the cost structure of fishing operations whereas the last four require analysis of the profitability of fishing. The fifth question concerns both the cost structure and the profitability of fishing because fishing labour is often paid a share of the value of the catch rather than a fixed wage. Thus the analysis may be divided into three parts: cost structure, sharing system, and profitability. Some of the possible policy implications expected from this analysis are summarised in Table 7.2

Table 7.2 Fishing units, government assistance and information needed.

Fishing Units with:	Government assistance needed	Information needed
Negative gross profits continued for some time.	Urgent government assistance either to upgrade their fishing operations or terminate them altogether after develop nonfishing employment opportunities for fishermen to move into.	Nonfishing employment opportunities.
Positive operating (gross) profits but negative net profits (not due to a bad season but simply living off their capital).	Assistance to switch to more profitable gear or richer fishing grounds (if such exist) at the end of the economic life of the current fishing assets.	The most profitable types of gears and locations must be known.
	Alteratively, if underfished grounds do not exist develop nonfishing employment opportunities for fishermen to move into.	Nonfishing employment opportunities.

7.3.1 Research Project: Cost Structure and Profitability of Small-Scale Fisheries

A. Project and its Rationale:

Various types of fishing craft and gear are used in Bangladesh small-scale fishery, which exploits a variety of resource conditions. The different technologies used in the small-scale fishery have comparative advantages and disadvantages in respect to their fixed costs, fuel costs, internal and external costs, and labour costs (relative to total costs) and also in respect to the earnings of boat owner and crew member-labourer. The different technologies also display different levels of profitability in small-scale fishing operations.

A clear assessment of costs, earnings, and profitability of different combinations of boat and gear in a comparative framework is required to guide the rational allocation of resources in the small-scale fishery within the national fisheries development policies. The proposed study is required before national decisions can be made as to which technologies are to be provided and which are to be discouraged. Furthermore, to facilitate a rational allocation of different types of boat-gear combinations between different locations, locational variation in mean annual revenue and profitability of each specific technology must be analyzed.

In this research, the costs and profitabilities of the various types of small-scale fishing operations in Bangladesh are to be analyzed. Craft-specific and location-specific income and profitability levels are to be compared and factors responsible for the variations are to be identified and explained. In addition, relative capital and labour intensities of different fishing technologies, the operation of quasi-property rights over fishery resources in specific situations, under- and over-exploitation of different fishing grounds, the sensitivity of the cost structure of different types of craft to fuel price increases, The relative inflexibility and immobility of capital in different fishing technologies, the external (foreign exchange) and internal cash components of producing fish using different technologies, and the return to labour in the different types of fishing operations are to be examined. The levels of profitability of different types of fishing operations are also to be analyzed and compared using alternative indices of profitability. Finally, interlocational variations in profitability are to be explained in terms of the prevailing conditions of entry in each location.

B. Data requirements and method of collection:

All data are to be collected from primary sources by field researchers of Socioeconomic Division of FRI because the secondary data on the cost structure and profitability of different types of fishing operations in Bangladesh, collected through empirical investigations, are not available. Data required for the analysis in this research project are to be collected through the administration of questionnaires in fishing villages (marine and inland) purposefully selected for study. Ideally this data collection has to be repeated on annual basis to obtain a time-series as non-availability of time-series data would limit the general validity of the research findings as the year of the single-year data could be an atypical year.

7.4 Marketing System

This area of research looks at what happens on land in relation to fishing inputs and catch. This is important for the reason that fishing income (or profits) depend not only on the amount of catch but also on its unit price at the market (or at the landing site) as well as on the cost of inputs used in the production process.

The central question in this research concerns the issue of middlemen and fish traders. Are middlemen receiving a “just” price (the opportunity cost) in return for their services? If there is exploitation of fishermen by middlemen in some cases, what are the necessary and sufficient conditions for its existence and persistence? Why is it that competition among middlemen does not eliminate exploitation? What is the role of isolation, immobility, and indebtedness in this connection?

In order to deal with these marketing issues one approach would be to follow the fish from the landing site to the consumer (and each fishing input from the main distribution centre to the fishing site) and examine whether the services provided in between (such as transport, handling, marketing expenses, risk-bearing, etc.) justifies the difference in price between the two end points. The number and share of traders relative to the size of the market at each stage in the marketing process must be considered. Credit provision as well as social relations between fishermen and middlemen also play a key role in the final outcome.

7.4.1 Research Project: Marketing System in Small-Scale fishery

Fish marketing in Bangladesh is carried out at four different stages, i.e. primary villages, assembly points, secondary distribution points, and terminal cities. Fish marketing, which is largely in the hands of the private sector, is managed, financed and controlled by a group of intermediaries known as aratdars (commission agents) and mahajans (financiers or money lenders). Wholesale fish markets are mostly run by a few aratdars who greatly restrict the newcomers. The aratdars provide advances to fish traders who in turn are required to bring fish to them for sale. The fish traders also provide advance to the fishermen who are to sell to them. The assembling of fish from fishermen is perhaps the most profitable activity in the entire marketing chain, because the fishermen lack bargaining power.

It is commonly argued that by combining the dual function of money lending and fish marketing, The middleman exploits the fisherman in the sense of paying him a price substantially lower than prevailing market price. It is also a commonly held hypothesis that, in traditional fishing communities, a combination of economic power and sociocultural and informational forces provide the conditions for either monopsonistic (single buyer) or oligopsonistic (few buyers) control of fishermen by middlemen.

The objective of this research is to investigate the general hypothesis that conditions of monopsony and oligopsony characterize the fish marketing structure of Bangladesh at various stages of marketing and that, as a result, the marketing structure should be held responsible for the low prices received by the fishermen and the high prices paid by the consumers of fish.

In this research, the above hypothesis would be tested by evaluating the costs of operation of two different types of middlemen, the aratdars (commission agents) and fish traders (the assemblers), the returns to their capital and management compared to their respective opportunity costs, and the levels of pure profits earned.

7.5 Aquaculture

Many of the problems faced by small-scale fishermen are common to small-scale fish farmers. Aquaculture holds the promise of becoming a viable alternative to capture fisheries. Given the increasing depletion of fish from natural resources and the rising employment and income needs of small scale fishermen and other socioeconomic groups aquaculture's potential contribution toward better nutrition, additional employment, and higher incomes, also toward better utilization of marginal lands, cannot be disregarded. The development of aquaculture may be beneficial provided socioeconomic aspects receive due attention in planning the promotion of aquaculture.

7.5.1 Research Projects

A. Fresh water Fish Culture: Differential Productivity and Income Generation of Fish Culture Technology

Pond fishery is an important component of the Bangladesh fisheries. The production from this sector (mainly carp species) accounted for 85% of the total aquaculture production. There are about 1.3 million ponds in Bangladesh covering an area of 147,000 ha. However, fish production takes place in about 50% of these ponds on a traditional basis and about 30% of ponds are derelict either due to lack of funds to re-excavate and to maintain them for production purposes, or due to multi-ownership problems. The rest are cultured, where the technology is either extensive and management is restricted to stocking with fry of unknown quality and quantity, which are left to grow unattended, or semi-intensive with the use of fertilizer and chemicals, proper stocking and adequate care. Ponds have considerable potential for increased production. Compared to potential, the present production is low because of high risk associated with flooding and drought, and because pond owners and operators lack technical know-how. The former cannot be eliminated but knowledge can be improved through extension services.

An assessment of the adoption, utilization, and economic performance of aquaculture technology is therefore necessary and this research attempts to identify the various technologies applied in fish farms and to determine their productivity and profitability.

B. Socioeconomics of Coastal Aquaculture

Costal aquaculture consists mainly of brackish water shrimp farming, for which Bangladesh is endowed with extremely favourable resources and conditions: availability of tidal land, warm temperature throughout the year, fertile pond soils, favourable water salinity levels and cheap labour. However, these favourable resources and conditions have not been optimally used: shrimp culture methods are in most part traditional and some extensive using various combinations of shrimp and rice, shrimp and salt or shrimp and fin fish, and in few cases shrimp monoculture.

A thorough socioeconomic study of coastal aquaculture is long overdue. This research proposal intends to cover the following aspects of Coastal aquaculture:

- The potential benefits of the brackish water aquaculture for the rural poor: particularly as an employment option to the displaced fishermen and fishing communities of the country.
- The employment opportunities of The new shrimp farming system: especially for rural women, in seed collection, catching fish on farms, deweeding, earth and brickwork for farm use, work in depots and processing.
- Its role in the improvement of nutrition and socioeconomic upliftment in fish-farming communities.
- If benefits of shrimp farming could be extended to small farmers through organizing and pooling their resources for shrimp culture instead of leasing their land to large farmers. (At present most of the benefits are enjoyed by large shrimp farmers who are generally city dwellers, alien to the area, and get the land on lease from small land owners to operate large shrimp farms).
- The role of NGOs in assisting to organize small farmers for shrimp culture.
- Problems of environmental degradation, socioeconomic disputes, intersectoral land/water use conflicts and the shortcomings of legislation and its enforcement in connection with these conflicts. (These are inter-related and each one should not be treated in isolation).
- Shortcomings in the area of inspection and quality control at shrimp deheading facilities, landing centres and local marketing places, handling, icing, processing and packaging. (Shrimp

is highly perishable commodity, any delay in its marketing can cause high losses).

- Extension and credit facilities for small farmers to meet their investment needs.
- Benefits from development of linkages between shrimp farmers and processing plants so that the factory may provide capital to the farmers and the farmer supply shrimp to the processing plants.

7.6 Socioeconomic Impact Studies of Fisheries-Related Policies, Programmes and Projects

Although each section of the Proposed Core Research programme presented thus far includes discussion of policy implications, this section is intended for evaluation of specific fisheries-related policies, programmes and projects and for recommendation of possible alternatives in the light of the findings of both this and other sections. The framework to be adopted in this section would include a description of the policy/programme/project under consideration, the factors that led to its inception, its objectives as set out and evolved through its active life, and its instruments, followed by the assessment of the programme/project's impact, i.e., the difference between the current situation and that which would have prevailed in its absence. The outcome or impact of a given programme/project once isolated from other influences may be compared to the stated programme/project objectives and to comparable alternatives.

7.6.1 Impact of Flood Control Interventions

Assess the likely socioeconomic impact of flood control interventions which might occur under FAP, including the consequences of the likely shift of emphasis from capture to culture fisheries.

7.6.2 Study of Economic Viability of BFDC Commercial Activities and Impact Study of its Promotional Role for both Marine and Inland Fisheries

The weakness of the BFDC is reflected in its financial performance of commercial activities which include large trawl operations, fish processing, marketing and exports, fishing net manufacturing and ice making. Economic viability of these activities need to be secured and the role of the BFDC in the fisheries development must be defined. The revision of its mandate is needed particularly in the light of government policy related to the development of the private sector. In this connection, it would be useful and timely to undertake a study on economic viability of BFDC commercial activities and impact study of its promotional role for both marine and inland fisheries.