

# **SOCIO-ECONOMIC ISSUES IN THE MANAGEMENT OF COASTAL FISHERIES IN MALAYSIA**

by

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## **ABSTRACT**

Coastal fisheries account for nearly 80% of Malaysia's total fish production. They are conducted primarily by small unmechanized or outboard powered craft using traditional gears in shallow waters near to shore and give employment to some 85,000 fishermen. Since 1971, attempts have been made, so far with only limited success, to organize the fishermen in cooperative associations. In the 1960s and 1970s policies which, in retrospect, were too "development oriented" and neglected socio-economic factors, led to an over-rapid expansion of the fisheries, provoking serious over-capitalization and over-exploitation of the resources. There were also conflicts between the small-scale fishermen and trawlers. In 1981, the government introduced a new policy, based upon comprehensive licensing and the zoning of specific fisheries. The grounds close inshore are now reserved solely for the use of traditional, small-scale fishermen; the zone beyond 5 miles and within 12 miles offshore is reserved for small, owner-operated trawlers and purse seiners; between 12 and 30 miles offshore, the waters are restricted to larger trawlers and purse seiners owned and operated by Malaysian nationals; beyond 30 miles, vessels exceeding 70 GRT can operate, including joint ventures and charters. The number of licences issued for each zone are being limited in an attempt to restrict effort to levels which do not exceed MSY. Relocation programmes are being implemented for "surplus" fishermen together with schemes designed to diversify income earning opportunities in fishing communities. Landings and productivity have both increased considerably. The total marine catch now exceeds 900,000 tons p.a. compared with around 550,000 tons in the mid 1980s; productivity per fisherman has risen from 6 mt p.a. to nearly 11 mt and productivity per vessel has grown by 70%.

## **1. Introduction**

In 1991, the Malaysian fishing industry produced some 977,000 MT of fish, valued at RM 2.56 billion (consumer price), representing 2.6% of the GDP. Over 90% (912,000 MT) were marine landings, the balance, being from aquaculture production fisheries accounted for 761,000.

The Malaysian government's development objectives relating to inshore fisheries give emphasis to the following aims:

- (a) Manage and conserve the fishery resources in order to prevent excessive fishing efforts, to protect fish breeding grounds and nurseries, to minimize the destruction of immature fish and to protect traditional fishermen from unequal competition.

- (b) Strengthen and intensify fisheries research and development on fisheries stocks to determine the extent of the damage done to the fish resources and the amount of available stocks, and to rehabilitate depleted resources.
- (c) Provide a more effective extension service, so as to increase the productivity of fishermen by means of technical advice and supporting services. The target groups should be exposed to modern and new methods and techniques and better handling and processing of fish.
- (d) Provide training to fishermen to enable them to operate and maintain fishing gears, boats and engines, and carry out fish processing. The training is technical in nature so that better and more efficient gears and equipment are used by the fishermen.

Some of the specific action programmes carried out for the development of the inshore areas are:

- (a) Drawing up regulations to manage fishing activities in specific fishing zones in order to protect traditional fishermen from unequal competition; to achieve rational exploitation of fishery resources; to minimize destruction of fishery resources; to minimize destruction of immature fish, to prevent excessive trawling in the inshore areas, and to protect fish breeding grounds and nurseries.
- (b) Rehabilitating over-exploited coastal fisheries resources of constructing artificial reefs and setting up marine reserves and marine parks.
- (c) Resettling the surplus fishing labour force in alternative employment, such as in sectors related to land and agriculture development, and fisheries related activities such as aquaculture and offshore fishing.
- (d) Research activities which are directed toward gear selectivity and monitoring of the resources situation, so that resources can be exploited with maximum efficiency and minimum detriment to the resources.
- (e) Restructuring the ownership pattern of the boats, with the aim of allocating the inshore areas solely to the owner operators who will be more responsible for conserving the resources for long-term exploitation.
- (f) Establishment of priority areas which act as demonstration and growth centres.
- (g) Provision of training and extension services to improve the skills and technical know-how of the fishermen, and to improve post and pre-harvest fish handling.

## **2. General Characteristics of Coastal Fisheries**

The majority of Malaysian fisheries are conducted in shallow waters close to shore, predominantly within 12 miles and to a limited extent beyond 30 miles. The boats are basically small in size, some 40% having no engines or being powered by outboard engines. Even most of the boats powered by inboard engines are less than 15 GRT (70.8%), the rest are 15 - 39.9 GRT (20.6%), 40 - 69.9 GRT (5.1%) and 70 GRT and above (3.5%). Over three-quarter of the boats licensed operate traditional gears such as drift nets, hooks and lines and bag nets.

The sector is also a source of employment for some 84,800 fishermen. This figure represented about 1.6% of the total employment in the country in 1991. Development efforts in the fisheries sector have so far brought about significant improvements in the standard of living of the fishing community. This is evidenced by the decline in the incidence of poverty within the sector, from 73.2% in 1970, and 62.7% in 1976 to 24.5% in 1987. The fishing community now compares favourably with other agriculture households occupying fifth place after padi farmers, coconut smallholders, rubber small holders and other agriculturists.

The fishing industry is also an important source of foreign exchange earnings. In 1991, Malaysia exported some 175,216 tonnes of fishery commodities, valued at RM 739.7 million (about 1% of the value of the country's total exports). The exports of fishery commodities increased over the last three years, from RM 577 million in 1989 and RM 630 million in 1990 to RM 739.7 million in 1991. There was a trade surplus of RM 259.7 million in 1991. This was made possible through the exports of high valued commodities like "prawns, fresh or frozen", "tuna, prepared or preserved in airtight containers", "prawns, shrimps, prepared or preserved in airtight container" and crustaceans and molluscs, prepared or preserved, not in airtight container".

### **3. Fishermen's Associations**

Fishermen's Associations were established under the Fishermen's Association Act 1971 in order, among other things, to channel new ideas, technological inputs and financial credits from the Government to the fishermen. These associations were also intended to overcome fish marketing imperfections and to lessen fishermen's dependency on middlemen who were alleged to have exploited the target group.

Fishermen's Associations are not the most successful of all the cooperatives in the country for several reasons. Firstly, is the fishermen's attitude about themselves. Some fishermen are comfortable with the perception that they are the poorest of the lot and therefore deserving more financial assistance from the government. Members join the Association mainly to fulfil requirement for government aid. The pattern of traditional production and distribution involving middlemen seems to be more efficient and is often favoured by the fishermen. Lack of management competence among cooperative personnel, misuse of opportunities by certain individuals, and conflicting interests are other reasons for the ineffectiveness of the movement.

The women are an integral part of fisheries communities. They act as catalyst to change the fishermen's attitudes and behaviour so as to build healthier, better educated and happier families. The fishermen's wives are instrumental in the household financial planning and handling to raise their standard of living. KUNITA, the Association of Women under the Fishermen's Association was established to facilitate and assist in the socio-economic and overall well-being of the Fishermen's Association.

### **4. Problems Associated with Past Development Programmes**

The rapid development of the Malaysian fisheries in the early sixties and seventies brought problems relating to over-capitalization and exploitation.

Analysis of catch and effort statistics and the result of research surveys have led to the conclusion that the stocks of both demersal and pelagic fish in the inshore fishing areas are either intensively exploited (as in the east coast of Peninsular Malaysia) or over exploited (as in the waters of the west coast). This is supported by the studies carried out by the

Fisheries Research Institute which monitored catch per unit effort (CPUE) of 30 GRT trawlers from a west coast commercial fleet from 1966/1980. The catch per trip fell from nearly 900 kg in 1966 to about 300 kg in the early seventies and to around 100/150 kg in the late seventies. Other considerable changes have also occurred such as virtual disappearance of certain valuable species and the waste resulting from large catches of juveniles of commercially valuable fish. Because of the differences in capacity of fish and prawn stocks to withstand fishing, fully developed prawn fisheries will almost always over-exploit the ground fish stocks. Thus, for the inshore areas, particularly the west coast, the problem that prevails is an excess of fishing units and intense fishing leading to declining catch rates. It is obvious that fishing effort and investment need to be reduced to make harvesting more economically efficient in terms of both manpower and capital and to conserve the various fish resources.

The management of the fishery resources prior to 1980 had been on a problem-oriented basis, that is reacting to problems as they appeared. Using this approach after the introduction of trawling resulted in a series of decisions being taken on a disjointed incrementation basis rather than within the framework of an overall plan for optimum utilization of resources. The principal elements of past management programmes were to reduce conflicts between mini trawls and the small-scale fishermen using traditional gears and to improve conservation to some extent. With respect to control of the fishery to improve conservation to some extent. With respect to control of the fishery to improve conservation and to reduce conflict, the government in 1974 came up with trawling limitation schemes. Regulations to ban all trawling within 3 miles offshore, trawling by bigger vessels of 25 GRT and above within 7 miles and those of 100 GRT and above within 12 miles off the coast were enforced. Zoning of trawler operations, however, has failed to prevent conflicts between the trawlers and traditional fishermen. A major reason for this has been the failure of the trawlers to abide by the regulations - encroaching into forbidden waters when enforcement vessels are not present, and the fact that many vessels not licensed to trawl use trawling gear covertly.

Thus, it seems that past policies were too development-oriented and not sensitive enough to the socio-economic need for a balance between fishing power and availability of resources. The government in 1981, therefore, adopted a more comprehensive fishing licensing policy to tackle the problems of over-exploitation, poverty, income disparity and regional and racial imbalances in the fishing industry. The "New Fisheries Licensing Policy" evolved from the old policy of trying to solve the problems arising from the conflict between the traditional fishermen and the mini trawlers in the inshore waters, but now encompasses fisheries as a whole.

The main strategy employed was the allocation of fishing grounds through zoning. The four zones were established.

- Zone A      Less than 5 miles from shore which is reserved solely for small-scale fishermen using traditional gears.
- Zone B      Beyond 5 miles and less than 12 miles from shore which is reserved for owner-operated trawlers and purse seiners of less than 40 GRT.
- Zone C      Between 12 miles from shore and 30 miles from the baseline of the territorial waters which is reserved for trawlers and purse seiners greater than 40 GRT and other fishing gears wholly owned and operated by Malaysians.

**Zone C2** Beyond 30 miles from the baseline of the territorial waters vessels of 70 GRT and above. Foreign fishing through joint ventures or charter are restricted to this zone.

Within each zone, the number of vessels permitted to operate are limited to levels that, as far as possible, would not result in fishing pressures beyond those required to achieve the maximum sustainable yields. To achieve distributional objectives socio-economic aspects of the industry were taken into account in determining the number of licences to be issued. As resources in most inshore areas are over-exploited the policy called for a reduction in the number of licences issued. In other areas where over-exploitation is being approached the policy called for an immediate freeze on the issuing of new licences. The reduction in the number of licences issued was to be done in stages. Initially, those fishing units in the first two zones which are not operated by the owners will be phased out and only fishing units operated by the owners will be permitted. The number of licences issued was adjusted to match fishing effort more precisely to the production capacity of the resources.

The management controls also include a minimum mesh size for otter-trawl net cod-end of 38 mm (1.5 in.) internal extension measure and a prohibition of the use of pair trawl. Use of explosives, poison or electrical devices to catch fish are also prohibited.

The total marine landings have increased considerably since 1985. This is partly due to the effectiveness of the management programmes implemented by the government. Parallel to this, the productivity of fishermen has risen from 6 MT in 1986 to 10.74 MT in 1991 while productivity per vessel increased from 14 MT in 1986 to 24.4 MT in 1991.

Table: Total Marine Landing  
(1985-1991)

| Year | MT      |
|------|---------|
| 1985 | 574,354 |
| 1986 | 561,967 |
| 1987 | 859,014 |
| 1988 | 825,631 |
| 1989 | 882,492 |
| 1990 | 951,307 |
| 1991 | 911,933 |

## 5. Relocation Programmes for Surplus Fishermen

In 1984, the government concluded that some 16,000 vessels involving around 27,000 fishermen should be phased out of the fishing industry under a long-term plan. This figure was based on two main groups of fishing boats (and thus fishermen), i.e. those using outboard engine or non-powered, and trawlers and purse seiners (of less than 40 GRT). The types of boats to be phased out were as follows: 103 fish purse seiners, 4,339 trawlers, 67 anchovy purse seiners, and some 11,500 traditional boats (hooks and lines, drift netters, etc.). The calculations were based on the amount of resources available in the inshore areas of Peninsular Malaysia. Through this restructuring (in favour of efficient producers) the inshore fishing sub-sector should be able to sustain no more than some 9,600 fishing units utilizing around 50,000 fully employed fishermen.

The computation of the surplus fishermen on the basis of resources potential provides a good indicator of the type of fisheries, area of operation and the amount of manpower required to operate the units. It was thus seen that prime emphasis should be given to phasing out fishing operators who were using uneconomical fishing units such as the non-powered and outboard powered and earning incomes of lower than the poverty level.

Nevertheless, the implementation stage had, among other things, to take into consideration the response and attitudes of the fishermen to the resettlement programmes of surplus fishermen or to changing their occupations. Owner operators were mainly concerned about the uncertain economic future of the family members, whereas the crew cited low income for wanting to change employment. Other reasons were the declining fish resources and lack of fishing capital.

The policies implemented by the implementing agencies to reduce the surplus were as follows:

- (a) registration of fishermen as a means of controlling entry into the fishing sector;
- (b) boat buy-back scheme;
- (c) land resettlement schemes by way of public relations and distributing application forms to the fishermen to participate as settlers;
- (d) training in various vocations and fields;
- (e) provision of credit.

The various steps taken by the government to address the issue have seen some success. Industrialization and therefore migration from rural to urban areas has also contributed to the siphoning-out of fishermen and thus helped to decrease their number. Fishing was a last resort for employment. And as the country progressed new employment opportunities opened up in other sectors and therefore lessened the constraints faced by fishing sector. There has been a significant reduction of labour force in the fishing sector in recent years. In 1989 there were 93,545 fishermen while by 1991 the number had fallen to 84,862.

## **7. Diversification of Income Earning Opportunities in Fishing Communities**

The prevalence of poverty in Peninsular Malaysia among fishermen fell from 73.2% in 1970 to 24.5% in 1987. This decline is very conspicuous when compared with some agricultural sectors. A total of 2,841 fishermen were categorized below poverty line, i.e., those with a household income of less than RM 175 per month.

In an effort to boost the number of fishermen owning their own boats, loans facilities were introduced. Up to 1990, some RM 29.34 million were approved for offshore fisheries programmes; thus enabling small-scale fishermen to buy or have boats built and therefore hopefully to upgrade their output. New offshore fisheries entrepreneurs have emerged due to the implementation of the loan schemes. Among the beneficiaries are several fishermen's associations. The modernization of fishing fleets and gear is a way of increasing fish production that will lead to a rise in income levels.

To equip fishermen as competent entrepreneurs capable of handling their own projects, the government has introduced several follow-up programmes such as: Fishermen Communication Scheme (SEKON); Model boats; Fish Aggregating Device (FAD); Improving fishermen's skill; and Processing and downstream facilities.

Under the SEKON, fishermen were educated on the safety measures while fishing, the need for team spirit among fishermen while in operation or during emergencies.

Fish aggregating device and artificial reefs were built and located strategically to establish fish habitats and increase fish production and improve the income level of small-scale fishermen.

To realize the desired national economic goals, development programmes place emphasis on aquaculture facilities and supporting services. Among actions taken are commercial cockle and prawn production projects, and provision of aquaculture infrastructure aid to fishermen and fishermen associations. These projects are able to supplement to some extent the income of fishermen and to supply fish for domestic consumption.

The government has given attention to value-added improvements by providing advisory and training services as well as financial facilities. To encourage viable agro-based industries, downstream activities such as canning and fish processing are given priority.

The psychological and environmental aspects of life have not been neglected. Emphasis is given to the establishment of beautiful and clean environments. Family happiness is also stressed. Fishermen's families have been exposed to international cooking to diversify palates and inject varieties in food served. Fishermen are also encouraged to participate in water sports. Fishermen's families are also involved in the tourism industry in providing accommodation and transport facilities.

The government encourages the small-scale fishermen to participate in recreational fisheries in order to inculcate sports interest, specific fish breeding and to develop fishing villages as tourist and recreational spots. Several areas such as the ex-mining pools, lakes and rivers were identified for the above purposes. The government plays an important role in public stocking in the above-mentioned waterbodies which are also suitable for research and monitoring activities.

## **7 Conclusions and Suggestions**

The government aims to create an inshore area which is based on the operations of economically viable and non-destructive fisheries able to sustain the present level of production. At the same time, the fisheries resources in the EEZ will be exploited at optimum and commercially viable levels.

The policy adopted by the government is to conserve and rehabilitate the inshore fishery resources. It is projected that a large percentage of the fish supply will continue to come from the inshore areas.

For several reasons the fishermen's associations movement has not yet achieved its objectives.

Past development policies were too development-oriented and not sensitive enough to socio-economic factors. In 1981, the government, therefore, adopted a more comprehensive

fishing licensing policy. This new policy has helped in the rapid development and overall improvement of the socio-economic status of the fishing sector.

Fishermen relocation programmes, boosted by rapid industrialization as the country progresses have reduced the excess labour force involved in the fishing industry.

The government has made efforts to diversify income earning opportunities in the fishing communities, including financial and physical in the fishing as well as related downstream activities. Development projects such as artificial reefs and fishing aggregating device and aquaculture programmes have been implemented. Encouragement has also been given to recreational areas.