

Fishing Industry and Fishery Cooperatives in Selected Asian Countries

—A Regional Review Paper

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ICA Regional Consultant



National Federation of Fishermen's Cooperatives Ltd., (FISHCOPFED), New Delhi

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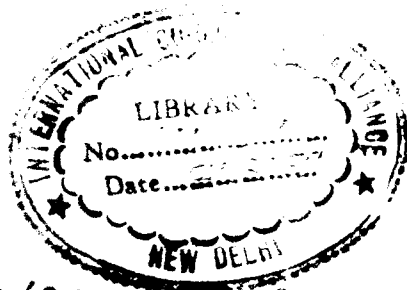
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**Fishing Industry and Fishery Cooperatives
in Selected Asian Countries**

—A Regional Review Paper

Prepared by Mr. Daman Prakash, Regional Consultant of the
International Cooperative Alliance Regional Office for Asia

APRIL 1989

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—A Regional Review Paper

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Foreword

Except for a few noteworthy examples, the development of fishery cooperatives in Asia has, as yet, not achieved a noticeable status. Fishermen and fishermen's cooperatives still seem to be fending for themselves trying to establish their identities and justifying their presence and right to exist.

In the world of business of today cooperative organisations can face the challenges of competition from private and State enterprises only if some of the following situations are well taken care of : systematic development and training of fishermen and other management employees and office-bearers; adequate supply of credit; an effective management of resources; a good knowledge of current rules regulations, methods and techniques; and a spontaneous participation of members of cooperative organisations in business and organizational aspects.

According to what has been pointed out in the present study "Fishing Industry and Fishery Cooperatives in Selected Asian Countries—A Regional Review Paper" developed by Dr. Daman Prakash, Regional Consultant of the International Cooperative Alliance, only Japan, Republic of Korea and India seemed to have established their credentials as successful and prominent fishery cooperative movements, while rest of the fishery cooperative organisations are trying to find their own levels. In India too, keeping in view its enormous size, population, coastline, inland potentials, the production performance and participation of fishermen in cooperatives do not seem to impress much. Much still remains to be done in India on sea as well as on land. However, some of the instances which contribute to the efficiency and effectiveness of fishermen's cooperatives in India could be cited e.g., intensive member education and employees' training programmes, encouraging the participation of women in fishery cooperatives, production of fishnets, fish production demonstration units, insurance of fishermen, creation of landing facilities,

construction of cold stores and processing centres, repair and maintenance of fishing vessels—all in the cooperative sector. The present study also points out some of the critical problems now faced by cooperative organisations and fishing industry in the covered 9 countries of Asia.

According to a paper prepared by the FAO Regional Office for Asia and the Pacific, Bangkok, "World fish production in 1986 totalled 91.5 million tons, made up of 80.4 million tons from the marine fisheries and 11.1 million tons from the inland fisheries. These figures also include the production from freshwater, brackishwater and marine fisheries for which the latest available figures are 10.2 million tons in 1985. The Asia-Pacific region contributed 42% of the total world fish production (or 38.5 million tons) in 1986. This constituted 39% of the world marine fisheries production (31.1 millions tons) and 67% of the world's inland fisheries production (7.4 million tons). Of the production of 10.2 million tons from fisheries in 1985, the contribution of the Asia-Pacific region was no less than 78% (8 million tons)."

The FAO paper which was made available to the ICA Sub-Committee's 16th meeting held in New Delhi in November 1988 further stated "Of the top ten fish producers in the Asia-Pacific region, the largest is one of the region's three countries—Japan—who with a production of nearly 12 million tons is also the largest producer in the world. The other nine are all developing countries—China, Republic of Korea, India, Indonesia, Thailand, Philippines, DPR Korea, Vietnam and Bangladesh with production ranging from 8 million tons (China) to 794,000 tons (Bangladesh). No less than six countries of the Asia-Pacific region—Japan, China, Republic of Korea, India, Indonesia and Thailand are among the top ten fish producing countries in the world. In nine of the top ten producing countries of the region, the marine fisheries are responsible for over 50% of the total production, ranging from 98% in Japan and the Republic of Korea to 58% in China. In Bangladesh however, 74% of the production comes from the inland fisheries."

Being the hosts, we, at the National Federation of Fishermen's

Cooperatives (FISHCOPFED—India), were keenly involved in the holding of the 16th meeting of the ICA Sub-committee for Fisheries for Asia in New Delhi, in November 1988. Looking at the contents of this regional review paper which was also made available to the Sub-Committee, we thought that it could be a useful reference material for those who would like to have an insight into the fishery cooperatives in Asia. The facts and data given in this publication have been collected by the author. The FISHCOPFED has, therefore, with the kind permission of the International Cooperative Alliance, taken up the publication of this regional review paper for a wider circulation. We are grateful to Mr. G.K. Sharma, ICA Regional Director for Asia, for permitting us to publish this material as a publication of the FISHCOPFED.

The FISHCOPFED appreciates very much the willingness of Dr. Daman Prakash in the preparation of this paper and its further updating and making it printworthy for us. We are thankful to him for his efforts and for this piece of work well-done.

New Delhi
10th April 1989

S. Chandra
Managing Director, FISHCOPFED

Introduction

This paper entitled "Fishing Industry and Fishery Cooperatives in Selected Asian Countries" was produced for the information and use of the 16th meeting of the ICA Sub-committee for Fisheries for Asia which was held in New Delhi, November 25-27, 1988. This regional review paper was produced as a desk research activity of the Asian Regional Office of the International Cooperative Alliance. In the preparation of this paper, information was collected from various sources e.g., country background papers presented at the meetings of the Sub-committees; agenda notes and minutes of the Sub-committee; reference material available at the ICA Regional Office Library in New Delhi; reports, documents, and statistical reports produced by the FAO Regional Office for Asia and the Pacific in Bangkok; informatory literature produced by the fishery organisations in Japan and Republic of Korea; Asian Productivity Organisation's Fishing Industry in Asia and the Pacific, etc.

The present paper attempts to cover the following subject areas: general information about the country itself; present situation of the fishing industry; government policies to develop fishery industry and fishery cooperatives; presence and involvement of fishery cooperatives; and the problems faced by fishery cooperative organisations. This paper also carries a separate chapter indicating the problem areas, needs of the Movement and some recommendations. This study covers nine Asian countries in the membership of the ICA Regional Office viz., Bangladesh, India, Indonesia, Japan, Republic of Korea, Malaysia, Philippines, Sri Lanka and Thailand.

Barring a few prominent examples of success e.g., from Japan, Republic of Korea and India, the development of fishery cooperatives has been rather too weak. Although the governments in their national economic development plans have given a prominent status to fishery cooperatives yet their development and participation in this business has been slow. Some of the main reasons could be: lack of technical

skills, complicated export-import regulations and procedures, lack of required infrastructure, outdated boats and engines, inferior quality of fishing gear, inadequate finances and complicated stipulations to obtain easy credit, high rates of interests and the presence of State and private enterprises in the field. All these reasons can safely be attributed to a generally low level of economic development in most of the countries of the Region. The governments are unable to provide adequate budget allocations for this industry because of shortage of revenues available to them. Another reason is the lack of initiatives and the low-level of managerial competency of leaders and managers of these cooperatives.

In preparing a comprehensive documentation of this type dealing with this specific segment of the Cooperative Movement, it is but natural to call and look for facts and figures. According to our experience these facts and figures were very difficult to find, and even if some were "fished out" they turned out to be so inter-woven and mixed up that it was extremely difficult to sift out the cooperative fishery segment. However, the well-organized library and the systematic preservation of related documentation at the ICA Regional Office in New Delhi helped ease the problem to some extent. This experience has also brought out the issue that necessitates the development of a comprehensive system of data collection, more frequent on-the-spot visits and their documentation. This exercise also calls for a strong and willing participation and collaboration of fishery cooperative organisations as well. There is also a need of creating or helping the concerned movements to create small data banks which could collect the required information at the national levels and then communicate the same information to the ICA Regional Cooperative Data Bank for further processing and wider dissemination. The need for the establishment and operation of a data network stands quite clear and essential.

This modest study shows that the experiences of Japanese fisheries cooperative movement are flowing steadily to enrich the growing movements of the Asian Region. This is done in various ways. Most prominent of these methods are : regional and national training courses organized by or with the support of the International

Cooperative Alliance; exchange of cooperative leaders through opportunities made available by the ICA; contacts between the Japanese and the other Asian movements at various platforms under the banner of the ICA; training courses organized by the ZENGYOREN (National Federation of Fisheries Cooperative Associations of Japan). In the case of India, for instance, the concept of fishermen's risk insurance has been taken from the experiences of Japan and Republic of Korea. India has also taken advantage of technical assistance programme offered by the Canadian Cooperative Association through the ICA Regional Office particularly in the fields of fishnet production and participation of women in fishery cooperatives.

Since the Sub-committee for Fisheries for Asia is a regional forum under the banner of the International Cooperative Alliance, this paper might provide the members of the Sub-committee with some upto date data, information and the problems encountered in collecting such information. If the Sub-committee could make some useful suggestions which would provide a continuous, reliable and analytical information to the Committee members in a systematic manner, the efforts made in the production of this paper would be considered well-rewarded. Any mis-statement in this paper are, however, subject to correction.

The ICA Regional Office for Asia is indeed thankful to Dr. Daman Prakash, Regional Consultant, for his willingness and initiative in undertaking the preparation of this regional review paper. It is needless to state that the review paper was well-received by the members of the Sub-committee.

Bonow House,
New Delhi.
10th April, 1989

G.K. Sharma
Regional Director
ICA Regional Office for Asia

Population : 107 million. Size : 144,000 km². Has tremendous potential for fisheries. River area during the dry and wet seasons ranges from 3,250 sq. km to 15,250 sq. km, a coastline of about 450 miles plus a very large amount of small ponds. Of the total population, about 824,000 households are engaged in fishery sector (618,000 families work in inland waters and 206,000 families in marine/coastal fishing). The fishing crafts operating in Bangladesh include 90 trawlers, 2200 motor launches and 45,000 country boats. During 1985-86, the total catch was 791,000 metric tons, out of which 621,000 MT was from inland fishing.

The main **objectives** of the fisheries development in the Third Five-Year Plan (1985-90) are stated as follows : a) raise production and ensure availability of fish to the people, towards improving the nutritional status of the country; b) expand employment opportunities in fish and ancillary industries and welfare of the fishing community; c) increase the volume of exports by further developing certain fishery products, such as shrimp, selected fin fish, cattle fish, shark fins, etc., and d) improve general environment and public health.

There is an allocation of about US \$ 230 million out of which \$ 100 million are to be provided by the Government. The following agencies are concerned with development of fisheries : (i) Directorate of Fisheries, mainly for Inland fisheries; (ii) Bangladesh Fisheries Development Corporation (BFDC) mainly for marine fisheries; (iii) Bangladesh National Fishermen's Cooperative Society Ltd. (BJMSS) for both inland and marine fisheries, with the support of Cooperative Department; and (iv) Bangladesh Rural Development Board (BRDB), mainly for production of fish in small ponds and tanks through cooperative societies.

Bangladesh has an interesting feature of 'lease facilities' under

which members of fisheries cooperatives around the fisheries make use of inland fishing sites on a certain fee.

In Bangladesh there is one national federation with 88 affiliate members, 88 central federations with 3,661 affiliate members and 3,884 primaries with nearly half a million individual members. The BJMSS is engaged in import of fishing requisites and equipment, fish exports, establishment of fishery infrastructure, coastal fishing, marketing, ice manufacture and processing. Imports of fishing requisites and equipment by BJMSS are exempt from all taxes and duties. It also has the exclusive right to obtain loans from the government or from the Bangladesh Bank on a 100% government guarantee. A large number of primary cooperatives do not have any facilities.

The main **problems** of Bangladesh fisheries cooperatives are marketing, warehousing, fish care and packaging, service centres for boats, nets and taxation.

Some of the important **needs** in Bangladesh are : simplifying the licencing systems, availability of fishing materials and equipment, credit at easy terms of repayment, relief in terms of taxes and duties for setting up of ice plants and cold stores, training in management skills, technical know-how, insurance coverage for fishermen and their fishing craft, and upgrading of boats and engines.

Population : 800 million. Area : 3,288,000 km². Coastline of nearly 7,517 km. The riverline system of the country extends to a length of 29,000 kms. brackish water with an area of 0.9 m ha, reservoirs with 2.9 m ha and fresh water tanks and ponds comprise 1.6 m ha. During 1979-85 fish production growth rate was reported to be 3.1% per annum.

Marine fishery in India is composed of : (i) small-scale fishery, and (ii) industrial fishery. However, it can be said that marine fishery in India is primarily made up of the small-scale fishery, as the industrial fishery is far less developed as compared with those in other Asian countries. Although the plank-built boat is popular throughout the country, a raft, which is known as Catamaran, is still dominantly in use as a fishing craft on the east coast of India. There are a few fishing companies based at Madras and operate in double rig trawl for catching shrimps. There are also as many as 3,000 small shrimp trawlers of 5 to 10 gross tons which are mostly based at Cochin. Probably those two patterns of trawl fisheries are classified as industrial fishery.

There was a marked increase in the catch of marine fish from 1951 to 1975. During this period the fishery production increased from 550 thousand to 1,420 thousand MT. Although India declared an Exclusive Economic Zone of 200 miles in August 1976 and a quite extensive sea area has become under her jurisdiction, over the past 10 years her annual catch has remained around 1,500 thousand MT. Based on the bio-productivity, fish yield is estimated at 4.5 MT from the Exclusive Economic Zone. A significant change which took place over the past 20 years is that the catch of Penaeid and Non-Penaeid prawn increased from 80 thousand MT in 1965 to 214 thousand MT in 1983 and hence India has become the world's largest shrimp exporting country.

In the Ministry of Agriculture there is a separate section which deals with fisheries policy and the Minister decides on fishery policy matters.

The basic lines of the current national **fisheries policies** are to increase fish production for both marine and inland fishery, raise the economic and social status of fishermen and provide more employment in the rural areas. In addition to these policies, the educational standards for fisheries are being raised. In order to raise the marine fish production, the EEZ will be exploited extensively by launching bigger vessels for fishing. Recently many vessels from foreign countries have been chartered. Even in the country bigger vessels are being constructed. In order to improve landing and berthing facilities, the construction of major harbours either have been completed or are being constructed. In order to raise the inland fish production, special attention is being given for the development of aquaculture resources. In 1977 there were 7 million people engaged in fishing profession as against 5 m in 1972. In 1988 there were 7 million fishermen and almost 30 million part-time non-professional fishermen in India.

The **fishermen's cooperatives** are organised at national, state, district and village levels. The National Federation of Fishermen's Cooperatives operates at the centre, while the state level organisation is the apex body.

Generally, in India there is either two-tier or three-tier structure in the organisation of fishermen's cooperatives. In some states there is either a two-tier structure consisting of an apex organisation at the state level affiliating many primary cooperatives at lower level or a federated cooperative at the district level, without an apex organisation. In the three-tier structure three organisations are organised at the state level, i.e. apex body, at the district level, i.e. federated cooperative and the village level, a primary cooperative. They are vertically integrated to the apex body at the state level and horizontally integrated at the district level.

The first fishermen's cooperative society was organized under the name of Karla Machhimar Cooperative Society in Maharashtra in 1913. At present (1988) there is one national level federation, 13 state level federations, and 63 central federations. Altogether there are about 8,000 fishery cooperatives in the country. The membership at the primary level is approximately 0.8 M. In 180 districts Fish Farmers' Development Agencies (FFDAs) are functioning. These are mainly geared to sweet water fish production. FISHCOPFED is supporting such organisations in formulating bye-laws for organising cooperatives of fish farmers.

FISHCOPFED (National Federation of Fishermens' Cooperatives Ltd.), registered in 1980, started its operations in 1982. The main functions of the Federation are, besides being the spokesman of this sector of the movement at national level, support to training set-ups, transfer of intermediate technology to fishermen, leadership development, services to member-institutions by setting up technical and promotional cells, retail marketing of fish, inland fish production, insurance schemes for fishermen, and international trade negotiations. The membership of the FISHCOPFED is open to state level federations, regional/district level federations, National Cooperative Development Corporation (NCDC) and the Government of India. The total membership of the FISHCOPFED (in 1988) stood at 52. There were 7,857 primary fishery cooperatives, 63 regional/district level federations and 13 state level federations. There were 777,694 individual full-time members of primary cooperative societies.

Based on the experience of Japan and Republic of Korea, the FISHCOPFED introduced in 1982 a scheme to provide insurance cover to fishermen in the country. The premium on the cover is shared between the central and state governments and the cooperatives themselves. Until now over 2 M members have been insured and a premium of about Rs. 20 M has been paid. 767 claims amounting to about Rs. 10.8 M have been settled. Developmental schemes like fish pond insurance scheme and pond fish insurance schemes have been introduced. These schemes are being implemented by FISHCOPFED through the state and central federations of fishermens' cooperatives.

The National Cooperative Development Corporation (NCDC) has come forward to provide assistance for operational inputs, creation of marketing and processing units, boat building yards and service centres. Until March 1988, the NCDC has provided assistance of Rs. 346.7 million to fisheries cooperatives. Under this programme two projects are operational in Kerala and West Bengal. During the year 1984-85, a new scheme was introduced to provide improved beach-landing crafts for small fishermen. Several other schemes were formulated by FISHCOPFED aimed to provide employment generation to fishermen and the development of servicing infrastructure.

In order to increase efficiency in coastal fishing, new motorized and mechanized fishing crafts will be introduced and attempts will be made to expand diversified coastal fishing. New gears and improved designs of boats will also be introduced for ensuring better return to the traditional fishermen operating in the coastal belt.

In the inland sector, the potential of fisheries may be seen from the facts that India has a river system which runs into 29,000 Km, the area of reservoirs is 2.9 million hectares, 0.9 million hectares is the brackish water area and tanks and ponds comprise 1.6 million hectares. Production-wise during the period 1979-80 to 1984-85, the fish production achieved a growth rate of 3.1% per annum and the production increased from 2.34 million tons in 1979-80 to 2.85 million tons in 1984-85. In 1986-87 the total production was reported to be 2.95 million tons. Under the 7th Five Year Plan, emphasis is laid on marketing, increasing inland fish production and processing and a further improvement of infrastructure.

Most acute problems faced by fishermen and fishery cooperatives in India, among others, are : Non-availability of adequate credit facilities; lack of adequate training and education to fishermen; lack of integrated scheme for fish marketing, transport, preservation etc. ; lack of preferential treatment for fishermen's cooperatives in export of fishery products; lack of concessionary terms for fuel oil, lack of uniform policy for allotment of water bodies to fishery

cooperatives etc.

Collaboration and assistance from Japan to India could be in the field of information and technical guidance on utilization of petroleum products for the fishing industry. Japan can also provide technical know-how for fishcare, packing and transportation. South Korea can provide assistance and information in the field of education and training and insurance schemes.

India can provide intermediate technology in areas like hand-operated net making machines. India is willing to enter into joint venture programmes in the field of manufacture of outboard motors.

India is exporting marine products worth about Rs. 5,000 million per year but the cooperative societies have a very negligible share in these exports. Trade information can be shared with Japan, Singapore, Sri Lanka and Thailand regarding the requirements and other details of the importers.

Population : 176 million. Size : 1,919,000 km². Indonesia is an archipelago of more than 13,500 islands. The entire coastline is estimated at 81,000 km. The inland open waters cover a total area of 13.7 million ha which include rivers, lakes, reservoirs and flood plains. The total area of marine waters is about 5.8 million km².

The marine fishing area of Indonesia extends about 30 miles from the coastline, except for some of large fishing vessels owned by state and private enterprises that operate upto more than 100 miles from the coastline.

During the country's third five-year development plan, the fisheries production grew from 1,748 thousand MT in 1979 to 1,998 thousand MT in 1982, representing a 4.6 percent growth.

The annual fish catch for marine fishing between 1978 and 1983 increased from 1.2 million to 1.6 million MT or an average of 5.5 percent annually.

The total number of fishing boats increased from 284,113 units in 1978 to 306,700 units in 1983 or an increase of 4.3 percent every year.

The number of unmotorised boats decreased by almost 1 percent every year, but those with outboard engines increased by 36 percent.

The fast increase in the number of vessels with outboard engines and small vessels with inboard engines may be attributed to the credit facilities provided by the Government as compensation for the trawl ban imposed in 1980.

For the same period, the total number of fishermen increased by

7.4 percent every year from 831,965 in 1978 to 1,191,200 in 1983. However, only about 50 percent of them are fulltime fishermen.

In 1982 the total quantity of fish production trapped/caught in inland fishing was estimated at 506,822 MT valued at Rp. 430,795 millions. That was more than 30 percent increase over the 1973 data for both fish quantity and value. The total number of households engaged in inland fishing in 1982 was 306,501 without boats.

A 1982 estimate puts the total number of fish farmers at 997,069 persons with a total area under fish culture of 400,586 ha or an average of 1.8 ha per person for brackish water ponds; 0.08 ha/person for fresh water ponds; 0.7 ha/person for paddy field cum-fish; and 18,152 persons with 50 ha of fish cages each.

In general, there is no fishing vessel equipped with modern apparatus in Indonesia, except for the big fishing boats owned by state enterprises or foreign vessels which operate in Indonesian waters under a joint venture.

Indonesia declared the 200 nautical mile limit Exclusive Economic Zone (EEZ) on 21st March 1980 but did not come into actual effect until after the Government passed the enabling laws in 1983 and 1984.

The Government has established the following broad **policy objectives** in 1983: (1) To attain better income and better living standards for the small fishermen and fish-farmer and expand employment opportunities, (2) to improve the productivity of fishermen and fish-farmers and at the same time increase total fish production, (3) To increase fish consumption, particularly among low-income, (4) To increase exports and reduce imports of fish and fishery products, and (5) to better control the utilization and management of fisheries resources.

In terms of stabilizing or supporting fish price and to improve fish marketing, the role of **fishery cooperatives** is being given

importance by the Government. However, very much has still to be done to improve the capabilities of the village cooperatives, especially in the remote areas.

In 1986 there were about 750,000 full-time professional fishermen and about 550,000 part-time non-professional fishermen in Indonesia. There were 715 primary level fishermen cooperatives, 10 provincial level federations and 1 national level federation, with 375,000 full-time individual members of primary cooperatives, 715 members at provincial level and 10 members of the national federation. The annual fisheries production totalled at about 2.5 million tons of which nearly 1.9 million tons represented the marine fishing product.

A majority of fishing activity in the cooperative sector is done by the KUDs (Village Unit Cooperatives—which are multipurpose rural cooperatives). These KUDs either operate a separate business activity for fishing or they have fishing as their principal business activity. Some of the KUDs e.g., Fishery KUD in Pekalongan in Central Java has all the needed infrastructure built by themselves. The interests of fishermen is overseen by the national level fishery cooperatives federation. The Government grants liberal credit and other facilities to KUDs. The Government also encourages the cooperatives to undertake processing, packaging and export of fish and products.

Problem areas : Some of the main problems faced by fishery cooperatives in Indonesia include : Marine fishing in Indonesia is faced by four major problems as follows : (a) Lack of fishing technology among most fishermen, (b) Lack of investment capital on the part of fishermen, (c) Lack of information on fertile fishing grounds, and (d) Absence of adequate fishing structures in the coastal areas. The major problems facing the inland fishing industry are : (a) Pollution of open waters, (b) Lack of technical know-how among fishermen, and (c) Lack of facilities in villages to promote inland fisheries.

In general, the main problems are : strong presence of private

enterprises in the light of the existing liberalization of trade in the country; exceptionally high bank interest rate; lack of participation among fishery membership in the development of infrastructures; low level of education and information facilities; inadequate finances available to fishery cooperatives to obtain fishing gears and marine engines; high costs of maintaining and repairing machines and equipments; and lack of trained personnel in management and technical areas.

Population : 122 million. Size · 377,800 km². Japan's 33,000 km coastal lines are washed by both cold and warm currents which change their flow from one season to another, building up fishing grounds with rich marine lives. Under such favourable conditions, Japan's fisheries have developed since olden times, the products of which constitute important items with rice for the national diet.

In 1982, domestic fisheries production in Japan was 10,784 thousand MT of which 7,096 thousand MT was for human consumption. Approximately 437,000 persons were engaged in fisheries in 1982. The share of fisheries workers in the total number of workers was 0.8 percent compared with 8.1 percent for the primary industry workers. The number of fishery management units was 212,137 in 1982 of which the number of individual fishermen's households was 203,170; **fishery cooperatives** number 6,349; private companies were 2,520 in number; and that of government corporations was 98.

The total number of males engaged in fisheries in 1982 was 357,200, of which the age of 15 to 39 years was 103,800; from 40 to 59 years, 188,200; and over 60 years, 65, 00. Over the last decade, the number of males engaged in fisheries has decreased, especially of younger age group.

The export or import prices of fishery products have the same trend as domestic prices as a whole. The import prices generally tend to be lower than the domestic prices due to the fact that most of the fishery products imported are frozen.

The fishery **policy** of Japan aims at securing a stable supply of fishery products and achieving a sound development of the fishing industry. The recent situation, however, is getting more severe as a result of the tightening of the international regulations, high fuel

prices and a sluggish demand for fishery products. Under these circumstances, the Fishery Agency of Japan has been employing various efforts to overcome the difficulty which the fishing industry faces. The **first objective** is to achieve stable operations in overseas fishing grounds in coordination with other countries concerned. The **second policy objective** is to maintain and cultivate fishery resources in the coastal waters around Japan and to efficiently utilize these resources.

The national fisheries policy aims at securing a stable supply of fish products and achieving a sound development of the fishing industry through : (i) stable operations of overseas fishing in cooperation with other countries; (ii) maintaining and cultivating fisheries resources in coastal waters; (iii) improving the economic conditions of fisheries units suffering from sharply increased cost of fishing materials and stagnant fish prices; and (iv) expanding consumption of fish and fisheries products.

There are five kinds of fishery cooperatives in Japan, namely : (i) fisheries cooperatives by area and by fishery types; (ii) fishery production cooperatives; (iii) federation of fishery cooperatives; (iv) fishery products processors cooperatives; and (v) federation of fishery products processors cooperatives.

These cooperatives manage fisheries in coastal waters with fishing rights and carry on the business of providing credit, joint purchasing of necessary materials and storage and marketing of members catch. The total number of fishery cooperatives was 3,484 in 1972 compared with 3,369 in 1982.

The banking facilities for fisheries financing in the country are : (i) the Agriculture, Forestry and Fisheries Finance Corporation; (ii) fisheries cooperatives (about 1,900 of them); and (iii) city banks.

The Fishery Cooperative Association Law in Japan provides, based on the traditional cooperative movement since Rochdale, so-called cooperative principles such as voluntary membership,

one-member-one-vote, and dividend on patronage. Use of the fishing grounds based on the fishing rights is controlled by the fishery cooperative in such a way that the income and the scale of fishing operations do not vary much from member to member.

As almost all owner fishermen and fishing enterprises operating in coastal as well as off-shore waters are members of cooperatives, scales of the cooperatives are fairly large and they have developed varieties of activities.

The high percentage of organizational coverage of fishery cooperatives in Japan is due to the fact that fishery cooperatives have been given fishing rights, and fishermen may not carry out fishing being regulated by the fishing right, unless they are members of the cooperative. In other words, as far as coastal fisheries are concerned, it is a prerequisite for fishermen to be a member of cooperatives in order to engage in fishing. Fishing rights include 3 different types, i.e. common fishing right, demarcated fishing right and set-net fishing right.

The primary fisheries cooperatives form their federations at the prefectural level. They are Prefectural Federation of Fishery Cooperatives (Kengyoren) and the Prefectural Credit Federation of Fishery Cooperatives (Shingyoren). Kengyoren may neither be granted fishing rights nor carry out credit business. The task of Kengyoren is to assist the member-primary cooperatives in their activities, besides carrying out some business activities except for credit business. On the other hand, Shingyoren is a fishery cooperative federation at a prefectural level engaged only in credit activities. Kengyorens form the National Federation of Fisheries Cooperative Associations (Zengyoren) at a national level, while Shingyorens, also together with Prefectural Credit Federation of Agricultural Cooperatives (Shin-noren) form the Central Cooperative Bank for Agriculture and Forestry (Norin-Chukin) as a national level organisation. The area fishery cooperative is called by the name of the area.

ZENGYOREN undertakes several principal activities, e.g.

supply business (fuel oil and other materials and articles), marketing business (centralized cooperative marketing, controlled sales, ordinary marketing and price stabilization marketing), educational and information activities (through four departments, e.g., fishery administration department, guidance department, credit business promotion department and fishing grounds development and environmental protection department). It also maintains ice-making, freezing and processing plants in several places throughout the country.

The ZENGYOREN plays a prominent role in the ICA's Fisheries Committee, by hosting the Fisheries Secretariat, extending technical support to ICA's regional technical programmes, conducting training and education programmes, and exchanging information and experiences with other ICA member-organisations. The ZENGYOREN has also a tie up with the technical assistance programmes of the Japanese Government.

According to the results computed from nearly 3,000 questionnaires received from individual fishermen in Japan in 1986, the following are the most **acute problems** faced by the Japanese fishermen and fishermen's cooperatives : (i) in the field of Marketing—fish price expected by fishermen is not realized, experience and knowledge of staff working at marketing and processing departments of fishery cooperatives of commercial companies; (ii) in the field of Guidance—amalgamation of fishery cooperatives has not been proceeding well, and there is a shortage of staff; (iii) in the field of Credit Business—there is inadequate service in counselling and management.

In Japan, fisheries research activities are carried out by research and experiment stations for fisheries at both national and prefectural levels and research institutes of colleges and universities. The government research institutes are under the jurisdiction of the Fisheries Agency, Ministry of Agriculture, Forestry and Fisheries, nine of which are currently operational and located in various parts of the country. In addition, the prefectural governments operate fisheries experiment stations of which there are 85 providing the

initial link between local fishermen and research results, among other functions. Formal education in fisheries is provided by high schools, colleges and universities. At the collegiate or university level, most national universities offer fishery curricula for higher education in addition to the exclusive colleges for fisheries that also offer graduate degrees in fishery education.

Population : 42 million. Size : 99,200 km². The major water currents surrounding the country are the Yellow Sea warm current, East Korea warm current, and North Korea cold current. The warm and the cold, mixing around the country, provide a variety of marine resources for coastal and offshore fisheries.

Some problems and constraints in the marketing and storage of fish and fisheries products in the country recently are characterized by the ever-growing population and the rapidly increasing demand for fish and fisheries products in terms of quantity. However, the production increase in the fisheries products in terms of quality tend to slow down, this being the reason for the steady price increase in the fisheries products.

As for institutions/schemes for protecting fisheries resources and developing fisheries in the Republic of Korea, the Fisheries Law, Fisheries Promotion Law and the Fisheries Resource Protection Decrees and other related laws contain the detailed stipulations regarding the fisheries license and permit, limitation on fishing grounds, fishing equipment used, types and mesh size of the fishing nets, species of fish to be caught and limitation on the fishing season, etc.

The basic **objective** of the current national fisheries policy is to develop prosperous fishing villages through : (i) increased production ; (ii) speedy expansion of aquaculture ; (iii) development of fisheries technology with inducement from developed countries ; (iv) strengthened supports for coastal fishermen ; (v) stable growth of deepsea fishing ; (vi) improved marketing and increased fish consumption ; and (vii) modernization of fishing vessels and port facilities.

The total fishery development budget in 1984 was allocated as follows : 32 percent each for fishing port ; 15 percent for fishing vessel

construction ; 11 percent for operating cost ; and 9 percent each for fisheries enforcement, resources propagation and for research and extension.

As part of the measures to stabilise or support fish prices to improve fish marketing, the government has been active in purchasing fisheries products whose production is concentrated on a specific period and in implementing the stockpiling and price-support projects whose required funds are made available by the Agricultural and Fisheries Product Price Stabilizing Fund. Efforts are also made to reduce the intermediate marketing channels with the establishment of direct retail stores and strengthening the function of the **fisheries cooperatives** and to directly ship the landed fisheries products to the inland wholesale market centres.

The most important features of the tax privileges for fisheries development are the system of the tax-free fuel oils for the coastal and offshore fisheries. In addition, other tax privileges such as tax exemption and tax reduction are given to importation of fishing vessels, sale of fishery products and importation of fishing vessel supplies while the fishery cooperatives benefit from the corporate tax exemption.

Moreover, the expansion of the freezing, refrigerating and processing facilities ; enlargement of local wholesale marketing centres; construction of large-scale market for fisheries products; and expansion of direct retail stores are pushed ahead as a part of the Five-Year Economic Development Plan to improve the marketing operations.

The **first fishermen's cooperative** was organized in July 1908. At present there are over 1 million fishermen in the membership of fishery cooperatives.

In 1908 two types of fisheries organisations were licensed by the government. They were the set-net fisheries organisation and the seaweed fisheries organisation, and the number of the fisheries organisations reached 70 in 1920. Their services and business activities were limited to the management of fishing right on the fishing grounds and joint facilities.

A nation-wide fishermen's organisation emerged when the **Korea Fishery Industry Association** was set up on 1st April 1944. In 1952 a more comprehensive fishermen's organisation named **Korea Fishery Association** was formed.

The fisheries cooperatives are mainly divided into regional and sectional cooperatives. The regional cooperatives scattered in 56 places throughout the country have a total membership of 135,621 persons and are engaged in such important activities as sale on consignment, credit, guidance and cooperative insurance. The sectional cooperatives are composed of members engaged in the same type of fisheries and 13 major sectional cooperatives have a total membership of 1,963 persons while the nature of the activities is similar to that of the regional cooperatives. These cooperatives have their headquarters at the National Federation of Fisheries Cooperatives.

At the end of 1987 there were 58,000 full-time professional fishermen and nearly 200,000 part-time fishermen working with or in the membership of fishery cooperatives in Korea. There were 72 regional level fishery cooperatives (56 fishery cooperatives at regional level, 14 business-type cooperatives and 2 fish processing cooperatives) in the membership of the national federation. The annual fisheries production was 3.3 million tons by the fisheries cooperatives sector in the Republic of Korea.

The regional fisheries cooperatives, fishing-type fisheries cooperatives, and fisheries manufacturers' cooperatives are affiliated with the National Federation of Fisheries Cooperatives (NFFC).

The **objectives** of the fisheries cooperatives are to promote the cooperative organisations of fishermen and fisheries manufacturers for the purpose of improving their social and economic status and of increasing the productivity of fisheries with the target of balanced development of national economy.

In order to realize these objectives, the fisheries cooperatives have conducted business activities related to guidance, purchasing,

marketing, foreign trade, price support, utilization and processing, credit and banking, cooperative insurance, foreign loan, safe fishing operation and international cooperation.

The National Federation of Fisheries Cooperatives (NFFC) was founded on 1st April 1962 under the Fisheries Cooperative Law of 1962, with the following objectives : Promotion of cooperative organisation; Improvement of fisheries productivity and increase of fishermen's income; and Guidance and supervision on the member cooperatives and promotion of joint interest. Its functions, among others, included : Guidance—education-training, survey-research and guidance or management; Assistance in production; Assistance in marketing; Assistance in finance; and Assistance in safe fishing.

The NFFC of Republic of Korea has, since its establishment, started the following services for its affiliate members : Started the credit service in 1963; Started the deposit service in 1969; Started the mutual banking service in 1974; Started the foreign exchange service in 1979; and got affiliated with the International Cooperative Alliance in 1979.

The research institutes for the study of fisheries consists of two specialized institutes in addition to two others attached to universities and two four-year colleges. The Fisheries Research and Development Agency is the only government-owned research institution enjoying the largest scale and the longest history since its establishment in 1921 of all other research organisations mentioned above.

Some of the most acute **problems** faced by the fishery cooperatives in Korea were reported to be : shortage of own funds, inadequate management, marketing problems etc. Some of the problems faced by the fishermen were, among others : shortage of resources, decrease in fishing grounds mainly due to reclamation programmes, pollution, excessive exploitation of resources, comparatively lower income of fishermen, dwindling fishermen's population, and the aging of fishermen.

While the government could help strictly enforce the anti-

pollution measures, the fishery cooperatives have to develop their management systems, help fishermen to comply with the rules for creation and management of resources, and better marketing techniques. National federation and regional fishery cooperatives have to devote a little bit more of their attention on providing more education and training opportunities for fishermen and employees of cooperatives.

Population : 16.1 million. Size : 329,000 km². Administratively, Malaysia is composed of : (i) Peninsular Malaysia, (ii) Sabah, and (iii) Sarawak. Marine fishery for each area has its own characteristics, although marine fishery in Peninsular Malaysia is the mainstay. Marine fishery in Peninsular Malaysia is also composed of : (i) industrial fishery which is mostly run by Chinese, and (ii) small-scale fishery which is run by Malays. The mainstay of the industrial fishery is trawl fishery followed by purse seine industry. After 1972 the number of small trawlers began to increase and by 1980 there were 4,400 units which included many small trawlers of less than 50 gross tons.

The fishing industry in Malaysia contributes 3% of the Gross Domestic Products (GDP). It produced 565,067 tons of fish in 1986 valued at M \$1,357 million. As a source of foreign exchange earnings, Malaysia exported some 183,224 tons of fishery commodities valued at M\$340 million in 1986. This forms 1% of the value of the country's total exports.

The fishing sector is also a source of employment having 3,489 persons working as fishermen. In 1986 this represents 1.75% of the total labour force in the country. However, fishermen form one of the poorest segments of the population. The fishing sector is small but important. The per capita consumption of fish in Malaysia estimated at less than 30 kg per annum (live weight calculated on the basis of standardized international extraction rates) in the late 1960's has risen to over 40 kg at present. The amount of fish consumed annually is greater than the combined consumption of beef, pork and mutton.

Major issues in fishing industry in Malaysia : In reviewing the fisheries sector it is evident that the Government, through its services and programmes is attempting to adopt a more rational approach to the management and development of the marine

fisheries. The present focal point of the Government's attention and its main areas of concern are : (i) the persistently high incidence of poverty among the fishermen; (ii) the threatened depletion of the inshore resources through overfishing; (iii) the underutilised offshore resources; and (iv) the projected shortfall between domestic food fish supply and demand.

Fisheries Development Policies : Within the framework of the National Agricultural Policy (NAP) and the New Economic Policy (NEP), the Malaysian Government has stated that the major goals are to maximize fishermen's income and increase fish production. It is also extending its jurisdiction over marine resources extending 200 miles off the baseline (EEZ). The new fisheries act thus provides for the implementation of management measures in traditional inshore waters and in the extended offshore zone.

Government Services and Development Programmes to the Fishing Industry : To achieve the broad objectives outlined by the Government, the Department of Fisheries and Fisheries Development Authority have carried out a wide range of programmes, in addition to the support services that they normally provide. Whilst the services embrace fisheries management, including enforcement, collection and analysis of statistics, research, fisheries training and extension, the development programmes include artificial reefs, financial assistance and hire purchase, construction of landing complexes, establishment of fisheries development areas, fishermen's relocation and vessels buy-back programmes.

Aquaculture is considered as an important sub-sector that can play a big role in supplementing the production of fish in Malaysia. It is also a potential contributor to export earnings in line with the present policy to diversify exports. The strategies for aquaculture development are : (a) To encourage the culture of species of attractive commercial value; (b) To make available more suitable land areas for fish culture; (c) To improve existing cultural practices; and (d) To provide adequate fisheries support services, namely; research, extension, training, marketing, fiscal incentives and management measures.

The EEZ waters of Malaysia is 160,000 square nautical miles and its development poses a challenge to the country in terms of technology acquisition and capital resources.

Fisheries research activities is intensified in order to assess and monitor the resources, to develop or adopt known technology for the mass production of fish seeds; and to improve or develop culture technology and practices. Research activities include : (a) Monitoring and assessing the inshore and off-shore fisheries resources; (b) Identifying new cockle beds and rehabilitating old ones; (c) Upgrading of research facilities; (d) Accelerating aquaculture research in respect of breeding, feed formulation, culture methods and fish diseases; and (e) Carrying out research on post-harvest aspects of fisheries to maintain the quality of fish and to increase value added.

Extension Services : The objective of extension services is to increase productivity and income of fishermen and fish farmers through the provision of technical advice and know-how and informal training in fishing operation, engine and gear maintenance, post-harvest operation and fish farming.

Training : Training is provided to fishermen and fish farmers in order to increase their productivity. It is done through : (a) Upgrading of facilities at the existing formal institutions; (b) Setting up of a new training centre in Brackishwater aquaculture; and (c) Provision of allowances for fishermen and fish farmers to be trained in fishing and aquaculture and also to enable the fishermen to be trained in other vocations as a means of encouraging the resettlement of surplus fishing labour force.

Marketing Services : The aim of marketing services is to increase the income of fishermen and fisherfarmers through the provision of better landing facilities, marketing intelligence and regulation of fish marketing.

Institutional Services : Its main objective is to organize the fishermen into coherent units by way of consolidating their position

in order to gain economies of scale for their socio-economic welfare; integrated community development, and strengthening the formal and informal institutions.

From the government side, the Fishermen's Organisation Authority (LKIM) promotes the organisation of fishermen, and supports programmes of fisheries development in the country.

According to the statistics of 1986, there were 85,515 full-time professional fishermen, and 7,414 part-time fishermen in Malaysia. There were 62 fishermen's associations with a membership of 49,000; 43 fishermen's cooperatives with a membership of 14,000. Similarly there were 11 state level fishery associations and 4 state level fishery cooperatives in Malaysia. There was one national fisheries association with a membership of 11 state level fishery associations. The total production, marine and inland included, was reported to be 616,710 tons.

Fishermen's Cooperatives were encouraged by the Government to support fishermen through the provision of credit, marketing and other inputs. Since 1975 only the members of the Fishermen's Associations were allowed to be registered and no more fishermen's cooperatives have been established. The main reason for this was that anyone could be a member of fishermen's cooperatives but only fishermen or persons involved in associated fisheries activities could be members of fishermen's associations. In 1985 there were 57 fishermen's associations with a total membership of 44,300. A National Fishermen's Association has been formed recently to provide representation of fishermen at the national level. In Malaysia, the Fisheries Committee of ANGKASA looks after the interests of fishermen's cooperatives and this Committee participates in policy matter discussions with the Government. At present there is no national level fishermen's cooperative federation in Malaysia.

Some of the **major problems** faced by fishermen and fishery industry in Malaysia are reported to be : limitation of financial resources, heavy boat licencing fee, lack of modern equipment, monopoly

of middlemen, lack of managerial and expertise among officers, requirement of loan security upon fishermen's application. There is an urgent need for bringing more and more fishermen within the fold of fishery cooperatives and this can be achieved in various ways, most important of them being : (i) facilitation of admission of fishermen into fishery cooperatives by amending the government rules and procedures, and (ii) the ANGKASA or its Fishery National Committee launching a full-spirited campaign for enhancing the membership of fishery cooperatives and impressing upon the government to bring flexibility in appropriate legislation, rules and procedures. The government could also be persuaded to : lend trained and experienced fishery officers to work with the fishery cooperatives and the government covering their costs; preventing the Malaysian waters from poaching and over-exploitation; liberalizing the credit on easy terms for fishery cooperatives and fishermen.

Population : 61 million. Size : 300,000 km². Has a coastal line of approximately 265,000 km. Also has about 526,000 hectares of inland reservoirs and 180,000 hectares of fish ponds.

There are 52 marine fishing grounds throughout the country, the seven most important of which are Sulu Sea (Palawan); Visayas Sea; Manila Bay; Moro Gulf; Bohol Strait; Tayabas Bay; and Samar Sea. With the declaration of the 200 mile Exclusive Economic Zone on 11th June 1978, the Philippines has expanded her marine waters with an additional 450,000 km² in the China Sea and the Pacific Ocean.

In the Philippines case, three government agencies are in charge of the fishery development programme, namely : Bureau of Fisheries and Aquatic Resources (BFAR); Fishery Industry Development Council (FIDC); and Philippine Fish Development Authority (PFDA). Of the total 1983 BFAR budget, 50 percent was allocated for the development of fisheries while barely six percent was allocated for research. The budget for the construction of ports, ice plants, cold storage, and other infrastructure is appropriated for the PFDA. The budget of the FIDC is utilized for credit outlay.

Marine fishery is compared of : (i) commercial fishery using boats of 3 gross tons and above each, and (ii) municipal fishery using a boat of less than 3 gross tons each. Since around 1910 when the National Act of Fishery was enacted, only the commercial fishery has become directly under the jurisdiction of the central government which is currently the Bureau of Fisheries and Aquatic Resources (BFAR). On the other hand, the municipal fishery is administered by municipal governments which are lower levels of local government established within a province. Even as provincial governments exist, they are not involved in fishery administration at all.

The country has 402 ice-making plants, about 120 cold storage plants, 55 chilling chambers and about 50 freezing plants.

The development plan includes that of new fishing grounds, biological and oceanographic studies on marine resources and incremental production and the development of aquaculture. The major project for the development of aquaculture includes the production and dispersal of fish seedlings.

There are active fishermen's associations which are federated at the national level. Membership is voluntary but largely made up of the more successful and educated fishpond operators. The benefits of membership vary depending upon the degree of member participation and leadership. The most popular services are fry allocation and bulk purchase of inputs as fertilizers.

There are about 143 **fishery cooperatives** and SNs for fishermen with a total membership of about 5,800. Approximately 850,000 people are directly involved in the fishing industry. These include commercial fishermen, municipal fishermen and aquaculturists and fishpond operators.

There is a Fisheries Committee within the Cooperative Union of the Philippines which looks after the interests of fishery cooperatives. There is no provincial or national Fisheries Federation as yet in the country.

The Philippine Council for Agriculture and Resources Research and Development (PCARRD) in the Philippines is the agency mandated to monitor, evaluate and coordinate researches in agriculture and natural resources. The National Fisheries Research Programme caters to three broad commodity areas: marine fisheries, aquaculture and inland waters, formulated in line with national goals as indicated in the Five-Year Development Plan of the Ministry of Natural Resources. There are 96 institutions offering degree and non-degree courses in fisheries all over the Philippines.

Problems and Constraints : Lack of adequate fish landing areas; inefficient collection and distribution of fish; and involvement of too many middlemen in fish trading.

Population : 17 million. Size : 65,000 km². A coastline of about 1,800 km and fresh water reservoirs of approximately 160,000 hectares and lagoons and swamps of about 120,000 hectares. The area of EEZ (Exclusive Economic Zone) is around 233,000 km² which is more than three times of the land area. The total production is about 218,500 MT.

The marine fishery in Sri Lanka is primarily composed of small-scale fishery, although some industrial fishing boats are owned and operated by the government fishery corporation. Despite the government's efforts, marine fishery production in Sri Lanka over the past several decade has remained unchanged at the level of 100 thousand MT. The catch of shrimp in 1963 amounted to 10 thousand MT. Although this quantum of shrimp production is not significant, in the past no one had thought that Sri Lanka would become a shrimp exporting country.

During the period 1970 to 1982, fish production increased from 98,000 MT to 217,000 MT, or an annual average growth rate of over 10 percent. Between 1977 and 1982, fish production increased by 56 percent from 139,000 MT to 217,000 MT. Over 70 percent of the animal protein consumed locally is provided from fish.

Marine fish production increased from 90,000 MT in 1970 to 184,000 MT in 1982, an increase of over 100 percent. Inland fisheries production increased from 8,400 MT in 1972 to 33,000 MT in 1982, an increase of 290 percent.

Aquaculture is still at the initial stages in Sri Lanka. The religious and cultural background in the Island does not favour rearing living cultures for consumption which may be a severe constraint for the development of aquaculture.

The Ceylon Fisheries Corporation (CFC) was established in 1964 to handle the commercial aspects of fishery development. But this Corporation could not successfully compete with the well-established private sector either in fish production or in fish marketing. Their market share was less than 10 percent in both. Though the CFC was engaged in offshore and deep-sea fishing at the start, its initial fleet of 5 trawlers, 2 tuna boats and 40 11.5 m long boats gradually went out of operation due to despair, poor maintenance and management problems. Fish production by CFC vessels reached a peak of around 3,000 MT in 1969 and thereafter declined to 275 MT in 1981. The CFC is now mainly engaged in fish marketing but its total share in the market is around 2 percent. Private companies started participation in fisheries only after 1976, when 11.5 m long vessels were introduced under the Asian Development Bank Loan Scheme. In 1978, there were 14 such private companies owning 30 boats for offshore fisheries. But due to the unsuitability of these boats for fishing operations, most of these companies ran into difficulties and only a few are functioning at present.

The executive agencies of fisheries administration in Sri Lanka are the Ministry of Fisheries, Ceylon Fisheries Corporation and Ceylon Fishery Harbours Corporation. Fisheries development policies are implemented under the scheme of the master plan, the first of which started operation in 1979 and aimed at stepping up fish production and raising per capita consumption to 20 : raising the income standard of living of fishermen and increasing employment opportunities in the fisheries sector.

In Sri Lanka, the enactment of new legislation amalgamated the small cooperative societies into large ones. Instead of the government, two state-owned banks continuously provide credit to the societies. The fisheries cooperatives enjoy a special subsidy under the Ministry's scheme. In addition, the cooperatives can obtain fishing vessels under the bank credit scheme without any down payment.

The **Fishery Cooperatives** were incorporated on a recommen-

dation under the Fisheries Ordinance No. 24 of 1940 and provide for specific facilities such as project financing, product marketing and mechanization of the fishing industry. The type of cooperation that emerged was the small village cooperatives of 20-30 members, but these, in general, did not possess the financial and manpower resources or the geographical distribution necessary to make significant impact on the fishing industry. By 1970, there were 290 cooperatives with a membership of about 7,000 fishermen, and in that year legislation was enacted for the amalgamation of these small fishermen's cooperative societies into 45 larger primary cooperative societies. By 1975 these societies had a membership of nearly 15,000 active fishermen which was estimated at nearly 20 percent of the total workforce in the fisheries sector. At present, there are 91 such cooperatives including freshwater societies and youth societies. In addition, there is one apex society. The total membership is about 25,000 which is about 30 percent of the total workforce in fisheries. During the period 1970 to 1978 the 28'—32' boats under the Ministry's hire-purchase scheme was exclusively issued to the primary cooperative societies. But due to managerial and other problems the cooperatives did not show the desired growth. By 1981, the granting of credit to fisheries cooperatives on advance account was stopped mainly due to unsatisfactory loan recoveries.

About 100,000 people are involved in the fishing industry (including sectors like marketing, production of fishing gear, ice, boat manufacture and repairs, engines). There are about 28,000 fishing craft of all types. The main exports consist of shrimps, lobsters, beche-de-mer, shark fins, prawns, etc.

The fishery cooperative movement was started in 1940 with the object of providing credit and marketing facilities. In 1979, the re-organized national level federation, the Sri Lanka Fisheries Cooperative Federation, took upon itself the task of developing fishery cooperatives in the country and is now actively engaged in educational and extension activities. The Federation also provides welfare to fishermen and involve women in the activities of these cooperatives.

There are 91 fishery cooperative societies (1985), which

include one national federation, two regional unions, one boat building unit and the other primary level cooperatives. The total fishery production (included are marine and inland) at the end of 1987 was reported to be 182,278 tons valued at US\$ 67 million.

Fishery research and education in Sri Lanka is a function of the National Aquatic Resources Development Agency, Universities of Sri Lanka and the Sri Lanka Fisheries Training Institute.

The main problems of fisheries cooperatives in Sri Lanka include: credit, marketing, organisation, loan recovery, taxation, service centres and infrastructural facilities like ice-making plants, warehousing, training and education for members, board members and managers. There is a great need for simplifying credit systems for fishery cooperatives and marketing of fish and fish-products.

On the part of the government, some of the following steps need to be taken on an urgent basis: simplifying the legislation with regard to fishery cooperatives thereby encouraging formation of fishery cooperatives and enrolling more members to fishery cooperatives; making the credit facilities available to fishermen and fishery cooperatives more easily and on more easier terms; provide infrastructural support and facilities to fishery cooperatives; accord preferential treatment to fishery cooperatives, e.g. marketing, taxation, transport incentives etc. On the part of the fishery cooperatives and particularly on the part of the national federation, it is necessary that more intensive member education and employee training programmes are introduced and implemented, negotiate with the government on preferential status for fishery cooperatives, easy credit, and insurance for fishermen and their craft. A special drive needs to be initiated on the repayment of loans by members to their cooperatives so that greater loans are available to them in future. This drive is likely to ease the present suicidal overdue situation prevailing in this sector.

Population : 53.6 million. Size : 514,000 km². Has a coastline of 1,784 km. Inland fishing areas include rivers, canals, lakes, swamps, streams and man-made reservoirs. Fish farming is done with the use of pond, paddy field, non-paddy field, cage, etc.

A great expansion in marine fisheries occurred in Thailand in the early 1960s with the introduction of the German type otter-board trawl. As a result, a sharp increase of 24-fold in number of trawlers during the first three introductory years was observed. In 1963-64 the Department of Fisheries launched two deep-sea exploratory fishing vessels which have been used to explore fisheries resources, abundance and geological environment in the Thai territorial waters, and the high sea off neighbouring countries. Since 1963, research vessels and Thai commercial trawlers have begun to extend their operations to new fishing grounds and discovered new commercial fishing ground off the coasts of Kampuchea, South Vietnam, Malaysia, Indonesia, Burma and even upto the Bay of Bengal.

Marine fishery in Thailand is also divided into : (i) industrial fishery, in which trawl, purse seine and squid lift net fisheries are dominant; and (ii) small-scale fishery. However, with a marked development of the trawl fishery which commenced in early 1960s the small-scale fishery plays relatively minor role in the marine fishery as a whole except for Southern Thailand.

In 1983, the total catch of marine fishery amounted to 2,100 thousand MT of which trash fish accounted for 958 thousand MT or 45 percent of the total. As trash fish is mainly used as raw materials for fish meal, Thailand has now become the second largest fish meal producing country in Asia. The Government has now adopted a policy of not to increase the number of trawlers by controlling the issuance of new trawl licenses.

The Department of Fisheries (DDF) in Thailand is responsible to the Ministry of Agriculture and Cooperatives for the fisheries development and all matters on fisheries. The Fish Marketing Organisation (FMO), also responsible to the same Ministry, takes care of the wholesale market for fish, improves fishing villages, directs or controls services concerning the activities of the market, promotes the welfare of fishermen and promotes fisheries cooperatives or associations. In addition, the FMO also provides credit to the fishermen and operates three wholesale markets and 10 fishing ports. The Cold Storage Organisation (CSO), also under the supervision of the Ministry, provides storage services to the industry and assists, advises and provides technical research services concerning the general operations of cold storage and ice-making plants. It operates nine cold storage and ice-making plants, concentrates on freezing marine fish and provides cold storage facilities for frozen fish and ice production for fisheries.

In Thailand, **fishery cooperatives** carry multipurpose functions for coastal and inland fishing and fish farming. They perform economic activities such as bulk purchase of fishery supplies, joint selling of fish and provision of credit. The number of cooperatives is expected to be increased and adequate government funds will be allocated for the development of business operations.

Thailand is an agricultural-oriented country. The total number of marine fishing house-holds in 1985 was 57,526. The total number of family members of these households were estimated at 330,057 and the total number of fishing boats used in marine fishery in 1985 was 53,440. In 1985 the total catch of marine fish was 2,057,751 metric tons, valued at 15,650.6 million Baht and inland fish was 167,453 metric tons, valued at 4,134.9 million Baht (1 US\$ = Baht 30).

The **first fishery cooperative** was organized in 1949 in the area of Kabang-pongkok canal in Pissanulok Province. It was a fresh water fishery cooperative. The main purpose of the cooperative was to allocate the land along the canal for fishing among 393 members to market and process, if necessary, member's products. In 1970, the government granted the utilization of this canal to the public, and fish

catching was opened to all. The operation of this cooperative was not successful so this cooperative was amalgamated with another agricultural cooperative. The fishermen thus become one member-group of the new cooperative.

In 1952, the first marine fishery cooperative named "The Central Fishery Cooperative Limited" was established. It was aimed at accelerating and developing fishery techniques and improving the lot of fishermen together with the development of the fishery cooperative. the government set-up, at the same time, the Bangkok Fishery Marketing Organisation to function as a central fishery market of both cooperative and non-cooperative fishing industry.

The Central Fishery Cooperative Limited serves its members in seeking and maintaining the fishing ground and marketing their catch including supplying their requisites. Its membership was drawn from the fishermen who lived along the sea-coast of 13 provinces, i.e., Bangkok Metropolis, Samutprakarn, Chacherngsao, Cholburi, Rayong, Trad, Samutsakorn, Samutsongkram, Petchburi, Prachuabkirikan, Chumporn and Surattanee, with a membership of 380 fishermen.

The Central Fishery Cooperative Limited has also provided loans to its members for construction of fishing boats, the purchasing of fishing materials and also providing other fishing facilities. Loans are generally repaid against the delivery of the members' catch to the cooperative in settlement of existing debt.

The **objective** of fishery cooperatives : Fishery cooperatives are organized among fishermen who deal with freshwater fish or seawater fish. At present, the government has the aim to extend the organisation of fishery cooperatives along the coastal and nearby areas where fish farming can be undertaken.

The fishery cooperatives are organized as multipurpose societies with the objectives of increasing the productivity of small fishermen and providing higher returns by :

- i. supply of diesel fuel, ice, salt, equipment and consumers goods;
- ii. improvement of existing canals and digging new ones which connect to the sea;
- iii. provision of credit, saving and other banking facilities;
- iv. provision of cold storage facilities which allow the supplies to reach the market regularly;
- v. establishment of processing plants for salting, drying or canning the fish or for the production of fish gravy and shrimp paste; and
- vi. marketing of fresh or processed fish by public auction or by establishing marketing channels to the major population centres.

Structure of Fisheries Cooperatives : The cooperatives in Thailand are vertically organized at three levels : primary societies at the local level, secondary societies at the provincial level and the apex societies at the national. As for the primary fishermen cooperative societies, individual fishermen or fishfarmer-members are divided into various groups of fishing villages or tampons for training purposes, business activities, or determination of proposals for forwarding to the Board of Directors.

At present, there are 22 fishery cooperatives registered under the Cooperative Societies Act (1968) functioning at the primary level with a total membership of 4,322 families (average 196 member per society). There is no secondary level and national level organisation of fishery cooperatives in the country.

Business Activities : In order to fulfil the objectives, fishery cooperatives in Thailand are currently involved in these major business activities as follow :

- i. Extend credit to the members. In 1986 fishery cooperatives extended credit to the members during the year to a total amount of Baht 2,656,325;

- ii. Supply inputs such as fishing gears diesel fuel, feed-stuff and necessary goods to the members. In 1986, fishery cooperatives supplied inputs to their members valued at Baht 3,027,906;
- iii. Collect fish products from the members for marketing and processing. In 1986, fishery cooperatives collected the fish products valued at Baht 2,766,576; and
- iv. Receive deposit from the members. In 1986, fishery cooperatives received deposit from members as savings deposit and fixed deposit to the total amount of Baht 55,482.

According to the auditing report of the Cooperative Audit Department in 1986, 17 fishery cooperatives were audited and the performance had been recorded as follow :

- The total income has increased by 0.42% from the previous years;
- The total costs has decreased by 0.10% from the previous years; and
- The total operating cost increased by 23.67% from the previous year.

As at the end of fiscal year 1986 (30th June, 1986), the financial status of fishery cooperatives in Thailand can be summarized as follow :

1. The total assets increased from Baht 28,930,159 in 1985 to Baht 30,657,400 or 5.97% increased.
 - 1.1 The current assets increased from Baht 27,649,465 in 1985 to Baht 28,992,227 or 4.86% increased.
 - 1.2 The fixed assets decreased from Baht 1,158,017 in 1985 to Baht 1,332,729 or 15.9% decreased.
 - 1.3 The other assets increased from Baht 123,676 to Baht 332,449 or 16.69% increased.

2. The total liabilities increased from Baht 20,876,604 in 1985 to Baht 21,876 or 2.78% increased.
- 2.1 The current liabilities decreased from Baht 19,046,729 in 1985 to Baht 18,392,535 or 3.45% decreased.
- 2.2 The fixed liabilities increased from Baht 1,707,344 in 1985 to Baht 2,737,664 or 60.35% increased.
- 2.3 The other liabilities increased from Baht 122,530 to Baht 326,576 or 16.6% increased.
3. The Cooperative Own Funds increased from Baht 8,053,555 in 1985 to Baht 9,200,626 or 14.24% increased.

Prospects of Fishery Cooperatives : The major purpose of grouping fishermen into a cooperative are : to increase the production and income of their members, promotion of business activities and related fields, namely, aquaculture, improvement of production and marketing of their members' products, is launched by the government concerned agencies.

A. Promotion and development of guidelines for fishery cooperatives : (1) Extension of fishery cooperative principles to their members and prospective fishermen members; (2) Conducting a survey and establishment of fishery cooperatives for fishermen; (3) Following up and controlling existing fishery cooperatives in accordance with the Fishery Societies Act or their regulations; (4) Promoting activities which are being carried out by fishery cooperatives in such a way that they will be self-proficient; and (5) Coordinating with other agencies for their members' benefit.

B. Promotion of Fishery Industrial Cooperatives : In order to reduce the cost of fishery production and set up a fair price to both fishermen and consumers, cold storages for fishery products and fishmeal industry and animal feeds are consequently established. These are aimed at marketing and processing fishery products of their members such as processing of canned fish products, salted fish, fish sauce, dried shrimp, shrimp paste and preserved fish.

To fulfil the objectives mentioned above, the Cooperative Promotion Department of the Government has developed an initial stage, to strengthen cooperation between the fishery cooperatives and its apex organisation, i.e., the cold storage industry and the finished food organization.

Training : According to the present cooperative structure, the Cooperative League of Thailand (CLT) which was established under the Cooperative Societies Act (1968), is regarded as the apex organization of the Cooperative Movement to function as a promotional and educational body of fishery cooperatives. The CLT will conduct annually training courses for board members and staff of fishery cooperatives. In 1988, CLT has conducted a training course for 26 board members of fishery cooperatives throughout the country.

Status of Fishery Cooperatives : Since fishing cooperatives in Thailand have been established by the Government in order to accelerate and promote the standards of living of fishermen, the government has announced a number of plans aimed at improving the situation of fishermen as follows : (1) To promote the establishment of atleast 2 fishery cooperatives each year in 23 coastal provinces; (2) To promote the establishment of fishery cooperatives and aquaculture cooperatives in the area where the fishery cooperatives are needed; and (3) To promote the establishment of a National Federation of Fishery Cooperatives in Thailand.

In Thailand, fishery research stations established by the government in various parts of the country serve as the technical arm of the Department of Fisheries in providing extension services to local fishermen.

Through external assistance, four research centres have been established to strengthen the research activities and develop the staff for the Marine Fisheries Laboratory, Phuket Marine Biological Centre, National Inland Fisheries Institute and National Institute of Coastal Aquaculture. Fifteen research vessels were programmed to operate in 1984. The Faculty of Fisheries at the Kasetsart University and the

Faculty of Science at the Chulalongkorn University turn out an average of 50 and 5 graduates, respectively, every year.

Problems : The fishery cooperatives are organized to cope with the problems of fishing occupation which cannot be solved by the fishermen individually. The common problems are known as unfair price of fishery products, lack of funds, storage and processing, high cost of transport and equipment, increased oil price, the declaration of 200 miles Economic Zone by neighbouring countries and the effects of pollution. Besides, the fishing cooperatives have to face some of the following problems : (1) Most of fishing cooperatives are small societies with average membership of 196 members per society. The fund mobilized from among the members are not sufficient to provide services to the members : (2) Due to the lack of funds, the cooperatives cannot employ the staff or some cooperative can employ very few staff which are not sufficient to handle the work properly. The staff employed lack knowledge and experience to perform the task which leads to the mismanagement of the cooperatives; and (3) Most of the management of the cooperatives are elected from among the member. They lack knowledge and experience in management aspects, especially, the financial management.

Some of the key problem areas in this sector in Thailand were reported to be : lack of knowledge about cooperative principles and practices among fishermen; acute shortage of funds for investment in fishing; depletion of resources due to extensive and pre-growth fishing; lack of information and knowledge on the techniques of fishery production, marketing, processing, storage, etc'; inadequate support from the government. It is, therefore, necessary that the Cooperative League of Thailand and the fishery cooperatives themselves mobilize public opinion in favour of their problems and persuade the government to undertake corrective measures which would, ultimately, contribute to a better growth of fishery products and export of the commodity. There is a need that fishermen impress upon the government and the banks on liberalizing credit procedures and facilities to this sector.

Some Key Problem Areas

Age old problems such as high post-harvest losses and poor utilization of catches, both fresh water and marine, continue to exist. Fisheries, in many developing countries are already a vital source of **food, employment** and **income**. The dependence on fish is made all the more important because the growth in demand, which is expected to double by the turn of the century, is likely to be greatest in the developing world.

The employment opportunities offered by fisheries are difficult to determine. Under-employment is rife and seasonal unemployment is common in some of the poor countries of the Region. It has been estimated that the fisheries provide employment, some of it part-time, for about 16- 0 million fishermen in developing countries. Many more are engaged in associated activities such as processing and marketing.

85% of the world catch comes from the sea, but in the developing countries the exploitation of this source is far from being adequate. To meet an annual global demand for food fish projected at 93 million tons by the year 2000 will probably require a net capital investment in fisheries of more than US \$ 0,000 million. During the period 1975-79, the funds allocated to the Third World for capital aid and technical assistance in fisheries rose from US \$ 139.3 million to an estimated US \$ 240 million annually. In order to achieve a reasonable investment of resources in the industry, developing countries will have to strive very hard and to commit a greater share of their total resources to fisheries. In this sector, developed nations will have to increase greatly their support to fisheries development.

During the last decade, tremendous increase has been registered in marine and inland fishing. This has resulted in generating more employment and helped diversify the related business sector activities. In the Asian developing countries, however, the profession had remained by and large, traditional. Not much has been done in

upgrading the methods and techniques of catching fish, processing and trade practices. The home market, so far, had been the principal target and consequently exports have not gone up. The fishing industry, particularly in the cooperative sector, in the Region, has not introduced modern techniques in management, production, processing and marketing.

As far as the **organisation of fishery cooperatives** in the Asian Region is concerned, the development has not been too encouraging, barring some exceptional advancements made in Japan, Republic of Korea and India. In the other countries fishery cooperatives are noticed only at the primary level and in some cases at the provincial levels. In some countries, e.g., Malaysia and the Philippines, Fisheries Committees have now come into being within the organizational structures of the respective national cooperative unions. It has also been noticed that cooperative organisations have not been able to undertake a noticeable external trade due to some obvious limitations which mainly relate to infrastructure, credit, lack of information and experience in foreign trade and lack of training and expertise in processing and handling fish and fish products for exports.

It is, however, evident that the governments in their economic development plans have given a place of prominence to cooperative institutions to accelerate activities in this field. Due to certain governmental procedures, however, matching facilities and arrangements have been lacking, e.g., export incentives, better fishing techniques, easy credit, modern fishing crafts, landing grounds, training and education of members and cooperative leaders.

There has been very little interaction at the technical level among the fishery cooperative organisations in the Region, except for the efforts made by the International Cooperative Alliance Regional Office for Asia through its Sub-Committee on Fishery Cooperatives. It is at this forum that representatives of national level fishery cooperative organisations come together once in two years to take stock of the situation and to exchange information and experience and to discuss the possibilities of setting up technical assistance programmes. At its own initiative the ICA ROA provides information and data on

fishery cooperatives to its member organisations in the Region. The Sub-Committee also has the benefit of advice of the main Fishery Committee of the ICA.

The ZENGYOREN of Japan and the National Federation of Fisheries Cooperatives of the Republic of Korea have, in the past, provided generous support to the ICA ROA in conducting several international level fisheries training programmes. Through these training programmes, experiences of Japan and Korea have now begun to show results in some of the Asian fishery cooperative organisations. Much, however, remains to be achieved because there is a very vast possibility of launching technical assistance programmes in many of the member-countries of the ICA ROA.

Some of the **key problem areas** of the Asian Region are summarised as follows :

1. Continuation of traditional methods and practices;
2. Inability to undertake economic and effective deepsea fishing, offshore fishing, modernization of boats and fishing crafts to go far out in high seas, and not even, within the full extent of the authorized national Exclusive Economic Zones;
3. Administrative and policy problems and delays in licencing;
4. Inability of cooperatives in setting up cold stores, icemaking plants, small processing units, refrigeration facilities, boat service workshops, fuel, engines, nets, etc.;
5. Lack of skill development, leadership development and managerial and technicians development programmes;
6. Inadequate protection schemes for fishermen, their boats, nets and the ultimate catch;
7. Inadequate plan allocations for fisheries development programmes;

8. Lack of information, knowledge and skills in exploiting and developing inland and fish pond fisheries ;
9. Inadequate information and initiative (due to lack of guidance) in exploring markets abroad and handling export business;
10. Generally complicated export/import procedures;
11. Comparatively high incidence of wastage, mismanagement and spoilage in handling, storing and processing of fish and fish products;
12. Lack of knowledge, skill and facilities in creating new and acceptable variations in fish products;
13. High incidence of destruction of fish potentials and infrastructure due to frequent natural disasters in the Region;
14. Inability of fishing cooperatives in making heavy investments in capital goods and infrastructure (mainly due to their own meager resources);
15. Organizational problems, lack of democratic control and excessive controls on cooperative organisations by the state;
16. Inadequate monitoring arrangements to reduce the incidence of over-fishing;
17. Indadequate participation of fisheries cooperative organisations in the formulation of national policies and programes; and
18. Less attention paid to aquaculture production in order to generate extra incomes for the fishermen.

Some Recommendations

1. **Improvement of Fishery Statistics** : Fishery statistics are indispensable tools for proper planning of national fishery development programmes. Improvement of national fishery statistical system requires two steps : (i) Establishment of national fishery statistical standards; and (ii) Development of survey methods.
2. **Development of Fishery Management Scheme** (e.g., review of existing laws).
3. **Establishment of National Network System for Fishery Coops.** The government should provide incentives to fishermen for the establishment of their own fishery cooperative, e.g., by granting a fishing right to the cooperatives and by authorizing them to act as fish wholesaler on behalf of the members.
4. **Development of Fishery Infrastructure** (e.g., fishing harbour, fish auction shelter, ice-making factory, cold storage, water and fuel supply stations, engine workshop, etc).
5. **Strengthening of fisheries national and international organisations** by participating in their information and educational activities.
6. **Setting up model projects** by advanced and experienced movements with the assistance and collaboration of agencies like the FAO, ICA, etc.
7. **Encouraging women to become full-fledged members of fishery cooperatives and participate in the business and democratic process.** Women play a significant role in fishery industry in almost all the Asian countries.

In order to meet the growing need of animal proteins and to enhance the fish production in a systematic manner, a greater scope exists in the following areas : community group participation; integrated rural development; self-help activities; liberal financial and technical support; increased educational, training and development programmes for fishermen, leaders and employees; increased and need-based international and inter-regional technical assistance support.

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Fisheries Production (Inland and Marine)

Total (Including Cooperatives) : Year 1985

Unit : 1000 Tons

Country	Inland Fisheries Production	Marine Fisheries Production	Total Fisheries Production
1. Bangladesh	573.3	190.5	763.7
2. China	2,943.7	3,853.1	6,778.8
3. DPR Korea	110.0	1,590.0	1,700.0
4. India	1,080.0	1,730.0	2,810.0
5. Indonesia	265.7	1,801.4	2,067.6
6. Malaysia	9.3	622.9	632.2
7. Nepal	9.1	—	9.1
8. Pakistan	75.1	333.3	408.4
9. Philippines	534.1	1,333.6	1,867.7
10. Rep. of Korea	51.9	2,598.0	2,649.9
11. Sri Lanka	32.7	142.6	175.4
12. Thailand	165.6	1,958.0	2,123.6
13. Australia	2.2	157.8	160.0
14. Japan	205.2	11,238.5	11,443.7

Source : FAO Bangkok—Selected Indicators of Food and Agriculture Development in Asia-Pacific Region, 1976—1986.

Fishery Cooperatives and their Membership : 1983 (Selected Countries)

Country	Number of Fishery Coops.	Total Number of Members	Average Number of Members
1. India	7,748	777,694	100
2. Indonesia	496	46,349	93
3. Japan	3,561	573,000	161
4. Rep. of Korea	70	138,000	1,971
5. Philippines	838	36,838	44
6. Sri Lanka	92	24,943	291
7. Thailand	16	4,025	252

Source : APO Regional Survey Report on Fishing Industry.