Comparative study – Malaysia and the Philippines

2005

OBJECTIVE OF THE STUDY TEAM AND MISSION

- To examine and determine how socio-economic and demographic information is used by fisheries and other government administration and the fisher associations in the preparation of management and development plan as well as in monitoring the impact of these plans and programmes on fishers and their families.
- To study and determine how the socio-economic well-being of fishers and their families is improved through special performances and projects, which are implemented in the context of fisheries and coastal management, development and conservation programmes.

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SCHEDULE OF VISITS

The mission visited the Philippines 15–21 August 2004, followed by Malaysia 21–28 August 2004. A detailed schedule of the mission is presented in Appendix 1.

Comparative study on the use of demographic and socio-economic information in coastal and fisheries management, planning and conservation in Malaysia and the Philippines

COUNTRY INFORMATION

Malaysia

General

Malaysia is a Southeast Asian country formed in 1963 through a federation of the former British colonies of Malaya and Singapore, including the East Malaysian states of Sabah and Sarawak on the northern coast of Borneo. Singapore seceded from the federation in 1965. Peninsular Malaysia borders Thailand to the north and Singapore to the south. East Malaysia constitutes the northern one-third of the island of Borneo, bordering Indonesia, Brunei and the South China Sea, south of Viet Nam. The country has a tropical climate and is influenced by annual southwest (April to October) and northeast (October to February) monsoons. The terrain is primarily coastal plains, rising to hills and mountains. The total area covers 329 750 km^2, with 1 200 km^2 of freshwater and a coastline of 4 675 km (Central Intelligence Agency – CIA, 2004).

Population

In 2003 the population of Malaysia was estimated at 23.5 million, with an annual growth rate of 1.8 percent. The proportion of urban population had increased to 62 percent from 50.7 in 1991. Kuala Lumpur, Selanga and Pulau Pinang were the states with the highest urban populations, while Kelantan, Perli and Kedah had the lowest levels. The ratio of men to women was 1.01, and the median age 23.8 years. The population is relatively young, with 33.3 percent under 15 years and 4.5 percent over the age of 66. Average life expectancy was 71.9 years, while for men it was 69.2 years and for women 74.5. The infant mortality rate was 5.1 deaths per 1 000 of the population.

The official language is Bahesa Melaya, while English, Chinese dialects (Cantonese, Mandarin, Hakka and Hainan), Tamil, Teluga, Malayalam, Panjabi and several indigenous languages such as Iban and Kadazan are spoken. The 2000 census showed that 58 percent of the population was Malaysian and other indigenous groups, 24 percent Chinese, 8 percent Indian and 10 percent other. Total literacy, described as the number of people over 15 that can read and write, is 88.9 percent, with men at 92.4 percent and women 85.4 percent.

Socio-economic data

Malaysia is classified as a middle-income country. It has transformed itself, from 1971 through the late 1990s, from a producer of raw materials into an emerging multisector economy. Growth was almost exclusively driven by exports, particularly of electronics. Japan and the United States of America are export destinations and key sources

of foreign investment. In 2003 GDP estimates (purchasing power parity) stood at US$207.2 billion, with a growth rate of 4.9 percent, while the GDP per capita stood at US$9 000. The service sector accounted for 46.3 percent, industry 45.3 and agriculture 8.4.

The major industries include rubber and oil palm processing and manufacturing, light industry, electronics, tin mining and smelting, and timber logging and processing. Inflation is estimated at 1.2 percent while unemployment stands at 3.4 percent. The total labour force is 10.4 million, with 14.5 percent in agriculture, 36.0 in industry and 49.5 in services. Export and import figures for 2003 reveal that Malaysia is a net exporter of goods, with US$98.4 billion in exports and US$74.4 billion in imports. Apart from the United States of America, its major trading partners are in Asia (Japan, Singapore, Taiwan Province of China and Thailand).

The percentage of citizens aged 20 years and over with a higher education (i.e. post secondary, college or university) increased from 8.9 percent in 1991 to 16 percent in 2000. The main fields of study were social sciences, business, law, engineering and construction. The 2000 census revealed that young adults tend to marry at a later age. Consequently, the proportion of never married (single) people aged 20–34 continued to increase between 1991 and 2000, from 43.2 to 48.1 percent. In addition, the mean age at first marriage increased from 28.2 to 28.6 years for men and from 24.7 to 25.1 years for women over the same period.

It was observed that religion was highly correlated with ethnicity. Islam is the most widely professed religion with 60.4 percent; Buddhism 19.2 percent; Christianity 9.1 percent; Hinduism 6.3 percent and 'other' 2.6 percent. The economy has been able to maintain an average gross domestic product of 7 percent from 1990 to 2000. These high growth rates allowed policy-makers to support a larger effort in human development programmes, resulting in a reduction of poverty from 16.5 percent in 1990 to less than 8 percent by 2000 (UNDP, 2004).

Political, legal and administrative structure

Malaysia is considered to be governed by a constitutional monarchy. A bicameral system of Parliament exists, consisting of a non-elected upper house and an elected lower house. Peninsular Malaysia is governed by a 'paramount ruler'. All of the peninsular Malaysian states have hereditary rulers except Melaka and Penang. Sabah and Sarawak in East Malaysia have governors appointed by the Malaysian Government. The powers of state governments are limited by the federal constitution. There are 13 states and three federal territories. The chief of state is the paramount ruler, while the head of state is the Prime Minister.

The paramount ruler is elected by and from the hereditary rulers of nine of the states for a five-year term. The Prime Minister is designated from among the members of the House of Representatives. Following legislative elections, the leader of the party that wins a majority of seats in Parliament becomes the Prime Minister, with the consent of the paramount leader.

The legal system is based on English Common Law. There are judicial reviews of legislative acts in the Supreme Court at the request of the supreme head of the federation. There is also a Federal Court, to which judges are appointed by the paramount ruler on the advice of the Prime Minister.

Philippines

General

The Philippines, a Southeast Asian archipelago, was ceded by Spain to the United States in 1898 following the Spanish-American War. It attained independence in 1946 after Japanese occupation in the Second World War. The islands of the Philippines are located between the Philippine and South China Seas and east of Viet Nam (13°N, 122°E). The

total area of the Philippines is 300 000 km² with 1 830 km² of freshwater and a coastline of 36 289 km. The Philippine islands have a tropical marine climate and are influenced by the northeast monsoon from November to April and the southeast from May to October. The terrain is mostly mountainous, with narrow to extensive coastal lowlands (CIA, 2004).

Population

The population of the Philippines in 2000 was 86.2 million, with an annual population growth rate of 1.8 percent. The ratio of men to women was 1:1, with 22.1 years being the median age. The population is young, with 35.8 percent under the age of 15 and 3.9 percent over the age of 65. Average life expectancy was 69.6 years, with men at 66.7 years and women at 72.6. The infant mortality rate was 24.2 deaths per 1 000 of the population.

There are two official languages spoken in the Philippines, Filipino and English. However, there are eight major dialects – Tagalog, Cebuano, Ilocano, Hiligaynon, Bicol, Waray, Pampango and Pangasinense. Christian Malays constitute 91.5 percent of the population, Muslim Malays 4 percent, Chinese 1.5 percent and 'other' 3 percent. Total literacy, described as the number of people over 15 that can read and write, is 95.9 percent, with the distribution among sexes being almost equal.

Socio-economic data

The Philippines was the most developed country in Asia immediately following the Second World War. However, it has since lagged behind other Asian countries owing to poor economic growth, overpopulation and political instability. The country benefits from significant remittances, estimated at US$6-$7 billion annually, from Filipinos living and working abroad. Along with its booming information technology industry and cheap labour, this has served to nullify the effects of global economic slowdown and ensure moderate economic growth over the past 6–7 years. Japan and the United States of America are the top export and import partners and are also vital sources of foreign investment. In 2003 the GDP estimate (purchasing power parity) was US$390.7 billion, with a growth rate of 4.5 percent. The service sector accounted for 50 percent, industry 35 and agriculture 15. GDP per capita during this same period stood at US$4 600.

The major economic activities in the Philippines are a mix of agriculture, light industry and support services. In particular, textiles, pharmaceuticals, chemicals, wood products, food processing, electronic assembly, petroleum refining and fishing constitute the major income-generating activities. The 2000 census reports that the inflation rate is 5 percent, while unemployment stands at 10 percent. The total labour force is 48.1 million.

Export and import figures for 2000 reveal that the Philippines is a net exporter. Figures show that goods worth US$38 billion were exported, while US$35 billion were imported. The United States of America and Japan were the major trading partners.

The college population of the Philippines is close to 2 million, representing about 35 percent of the college-age population. Business, commerce, engineering and teacher education represent the main areas of study, with 85 percent of college students attending private schools. There are 1 357 higher education institutions, of which 1 147 are private and 210 are public. With respect to marriage, the Philippines has seen little change in the timing of first marriage since 1960. The average age at first marriage in 1998 was 23.5 years, compared with 23.4 years in 1968.

Political, legal and administrative structure

The Government of the Philippines is loosely patterned after the American system of government. It is organized as a representative republic. The President functions as head of both the state and government, as well as being the commander-in-chief of the

armed forces. S/he is elected by popular vote to a term of six years, during which time s/he appoints and presides over the Cabinet.

The Philippines has a bicameral legislature consisting of the Senate and the House of Representatives. The members of both houses are democratically elected. There are 24 senators and 250 congressmen. Senators are elected for a period of six years, while the members of the House of Representatives are elected for three.

DESCRIPTION AND STATUS OF MARINE RESOURCES IN MALAYSIA AND THE PHILIPPINES

Malaysia

Fisheries

Fisheries in Malaysia are comprised of marine capture fisheries and fish culture/farming in both fresh and brackish water. There are 82 630 fishers working on licensed fishing vessels. About one third of the number work in trawlers and purse seiners, while the remainder work on traditional fishing vessels off the east and west coasts. The number of vessels stood at 30 751 in 2002 and is showing an annual increase of a little over 3 percent.

Status of fisheries

Fish production in 2002 was 1.46 million tonnes, valued at 5.4 billion Malaysian ringgit (RM), which represented 1.5 percent of national GDP and 16.6 percent of agriculture-sector GDP.

Marine capture fisheries production for the period was 1 272 078 tonnes, valued at RM4.21 billion. Coastal fisheries production accounts for 87 percent of total marine production and is estimated at 1 081 337 tonnes for 2002.

There are 82 630 fishers and 21 624 fish culturists, who together make up 1.4 percent of the national workforce. There are 30 751 licensed fishing vessels, mostly operating less than 30 nautical miles (nm) from shore.

Fishing zones and closed areas are established for fisheries management purposes. The main aim is to:

- reduce friction between traditional and commercial fishers;
- avoid overexploitation; and
- allow equitable allocation of resources.

The zones are as follows:

Zone A – reserved solely for fishers operating traditional fishing gear and using vessels of less than 40 gross tonnes (GRT);

Zone B – reserved for owner-operated commercial gear such as trawl nets or purse nets; vessels of less than 40 GRT can also fish in this zone;

Zone C – for commercial vessels with capacity of more than 40 GRT. Zone A and B operators can also fish in this area;

Zone C2 – for deep-sea vessels of > 70 GRT. Zone A, B and C operators can also fish in this zone.

There are other measures that are applied in managing fisheries, such as the establishment of marine protected areas.

Philippines

Fisheries

Fisheries in the Philippines are conducted in marine areas (coastal and oceanic), swamplands (fresh and brackish), fishponds and inland lakes, rivers and reservoirs. About 990 872 people are employed in the industry. The estimate for total fish production in 2002 was 3 369 000 tonnes.

There are two categories of marine fisheries in the Philippines: municipal fisheries, where fishing takes place in coastal and inland waters (Table 1), and commercial fisheries, where boats of 3 GRT and larger are used in deeper waters offshore.

TABLE 1
Catch by major species in the municipal fisheries (2002)

	Major species	Total per year (tonnes)	Percentage of total
1	Roundscad	234 230	22.5
2	Indian sardines	145 879	14.0
3	Frigate tunas	100 958	9.7
4	Skipjack	83 385	8.0
5	Yellowfin and big-eyed tuna	63 051	6.0
6	Big-eyed scad	38 889	3.7
7	Slipmouth	37 768	3.6
8	Fimbriated sardines	38 889	3.7
9	Anchovies	33 706	3.2
10	Indian mackerel	30 846	3.0
11	Other species	238 371	22.9

The Philippines ranks 11th in the world in aquaculture production. It exports fish and fisheries products – fresh, frozen, smoked, dried and canned – to countries such as Canada, Japan, Taiwan Province of China and the United States of America.

The marine and inland areas available for fish production in the Philippines may be categorized as follows:

(a) Marine Areas

Total territorial water and EEZ	2 200 000 km²
Coastal	266 000 km²
Oceanic	1 934 000 km²
Shelf area (200 m deep)	184 600 km²
Coral reef area (1-2 fathoms)	27 000 km²

(b) Inland Areas

Swamplands (fresh and brackish)	246 063 hectares (ha)
Fishponds (fresh and brackish)	253 854 ha
Inland resources (lakes, rivers, reservoirs)	250 000 ha

Fish production

Fisheries contribution to the economy

- contribution to total GDP – 3.9 percent (current)
- contribution to agriculture – 19.9 percent

Status of fisheries

Fish is the second most important item in the Filipino's diet. Much of the fishing is done in-shore on and around coral reefs and in mangrove bays and estuaries. Almost all major bays are overfished. In Southeast Asia, 25 percent of the live coral cover is in good condition; 5 percent is in an excellent state. Of the 400 000 ha of mangrove cover existing in the 1920s, only 150 000 remain.

The practice of cyanide and dynamite fishing has risen in popularity as a fishing method because of the very profitable exotic reef market, e.g. for grouper, wrasse and the aquarium trade. Over 330 000 gallons of cyanide are discharged by fishermen over coral reefs in the Philippines every year. This causes the corals to bleach and die. Fishers using crowbars rip corals apart to retrieve stunned fish. The cyanide is mixed to a solution of 5 000–20 000 parts per million (ppm). Corals die when exposed to a level of only 600 ppm, and can turn white in one day and overgrown with algae a week later. Cyanide is indiscriminate: it stuns big fish, but kills the smaller, more fragile organisms. It is one of the most toxic poisons and it takes only 5 mg/kg to kill a person. Fifty percent of the fish caught in the reef die immediately, while 80 percent of the remaining fish will succumb to delayed chronic mortality.

INSTITUTIONAL AND LEGAL ARRANGEMENTS FOR THE MANAGEMENT, DEVELOPMENT AND CONSERVATION OF FISHERIES, AQUATIC AND OTHER COASTAL RESOURCES

Malaysia

The Department of Fisheries has overall responsibility for fisheries management planning and implementation, including marine parks. The Fisheries Development Authority, a statutory body within the Ministry of Agriculture, has specific responsibility for enhancing the livelihoods of fishers and for value-added processing and marketing to maximize social and economic benefits from the national fisheries. Fishers' associations are also important players in the process of development and management of the fisheries sector.

Fisheries are highly regulated and fisheries management is controlled by the federal and state governments. Compliance with fisheries law and regulation is high, and enforcement is carried out by the Fisheries Marine Service, Navy, Coast Guard and Marine Police. These agencies are coordinated in special joint enforcement operations, especially for offshore fisheries, through the Maritime Enforcement Coordinating Centre (Flewwelling and Hosch, 2003b). Malaysia represents a model of fisheries management in which the Government maintains full regulatory control and direction of the sector with the effective participation of fishers. A wide range of information regarding the fisheries of Malaysia is available at the website of the Ministry of Agriculture at www.agrolink.moa.my/ and the general government Web site at www.gksoft.com/govt/en/my.

National Department of Fisheries

The Department of Fisheries is under the Ministry of Agriculture, Malaysia, and is entrusted with the role of developing, managing and regulating the fisheries sector. Its objectives are to increase national fish production, manage fisheries resources sustainably, develop a dynamic fisheries industry, intensify the development of fish-based industries and maximize the income of the fishing industry (Anonymous, 2004; FAO, undated a; Bin Langgang, 2004). The main responsibilities of the department are to:

- enforce the Fisheries Act 1985 and the Exclusive Economic Act 1984;
- manage, conserve and rehabilitate fisheries resources;
- conduct fisheries research;
- promote sustainable aquaculture;
- provide fisheries extension services;
- train fishers, farmers and downstream industry entrepreneurs;
- control fish diseases and provide quarantine services;
- promote recreational fisheries;
- monitor the pollution affecting fisheries resources;
- provide basic fisheries data; and
- establish standards and inspect fisheries products with the cooperation of related agencies.

The Department of Fisheries is headed by a director-general, assisted by a deputy director-general. There are seven divisions, each of which is headed by a director:

- Corporate Planning
- Resource Management and Protection
- Marine Fishery Resources Development and Management (MFRDMD)
- Research
- Extension and Training
- Engineering
- Administration and Finance

There are 33 subsections under these divisions, as well as 12 state fisheries departments in charge of all district fisheries offices throughout the country. Each of

these state departments is headed by a state fisheries director. Staff number about 2 450, comprising management, professional, technical and support staff.

The Third National Agricultural Policy (1998-2010) sets out government policy on fisheries. It states, "The fisheries industry, particularly deep-sea fishing and aquaculture, will be further developed on a commercial and integrated basis. The development will focus on conservation and utilization of fisheries resources on a sustainable basis. It will be adequately supported with modern fisheries infrastructure, processing, marketing network, comprehensive human resource development (HRD) and research and development (R&D) programmes" (Ministry of Agriculture, 1999).

Sabah State fisheries departments

The fisheries department of each state is responsible for implementation of the national fisheries policy within that state. The responsibilities of the state fisheries departments can be illustrated by the mission, objectives and main functions of the Fisheries Department of Sabah, presented below (Department of Fisheries Sabah at www.fishdept.sabah.gov.my/).

The stated mission is to develop and manage the fisheries industry in line with the objectives to establish a modern and commercial sector and provide maximum opportunities and benefits for all sectors of the industry and for continued growth and sustainability.

The objectives of the Department of Fisheries, Sabah, in line with the New Economic Policy, the Outline Prospective Plan of Sabah, the Third National Agriculture Policy and the Second Sabah Agriculture Policy, are to:

- uplift the socio-economic status of the state's fisheries communities;
- guide and encourage the development of the state's fisheries in the right direction;
- increase production from capture fisheries and aquaculture;
- manage the state's fisheries resources at the optimum level to ensure an adequate supply;
- carry out research on fisheries technology, aquaculture and the state's fisheries resources; and
- develop the fisheries industry as a commercial, modern and competitive sector.

The main functions of the Department of Fisheries, Sabah, are to:

- manage and protect/conserve the state's fisheries resources through licensing, control of resource exploitation and culture methods, control of fish transportation, export and import, and enforcement of fisheries laws and regulations;
- provide training and extension services to fisheries communities;
- carry out research, especially on aquaculture, fisheries technology, resource surveys and aquatic ecology;
- provide general services to the public through the district fisheries administration;
- establish development projects by setting up fisheries department stations in various districts in Sabah;
- monitor and control fish diseases and quarantine, the quality of fisheries products and public health; and
- collect and collate fisheries information and statistics.

The department carries out its functions through a number of committees, which are used to facilitate effective, efficient and transparent decision-making.

Fisheries Development Authority of Malaysia

The Fisheries Development Authority of Malaysia (FDAM), which is also known as Lembaga Kemajuan Ikan Malaysia (LKIM), is a statutory body under the Ministry of Agriculture, established through the Fisheries Development Authority of Malaysia Act 1971. The main objectives of LKIM are to improve the socio-economic status of fishers, emphasizing increased incomes, and to expand and develop the nation's fisheries

industry (Anonymous, 2004b; LKIM at http://agrolink.moa.my/lkim). According to Section 4 of the 1971 act, the functions of LKIM are to:

- promote and develop efficient and effective management of fisheries enterprises and marketing of fish;
- provide and supervise credit facilities for fish production and ensure that these facilities are put to maximum use;
- engage in fisheries enterprises and, for that purpose, engage in boat-building and in the production of fishing supplies and equipment;
- promote, stimulate, facilitate and undertake economic and social development of fishers' associations;
- register, control and supervise fishers' associations and provide for matters related thereto; and
- control and coordinate the performance of the aforesaid activities.

The Fisheries Development Authority of Malaysia is headed by a director-general, assisted by two deputy director-generals. There are five divisions under the deputy director-general (development), each of which is headed by a director:

- Fishers Institutional Development
- Aquaculture and Capture Fisheries Development
- Fisheries Infrastructure Management and Development
- Entrepreneur and Marketing Development
- Engineering

Various development programmes and projects have been undertaken with the aim of achieving the stated objectives. These have included programmes and projects focused on: coastal infrastructure development, construction of artificial reefs, aquaculture development, fish marketing support and fishers' community development. The implementation of these programmes has been carried out with the support and cooperation of other government departments, agencies and ministries. The work of FDAM/LKIM is delivered through branch offices located in each state. The objectives and main programmes and activities in the State of Melaka illustrate the organization and types of projects undertaken by FDAM.

FDAM/LKIM – Melaka State Office

The main objectives of FDAM/LKIM – Melaka are to improve the socio-economic status of fishers, with an emphasis on increasing their income, and to expand and develop the nation's fisheries industry (Anonymous, 2004c).

The main objectives of the Fisherman Community Development Program of Melaka are to:

- develop a united, self-reliant, cooperative and progressive fishers community;
- create a healthy, clean and conducive environment in the fishing villages;
- establish strong, viable and capable fishers' organizations; and
- raise the status and quality of life of the fishing community through the involvement of fishers and their family in all levels of activities.

To achieve the above objectives, activities are carried out through two main programmes, i.e. the Fishermen Social Development Program, and the Fishermen Institutional Development Program. Recent activities under the social development program included the following:

- leadership development courses for fishers (enforcement, leadership and motivation);
- development of fishing villages;
- development of fishers' families;
- support services for the fisheries community (including tuition classes for children).

Recent activities under the institutional development programme include:

- construction of the fisheries landing complex at Kuala Linggi, Malacca; and

- building of basic facilities (fish landing jetties, a common hall for fishers, a raft for keeping fishing nets).

In addition, the Melaka office is involved in:

- aquaculture research and development to upgrade technology in shrimp culture;
- construction of fish aggregating devices to enhance resources in coastal waters;
- operation of a special loan scheme for fishers; and
- operation of a chalet (for tourism) and restaurant.

The department also has a marketing and business development programme, the aim of which is to improve the fish marketing and distribution system by providing landing facilities, handling and storage of fish, and enforcement and collection of fish price information, so that fishers receive fair prices while consumers get quality fish at a reasonable price.

Future development programmes of the Melaka FDAM/LKIM include:

- construction and renovation of jetties in several communities;
- construction of fish aggregating devices;
- upgrading the restaurant and food court;
- agrotourism (chalet); and
- aquaculture.

Fishers' associations

Before the 1970s, for several years the fishers of Malaysia had received government financial support and encouragement to form themselves into cooperatives and collective organizations that would represent their interests. Nevertheless, they remained disorganized and fragmented. The Government of Malaysia, recognizing the need for greater involvement of fishers and their communities in planning and decision-making, enacted the Fishermen's Association Act 1971 to promote and strengthen the organized participation of fishers in fisheries development and management.

The act is a comprehensive statute that provides for the formation and operation of area (local), state and national fishers' associations in order to promote social and economic development of fishers and their communities. According to Section 5(1) of the act, the objective of an association is to promote the economic and social interests of its members. The act empowers the association to "do all things necessary to achieve the objectives". The scope is wide and includes not only matters directly related to fishing and marketing of fish, but also matters related to the welfare of communities, such as the provision of health centres, nurseries, thrift institutions, insurance, mutual aid and other welfare programmes (S.5(1)(e)).

In 1985, the National Fishermen's Association was established as a coordinating body to further promote the role of fishers' institutions in the development of the fisheries sector. In addition, there are fishers' organizations at the state and local (area) level. Eighty-eight fishers' associations (1 national, 12 state and 75 area) are currently active in Malaysia, and 60–70 percent of fishers are reported to be members. The state and area associations are also members of the Malaysian Investment Cooperative, which through its activities acts as an investment arm to promote savings, investment and business.

These associations are significant players in the development and management of fisheries resources and the implementation of government fisheries policy across Malaysia. They are the main organizational system and channel for delivery of government financial and technical support to the fisheries sector, as well as for providing inputs from resource users and their communities to the central government planning and decision-making process. The Government deploys significant resources, both financial and technical, to support the management and operation of these fishers' associations and the delivery of their plans and programmes. The state and national governments assist the associations with administrative and financial management and supervision. Apart from that, the bona fide fishers are responsible for the operational management

of their associations. The importance of these associations in the fisheries sector should not be underestimated. Malaysia's impressive success in fisheries development and management over the past 20–30 years, particularly in improving the socio-economic conditions of fishers and fishing communities, has been achieved in large part due to the organizational effectiveness and strength of these fishers' associations.

It is equally important to note, however, that the successes of these associations would not have been possible without the ongoing financial and technical support and supervision provided by the Government. The strategic plans and work programmes of the fishers' associations are fully integrated into the government's national fisheries development and management policy at national and state levels. Both the national and state fisheries programmes are customized for the local situations and implemented through area fishers' associations.

Ministry of Natural Resources and the Environment

There are three departments within the Ministry of Natural Resources and the Environment whose work is related to that of the principal fisheries organizations in promoting integrated management of coastal and marine resources: the Department of the Environment (DOE), the Department of Wildlife and National Parks and the Forestry Department. They work in close collaboration to plan and implement the various programmes for sustainable use and management of these resources.

The Department of the Environment deals principally with air and water quality, industrial wastes, noise levels and environmental impact assessments. It is largely concerned with industrial pollution and environmental quality in general. Jurisdiction over land use and natural resource management rests primarily with the respective state authorities exercising competence through state legislation. Thus issues such as forestry, wetlands, mining and marine conservation do not fall directly within its mandate. It is only through the environmental impact assessment (EIA) process that it exercises some measure of central supervision (Tan, 1998).

The department's mandate is derived largely from the Environmental Quality Act 1974 (as amended in 1985, 1996 and 2001), Section IV of the Exclusive Economic Zone Act 1984, and over 32 separate subordinate pieces of legislation made under these acts (Department of the Environment at www.jas.sains.my/jas/). For the present purpose, it is sufficient to note that there are a number of specific regulations and orders pertaining to environmental impact assessments, marine pollution control, and discharge of sewage and industrial effluent that affect fisheries resources.

The Department of Wildlife and National Parks is responsible for implementation of the National Biological Diversity Policy, the Wildlife Protection Act 1972, the National Parks Act 1980, the National Parks (Amendment) Act 1983, and various other statutes dealing with specific national parks and protected areas.

The Forestry Department administers the National Forestry Act 1984 and the Malaysian Forestry Research and Development Board Act 1985. The department's responsibilities include control and management of mangrove forests, which provide breeding and nursery grounds for several coastal living aquatic resources as well as the sites for coastal aquaculture activities.

Main fisheries legislation

According to Tan (1998), apart from the familiar development-environment tensions and the common budgetary and manpower problems found in most developing countries, Malaysia faces a significant challenge in relation to federal and state government competence. As in all countries with federal structures of governance, there are substantial jurisdictional issues involving federal and state authorities. The Federal Constitution of Malaysia leaves substantial powers over land use and natural resource management to the respective states. In addition, the constitution guarantees

certain unique rights and privileges to the eastern Malaysian states of Sabah and Sarawak. The federal parliament has jurisdiction to legislate for those states only in areas that had been explicitly identified in the constitution.

The Government has a fairly comprehensive system of primary and secondary legislation, at both federal and state levels, aimed at controlling and regulating the development, management and conservation of the national fisheries in a manner consistent with its national policy objectives and international obligations. The primary fisheries laws in force at this time are the Fisheries Act 1985, the Fishermen's Association Act 1971, the Fisheries Development Authority of Malaysia Act 1971, and the Exclusive Economic Zones Act of 1984.

The fisheries laws in Malaysia are comprehensive, well developed, and target three main priorities: optimum exploitation of fisheries resources, protection of the interests of traditional fishers and improvement in their socio-economic status, and sustainable exploitation of the fisheries resources. The legislation includes a comprehensive description of compliance and enforcement requirements, as well as the authorities, rights and responsibilities of both government officials and fishers. These cover processes for licensing, inspections, reporting requirements, dockside monitoring, use of vessel monitoring systems (VMS), air surveillance, and landing checks, but legislation does not yet include coverage by observers or electronic reporting of catches. A review of the fisheries laws since the early 1900s indicates very active development of the legislative framework to ensure that the laws are kept up to date and consistent with the policy objectives of the Government. The Fisheries Ordinance 1909 (as amended in 1912, 1924 and 1926) was the main legislation regulating the fishing industry until it was repealed in 1951. The Fisheries Rules of 1951 came into force on 10 August 1951. During this time there were also seven fisheries ordinances or enactments introduced by the various states. The fishing industry at that time was mostly small-scale and traditional, and regulation was minimal.

In the 1960s and 1970s, the fisheries sector expanded significantly following the introduction of trawling in coastal waters, creating new problems and management challenges such as conflict between traditional fishers and trawlers, which could not be controlled by existing legislation. This led to the formulation of the Fisheries Act 1963, which provided a more comprehensive legal framework for managing the fisheries in Malaysian waters. This act was formulated to: integrate and strengthen the legal framework relating to marine and inland fisheries; protect natural living resources; protect the interests of fishers; ensure equitable allocation of fisheries resources; and strengthen administrative activities to reduce conflict among fishing communities. The 1963 act was then replaced by the Fisheries Act 1985 in order to incorporate developments related to the Third United Nations Convention on the Law of the Sea.

Fisheries Act 1985

The Fisheries Act 1985 is the primary legislation under which marine fisheries development, management and conservation is effected in Malaysian waters. This act is comprehensive and represents an expansion of and improvement on the 1963 act, incorporating the exclusive economic zone (EEZ), consistent with relevant provisions in the 1982 United Nations Convention on the Law of the Sea (UNCLOS), to which Malaysia acceded on 14 October 1996. Several new provisions have been incorporated into the Fisheries Act 1985.

The director-general of the Fisheries Department has responsibility for formulating and continuously upgrading fisheries programmes based on the latest scientific knowledge in order to ensure optimum utilization of fisheries resources in line with good management practices. The act provides for the monitoring, control and surveillance of fishing vessels in the EEZ. Foreign fishing vessels caught fishing illegally are apprehended and severely dealt with under this act. Its objective is to provide better

conservation, management and development of fisheries in Malaysia in the light of Malaysia's commitment towards the implementation of the provisions of UNCLOS. The act covers:

- administration of fisheries in Malaysia;
- licensing and management of local and estuarine fishing operations;
- control of fishing by foreign fishing vessels in Malaysian fishing waters;
- offences, prohibitions and control of certain methods of fishing;
- establishment of marine parks and marine reserves; and
- offences and legal procedures relating to implementation of the act.

The 1985 Act provides the Minister of Agriculture with power to make regulations for the management and conservation of marine resources. Several subordinate pieces of legislation (regulations and orders) have been made under the Fisheries Act 1963 (before its repeal) and the Fisheries Act 1985, addressing various aspects of fisheries. The main ones are presented below (FAO, undated a):

Fisheries Regulations 1964 are applicable in the waters off the coast of Sabah, and provide procedures for application for fishing appliances licences, with licence fees, deposits and conditions attached to the licences for different types of fishing gear.

Fisheries (Conservation and Culture of Cockles) Regulations 1964 deal with the management, control, and licensing of collection of adult cockles and cockle spats from natural spatfall areas and culture areas. The minimum size for collection of adult cockles and cockle spats is also determined in these regulations, and there is a fee charged for the licence to collect.

Fisheries (Maritime) Regulations 1967 lay down procedures for application for licences for different types of fishing appliances, with licence fees, deposits and conditions attached to such licences. These regulations are applicable in the maritime waters off the east and west coasts of peninsular Malaysia.

Fisheries (Maritime) Regulations (Sarawak) 1976 are applicable in the waters off the coast of Sarawak, and provide procedures for application for fishing appliances licences, with licence fees, deposits and conditions attached to the licences for different types of fishing gear.

Fisheries (Prohibition of Methods of Fishing) Regulations 1980 prohibit unsustainable fishing practices, such as the use of explosives, poison and electric fishing, pair trawls, beam trawls and drift gill nets of more than 10 inches for catching rays, etc.

Fisheries (Licensing of Local Fishing Vessels) Regulations 1985 provide for the licensing of local fishing vessels. They outline the licensing procedures, with conditions for marking of vessels, fees and deposits payable.

Fisheries (Marine Culture System) Regulations 1990 lay down application procedures for permits for the establishment of marine culture systems, such as cage culture, pole culture, etc., and licensing of such systems, with conditions attached. These regulations control marine and brackish aquaculture activities and pollution arising from such culture systems.

Fisheries (Prohibition of Import, etc. of Fish) Regulations 1990 provide a listing of the species of piranha fish that are prohibited from being imported, exported, sold or kept in captivity unless permitted by the director-general.

Fisheries (Prohibited Areas) Rantau Abang Regulations 1991 provide protection for turtles that beach in Rantau Abang to lay eggs. The regulations designate areas in Rantau Abang, Trengganu, as turtle sanctuaries and prohibit fishing in these areas unless specifically permitted.

Fisheries (Prohibited Areas) Regulations 1994 provide that the waters around the islands in Sarawak are fisheries-protected areas, and prohibit the collection of shells, molluscs and corals. Fishing is also prohibited unless licensed.

Establishment of Marine Parks and Marine Reserves Order 1994 establishes a number of marine parks for marine biodiversity conservation. The waters around 40

islands in Malaysian fisheries waters have been declared as Marine Parks Malaysia. Fishing and collection of fish and other aquatic animals are prohibited in these areas.

Fisheries (Close Season for the Catching of Grouper Fries) Regulations 1996 are applicable in the states of Kelantan and Trengganu only. Fishing of grouper fries during the months of November and December is prohibited unless permitted by the director-general.

Fisheries (Prohibited Fishing Methods for the Catching of Grouper Fries) Regulations 1996 prohibit the collection of grouper fries in the lagoon and estuary of rivers unless permitted by licence, and specify that only fish traps can be used to catch grouper fries in the lagoon and estuary of rivers.

Fisheries (Control of Endangered Species of Fish) Regulations 1999 list the protected species of endangered fish and mammals. The list includes the dugong, whale, dolphin, whale shark and giant clam, which are included in the list of endangered species in the Convention on International Trade of Endangered Species (CITES). The regulations make it an offence to fish for, harass, catch, kill, possess, sell, buy, export or transport any endangered fish as specified in the regulations. Any of the listed endangered fish species caught unintentionally shall be released immediately or disposed of as directed by a fisheries officer.

Other important pieces of legislation not yet mentioned that affect fisheries are the:

- Land Conservation Act 1960 (revised 1989)
- National Land Code 1965
- Town and Country Planning Act 1974
- Street, Drainage, Buildings Act 1974
- Local Government Act 1976
- Uniform Building By-Laws 1986

In concluding this section it is important to note that the main focus of government policy is sustainable use of the fisheries resource for socio-economic development. The fisheries institutional framework and laws in Malaysia are comprehensive, well developed, logically integrated and target three main priorities: optimum exploitation of fisheries resources, protection of the interests of traditional fishers and improvement in their socio-economic status, and sustainable exploitation of fisheries resources. The key institutions are organized and given the basic human and financial resources to execute their mandate. The legislation includes a comprehensive description of compliance and enforcement requirements, as well as the authorities, rights, and responsibilities of both government officials and fishers. It covers the process for licensing, inspections, reporting requirements, dockside monitoring, use of vessel monitoring systems, air surveillance, and landing checks, but legislation does not yet include coverage by observers or electronic reporting of catches.

It should be noted, however, that the most effective fisheries licensing system in Asia is that of Malaysia, a system that has been certified as ISO 9000 approved (Flewwelling and Hosch, 2003b). Tan (1998), however, argues that there is a need for greater interministerial coordination to address natural resource management issues that straddle the jurisdiction of several agencies. He also argues for greater public participation to enable NGOs and the general public to have a larger role in decisions that affect their lives. This increased participation will have to be sought in both legal and extra-legal mechanisms.

Philippines

In the Philippines, the main institutions responsible for integrated fisheries and coastal resource management are the Bureau of Fisheries and Aquatic Resources of the Department of Agriculture, the municipal or local government units and the fisheries resource management councils. The model used for integrated fisheries management is

one in which responsibility and authority for coastal resources have been delegated to the municipal and regional authorities, with central Government retaining a supervisory role. Community and stakeholder participation in the planning and decision-making process is an important objective of the institutional arrangements and is achieved largely through the fisheries management councils, devolution to local government units and a participatory decision-making process, which is required by law.

National fisheries authority

The Undersecretary for Fisheries and Aquatic Resources in the Department of Agriculture has overall responsibility for fisheries. As set out by the Philippine Fisheries Code of 1998, the Undersecretary's functions are to: set policies and formulate standards for the effective, efficient and economical operations of the fishing industry in accordance with the programmes of the government; exercise overall supervision of offices and instruments related to fisheries; and establish such regional, provincial and other fisheries offices as may be necessary and appropriate and organize the internal structure of the Bureau of Fisheries and Aquatic Resources (BFAR) for efficiency and effectiveness. A wide range of information regarding BFAR is available at www.bfar.da.gov.ph/.

The Bureau of Fisheries and Aquatic Resources is a line bureau within the Department of Agriculture and has overall responsibility for development, management and conservation of the national fisheries. BFAR is headed by a director and assisted by two assistant directors, who supervise the administrative and technical services of the bureau, respectively. There are 11 divisions, 8 national technology centres, 7 regional fisheries training centres, and 16 regional fisheries offices with provincial offices located throughout the Philippines (BFAR, 2003; BFAR at www.bfar.da.gov.ph/). The functions of the bureau are to:

- prepare and implement a comprehensive national fisheries industry development plan;
- formulate and implement a comprehensive fisheries research and development programme including, but not limited to, sea farming, sea ranching, tropical/ornamental fish and seaweed culture, aimed at increasing resource productivity, improving resource use efficiency, and ensuring the long-term sustainability of the country's fisheries and aquatic resources;
- establish and maintain a comprehensive fisheries information system;
- provide extensive development support services in all aspects of fisheries production, processing and marketing;
- coordinate with local government units (LGUs) and other concerned agencies in establishing a productivity-enhancing and market development programme in fishing communities to enable women to engage in other fisheries/economics activities and contribute significantly to development efforts;
- enforce all laws, formulate and enforce all rules and regulations governing the conservation and management of fisheries resources, except in municipal waters, and settle conflicts of resource use and allocation in consultation with the National Fisheries and Aquatic Resources Management Council (NFARMC), LGUs and local fisheries and aquatic resources management councils (FARMCs);
- recommend measures for the protection/enhancement of the fisheries industries;
- assist LGUs in building their technical capability in the development, management, regulation, conservation and protection of the fisheries resources;
- formulate rules and regulations for the conservation and management of straddling fish stocks and highly migratory fish stocks; and
- perform such other related functions as shall promote the development, conservation, management, protection and utilization of fisheries and aquatic resources.

It should be noted that while the Department of Agriculture and BFAR have overall responsibility for fisheries development and management, these responsibilities, within municipal waters, have been delegated by law to local government units.

The Government of the Philippines has implemented a number of projects in recent years designed to improve sustainable use and management of fisheries. Notable among these are:

- The Japan International Cooperation Agency (JICA)-funded Bantay Dagat Program KR-II (255 million Philippine pesos or approximately US$5 million) to improve, conserve and manage the country's coastal marine fisheries and aquatic resources to ensure food security and alleviate poverty. The nationwide implementation of the programme has reached the farthest and most remote regions of the country and has benefited over 35 000 marginal fishers from municipal and small commercial sectors as well. The programme encompasses acquisition and distribution of patrol boats, introduction and transfer of innovative and eco-friendly fishing gear, training in fishing technology, resource conservation and enhancement.
- The Fisheries Resource Management Project (FRMP) addresses the two critical and interconnected issues of fisheries resource depletion and persistent poverty among municipal fishers. It represents the Government's efforts to shift the sector focus from increasing fisheries pressure to fisheries resource protection and conservation through sustainable management. It also reflects the demand of municipal fishers for public assistance to protect their basic livelihood, and the national and local governments' concern over poverty and environmental degradation. The project is designed to foster municipal fishers' participation in resource management and enhance government capability, at both national and local levels, to fulfil its mandate to manage resources. It has three major components:
  - Fisheries resource management – consists of various tools and systems for the rational management of resources, including data management, near-shore monitoring, control and surveillance, fisheries legislation, enforcement and licensing, and coastal resource management (CRM) planning and implementation.
  - Income diversification – focuses on organization, mobilization and strengthening of fishers' and coastal community groups that are savings-based and self-reliant, capable of carrying out CRM activities and income diversification on a long-term basis.
  - Capacity-building – consists of technical training programmes and on-site coaching for project implementers and beneficiaries in order to strengthen capacities for resource management and project implementation.
- The Ginintuang Masaganang Ani for Fisheries Program, 2002-2004, is designed to provide national direction and a framework to develop and manage the country's fisheries resources for food security and for the socio-economic benefit of subsistence fishers. Development efforts are focused on expansion and revitalization of productivity programmes and provision of support activities through appropriate technology, research, extension and adequate financial and marketing assistance. Management efforts cover the conservation, protection and sustainable management of the country's fisheries and aquatic resources to ensure their long-term survival.

Local government units

Responsibility for fisheries management is delegated to municipal authorities through municipal ordinances under the Local Government Code 1991 and the Fisheries Code 1998. Local municipalities are given authority and responsibility for the management of their coastal areas out to 15 km from the shoreline under the parameters set by national

fisheries legislation and policies. According to Section 16 of the Fisheries Code 1998, the municipal/city government, in consultation with FARMC, shall be responsible for management, conservation, development, protection, utilization and disposition of all fish and fisheries/aquatic resources within their respective municipal waters. In this connection, the LGU is empowered both to enact appropriate ordinances and to enforce all fisheries laws, rules, regulations and ordinances (BFAR at www.bfar.da.gov.ph/).

The management of contiguous fisheries resources such as bays, which straddle several municipalities, cities or provinces, is integrated, and must not be based on political subdivisions of municipal waters, in order to facilitate their management as single resource systems. LGUs that share or border such resources may group themselves and coordinate action to achieve the objectives of integrated fisheries resource management. Section 76 of the Fisheries Code 1998 provides for the establishment of integrated fisheries and aquatic resources management councils (IFARMCs), which serve as the venues for collaboration among LGUs in the management of contiguous resources. Management of the coastal areas and fisheries resources within 15 km of the shoreline is thus devolved to the municipal level.

Fisheries and aquatic resources management councils

FARMCs represent another important component of the institutional framework for integrated management of fisheries and coastal resources in the Philippines. Their establishment at national, provincial and municipal levels fulfils a commitment by the Government to involve stakeholders in the development and management of the fishing industry and to pursue integrated management approaches. FARMCs include representatives of fishers' organizations, NGOs, LGUs, and relevant government agencies. They evolved from the former national, regional and bay management councils (Flewwelling and Hosch, 2003a). FARMCs are the key management advisory councils to the local, regional and national government authorities responsible for fisheries management. Sections 68–79 of the Fisheries Code 1998 deal with the establishment, composition, functions and operation of FARMCs (BFAR, 2003; BFAR at www.bfar.da.gov.ph/).

The functions of the national council (NFARMC) as provided for in Section 72 of the Fisheries Code 1998, are to:

- assist in formulating national policies on the protection, sustainable development and management of fisheries and aquatic resources for the approval of the secretary;
- assist the department in preparing the national fisheries and industry development plan;
- perform such other functions as may be provided by law.

The municipal councils' functions are to:

- assist in preparing the municipal fisheries development plan and submit the plan, once finalized, to the municipal development councils;
- recommend enactment of municipal fisheries ordinances to the *sangguniang bayan/sangguniang panlungsod* (municipal council/city council) through its committee on fisheries;
- assist in enforcement of fisheries laws, rules and regulations in municipal waters;
- advise the *sangguniang bayan/panlungsod* on fisheries matters through its committee on fisheries, if such has been organized; and
- perform such other functions as may be assigned by the *sangguniang bayan/panlungsod*.

Thus the system of FARMCs at local, regional and national levels is designed to facilitate broad consultation with stakeholders and local communities, as well as provide an opportunity for consideration of cross-sectoral issues in managing fisheries and coastal resources.

Non-governmental organizations and the private sector

The Government of the Philippines has been working with NGO partners, on the one hand, to facilitate greater participation and involvement of the people in planning, decision-making, and implementation of programmes and projects. There are numerous private, community-based organizations that have been established primarily to provide support and assistance to coastal communities. They work with the community to formulate and implement projects based on local needs and priorities in order to build local capabilities and improve socio-economic conditions and living standards. The NGOs provide assistance by conducting technical training, transfer of technologies for resource management, and self-regulation and occupational diversification programmes.

On the other hand, the role of the private sector in fisheries management and development is very important in the Philippines. National policies state that the Government shall grant the private sector the privilege of using fisheries resources, and the private sector shall serve as an active participant and partner of the Government in the sustainable development, management, conservation and protection of the fisheries and aquatic resources of the country. The aim is to empower people in the fisheries sector and to ensure profitability of effort, especially among small-scale fishers (FAO, undated b).

Main fisheries legislation

Government policies on fisheries management and its integration into coastal management have been articulated in the Philippines Fisheries Code of 1998, the Local Government Code of 1991, and the Philippine Wildlife Resources Conservation and Protection Act.

Philippines Fisheries Code of 1998

This code is the primary fisheries legislation and is formally called An Act Providing for the Development, Management and Conservation of the Fisheries and Aquatic Resources, Integrating All Laws Pertinent Thereto and for Other Purposes (Republic Act [RA] 8550). It came into force on 23 March 1998 and embodies the policy of the Government with respect to fisheries. It aims to achieve food security as the overriding consideration in the utilization, management, development, conservation and protection of fisheries resources, in order to provide for the food needs of the population and reserve access to the fisheries resources of the Philippines for the exclusive use and enjoyment of the Filipino people. It is comprehensive and addresses several different aspects of fisheries in nine chapters and 133 sections (BFAR, 2003; BFAR at www.bfar.da.gov.ph/). The chapters are arranged as follows:

- Chapter I: Declaration of policy and definitions
- Chapter II: Utilization, management, development, conservation and allocation system of fisheries and aquatic resources
- Chapter III: Reconstitution of the Bureau of Fisheries and Aquatic Resources and creation of fisheries and aquatic resources management councils
- Chapter IV: Fisheries reserves, refuges and sanctuaries
- Chapter V: Fisheries research and development
- Chapter VI: Prohibitions and penalties
- Chapter VII: General provisions
- Chapter VIII: Transitory provisions
- Chapter IX: Final provisions

Local Government Code

The Local Government Code was enacted to decentralize local governance in the Philippines. Section 2(a) states, "It is hereby the declared the policy of the State that

the territorial and political subdivisions of the State shall enjoy genuine and meaningful local autonomy to enable them to attain their fullest development as self-reliant communities and make them more effective partners in the attainment of national goals. Toward this end, the State shall provide for a more responsive and accountable local government structure instituted through a system of decentralization whereby local government units shall be given more powers, authority, responsibilities, and resources. The process of decentralization shall proceed from the national government to the local government units."

The code is a comprehensive instrument with several provisions directly addressing the adoption of integrated management of fisheries and coastal resources (Anonymous, 2004a; BFAR at www.bfar.da.gov.ph/). It deals with a wide range of issues related to sustainable use and integrated management of fisheries and coastal resources, including but not limited to the following:

- management and maintenance of an ecological balance within the territorial jurisdiction of local government units and the national government, subject to the provisions of the code and national policies;
- promotion of the general welfare of the inhabitants by, among other things, enhancing the right of the people to a balanced ecology and enhancing economic prosperity and social justice;
- provision of basic services as part of the delivery system of the local government – such as extension and on-site research services and facilities relating to agriculture and fisheries, as well as enforcement of fisheries laws in municipal waters;
- environmental protection through either solid waste disposal systems or environmental management systems also as a basic service for the people;
- assistance to farmers and fishers in the establishment of cooperatives, if appropriate;
- enforcement of forestry laws limited to community-based forestry projects, a pollution-control law, a small-scale mining law and other laws for the protection of the environment;
- enactment of necessary municipal ordinances to strengthen the enforcement of fisheries and environmental laws. The challenge, of course, is the implementation capacity of these ordinances to ensure that the enactment is not simply a 'paper exercise' with minimal positive results;
- establishment of partnerships with other players for more effective management;
- provision of assistance, financial or otherwise, to individuals whose pursuits promote environmental protection and resource management.

According to the Local Government Code, LGUs are responsible to:

- manage municipal waters as defined under the Fisheries Code;
- enact appropriate fisheries ordinances related to the utilization of coastal resources;
- enforce all fisheries laws and regulations within their area of jurisdiction;
- grant fishing privileges to duly registered organizations or cooperatives;
- initiate the consultation process with NGOs, people's organizations, associations, cooperatives, fisheries councils and the coastal community;
- maintain a registry of municipal fishers;
- issue permits to fishers, associations and cooperatives, but exercise authority to refuse such access in the interest of conservation and to prevent overfishing in order to protect full-time fishers, using the principle of "limited access" established in RA 8550;
- grant demarcated fisheries rights;
- provide support to technology, research, credit, production and marketing;
- assist in the establishment of FARMCs;
- ensure the involvement of coastal communities in integrated coastal management.

Other important laws relating to fisheries include:

- Implementating Rules and Regulations pursuant to RA 8550;
- Agriculture and Fisheries Modernization Act of 1997 (RA 8425), which is "an act prescribing urgent related measures to modernize the agriculture and fisheries sectors of the country in order to enhance their profitability, and prepare said sectors for the challenges of the globalization through an adequate, focused and rational delivery of necessary support services, appropriating funds therefore and for other purposes".

There are also several fisheries administrative orders, which may be found at BFAR at www.bfar.da.gov.ph/legislation/list.htm.

The Government of the Philippines faces enormous challenges in improving the socio-economic conditions of coastal dwellers and in eradicating poverty. Coastal and fisheries resources have been severely depleted in some areas due to overfishing and habitat degradation. Government policies, supported by legislation and strategic plans, are focused on improving the social and economic conditions of fishers and their communities, while at the same time protecting the natural ecological balance and sustainability of coastal and marine ecosystems. Comprehensive legal and institutional systems are in place for integrated fisheries management. These systems seem to be logically connected and adequate to meet the long-term development objectives, taking into account the financial and technical constraints facing the country. A key feature of the system is the devolution of authority to local/municipal governments to take the lead role in planning and implementing strategies and programmes, in a participatory manner, consistent with national policies.

SOCIO-ECONOMIC AND DEMOGRAPHIC INFORMATION – MALAYSIA AND THE PHILIPPINES

Malaysia

Availability of socio-economic and demographic information

In Malaysia, there are numerous sources of socio-economic and demographic information/data. A major one is the Malaysian five-year series of annual reports, which provides data on population, age, sex distribution, access to basic amenities, housing conditions, employment by industry and unemployment, income and poverty levels, educational attainment, agricultural and fisheries development, the environment and sustainable resource management and human resource development. The information is readily available.

At the sector level, the Malaysian Department of Fisheries, FDAM, and national, state and area fishers' associations and cooperatives generate specific socio-economic data on the number of registered fishers, number of fishing boats, area and state fishers' associations, number of aquaculture farms, level of income generation, contribution to GDP, women in fisheries and poverty levels. Access is available to all information, which is lodged with all six institutions, and can also be accessed through the web.

Use of socio-economic and demographic indicators

The Malaysian government established FDAM, or LKIM, in 1971 in a concerted effort to raise the socio-economic conditions of Malaysian fishers, especially those who live, work and operate in coastal communities, and to eradicate the high levels of poverty among them.

Based on the results of surveys and research undertaken on the socio-economic conditions of coastal fishers and issues related to the management and conservation of the surrounding marine environment, FDAM developed the comprehensive Fishermen Community Development Project with the following objectives:

- develop a united, self-reliant, cooperative and progressive fishers' community;
- create a healthy, clean and conducive environment in the fishing village;

- establish strong, viable and capable fishers' organizations; and
- uplift the status and quality of life of the fishing community.

The project focuses on two main areas: the Fisheries Industry Development Program and the Fishermen Community Development Program. The former is comprised of seven specific subprogrammes focusing on:

- coastal fisheries industry development;
- deep-sea fisheries industry development;
- aquaculture development;
- upstream fisheries industry development;
- downstream fisheries industry development;
- marketing support services; and
- FDAM commercial development.

While administered by FDAM, the development programmes are sponsored by the Southeast Asian Fisheries Development Center (SEAFDEC), an autonomous intergovernmental body established as a regional treaty organization in 1967 to promote fisheries development in Southeast Asia. SEAFDEC is currently made up of 11 member countries: Brunei Darussalam, Cambodia, Indonesia, Japan, Lao People's Democratic Republic, Malaysia, Myanmar, the Philippines, Singapore, Thailand and Viet Nam. It has four technical arms located in different member countries, with the Marine Fishery Resources Development and Management Department (MFRDMD) located in Malaysia. MFRDMD acts as a centre to plan, coordinate and implement research on fisheries resources in Malaysia and on regional fisheries resources research programmes.

The Fishermen Community Development Program is made up of four specific subprogrammes, which include the following:

- Fishermen Social Development Program;
- Fishermen's Institutional Development Program;
- Hardcore Poor Development Program; and
- Agrotourism Industry Development Program.

The first three are sponsored by FDAM, while the latter is sponsored by the Ministry of Agriculture.

Preparation and implementation of special projects and activities – in the context of fisheries and coastal area management and conservation – that aim to improve the socio-economic well-being of coastal fishers and their families

The Malaysian Department of Fisheries has undertaken several management initiatives to protect fisheries resources in order to achieve sustainable coastal fisheries, while at the same time improving the standard of living for fishers and their families. The management initiatives have been formulated to control fishing effort and promote rehabilitation and conservation of fisheries resources and marine ecosystems. Management measures implemented through the legal and institutional framework to control fishing effort include the following:

- direct limitation of fishing effort through the licensing of fishing gear and fishing vessels. A moratorium has been placed on the licensing of new or additional fishing vessels to fish in coastal waters. This will prevent overexploitation, ensuring that the current high fishing pressure on limited coastal fisheries resources will not be increased;
- registration of fishers: every fisher is required to have a fisher's registration card;
- identification of nursery areas that should be protected and managed to ensure survival of juveniles of commercially important species. The areas are gazetted (prescribed by law) as closed fishing areas or as areas zoned for specific fishing gear, based on the tonnage of the fishing vessel;
- rehabilitation of resources through the establishment of artificial reefs and coral replanting programmes;

- conservation of turtles and of the biodiversity of marine ecosystems;
- facilitation of cooperative research efforts by the Government and academics to provide data essential to the formulation of area management plans;
- resettlement of excess fishers into other sectors: a voluntary programme to resettle fishers is in place to reduce fishing pressure, especially on in-shore fishing; fishers are encouraged to venture into other downstream activities, such as aquaculture and post-harvest fish processing;
- closed fishing areas: commercial fishing vessels such as trawlers and purse seiners are prohibited from fishing in waters less than five miles from shore, which are the nursery grounds for juvenile prawn and fish;
- management zones: four fishing zones have been established through a licensing system under which zones are designated for specific fishing gear and classes of vessels. An attempt has been made to provide equitable allocation of fisheries resources and to reduce conflict between traditional and commercial fishers;
- conservation of resources: marine parks, marine reserves and fisheries protected areas have been established under the Fisheries Act 1985 as a management measure. Public awareness is being promoted of the need to protect the corals and other marine flora and fauna in the waters surrounding the islands off the coast in order to ensure their conservation. To date, 40 islands off the west and east coasts of peninsular Malaysia have been gazetted as marine parks and reserves. The waters around the islands of Sarawak, i.e. Pulau Talang-Talang Besar, Pulau Talang-Talang Kecil and Pulau Satang, have also been gazetted as fisheries protected areas in which collection of marine fauna and flora is prohibited.

In 1971, an act was formalized to establish fishers' associations in Malaysia. The country used a modified version of the successful Taiwanese model of cooperatives to establish its fishers' associations. The objectives of the Malaysian associations are to:

- manage and operate financial aid schemes to provide credit and capital resources to members;
- promote member education and training, including circulation of information on matters of interest to members;
- organize exhibitions, fairs and displays;
- organize fishing operations or aquaculture, and the assembling, storage, processing, distribution and disposal of members' products;
- provide health centres, nurseries, thrift institutions, insurance, mutual aid and other welfare programmes;
- assist in investigations of and collection of statistics on the fishing industry;
- provide buoys and other navigation aids and fishing harbour facilities;
- mediate fishing industry disputes involving a member or members;
- organize the participation of members in any programmes for the conservation of fisheries resources;
- operate and provide transportation facilities to enhance fish marketing and related activities;
- provide marketing, storage, drying, warehousing and other facilities; and
- facilitate capital formation and investment among members through the establishment of companies or equity participation in trading and business ventures.

Other activities implemented by the Government to improve the socio-economic well-being of coastal fishers and their families include an interest-free, soft loan programme for fishers, and establishment of the National Fishermen's Association (NEKAT), state fishermen associations (SFA), area fishermen associations (AFA) and fishers' cooperatives. Malaysian law now mandates that fishers join fishers' organizations. In 2004, there were 12 SFAs and 76 AFAs with more than 60 percent of the fishers in Malaysia being members of these organizations.

TABLE 2
Incidence of poverty among fishers

Year		Percentage
1970	-	73.2 (peninsular Malaysia)
1976	-	62.7 (peninsular Malaysia)
1984	-	27.7 (peninsular Malaysia)
1987	-	24.5 (peninsular Malaysia)
1989	-	26.0 (peninsular Malaysia)
1992	-	17.9 (Malaysia)
1995	-	11.8 (Malaysia)

Use of socio-economic and demographic indicators in monitoring the impact of management regulations and other measures on the socio-economic well-being of fishers, their families and other segments of the coastal population

In 1970 the incidence of poverty among fishers in Malaysia stood at 73.2 percent (Table 2). In 1971 FDAM embarked on a programme to eradicate poverty among fishers, especially in coastal areas and fishing communities. Over a 25-year period (1970–1995), the poverty level among fishers was reduced by 85 percent.

During the period 2001–2003, 495 fishers benefited from total loans of RM10 million under the interest-free soft loan programme.

Philippines

Availability of socio-economic and demographic information on coastal communities

Through a census every ten years, the Philippines National Statistics Office generates readily available data on population, employment, unemployment, income, age, sex, etc.

Under the authority of the Department of Agriculture, BFAR generates demographic and socio-economic data on the fisheries sector. This includes useful information on the number of registered fishers, number of aquaculture farms, employment in the sector and, at the macro level, income generation and the sector's contribution to GDP.

At the regional level, BFAR receives additional assistance in gathering sectoral information through its regional offices. At the micro level, information is supplemented by LGUs, specifically through their fisheries management units (FMUs), as well as by fishers' associations/cooperatives in coastal communities.

Use of socio-economic and demographic indicators

Approximately 80 percent of the population of the Philippines lives below the poverty line and depends on the resources of the coastal zone for livelihood and sustenance.

The Government of the Philippines has recognized key socio-economic, resource management and environmental, policy and industrial issues and concerns besetting the fisheries sector. However, the issues are not limited to these.

Preparation and implementation of special projects and activities – in the context of fisheries and coastal area management and conservation – that aim to improve the socio-economic well-being of coastal fishers and their families

In an effort to avoid further decline in the economic status of coastal fishers and generate greater empowerment, BFAR embarked on the Fisheries Resource Management Project (FRMP) to address some of the issues and concerns. The project has been designed to address two critical issues: fisheries resource depletion and persistent poverty among municipal fishers.

The FRMP is divided into three components: fisheries resource management, income diversification and capacity-building.

Use of socio-economic and demographic indicators in monitoring the impact of management regulations and other measures on the socio-economic well-being of fishers, their families and other segments of the coastal population

Programmes in fisheries resource management are ongoing and are at varying stages of implementation (Tables 3–5):

The status of the first component of FRMP, which addresses resource management, may be summarized in Table 3.

TABLE 3
Status of implementation of fisheries resource management

Component One: Fisheries resource management		
Programme	**Description**	**Status**
Resource and Social Assessment (RSA)	12-month research studies to provide vital information on the condition of coastal resources and socio-economic profiles of communities for planning and decision-making	7 RSAs have been completed and are being used for coastal resource management, while contracting is ongoing for other bays
Philippines Fisheries Information System (PhilFIS)	PhilFIS is an electronic repository of fisheries information, RSA studies, licensing systems, GIS, etc. that will assist planners and policy-makers at national and regional levels	Linkage established with BFAR and regional offices and the Department of Agriculture National Information Network. Linkages being undertaken with LGUs
Information, Education and Communication	Support provided to special CRM activities at the community level	1. Advocacy has resulted in heightened awareness of and participation in resource management and protection 2. Networking with media strengthened
Coastal Resource Management Planning (CRM)		72 of 100 municipalities have formulated their municipal CRM plans
Resource Enhancement Projects		1. 92 mangrove rehabilitation projects established nationwide 2. In Bani, Pangasinan, an increase in fish catch from 2 to 3.5 kg per day 3. 123 fish sanctuaries and fisheries reserves established nationwide
Legislation and Regulation		75 municipal fisheries ordinances adopted by LGUs
Municipalities Fisheries Licensing System (MFL)		11 municipalities have established MFLs
Fishery Law Enforcement Teams (FLET)		80 FLETs established
Law Enforcement		1. 53 patrol boats procured and delivered 2. Telecommunications equipment installed

TABLE 4
Status of implementation of income diversification and generation

Component Two – Income diversification		
Programme	**Description**	**Status**
Livelihood development	Introduction of alternative means of income generation and diversification among fishers in the coastal communities of the Philippines	1. Seaweed culture – begun 2. Cage culture of milkfish – begun 3. Cage culture of grouper – begun 4. Aquasilviculture – begun 5. Fish processing – begun 6. Mud-crab fattening – begun

The second component addresses income diversification and generation by fishers in coastal communities through fishers' associations or cooperatives. The status of implementation is shown in Table 4.

The third component of the FRMP addresses programmes related specifically to capacity-building for both the public sector and fishers in coastal communities. Ongoing training under this component is given in Table 5.

CONCLUSIONS

In an effort to improve the standard of living of fishers and their communities, while at the same time improving fisheries conservation and management, over the past three decades Malaysia and the Philippines have refocused their efforts on the human factor. This was evidenced by the increased use of and reliance on socio-economic and demographic data and information. These are being applied in the formulation of policies and the development and implementation of programmes to address directly the social and economic needs of fishers and their communities. Fisheries management

TABLE 5
Status of implementation of capacity building

Component Three – Capacity building		
Programme	**Description**	**Status**
Training	1. Fisheries law enforcement training	Conducted
	2. LGU training on the preparation of municipal fisheries ordinances	Conducted
	3. Restricted land mobile operator's certification	Conducted
	4. Review for government radio operator's certification	Conducted
	5. Training on the FRMP Bantay Baybay (Coast Watch) System	Conducted

has shifted from the traditional, narrow focus on fisheries biology, ecology and conservation towards a wider developmental perspective based on the principles of integrated coastal resource management.

Fisheries development policies and the formulation of programmes aim to balance human population dynamics and demographic trends with marine resources and the environment. The importance of socio-economic and demographic studies to such policies and programmes has been highlighted and effectively utilized in Malaysia and the Philippines, but much more so in Malaysia. The establishment of FDAM there in 1971 to deal specifically with fishers' economic empowerment, especially in coastal regions, has effectively responded to coastal fishers' concerns. The activities of FDAM are concentrated in four main programmes designed to address: (i) fishing industries development; (ii) fish marketing and marketing support services; (iii) fishers' institutional development; and (iv) entrepreneurial development.

The findings of the study tour of Malaysia and the Philippines suggested that the fisheries sector no longer seemed to be a last resort employment opportunity, as it used to be for people in coastal areas. In Malaysia, where there was an overall increase in the standard of living and a decline in the number of coastal fishers, it was also reflected in an occupational mobility out of fishing and into other occupations in the service sector, such as tourism and ecotourism. In the Philippines, a decline has recently become more evident. One plausible explanation for the changes in both countries, in the context of declining catches and income per fisher on the one hand, and economic growth and rising levels of education on the other, was that alternative and economically more rewarding employment opportunities have developed outside the fisheries sector, facilitating vocational mobility. Government policies aimed at a reduction and limitation of fishing effort, conservation, the introduction and formation of fishers' associations or cooperatives and the rehabilitation of fisheries resources have played a role in moving fishers and their families out of their traditional occupations.

Results of the study tour of Malaysia and the Philippines have indicated that there could be great value in using socio-economic and demographic data in assessing, evaluating, planning, monitoring and managing fisheries in the Caribbean. Although already being utilized in some countries in the area, i.e. Belize, it was being done to a greater degree in Asia, where they continue to experience and realize positive results from the programmes that have been implemented – and were being implemented – as a result of studies. Fisheries development and management in the Caribbean were still largely dependent on the use of biological and ecological data and information and the achievement of sustainable fisheries.

Socio-economic and demographic studies, which basically illustrate conditions of life in a community, could have far-reaching positive effects in the Caribbean if utilized more effectively to improve the quality of life for small-scale fishers. Results of such studies could assist in designing programmes specific to the entrepreneurial development of fishers and the importance and advantages of fishers' associations/

cooperatives, especially in small communities such as the Caribbean region, as well as assisting in poverty alleviation.

As the development and management of fisheries in the Caribbean move forward, the formulation of policies and programmes requires reliable statistics and data on fishers and fisheries, in addition to biological and ecological data. The first step should be to gather basic information on the socio-economic and demographic characteristics of fishing communities. This information would include family size, sources of employment, income, etc. In most situations, this information is readily available, starting from population censuses and household income surveys, which are conducted in all countries of the Caribbean region, to case studies examining the structure of the fisheries sector in each country.

Similarly, policies on population, which aim to balance human population dynamics and demographic trends with marine resources, should take into account the special natural, economic, social and cultural context of fishing communities – which are sometimes composed of members of specific groups, warranting specially designed programmes.

In the disaster caused by the recent tsunami in Asia, fishers and fishing communities bore a disproportionate amount of the destruction and damage as a consequence of their location in the coastal zone. This further underscored the need for greater use of socio-economic and demographic data in planning and implementing fisheries programmes. Caribbean fishers today are as vulnerable as their Asian counterparts to the impact of natural events such as hurricanes, storms, tsunami and global warming and climate change.

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APPENDIX 1

Programme of activities in the Philippines

DATE	Activities	Time	Places to be visited
August 15	Arrival on Flight PR115 (Haughton) and PR105 (others) & transfer from Manila Airport to Astoria Plaza Hotel, Manila	5:00a.m. (Haughton) and 5:45a.m.	
August 16	Meeting with BFAR Officials	9:00a.m. – 12:00nn	BFAR Office
	Lunch		
	Leave for Pangasinan	12:00nn – 1:00p.m.	BFAR Office
	Overnight – Hundred Island Hotel	1:00p.m. – 6:00p.m.	Lucap, Alaminos
August 17	Meeting with BFAR RO 1 Officials	8:00a.m. – 10:00a.m.	BFAR Center
	Visit Bani Sanctuary	10:00a.m. – 12:00nn	Bani
	Lunch	12:00nn – 1:30p.m.	Bani
	Visit livelihood project	2:00p.m. – 4:00p.m.	Bani
	Overnight – Hundred Island Hotel		Lucap, Alaminos
August 18	Visit Anda Sanctuary	8:00a.m. – 12:00nn	Anda
	Leave for Manila	1:00p.m. – 6:00p.m.	
	Overnight – Astoria Hotel		Manila
August 19	Leave for Sariaya, Quezon	7:00a.m. – 10:00a.m.	Sariaya, Quezon
	Meet with Local Govt. Officials	10:30a.m. – 12:00nn	Dalampasigan, Sariaya
	Visit livelihood project	2:00p.m. – 4:00p.m.	Sariaya, Quezon
	Overnight – The Margaret Hotel		Dalampasigan Sariaya
August 20	Leave for Manila	9:00a.m. – 12:00nn	
	De briefing	2:00p.m. – 4:00p.m.	BFAR Office
August 21st	Depart from Airport to Kuala Lumpur on Flight MH703	3:30p.m.	

Programme of activities in Malaysia

Day	Date/Time	Programme	Contact
1.	21 August 2004 (Saturday) 8.25 p.m	Arrival on Flight MH703 Met on arrival at Kuala Lumpur International Airport (KLIA) by The Fisheries Development Authority of Malaysia (FDAM) official.	Mr Sundralingam, Corporate Planning Division Fisheries Development Authority of Malaysia (FDAM).
	10.00 p.m.	From KLIA to Quality Hotel City Centre, Kuala Lumpur.	Quality Hotel City Centre, Jalan Raja Laut, Kuala Lumpur Tel: 03-26939233 Room rate : RM180 net with breakfast
2.	22 August 2004 (Sunday)	Breakfast provided by the hotel. Free Day: Guided tour of Kuala Lumpur City (optional arrangement). This tour provides a glimpse of the culture and traditions of the multiethnic Malaysian society. To enable us to make advance booking for the city tour, please provide the names of the mission members who is willing to go for the tour. Dinner (personal arrangement)	For reservations please enquire from the Hotel or call early to : Mayflower Acme Tours 18 Jalan Segambut Pusat Kuala Lumpur Tel : 03-62514096 03-62521888 , ext 504 or 506 1. Batu Caves & Country side Tour 9.00 a.m. – 12.00 noon Rate : RM35.00 2. Kuala Lumpur City Tour 2.00 p.m. – 5.00 p.m. Rate : RM35.00

Day	Date/Time	Programme	Contact
3.	23 August 2004 (Monday) 7.30 a.m.	Breakfast at the hotel.	
	9.00 - 9.30 a.m.	Visit to INFOFISH.	Chairman: Tuan Haji Mohd. Nor bin Hassan (Deputy DG FDAM)
		Briefing by The Fisheries Development Authority of Malaysia (FDAM) on " Role of FDAM in the Socio- economic Development of the Fisher Association and Fisher Community in Malaysia"	Presenter : Ismail Abbas (PRO, FDAM)
	10.00-10.30 a.m.	Briefing by Fisheries Department of Malaysia on "Fisheries Resource Management and Conservation in Malaysia"	Mr. Ahmad Saktian bin Langgang (Head , Coastal Resource Branch)
	10.30-11.00 a.m.		Department of Fisheries.
	11.00-12.30 a.m.	Question & Answer session	
	1.00 p.m.	Lunch	Hosted by FDAM
	2.00–4.00 p.m.	Group Discussion with the Fisher Institution Development, FDAM	1. Corporate Planning Division
			2. Fisher Institution Devt. Division
		Return to Quality Hotel City Centre, Kuala Lumpur	3. Entrepreneur Devt. & Marketing Division.
		Dinner (personal arrangement)	
4.	24 August 2004 (Tuesday) 7.30a.m. 8.00 a.m.	Breakfast at the Hotel Depart from Kuala Lumpur to Melaka (2 hours)	Mr.Sundralingam Corporate Planning Division Fisheries Development Authority of Malaysia (FDAM) accompanies the mission in the site visit to the States of Melaka, Pahang & Terengganu.
	10a.m. – 12.00 noon	Briefing at the FDAM Melaka State Office and visit the Fishermen Association projects on the agro-tourism and fisher community development.	Mr. Norpi Abu Hassan, Melaka & N.S. State FDAM Director.
	12.00 noon	Lunch	Hosted by the Melaka & N.S. State FDAM Director.
	2.00 p.m.	Briefing and visit to the FDAM Marine Shrimp Pond Culture Project in Sebatu, Melaka.	Project Manager : Mr. Jamali Kamaruddin.
	4.00 p.m.	Check-in at the Melaka Barat Local Fisher Association (PNK) beach chalet.	Melaka Barat Local Fisher Association (PNK) Manager Beach Chalet Rate : RM60
	7.00 p.m.	Dinner hosted by the Melaka Barat Local Fisher Association (PNK).	Mr. Kamarudin Yusoh Melaka Barat Local Fisher Association (PNK) Manager
5.	25 August 2004 (Wednesday) 7.00a.m.	Breakfast	
	7.30 a.m.	Check out of the Melaka Barat Local Fisher Association (PNK) chalet.	Melaka Barat Local Fisher Association (PNK) Manager
	7.30 - 1.00 p.m .	Depart from Melaka to Kuantan (5½ hours)	
	1.00 p.m.	Check-in the Hotel Shahzan Inn, Kuantan	Hotel Shahzan Inn Kuantan Lot.PT240, Jalan Bukit Ubi/Jalan Masjid 25000 Kuantan
	12.00 noon	Lunch	Tel: 09-5136688 Contact Person : Mr. Shahrul Rate : RM120 net with breakfast
	2.00 - 4.45 p.m.	Visit and briefing at the FDAM Kuantan Port.	Hosted by the Pahang State FDAM Director Haji Mohari Tamin, Pahang State FDAM Director
		Role of the Kuantan Fisher Association at the port.	Nik Hasan Nik Man, Kuantan Local Fisher Association (PNK) Acting Manager
		Return to Hotel Shahzan Inn, Kuantan.	
	7.00 p.m.	Dinner hosted by Kuantan Local Fisher Association (PNK)	

Day	Date/Time	Programme	Contact
6.	26 August 2004 (Thursday)		
	7.00a.m	Breakfast at Hotel	
		Check-out of Hotel and depart to Terengganu (3 hours)	
	10.00 - 12.00a.m.	Briefing at the FDAM State Office on the artificial reef projects and socio-economic projects for the fishers and the fishers' community.	Briefing by the Terengganu State FDAM Director, Mr Sa'adom Wahab.
	12.00 noon	Check-in at the Grand Continental Hotel, Kuala Terengganu.	Hotel Grand Continental, K.Terengganu Jalan Sultan Zainal Abidin, Daerah 8, 20000 Kuala Terengganu Tel: 09-6251888
	1.00 p.m.	Lunch	Hosted by the by the Terengganu State FDAM Director
	2.00 - 5.00 p.m.	Fisher community project site visits	Arranged by the the Terengganu State FDAM Director.
	6.00 p.m.	Return to Grand Continental Hotel, Kuala Terengganu.	Mr. Jusoh Mohd. Zin Kuala Terengganu Local Fisher Association Manager.
	7.00 p.m.	Dinner hosted by the Kuala Terengganu Selatan Local Fisher Association.	
7.	27 August 2004 (Friday)		
	7.30 a.m	Breakfast at Hotel	
	10.00 a.m.	Check out of Kuala Terengganu hotel to airport	Advance MAS flight Booking by FDAM Rate : RM158 one way +RM11 airport service tax.
	11.45–12.35 p.m.	Kuala Terengganu to KLIA by Flight MH1327	
		KLIA to Quality Hotel City Centre, Kuala Lumpur	Quality Hotel City Centre, Jalan Raja Laut, Kuala Lumpur Tel: 03-26939233 Room rate : RM180 net with breakfast
	1.00. - 2.00 p.m.	Lunch (personal arrangement)	
	2.00 p.m.	Team Discussion and Report preparation.	
	3.00– 5.00 p.m.		
	7.00 p.m.	Dinner (personal arrangement)	
8.	28 August 2004 (Saturday)		
	7.30 a.m	Breakfast at the Hotel	
	9.00 a.m.	Check out of Quality Hotel City Centre, Kuala Lumpur	
	10.00a.m.	From Kuala Lumpur to KLIA	
	11.50 a.m.	Depart from KLIA to Manila on Flight MH704	

PART 2

REPORT OF THE
FAO/CRFM/MALMR REGIONAL WORKSHOP ON THE

Collection of demographic information on coastal fishing communities and its use in community-based fisheries and integrated coastal zone management in the Caribbean

Ambassador Hotel, Port of Spain, Trinidad and Tobago, 13–17 June 2005

Caribbean Regional Fisheries Mechanism Secretariat
28 July 2005

OPENING CEREMONY

The workshop was held at the Ambassador Hotel, Port of Spain, Trinidad and Tobago, at the kind invitation of the Government of Trinidad and Tobago.

Thirty-five participants attended the workshop from Barbados, Belize, Dominica, Grenada, Malaysia, the Philippines, Saint Christopher and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Suriname, Trinidad and Tobago, the Turks and Caiços Islands, the Caribbean Natural Resources Institute (CANARI), Caribbean Regional Fisheries Mechanism (CRFM), Food and Agriculture Organization of the United Nations, Intergovernmental Organization for Marketing Information and Technical Advisory Services for Fishery Products in the Asia and Pacific Region (INFOFISH), Institute of Marine Affairs (IMA) and the University of the West Indies, Cave Hill and St. Augustine Campuses. The list of participants is given in Appendix I to this report.

At the opening ceremony, the chairperson, Ms Ann Marie Jobity, Director of Fisheries, Trinidad and Tobago, acknowledged the presence of the Minister for Agriculture, Land and Marine Resources, the Honourable Jarette Narine, and welcomed all invitees and workshop participants to the ceremony, with special mention being made of the participants from Italy, Malaysia and the Philippines. On behalf of the Ministry of Agriculture, Land and Marine Resources (MALMR), Ms Jobity expressed her gratitude to CRFM and FAO for organizing and convening the regional workshop and welcomed their initiative to examine and develop mechanisms to conduct research and develop management measures using a more consultative approach.

In his remarks, Mr Terrence Phillips, Acting Deputy Executive Director, CRFM Secretariat, expressed sincere appreciation on behalf of the CRFM Secretariat to MALMR for agreeing to host this workshop and for the support of the Fisheries Division in organizing the logistics of the workshop. He expressed thanks to FAO for providing the necessary financial and technical assistance to organize and convene the workshop. Phillips presented the background and aim of the regional workshop. Highlighting the socio-economic importance of the fisheries sector in the region, he noted that it was mainly artisanal in scale and employed about 130 000 people, directly or indirectly, mainly from rural communities.

Phillips pointed out that in most member states of CRFM, social and economic data on fishers and other industry personnel are not captured at the primary production stage. He noted that during implementation of the Caribbean Community (CARICOM) Fisheries Resource Assessment and Mangement Programme (CFRAMP), member states had identified a need to capture social and economic data in order to better understand the contribution of fisheries to their national economies. He also indicated that the CARICOM Fisheries Unit had undertaken a consultancy to develop guidelines and methods for the expansion of present data-collection systems in order capture socio-economic data on fishers.

He explained that the mission of the recently inaugurated CRFM was to promote and facilitate responsible utilization of the fisheries and other aquatic resources in the region, for the economic and social benefit of the current and future populations. Phillips stated further that among the programme areas identified by member states for continued attention during the 2003–2007 period was the strengthening of fishers' organizations, improved community participation, and development and promotion of a risk reduction programme for fishers.

Phillips indicated that an examination of the comparative study and the Caribbean case studies suggested that the Southeast Asian countries had made great progress in improving the socio-economic standards of their fishers, particularly in Malaysia. Great strides have been made there in poverty reduction among fishers by promoting improvement in resource management and diversification of sources of income through aquaculture and the operation of small restaurants and hotels in fishing villages. In

closing, he noted that the Southeast Asian experience could provide new ideas for the Caribbean.

In his opening remarks, Mr Bisessar Chakalall, FAO Regional Fisheries Officer, welcomed the guests and workshop participants to the opening ceremony and conveyed the greetings of the Director-General of FAO, Dr Jacques Diouf.

He pointed out that this workshop was the second to be held by FAO on this subject, with the first being in the Philippines for Southeast and South Asian countries. He added that it involved a team effort on the part of staff from the FAO Fisheries Department (Rome), its subregional offices for the Caribbean and for the Pacific Islands, the FAO office in Trinidad and Tobago, CRFM and the Fisheries Division of Trinidad and Tobago – noting that one of the reasons for involving the Subregional Office for the Pacific Islands was to promote interregional exchange and cooperation between two similar regions in which the majority of countries are small island developing states (SIDS).

Chakalall explained that the mandate of FAO was to contribute towards ensuring humanity's freedom from hunger by improving the efficiency of the sustainable production and distribution of all food and agriculture products, including fisheries, and by raising levels of nutrition and standards of living and bettering the condition of rural populations. He noted that fish is a vital source of food for the peoples of the Caribbean, with the average per capita consumption being about 14 kilograms (kg).

He stated that one of the major and outstanding efforts of FAO and its member nations in moving towards sustainable fisheries production globally was the elaboration of the Code of Conduct for Responsible Fisheries (Code of Conduct), which was unanimously adopted in October 1995 by the FAO Conference.

He mentioned that Article 10 of the code and the accompanying FAO Technical Guidelines for Responsible Fisheries No. 3 – Integration of Fisheries into Coastal Area Management – set out the principles and standards for integration of fisheries into coastal area management and specify the broad socio-economic and demographic parameters to be taken into consideration. He underlined that the workshop would address the collection of demographic and socio-economic data and information on fishing communities for use in aquatic and coastal resources management and for monitoring the impact of management measures on the socio-economic well-being of fishing communities.

Expressing the hope that the workshop would produce guidelines for the collection and use of demographic and socio-economic data, which could lead to policy changes for integrated coastal zone management and community-based fisheries management, he pointed out that this would be of ultimate benefit to the fishing communities of the Caribbean. He also observed that this was the fourth workshop to be hosted by the Government of Trinidad and Tobago since July 2004 on implementation of various aspects of the Code of Conduct, which was an indication that the Fisheries Administration and the Government of Trinidad and Tobago were very keen to implement the code.

In closing, Chakalall encouraged the participants to do all within their capabilities to put action plans in place, in their respective countries, for implementation of the Code of Conduct so that the Caribbean region can achieve sustainable fisheries.

In his feature address, the Hon. Jarette Narine, Minister for Agriculture, Land and Marine Resources, welcomed the invitees and workshop participants, noting that MALMR was pleased to be co-hosting the workshop with CRFM and FAO, as it was seen as an important initiative. He praised the workshop's good fortune in having experts present from Italy, Malaysia, the Philippines, the South Pacific Islands and the Caribbean region to share their knowledge of community-based fisheries and integrated coastal zone management and their importance to sustainable regional fisheries management.

The Minister pointed out that as small island developing states in the Caribbean, our aquatic and fisheries resources were pivotal to our food security, our ability to earn foreign exchange and, more importantly, the development and sustenance of our coastal communities, noting that it was instructive that the organizers of the workshop had chosen the Southeast Asian countries of Malaysia and the Philippines for comparative case studies, since these coastal states share common challenges with the Caribbean in integrating fisheries and coastal zone management into the thrust towards greater social and economic development.

He further noted that the Code of Conduct recommended that states establish systems to monitor the coastal environment as part of the coastal management process, using, among other things, economic and social parameters. He pointed out, however, that in most fisheries management systems, data-collection regimes to support analyses to determine stock abundance – such as data on fish catches and biological information on the species targeted – were well established. Rather, in many instances in the Caribbean, it was a dearth of socio-economic data and information that constrained determination of the relationship between fisheries management decisions and impact on coastal communities. He also stressed that the implementation of fisheries management decisions, without prior analyses of the socio-economic impact on communities, can negate the efforts of fisheries managers because of the resistance of fishers to management rules – a resistance that places their livelihoods at risk.

The Minister then pointed out that a proper understanding of socio-economic considerations provided benchmarks by which to ascertain the feasibility of management decisions and provided guidance in the formulation of regulations. This served to underscore the priority that must be accorded to strengthening the regional capability to collect and utilize socio-economic data and information as input into fisheries management decision-making.

The Minister stated that coastal resources were multiuse and subject to high demand from a variety of competing economic sectors. This meant that coastal zone management required a multisectoral approach to dealing with these complexities. He also indicated that his Ministry was determined that decisions related to coastal development would always consider fisheries interests, and would protect fisheries resources and habitats from being lost and fishers from being displaced due the absence of proper coastal zone planning and stakeholder involvement in decisions relating to coastal zone development and management.

He recognized the importance of coastal ecosystems to fisheries sustainability, as well as the fragility of such systems, and pointed out that coastal zones needed to be properly managed and protected and a balance struck between broader economic developmental aspirations, protection and conservation of the fisheries resources and survival of coastal fishing communities. He added that the incorporation of ecosystem considerations into integrated coastal fisheries management and coastal zone planning was immediately relevant and timely, with such a holistic approach encompassing the use of fisheries and environmental data, as well as giving consideration to the impact of human activities on the ecosystem.

The Minister cited the critical importance of participatory fisheries management and stakeholder involvement in the formulation and implementation of fisheries management decision-making. He stressed that fishers were more likely to comply with management decisions when they had been part of the formulation of management plans. He pointed out that participatory fisheries management decision-making was the first step in the process towards community-based management, with the fishers having a vested interest in resources and accepting ownership in order to achieve self-regulation at the community level. He further noted that fisheries managers had a duty and responsibility to ensure that fisheries resources were being managed in a sustainable

manner and that the ultimate goal of fisheries management was to assist fishers, as the primary users of these resources, in participating effectively in their management.

In closing, the Minister noted that the workshop presented a unique opportunity for consensus building among participants on recommendations to strengthen integrated coastal fisheries management and community-based fisheries and on the collection and use of socio-economic indicators in these two aspects of fisheries. He then formally declared the workshop open.

INTRODUCTION OF PARTICIPANTS AND WORKSHOP ARRANGEMENTS

Participants and resource people introduced themselves. The Agenda for the workshop was reviewed and approved by participants.

The Agenda is included as Appendix II to this report. Ms Michele Picou-Gill, Fisheries Officer, and Mr Carl Baptiste, Scientific Assistant, MALMR, served as rapporteurs for the duration of the workshop.

PRESENTATIONS AND DISCUSSIONS

In accordance with the Agenda, presentations and discussions took place on the following topics:

- comparative study mission to the Philippines and Malaysia to study the use of demographic and socio-economic information in coastal and fisheries management, planning and conservation;
- 26th Session of the FAO Committee on Fisheries and the contribution of small-scale fisheries to rural development;
- country-specific case studies on the consideration of socio-economic and demographic concerns in fisheries and coastal area management and planning (Belize, Dominica, Jamaica, Saint Lucia, Trinidad and Tobago and the Turks and Caicos Islands);
- fisheries management in the Philippines: a focus on the Fisheries Resource Management Project;
- aspects of the Centre for Research Management and Environmental Studies (CERMES) regional research and training, with emphasis on socio-economic and demographic information;
- role of the Fisheries Development Authority of Malaysia in the collaboration and management of fisheries resources and the welfare of fishing communities in Malaysia;
- progressing towards community-based fisheries management: a case study of fishing communities from Ortoire to Guayaguayare;
- latest developments in small/medium-scale fisheries and aquaculture enterprises and products with regional and global export markets; and
- coastal fisheries and community-based fisheries management in the Pacific.

Summaries of the presentations follow, with salient points from the discussions.

Report of the Asian comparative study mission

In an effort to improve the standard of living of fishers and their communities, while simultaneously improving fisheries conservation and management, over the past three decades Malaysia and the Philippines have refocused their efforts on the human factor. This was evidenced by the increased use of and reliance on socio-economic and demographic data and information in the formulation of policies and the development and implementation of programmes to address the social and economic needs of fishers and their communities. Fisheries management has shifted from the traditional narrow focus on fisheries biology, ecology and conservation towards a wider developmental perspective based on the principles of integrated coastal resource management (CRM).

Fisheries development policies and the formulation of programmes to address concerns and issues such as those noted above aim to balance human population dynamics and demographic trends with marine resources and the environment. The importance of socio-economic and demographic studies to such policies and programmes has been highlighted and effectively utilized in both Malaysia and the Philippines, but much more so in Malaysia. The establishment of the Fisheries Development Authority of Malaysia (FDAM) in 1971 – under the authority of the Department of Fisheries – to deal specifically with fishers' economic empowerment, especially in coastal regions, has effectively responded to coastal fishers' concerns.

The findings of the study tour of Malaysia and the Philippines suggest that the fisheries sector no longer seems to be a last resort employment opportunity, as it used to be for people in coastal areas. In Malaysia, where there was an overall increase in the standard of living and a decline in the number of coastal fishers, it was also reflected in an occupational mobility out of fishing and into other occupations in the service sector, such as tourism and ecotourism. In the Philippines, a decline has recently become more evident. One plausible explanation for the changes in both countries, in the context of declining catches and income per fisher on the one hand, and economic growth and rising levels of education on the other, was that alternative and economically more rewarding employment opportunities have developed outside the fisheries sector, facilitating vocational mobility. Government policies aimed at a reduction and limitation of fishing effort, conservation, the introduction and formation of fishers' associations and the rehabilitation of fisheries resources have played a role in moving fishers and their families out of their traditional occupations.

The report indicated that there could be great value in using socio-economic and demographic data in assessing, evaluating, planning, monitoring and managing fisheries in the Caribbean. Although already being utilized in some countries in the Caribbean, it was being done to a greater degree in Asia, where they continue to experience and realize positive results from the programmes that had been implemented – and were being implemented – as a result of studies. Fisheries development and management in the Caribbean was still largely dependent on the use of biological and ecological data and information and the achievement of sustainable fisheries.

Socio-economic and demographic studies, which basically illustrate conditions of life in a community, could have far-reaching positive effects in the Caribbean if utilized more effectively to improve the quality of life for small-scale fishers. Results of such studies could assist in designing programmes specific to the entrepreneurial development of fishers and the importance and advantages of fishers' associations/cooperatives, especially in small communities such as the Caribbean region, as well as assisting in poverty alleviation.

Discussion

Participants commented on the illegal use of cyanide and dynamite, noting that cyanide was used by some fishers in the Philippines to catch fish for the aquarium trade. The serious effect that the use of dynamite could cause to coral reefs was pointed out, with the participant from Malaysia noting that the Government of Malaysia was committed to enforcing the regulations prohibiting dynamite, as well as to sensitizing fishers to the negative impact of dynamite on fish habitats.

Participants commended the Malaysian Fishery Authorities for their work in reducing poverty among the large population of fishers by creating opportunities for other forms of employment. They also observed that the legal framework put in place for the development of fishers' associations, as well as the systems for networking among the associations and with other relevant agencies, contributed to the success of the programmes for development of the fishing communities.

Supporting small-scale fisheries through an enabling environment

The presentation was divided into three sections: Section 1 discussed some figures showing trends in fish production, consumption and trade from 1973 to 1997 and projected to 2020 (Delgado *et al*., 2003). The following trends were emphasized: (i) the shift in the contribution to total food fish production from developed to developing countries; (ii) the increasing contribution of aquaculture to total food fish production; and (iii) the shift among developing countries from being total net food importers to total net food exporters. Two major questions were posed at the end of this section, which became the starting point for the next. These were: (i) how to ensure the sustainability of capture fisheries and aquaculture; and (ii) how the poor and small-scale fishers can capture the benefits from increases in production and trade.

Section 2 discussed the summary of a paper presented in the session on small-scale fisheries during the 26th Session of the Committee on Fisheries in Rome in March 2005. The title of the paper was Supporting Small-Scale Fisheries through an Enabling Environment. The vision for small-scale fisheries presented in the paper was one in which their contribution to sustainable development was fully realized. To achieve this vision, changes within and outside the sector are needed, e.g. changes in both fisheries and non-fisheries legislation. Possible initiatives include the following: tailoring management regimes (e.g. ensuring preferential access to small-scale fishers, decentralization of management responsibilities and co-management arrangements); facilitating financial arrangements (e.g. microfinance); improving information (e.g. access to good information for decision-making and systems with low data requirements); developing capacity (e.g. needs assessment, curriculum development and good governance); and making markets work for small-scale fishers (e.g. access to input and output markets, information regarding changes to international trade policy and regulations, and improving access to markets by poor traders).

The presentation concluded with a short remark on the importance of socio-economic and demographic information within the context of small-scale fisheries development, including: (i) the need for access to good information on which to base policies and strategies; (ii) the need to balance resource use and protection; and (iii) the importance of stakeholder participation in community-based and integrated coastal zone management.

Discussion

There was some discussion on the shift in levels of production of fish and fish products from developed and developing countries, so that by 2020 developed countries could be net importers and developing countries net exporters, and the likely economic impacts of such shifts. It was thought that several scenarios could occur: (i) in order to achieve higher levels of fish production, the fisheries would be fished beyond sustainability; and (ii) fishers would move to other employment areas and those left in the fisheries would enjoy larger catches. It was pointed out that developing countries could emphasize satisfying the foreign market at the expense of the local market, with aquaculture products being included in the export drive.

The need for fisheries policies and legislation to be in tandem was recognized, with the observation that in some instances they tend to contradict each other.

Participants noted that the imposition of stringent quality assurance and safety requirements for fish and fish products by some developed countries was becoming an impediment to free trade, because the development, maintenance and upgrading (when new requirements are put in place) of such systems are becoming more and more costly. However, it was pointed out that developing countries needed to review and research any requirement that could be considered unscientific and to challenge the requirement in appropriate fora, such as the World Trade Organization.

Country-specific case studies – the consideration of socio-economic and demographic concerns in fisheries and coastal area management and planning

Belize case study

The presentation of the Belize Case Study was divided into four sections. The first focused on general information about Belize and included information on location, demography, economy, fisheries, and the political, legal and administrative structure.

The second section dealt with the institutional and legal environment. Information was presented on the management and regulation of fisheries and aquaculture. The section also emphasized that, although responsibility for marine resource conservation in Belize is divided among 18 agencies of 10 ministries, the Ministry of Agriculture, Fisheries and Cooperatives is the governmental agency with primary responsibility for formulating, executing, monitoring and coordinating policies related to fisheries management through the Fisheries Act (1980), Chapter 210 of the Laws of Belize, revised in 2003.

Regarding regional planning and development in coastal areas, five primary pieces of legislation were presented, together with information on the formation and responsibilities of the Coastal Zone Management Authority and Institute (CZMAI).

This section also included information on the co-management of fisheries and coastal aquatic resources and focused on the role of the Belize Fisheries Advisory Board (FAB) and the five co-management agreements for the management of marine areas.

The integration of fisheries and coastal aquaculture management into coastal area management, planning and conservation was also presented, with the composition of the boards of CZMAI, FAB and the Coastal Advisory Committee (CAC) and their functions being discussed. Constraints on the execution of the mandate of the CZMAI were highlighted.

In the third section, the availability of socio-economic and demographic information was discussed, as well as the use of such data. Three field studies done by diverse organizations were examined. In addition, the main findings and principal socio-economic indicators of five case studies were presented. These included research done in Caye Caulker, Sarteneja, Gladden Spit and Silk Caye Marine Reserve, Glover's Reef Marine Reserve and the Port Honduras Marine Reserve.

The final section discussed the extent to which socio-economic and demographic concerns have been addressed. It also included various recommendations on legal issues, awareness of data and accessibility, and improved understanding to strengthen the use of socio-economic and demographic indicators. The need for improvements in Belize's fisheries management, coastal zone and marine protected areas plans was presented as a general conclusion.

Discussion

There was some discussion of the inability of Belize fishers' associations to improve the social standards of their members, with it being suggested that in many instances the management committees of these organizations, which tended to remain unchanged year after year, focused primarily on personal interests as opposed to the needs of their members.

The paucity of information on the non-Belizean fishers that operate illegally in the country's waters was noted, with it being observed, in the context of national planning, that these data would prove very challenging to obtain.

In terms of providing fishers with alternate employment opportunities, for example in the tourism sector, it was pointed out that the high rate of illiteracy among fishers would have to be addressed.

Dominica case study

The use of socio-economic and demographic information in coastal areas was considered against the general background of the economy, legal system, type of government, governmental agencies involved, overall population and number of fishers in Dominica. The existing institutional and administrative capacity of Dominica was highlighted in terms of governmental institutions and non-governmental organizations (NGOs) involved in fisheries and coastal zone management. The Fisheries Division of the Ministry of Agriculture, Fisheries and the Environment was identified as the lead agency, with varying degrees of overlap of responsibilities and jurisdictions.

Some examples of studies in which the use of socio-economic and demographic information had been used in fisheries and coastal area management and development were indicated. Such studies included a poverty alleviation study and the Dominica Rural Enterprise Project. Specific projects geared towards improvement of the welfare of fishers were presented in which socio-economic and demographic information was utilized in the planning stages: the Roseau Fisheries Complex and Marigot Fisheries Facility Projects.

Efforts at promoting co-management, such as the formation of fishers cooperatives and marine protected areas, were highlighted, and it was noted that such initiatives were ongoing.

The problems, constraints and difficulties encountered in collecting socio-economic and demographic information on fishing communities were detailed, with it being specified that no such dedicated fisheries studies had been done in Dominica. However, demographic information relevant to fishing communities was extracted from the national census data and from other studies that incidentally included and addressed the situation of fishing communities.

In conclusion, it was explained that the extent to which the use of socio-economic and demographic concerns had been taken into consideration in fisheries and coastal area management and development in Dominica was incidental rather than by common practice or established principle.

Discussion

There were no queries or comments after this presentation.

Fisheries management in the Philippines: A focus on the Fisheries Resource Management Project (FRMP) (Comparative study, Malaysia and the Philippines)

The Philippines is an archipelagic country composed of about 7 100 islands. Interspersed among these islands are coral reefs, mangrove forests, seagrass beds and other coastal habitats that are sources of food, livelihood and income. The country's fish production in 2002 amounted to about 3.4 million tonnes. Fisheries exports amounted to US$506 million, while imports were US$97 million. The fisheries sector's share of overall agricultural production is about 20 percent and it contributed 4 percent to GDP. The fishing industry absorbed 5 percent of the country's labour force, with 991 000 people engaged in the commercial, municipal and aquaculture subsectors.

Despite the richness of the country's coastal and marine resources, there have been issues and problems related to the fisheries sector. Most coastal habitats in near-shore areas are degraded, with only 5 percent of the coral reefs in excellent condition and the mangroves overexploited. Almost all bays and gulfs are overfished. Silt deposits from deforested upland areas have rendered estuaries unproductive. Pollution coming from factories, aquaculture ponds and residential areas has contributed to the low productivity of coastal waters. The use of fine-meshed nets and dynamite and cyanide fishing are the most common illegal fishing methods in coastal areas.

The FRMP addresses the two critical issues of fisheries resource depletion and poverty. The project focuses on reversing the trend of fisheries depletion by controlling illegal fishing and overfishing. It has adopted approaches such as the promotion of income diversification, mariculture and other microenterprise activities and a municipal licensing system. Project activities are being implemented at the national, regional, local and the community level, with partnerships forged among people's organizations, NGOs and academia, among others. Project components comprise: fisheries resource management, income diversification and capacity-building.

The fisheries resource management component aims to strengthen fisheries regulations, rationalize the utilization of fisheries resources and rehabilitate damaged habitats. The Philippine Fisheries Information System (PhilFIS) has been placed under this component, and it serves as the repository of data and information gathered in the resource and social assessments being used to formulate CRM plans. Fisheries regulations and legislation aim to strengthen the capability at national and local levels to implement regulations on licensing and municipal ordinance formulation. This component promotes the deputation of fishers as wardens.

The income diversification component involves community organizing, microenterprise and mariculture development, and it focuses on the preparation of fishers to carry out CRM activities on a long-term basis.

The capacity-building component provides long- and short-term training courses for project implementers as well as major stakeholders.

A number of milestones have been reached in realizing the goals and objectives of the project. Resource enhancement projects have been established in the form of fish sanctuaries, mangrove reforestation and stock enhancement of some species. Riverbank bioengineering was carried out to rehabilitate dying and stagnant river systems. Information, education and communication activities have been undertaken to assist stakeholders of the project. Production of print materials and networking with the media, NGOs, the Department of Education and the Department of Natural Resources have been strengthened to be able to reach a greater mass base, as well as to maximize the use of shared resources. Livelihood projects have been provided to add to the income of fishers. Through the years, project implementers have been trained formally and informally to increase their capability in project implementation.

Some of the constraints encountered were as follows:

- Weaknesses still existed in law enforcement at the local government level.
- The project did not provide a credit facility, because fishers lack the capital to venture into the livelihood options.
- Capital outlay to finance the small equipment needed for post-harvest was not provided for.
- The present organizational set-up of the national agency needed strengthening.

Recommendations for improved implementation of the project include:

- enhancement of the capability of law enforcers to implement laws;
- linking of fishers to existing financial assistance programmes;
- provision of post-harvest facilities to avoid waste of fisheries resources; and
- provision of appropriate logistics and training of the staff who will implement fisheries management.

Discussion

Some discussion took place on the levels of commercialization of bottled sardines in the Philippines.

There was a query regarding the types of baseline information collected, with an observation that sometimes there was a shifting of baselines within a community and that, in order to counteract this, at least ten years of data needed to be collected to evaluate whether any trends had appeared.

Jamaica case study

The presentation provided general information on Jamaica's status as an archipelagic state and the extent of the marine waters under its jurisdiction; a description of the characteristics of the population based on the 2002 census; the national economy, with the fisheries sector contributing about 0.4 percent to GDP; an overview of the current structure of the fisheries sector, with data being provided on the number of fishers and their literacy levels and family status, level of organization, role of women in the sector and fish production and exports; and the institutional and legal arrangements for the development of fisheries, aquatic and other coastal resources.

In terms of the administrative arrangements for planning, development and conservation of the coastal environment and the protection of aquatic resources, the agency with overall responsibility for the conservation of the coastal environment and aquatic resources and for planning and development in coastal regions was identified as the National Environment and Planning Agency (NEPA), which resulted from a merger that took effect on 1 April 2001 of the Natural Resources Conservation Authority, the Town Planning Department and the Land Development and Utilization Commission. However, it was noted that there was currently no comprehensive legislation incorporating the mandates of the above-mentioned agencies. NEPA worked in very close cooperation with various affiliate agencies with specific jurisdictions and legal mandates, such as the Fisheries Division and the Forestry Department.

Jamaica's effort to achieve co-management of fisheries has been at best sluggish and limited and, especially regarding the integration of fisheries and coastal aquaculture into ocean and coastal area management and development, has been in most if not all cases restricted to the so-called "consultation with stakeholders". This, in actuality, is simply providing information to stakeholders, who are powerless to effect any significant changes to the given management or development plan. There have been several attempts to achieve some level of co-management of fisheries, with the more important examples being:

- management and development of Jamaica's conch industry;
- establishment of the Portland Bight Fisheries Management Council (PBFMC);
- Fisheries Division/CFRAMP Community Involvement and Education Subproject; and
- FAO/Government of Jamaica Development of Policy Framework and Strategic Plan for Sustainable Fisheries Development in Jamaica.

The availability of social, economic and demographic information on fishing communities was patchy and disjointed, simply because no focus was actually being placed on a 'fishing community' per se. Some social, economic and broad demographic data were captured during the Fisheries Division's fisher registration process, but for the most part detailed information has to be disaggregated from more general population data. The main agencies responsible for the collection, analysis, interpretation and publication of social, economic and demographic data are the Planning Institute of Jamaica (PIOJ) and the Statistical Institute of Jamaica (STATIN).

The use of socio-economic and demographic indicators in the preparation of coastal area profiles and management/development plans was highlighted through the work done by the Caribbean Coastal Area Management Foundation (C-CAM) in the Portland Bight Protected Area (PBPA). The work involved a house-to-house census of the coastal communities in which detailed social and demographic data were collected. The data were used to fine-tune existing data on the communities in PBPA, refine the profile of the protected area and assist in the development of the comprehensive Portland Bight Sustainable Development Area Management Plan: 1998–2003.

Since 2002 the Government of Jamaica has been preparing the Jamaica South Coast Sustainable Development Project, spearheaded by the Tourism Product Development Company (TPDco) and in conjunction with various stakeholders, including other

governmental agencies (e.g. the Fisheries Division) and NGOs (e.g. C-CAM). This very broad project has a sustainable fisheries management component with activities geared towards fisheries and coastal area management and conservation programmes. It aims to improve the socio-economic well-being of coastal fishers and their families. The major constraint on execution is the unavailability of government counterpart funding to begin it. If implemented, it will go a very long way to furthering the development of fisheries co-management

In conclusion, in Jamaica socio-economic and demographic data were traditionally used only as a measurement of the socio-economic status of the Jamaican population in general. Coastal fishers, their families and other segments of the coastal population, were not specifically targeted for socio-economic and demographic information unless there was a specific project or programme requiring such data. There was a critical need to incorporate social, economic and demographic information – on all stakeholders potentially impacted by a given development – into the planning and development process in a meaningful way.

To ensure the routine collection and use of social, economic and demographic data in the management process of coastal and aquatic resources, the case study identified the following needed interventions:

- development of a legal framework mandating the relevant agencies to incorporate social, economic and demographic considerations into the planning and development process; and
- building the capacity of stakeholder groups, especially those within the so-called 'politically weak' sectors such as the fisheries sector.

Discussion

Mention was made of the fact that some countries have legislative frameworks that mandate the use of socio-economic indicators in fisheries management plans. It was also pointed out that the same set of socio-economic indicators needed to be observed over time, because the social landscape was constantly changing due to the entry of new fishers into the industry and the shifting of fishers to other occupational areas, in addition to the seasonal movement of fishers.

Saint Lucia case study

The presentation provided general information on the geography of Saint Lucia; characteristics of the population; national economy (with the fisheries sector contributing 1.03 percent to GDP); an overview of the fisheries sector; and the political, legal and administrative structure.

The presenter indicated that final responsibility for the fisheries sector rests with the Ministry of Agriculture, Forestry and Fisheries (MAFF), with the mandate for fisheries management and development residing with the Department of Fisheries in MAFF. The core legal framework for fisheries management and development is provided by Fisheries Act No. 10 of 1984 and Fisheries Regulations No. 9 of 1994, with these being reinforced by the Fishing Industry (Assistance) Act No. 33 of 1972; Maritime Areas Act No. 6 of 1984; and Fisheries (Snorkelling Licence) Regulations No. 223 of 2000.

Other governmental agencies playing some role in sustainable fisheries development and regulation include the Attorney General's Chambers (legal support and advice in fisheries matters); Customs and Excise Department (control of imports/exports of seafood, fishing gear and vessels); Ministry of Communications, Works, Transport and Public Utilities (coastal infrastructure and mining); Development Control Authority (regulation of coastal development and coordination of physical planning and sustainable development); Ministry of Health (environmental health and pollution monitoring); and Saint Lucia Solid Waste Management Authority. There was also coordination and collaboration with various NGOs, such as the Saint Lucia National

Trust (management of certain designated protected areas adjacent to marine reserves); Soufriere Marine Management Area Association (responsible for Soufriere Marine Management Area and the Canaries/Anse la Raye Marine Management Area); Aupicon Charcoal Producers Group (assistance in the management of the Mankote mangrove); and Desbarras Sea Turtle Watch Group (data collection and turtle watches on a nesting beach at Grand Anse).

The presenter noted that the approach to the conservation and rehabilitation of specific coastal marine and aquatic living resources is articulated in the Fisheries Management Plan for Saint Lucia, and that programmes were being implemented that focused on specific resources, habitats or fisheries (e.g. lobsters, turtles, conch, freshwater shrimps/crayfish, reef fish; coral reefs, mangroves, beaches; and conch and lobster fisheries). He also pointed out that, where necessary, programmes in fisheries and marine resource management were set up and administered so as to ensure collaboration with relevant external agencies and stakeholders.

He explained that, in certain cases, community groups had been designated as local fisheries management authorities under the Fisheries Act, and were therefore granted certain management responsibilities along with opportunities to benefit from sustainable resource use. An example cited was the Soufriere Marine Management Association (SMMA), which has been granted authority for day-to-day management of the Soufriere Marine Management Area for integrating coastal fisheries with a range of tourism and recreational activities. Other management arrangements have been established with groups such as the Aupicon Charcoal Producers Group (access to the mangrove marine reserve for sustainable harvesting and for ecotours within the habitat), the Debarras Turtle Watching Group (permission to conduct turtle watches and responsible for collecting nesting data), and the Saint Lucia National Trust (which assists in the management of marine protected areas congruent to protected land areas under National Trust jurisdiction).

As part of national efforts to facilitate the establishment of stronger national mechanisms for maintaining the integrity and productivity of the coastal zone and resources, the Department of Fisheries, enabled by a project funded by the European Union, had spearheaded development of a policy and guidelines for the use and management of the coastal zone. The aims were to: optimize the contribution of the zone to social and economic development through sustainable use of resources and equitable sharing of benefits; harmonize uses of the coastal zone; and provide a framework for the management and resolution of resource use conflicts. As a result, a new administrative arrangement has recently been confirmed by the Government of Saint Lucia, which will place the administration of coastal zone management (CZM) within a CZM unit housed in the Ministry of Planning, Development, Housing and the Environment.

An integrated approach will be enabled through a CZM Advisory Committee comprising membership from ministries responsible for physical planning, environment, fisheries, forestry, agriculture, works, environmental health and tourism, as well as the National Emergency Management Office and the Saint Lucia Air and Sea Ports Authority. The committee is to operate under the Physical Development and Planning Act No. 29 of 2001 and will help guide coordination among the respective governmental and non-governmental agencies and institutions involved in coastal management and development within the context of broader national planning and development.

Since the 1980s, the Department of Fisheries has embraced the concept of co-management of resources as a means to effect sustainable conservation, empowerment of resource users, effective regulatory systems and community-based resource management. This approach was supported by the Fisheries Act of 1984, which allows for establishment of local fisheries management areas. The department has balanced this more 'formal' approach with a number of less-formal, resource-based co-management

arrangements, which have also produced some positive results. Examples illustrating the range of co-management initiatives included SMMA, a formal co-management arrangement, and co-management of sea urchins, an informal approach.

In terms of efforts undertaken in the field of integrating fisheries and coastal aquaculture into coastal area management, planning and conservation, SMMA was highlighted as a successful approach to integrating fisheries within a coastal area in which new and emerging uses were creating incidents of confrontation among users and also leading to declining resource availability. Having become regionally and internationally renowned as a 'success story', SMMA is now able to play a key advisory and advocacy role within ongoing coastal zone management and integrated resource management initiatives at the national level and beyond.

The presenter noted that the most recent national census conducted by the Government of Saint Lucia was carried out in 2001. All communities were assessed, including coastal communities in which fishing is either a primary or at least a significant source of livelihood. Limitations in the availability of detailed socio-economic information specific to fishers and their families led the Department of Fisheries, in 2001, to conduct an island-wide survey to gather such information. The results are presently being assessed.

Neither socio-economic nor detailed demographic data were used in the process of compiling the current Fisheries Management Plan. The document was prepared based on a template provided by CFRAMP, funded by the Canadian International Development Agency (CIDA). CIDA assisted member countries in the development of such plans, as required by national legislation. The Department of Fisheries is presently conducting a review of the plan, given its impending expiry, and has suggested that it be made broader to reflect the status and potential management role of all stakeholders. Results of the recent socio-economic survey conducted by the department could also be used to broaden the information base on which specific fisheries are interpreted and options selected for specific management approaches.

The presenter explained that the mandate of the Department of Fisheries necessitated a range of approaches tying the dual responsibilities of conservation of natural coastal and marine resources and securing of the socio-economic development of fishers and their families. Thus many resource management programmes and activities seek opportunities for sustainable resource use while aiming for conservation of a very limited resource base (species, habitats, ecosystems) on which such economic activities depend. Examples of such integrated approaches include: the Sea-Moss Farming Project, which was developed as an alternative to wild harvest; fisheries infrastructure development and community-based management projects; The People and the Sea Project, which recognized the socio-economic importance and potential of coastal marine resources to the people of Laborie; and the FAD Development Programme, which aims to move fishers away from the reef.

There were extremely few cases in which socio-economic assessments of coastal communities or fishing industry stakeholders have been conducted with the objective of understanding better the levels of dependency on coastal and marine resources, the costs and benefits derived, or the opportunities available to further develop and improve livelihoods generated through the sustainable use and management of such resources. Neither has there been substantial work in monitoring the impacts (both positive and negative) of management regulations on the socio-economic well-being of coastal fishers and their communities.

In conclusion, the presenter noted that the limited integration of socio-economic considerations into management and conservation planning and action does not mean that the management and conservation work outlined in earlier sections has failed to bring tangible benefits to fishers, their families and communities. Communities heavily dependent on fishing as a source of employment and sustenance have progressed in

TABLE 1
Target activities for integrating socio-economic and demographic indicators into coastal and fisheries management

Need/constraint to be addressed	Activity	Implementing agency	Support agencies
• Need for country-specific estimates for economic and social contribution of fisheries sector/individual fisheries to GDP and to national development	• Creation of survey format to guide national baseline studies (for assessing range of factors and aimed at identifying appropriate indicators for long-term national monitoring)	• CRFM: draft survey format; provide implementation guidelines/training; seek funding to support national efforts	• National governments (ministries/departments responsible for fisheries, trade, economic and social development)
	• Facilitating focused socio-economic/demographic graduate/post-graduate studies related to fisheries sectors by students enrolled in educational institutions	• CRFM working with relevant tertiary education institutions within region and beyond: provide study grants for priority research areas	• National governments to generate country-specific priority areas for such research
• More effective integration of socio-economic and demographic considerations in fisheries/coastal area planning and development	• Improved sharing of information among fisheries authorities and economic planning authorities	• National fisheries agencies; economic/social agencies: production and circulation of annual/biannual statistics/information	• Funding and technical assistance: - CRFM/Organization of Eastern Caribbean States (OECS)/FAO - Donor governments - Other national/regional/ international agencies
	• Improved integrated planning among agencies responsible for fisheries, coastal and national development through joint planning and review initiatives	• CZM advisory committee/ permanent/ad-hoc national economic and social advisory bodies	• Fisheries Department; other departments/units and community/user organizations responsible for elements of coastal and marine use and management
	• Support to projects that assess and integrate socio-economic factors for sustainable coastal and marine resource use and management	• Fisheries Department; community development organizations; fishers' organizations • Donor agencies: national, regional and international	• Government and community organizations assisting in design and implementation of such projects

terms of physical development and social services, although it has not been determined to what extent these assets have been generated through fisheries-based earnings and employment. It was also pointed out that, in most communities, more and more fishers are interested in becoming active participants in resource and fisheries management, fisher education and training programmes, and negotiations with other marine users. In addition, it was acknowledged, in the context of Saint Lucia, that little work has been carried out in establishing the link between regulation/management and livelihood benefits. This would appear to be largely due to the limitations in human and financial resources faced by small island states, which yield little in-depth focused work involving the full range of environmental indicators/factors.

In terms of recommendations for better integrating the use of socio-economic and demographic indicators into coastal and fisheries management, the presentation suggested the activities set out in Table 1, noting that although they were specifically prepared for Saint Lucia, they were nevertheless applicable to other countries within the region.

Aspects of CERMES regional research and training with emphasis on socio-economic and demographic information

This brief presentation focused on the content and application of the *Socioeconomic Monitoring Guidelines for Coastal Managers in the Caribbean (SocMon Caribbean)* (Bunce and Pomeroy, 2003) and its companion *Socioeconomic Manual for Coral Reef Management* (Bunce *et al.*, 2000). *SocMon Caribbean* consists of guidelines for doing simple socio-economic monitoring, useful for coastal management at the site level.

CERMES supports the use of the guidelines through distributing and promoting the documents, training as outreach, assisting studies, facilitating presentation of results and disseminating papers on outcomes.

SocMon Caribbean methods have been applied at, or are planned for, sites in Anguilla, Antigua and Barbuda, Barbados, Belize, Grenada, Jamaica, Mexico, Nicaragua, Saint Lucia, Saint Vincent and the Grenadines, and Trinidad and Tobago. The studies have been undertaken by students, coastal area managers and NGOs.

The presenter outlined the social and economic variables or indicators used for monitoring community-level demographics, coastal and marine activities, governance, household demographics, attitudes and perceptions.

The example of the Negril Marine Park Fisheries Management Plan, currently in preparation, was used to illustrate how SocMon was relevant to both fisheries and marine protected areas. The study is intended to describe the fisheries, their status and threats; the socio-economic status and activities of stakeholders; and the approach and programmes to be undertaken to manage the site for conservation of resources and sustainable development in the area of the Negril Marine Park. The Negril project uses an approach to fisheries planning based on *Managing Small-Scale Fisheries: Alternative Directions and Methods* (Berkes *et al.*, 2001), which sets out methods of planning and managing small-scale fisheries in small countries that are more people-centred and feasible than conventional approaches.

Discussion

There were no queries or comments after this presentation, save for an enquiry on the meaning of CERMES.

Role of the Fisheries Development Authority of Malaysia (FDAM) in the conservation and management of fisheries resources and the welfare of fishing communities (Comparative study, Malaysia and the Philippines)

FDAM was established under the Ministry of Agriculture and Agro-Based Industry of Malaysia when Parliament enacted the Fisheries Development Authority Acts 1971. The law went into force in peninsular Malaysia in 1971, Sarawak in 1973 and Sabah in 1995, with the prime objectives of improving the socio-economic status of fishers and expanding and modernizing the fishing industry.

FDAM was given responsibility for carrying out development programmes to alleviate poverty among fishers, which stood at 73.2 percent in 1970. The Department of Fisheries, which is responsible for the planning and management of fisheries resources, coupled with the regulatory and extension function for fisheries development, was not empowered to carry out programmes to alleviate poverty.

Socio-economic and demographic data on coastal fishing communities were collected from time to time to gauge the effectiveness of the development programme in improving the socio-economic status of fisher communities. FDAM carried out a comprehensive socio-economic and demographic study in 1995, which showed a vast improvement in poverty alleviation: the rate of poverty was then at 11.8 percent in comparison with the 1970 figure.

This success in alleviating poverty has been due to an effective partnership between the government mechanism and the fishers' associations directly involved in the development programme. Associations were established under the Fishers' Association Acts 1971, with the objective of improving the social and economic well-being of fishers through their active participation in organizations at area, state and federal (apex body) levels. The role played by associations as agents of change from within the fisher community was empowered by the Government through the aegis of FDAM, as a result of the earlier failure of fishers' cooperatives to improve the socio-economic well-being of fishers.

Regular reporting on the performance of fishers' associations and the monitoring of socio-economic indicators, coupled with feedback from the political directorate on fishers' progress, showed that the integration of activities among fisheries, eco/agrotourism and regional planning on coastal zone development required effective coordination from a high-level authority to ensure the success of the plan.

Allocations for fish aggregating devices (FADs) for FDAM – vis-à-vis the artificial reefs programme carried out by the Department of Fisheries for conservation purposes – always engendered some debate. However, due to very strong lobbying by fishers' associations, supported by local leaders, the Government allocated more funds to FDAM. Area fishers' associations were authorized by FDAM to manage the fisheries complexes and carry out marketing and agrotourism programmes, which demonstrated much improvement in the associations' ability to increase members' incomes. As the registrar for fishers' associations, FDAM has given approval to area associations to provide dividends and allocations for members' social benefits.

Fishers' positive attitudes towards area fishers' associations, as their corporate body for spearheading change, only came into being after regular motivational and educational training among the fishers' leaders and women. FDAM paid special attention to women's roles in improving the situation of fisher families, recognizing that fishers' wives would be able to manage household income-generating activities, the children's education, savings and the improvement of their socio-economic status.

Discussion

In response to a query on the materials used in the construction of FADs, the presenter specified that they were usually made of PVC.

Participants complimented FDAM on Malaysia's ability to initiate significant poverty alleviation through diversification programmes in the fisher community, considering that they were dealing with such a large population. Participants also commented on the organizational complexity of managing the fisheries sector, and suggested that such complexity was mirrored in the Caribbean and must be considered in fisheries management. There was also discussion of the good networking relationships that existed among the various fishers' associations and FDAM.

Trinidad and Tobago case study

The presentation summarized the case study for Trinidad and Tobago and then focused on directed efforts at the collection of socio-economic and demographic information from fishing communities (Table 2).

Trinidad and Tobago is an archipelagic state comprising the two southernmost islands of the Lesser Antilles and is located on the northeast coast of Venezuela. Due to its location on the Brazil-Guianas continental shelf, its marine resources are characterized by a high diversity of species harvested by many gear types and fishing fleets, including commercial and recreational components. The Gulf of Paria coastal zone, on the west coast of Trinidad, is the site of all the major human settlements, and it is estimated that 90 percent of the population lives in this area. This coastal zone is the most affected by developmental pressures because of its importance as a fishing ground and as a site of industrial activity, agriculture and shipping. Many studies have focused on the gulf coastal zone and have defined the management issues facing marine fisheries in the area.

A number of public- and private-sector agencies and committees at the national level, regional and international organizations, and foreign governments provide support to the fisheries sector. The Fisheries Division of the Ministry of Agriculture, Land and Marine Resources interacts with these agencies in implementing its programmes and meeting its responsibilities. The national agencies that play a lead role in administering the fisheries sector, including resource and coastal zone management, include

TABLE 2
Institutional sources of socio-economic and demographic information on coastal fishing communities

Responsible institution/ data sources	Data available	Data usage
Central Statistical Office (CSO)	Population censuses Continuous surveys in interval	Information collected by administrative boundaries and under broad categories, not collected specifically for fishing communities
	Sector analysis	Information on fisheries sector commonly included in statistics for agriculture sector
Fisheries Division/Marine Affairs Section (Tobago House of Assembly)	Fishing vessel censuses	Describe size of fisheries by gear type and landing site; used to derive estimates of total fishing effort and landings
	Licensing and registration system	Voluntary system of registration; linked to Government's fiscal incentives programme
	Fisheries profiles for use in stock assessments, studies and regional initiatives	Focus on technical aspects of fisheries. Management recommendations consider social and economic aspects of fisheries and associated fishing communities
Institute of Marine Affairs (IMA)	Research projects EIAs	Information collected during preparation of socio-economic profiles of selected fisheries

governmental agencies, interministerial and intersectoral committees. The Fisheries Division is responsible for managing the sustainable development of the fisheries sector of Trinidad and Tobago.

The Town and Country Planning Division of the Ministry of Finance and Planning is the responsible agency for development planning, development control and coastal zone management. The key agencies involved in environmental and coastal zone management, including efforts in rehabilitation of the coastal environment, are the Institute of Marine Affairs (IMA) and the Environmental Management Authority (EMA), which are both housed under the Ministry of Public Utilities and the Environment. IMA was established in 1976 and its initial focus was the development of a coastal zone management plan for the country and support to multidisciplinary research. EMA was established in 1995 and its mandate is to coordinate and oversee environmental management functions.

Under the 1995 Government of Trinidad and Tobago/United Nations Development Programme (UNDP)/FAO Project INT/91/001, Integrated Coastal Fisheries Management of the Gulf of Paria, profiles were prepared for two fishing communities in the Gulf of Paria coastal zone – the towns of Orange Valley and Otaheite. Data sources were the 1990 Population and Housing Census (CSO) and interviews conducted by the Fisheries Division. The project recognized the multisectoral and multidisciplinary characteristics of integrated coastal fisheries management. It was of an investigative, experimental nature, focusing on three main elements: (i) information gathering and research; (ii) awareness-building; and (iii) integrated planning, coordination and consultation.

A community-based co-management approach to protect nesting turtles was introduced by the Wildlife Section of the Forestry Division in 1989. The main objective of the project was to promote conservation and ecotourism through the education of rural communities in areas with a high incidence of wildlife. Community participation was encouraged in developing income-generating activities, including conducting turtle watching tours, and volunteers from the community were trained as nature tour guides.

The Fisheries Division initiated two community-based aquaculture projects in 1999–2000. The primary objective of the projects was to encourage income-generating activity by creating opportunities for self-employment in rural communities. The principal targets of this project were unemployed youth, fishers displaced from traditional fishing areas, aging agricultural workers and women. The project involved training in aspects of tilapia culture, establishment of community-management units and the actual aquaculture project.

The Poverty Eradication Programme under the Office of the Prime Minister provides services focusing on fishing programmes to all communities. This Adopt-a-Community Programme involves the Government, the community and a corporate donor. The UNDP small grant facility targets community projects for stakeholder empowerment. A number of UNDP/FAO projects have been implemented in fishing communities by various stakeholders, in liaison with the Fisheries Division, in the areas of fisheries resource assessment and management and integrated coastal fisheries management.

A few studies have gathered local knowledge, information and perceptions of fishers from the trawling communities on fisheries and management. The data have been collected as part of the country's participation in the FAO/Western Central Atlantic Fishery Commission (WECAFC) Ad Hoc Working Group on Shrimp and Groundfish Resources of the Guianas-Brazil Continental Shelf and in international projects such as the FAO/UNDP Project INT/91/001 and the EP/GLO/201/Global Environment Facility (GEF) Project, Reduction of Environmental Impact from Tropical Shrimp Trawling through the Introduction of By-Catch Reduction Technologies and Change of Management. Primarily information related to the trawl fisheries is available, as they are the most regulated fisheries. This covers cost and earnings studies and local knowledge surveys, which include perceptions and attitudes of the fishing industry on resource management issues in the coastal area.

Institutional arrangements for resource management and coastal zone planning are fragmented. There is a sectoral approach to the management of coastal activities in which different governmental agencies have jurisdiction over various aspects of the same coastal resource. Multidisciplinary agencies were able to address some institutional problems and the lack of knowledge and expertise, but not the jurisdictional problems.

Regarding the fisheries sector and its influence on development decisions that impact the environment and, ultimately, the resources, some progress was made in 1995 through the INT/91/001 project in terms of data collection. In addition, the fisheries sector has been included in the process of review of environmental impact assessments (EIAs) for coastal development projects. However, management of resources and the assessment of the well-being of coastal communities require interdisciplinary research (biological, social and economic).

The study made the following recommendations:

- consolidation of all sectoral components of coastal zone planning and information sources under one umbrella organization, and establishment of a dedicated administrative unit to develop this area;
- need for government commitment to incorporate socio-economic issues into coastal zone planning, and allocation of financial and technical resources to conduct interdisciplinary research;
- formulation of special projects focused on consolidation of socio-economic data and information for both fishing and non-fishing communities in the coastal zone;
- establishment of formal linkages among the Fisheries Division and other governmental agencies with primary responsibility for collection of social, economic and demographic information;
- strengthening of the institutional capabilities of the Ministry of Agriculture, Land and Marine Resources and, specifically, the Fisheries Division to enable socio-economic data collection and relevant analyses; and
- strengthening of fishers' organizations to facilitate successful implementation of the co-management approach to managing fisheries.

Discussion

No queries were raised or comments made after this presentation.

Turks and Caicos Islands case study

The Turks and Caicos Islands (TCI) is a small group of low-lying calcareous limestone islands at the end of the Bahamas island chain and to the north of Hispaniola.

The TCI has a population of 20 014, growing at a rate of 3.14 percent per annum, with approximately 63.7 percent of the population within the age group of 15–64 years. As with most other island countries throughout the region, the economy is based predominantly on tourism, fishing and offshore financial services.

The coastal zone is managed through a multidisciplinary approach and, as such, requires strong interagency collaboration. The three main government departments involved in conservation, management and rehabilitation of the coastal environment are the Department of Environment and Coastal Resources (DECR), the Planning Department and the Environmental Health Department.

Literature that focuses largely on the fisheries has been difficult to obtain. Very few formal publications have been identified that speak specifically to the socio-economic, demographic and political characteristics of fisheries resource users and uses in the TCI.

Although research on the socio-economic characteristics of the fisheries industry has been limited, it is increasingly being recognized as an area in need of greater understanding. As such, this area has been highlighted in the research plans of the Fisheries Division of DECR. More recently, staff members at DECR were trained in the socio-economic monitoring (SocMon) protocol in an effort to build capacity in this area.

Although socio-economic data are somewhat lacking, biophysical and socio-economic factors – and factors influencing environmental deterioration and mismanagement – are considered in the development of the various coastal area management/development plans, including management plans for several protected areas and the fisheries.

At present, there are no initiatives in monitoring or assessing the management effectiveness of the various fisheries management strategies. However, one component of the draft fisheries management plan (DFMP) involves regular evaluation (every 3–5 years) of the effectiveness of the plan. DFMP proposes a research plan and incorporates socio-economic studies that will assist in evaluating the impact of management, among other things. To address the need for information on key economic indicators, DFMP presents a plan for periodic user surveys in order to acquire information on fishers and on consumer expenditures, preferences and demand regarding the commercial and sports fisheries, as well as non-extractive uses and environmental qualities.

Discussion

No queries were raised or comments made after this presentation.

Progressing towards community-based fisheries management: a case study of fishing communities from Ortoire to Guayaguayare, Trinidad

Fisheries co-management is an alternative to the more traditional strategies of managing fisheries, such as gear restrictions and catch quotas. It is a more inclusive approach to decision-making through the participation of industry stakeholders. The presentation was based on a study conducted by IMA: An investigation of the fisheries resource, resource users and fisheries management by communities to establish a framework for co-management: Ortoire to Guayaguayare, Trinidad. The study was part of a regional, community-based CRM project involving 15 countries from the Caribbean, Central America and Venezuela. It was funded by the International Development Research Centre (IDRC) of Canada, with technical support from the International Ocean Institute (IO)-Costa Rica, the CARICOM Fisheries Unit and Larval University, Quebec, Ontario.

The research focused on an extension of co-management, i.e. community-based co-management in fishing communities from Ortoire to Guayaguayare, and examined

a variety of factors intrinsic to this community-based approach. These factors included the nature of the resource base, socio-cultural environment, format of the fisheries, nature of social cohesion and strength of community institutions. The research methodology included the use of face-to-face interviews, guided by questionnaires, to capture information on fishing operations, fisher households, socio-economic and cultural aspects of the fisheries and fisheries local knowledge, inclusive of a perceptual and attitude survey on resource conditions and fisheries management issues.

Other research techniques included the use of key informants, focus-group meetings and cognitive mapping of fishing grounds and fish resources. There were approximately 350 fishers operating from seven fish landing sites and eight residential communities, utilizing approximately 92 boats. They shared common fishing areas and fishing methods, facilitating a migration of boats and crew members across the landing sites. This migration supported the concept of a functional community, which in addition to kinship and fishing as a traditional and intergenerational livelihood option, added social cohesion and gave rise to the notion that "Ortoire is Mayaro is Guayaguayare". The participation of key community leaders, formation of two fishing associations, and the ability to negotiate on their own behalf with other resource users allowed these fishing communities to engage in a participatory approach, with government and research institutions and other resource users, to developing a co-management framework for the fishing industry from Ortoire to Guayaguayare.

Discussion

No queries were raised or comments made after this presentation.

Latest developments in small/medium-scale fisheries and aquaculture enterprises and products with regional and global export markets

The presentation broadly discussed the growing demand for fish and fisheries products in the global market and the increasing role of aquaculture in the expanding global trade. Specific supply/demand patterns in major markets were outlined for major fisheries commodities such as shrimp, tuna and finfish species and other aquatic resources. The presenter also highlighted the wide range of products processed and successfully marketed by small- and medium-scale enterprises in South and Southeast Asia. Products discussed included a wide range of fresh, frozen, dried, cured and prepared products that have been successfully marketed not only in the domestic/regional markets, but in international markets as well. Case studies were presented of some success stories of small/medium-scale enterprise development activities in Bangladesh (shrimp) and island countries in the Asia-Pacific (tuna-based products in Maldives and Papua Guinea). Organizational/operational aspects of small- and medium-scale commercial operations based on low-cost small pelagic species and fish waste were also discussed.

Emerging market/consumer expectations were highlighted, emphasizing an increased focus among consumers on the sustainability of resources and safety of products. The presentation touched on sanitary, phytosanitary (SPS) and technical barriers to trade (TBT) issues related to international trade, while examining key safety/quality issues related to fish exports from developing countries to major markets. It also examined the economic feasibility of commercial operations of several traditional Asian products. The presentation covered emerging marketing strategies in global trade of fish and fisheries products, while examining such possibilities for Caribbean nations.

It was recommended that the region further explore income and employment generation opportunities through the improved utilization of low-value/bycatch fish and incidental catches in the development of minced fish products for the domestic/regional markets, as appropriate. In addition, the region should explore greater involvement by national fisheries in exploiting their large pelagic resources through

target fisheries. In this respect, tuna longlining using small to medium-sized boats, which comprise a very large percentage of their national fleets, can be recommended, thus enabling countries in the region to tap the rapidly growing United States (US) and European Union (EU) markets for fresh fish. Tourism-oriented industries, such as shell craft and improved presentation of traditional fisheries products in gift/souvenir packs, are employment/income generation opportunities open to Caribbean nations.

Discussion

There was some discussion of the cost of machinery for production of value-added ham and sausage products and the availability of export markets for such products. There was also discussion of the use of fish skins in the fashioning of leather products, with the response being that this was not a common practice. Enquiries had been made in connection with the use of fish skins for gelatine production, as there was a movement away from traditional bovine gelatine.

With regard to a query on organic aquaculture, it was pointed out that guidelines had been developed at a recent organic aquaculture conference in Viet Nam on the conditions under which the product is grown, e.g. organic feed, density of fingerlings per unit area, non-destruction of mangroves to create ponds, etc.

Coastal fisheries management and community-based fisheries management in the Pacific

The presentation on the Pacific Case Study highlighted ongoing activities in coastal fisheries management and community-based fisheries management at regional and national levels in the Pacific region.

It addressed the Strategic Plan for Fisheries Management and Sustainable Coastal Fisheries in the Pacific, which was developed by the Secretariat of the Pacific Community (SPC), and its background, process and the actions taken in cooperation with FAO. There was also some information on the case of Samoa regarding development of community-based fisheries management, with emphasis on its traditional social systems (village community) and the activities of data collection in subsistence fisheries. In addition, the presentation addressed the ongoing socio-economic surveys being carried out by the SPC PROCFish project (funded by the European Union) and the Secretariat of the Pacific Regional Environment Programme's international water project (funded by GEF).

Discussion

No queries were raised or comments made after this presentation.

Based on the Agenda, participants were formed into two working groups to address the following topics:

WORKING GROUP REPORTS

Group I – terms of reference

Policy: facilitate and promote development of fishing communities through fishers' and other community-based organizations with the following objectives:

- obtain poverty reduction in fishing communities;
- promote economic activities/benefits through value-added/diversification in terms of products and services offered to consumers;
- expand social benefits accruing to membership;
- improve standard of living/livelihoods overall;
- and review and develop new policy directions geared towards achievement of the above-stated policy objectives.

Group II – terms of reference

Use of socio-economic, demographic and cultural indicators in integrated coastal zone and community fisheries management.

The outputs/recommendations of the groups are summarized as follows:

GROUP I – report and recommendations

(a) Legal framework: enactment of specific legislation to provide for the recognition of fishers and community-based organizations

A review of the legal framework in each country was recommended, in order to ensure that the laws support and facilitate programmes geared towards poverty alleviation, promotion of economic activities, and improvement in the standard of living of fishing communities. Countries should consider establishment of a task force of governmental agencies, industry and other stakeholders in the community to review the legal framework and make recommendations.

(b) Institutional framework

Caribbean governments need to prepare new policy instruments, at regional and national levels, aimed at promoting economic and social development of fishing communities and the community-based organizations (CBOs) within them. Government institutions, such as the Fisheries Department, also need to be restructured and strengthened to realize these objectives through the inclusion of a fisheries development unit, where such a unit is not already in existence.

These development units would have the following functions:

- provide technical support to the growth and development of fishers' organizations and other CBOs;
- encourage promotion of microenterprise and other business activities to broaden/diversify the economic base of fishers' organizations and CBOs;
- promote diversification in targeted species, including under/unutilized commercial species;
- promote value-added product development and market diversification, including the domestic market;
- reduce pressure on the in-shore fisheries by promotion of other income-generating activities; and
- provide an enabling environment (regulatory function, infrastructure, incentives, political and diplomatic representation) for the development and growth of the industry.

NGOs should be encouraged to facilitate and participate in the promotion of further social and economic development of the fishing communities and CBOs.

The role of fishers' organizations/associations should include the following:

- promote the socio-economic interests of fishers, fishing communities and CBOs;
- promote indigenous and traditional management measures for the sustainability of the fishing community;
- educate fishers on the use of property rights as a tool within the community to promote fisheries management;
- promote diversification of the economic base;
- cooperate with governmental and other relevant agencies in enhancing the socio-economic welfare of fishers and fishing communities;
- develop microenterprise and other business concerns within the fishing communities to increase their income generation capacity and employment opportunities;
- participate and develop plans and programmes aimed at promotion of sustainable utilization of coastal resources;
- enhance institutional strengthening of the organization through the promotion of capacity-building programmes for co-management;

- further enhance institutional strengthening of national organizations through interregional cooperation, networking with each other and other relevant organizations for information exchange and communication, and subsequently expanding to include other regional and extra-regional organizations;
- develop market promotion strategies to obtain maximum economic returns for products, with the cooperation of other national organizations;
- develop programmes to enhance the social welfare of fisheries, e.g. health insurance and pension schemes;
- develop links with the tourism sector and other relevant organizations in order to foster economic diversification; and
- foster accountability, transparency and good governance in the organization.

The following socio-economic and demographic indicators are needed and should be obtained through baseline surveys:

- household units
- household size
- household income (fisheries and non-fisheries)
- number of vessels
- change in fisheries technology
- product prices
- production levels (export and import)
- number of members in organization
- changes in infrastructure
- population movement (increase and decrease)
- education level
- medical facilities
- fertility and mortality rates
- entertainment facilities
- number and type of post-harvest/value-adding facilities (processing plants)
- number of women in community involved in fisheries-related activities

Group II – report and recommendations

At the start of the working-group discussion, a need was felt to define fishing community and coastal community, with the group identifying various criteria that could be used to define fishing communities, including the location of the residence and where fishing activities take place, i.e. landing sites and home port. However, after lengthy deliberation, it was agreed that a fishing community could be defined, for the time being, as "the sum total of all the resident and transient individuals operating from a fish landing site".

The group decided that agreement was needed between governments and stakeholders on the collection of data on demographic and cultural indicators. It was also agreed that information, once collected, should be integrated and applied to the planning and development of the communities affected.

Substantive issues

Necessary steps in the strengthening of integrated coastal zone and fisheries management in the Caribbean include the following:

- **Policy**
  - It was agreed that there was general policy commitment towards integrated coastal zone management in the region, but where this was not clearly spelled out, there was a need for clarification and the preparation of clear policy documents.
  - Present national and regional fisheries policies should be reviewed to include objectives such as poverty alleviation.

– There was a need for education and public awareness on integrated fisheries management and the value of socio-economic, demographic and cultural information in the management process.
– As a matter of policy, fishers and other stakeholders should be included in the national development planning process.
– Government and stakeholders should agree on the collection and use of socio-economic, demographic and cultural information in coastal zone and fisheries management.

- **Legal framework**
  It was agreed that, in most countries, legislation needed to be reviewed and updated/drafted, implemented and enforced. The issues to be addressed should include:
  – Regulations are needed mandating specific agencies to collect and use socio-economic, demographic and cultural data/information.
  – These agencies should facilitate access to the information and produce periodic reports.
  – Coastal zone management and fisheries management laws and regulations must be harmonized. A coordinated approach is needed by all agencies concerned with the review of legislation.
  – The respective mandates for the coastal zone management, fisheries management and other agencies should be clearly defined, which would facilitate better coordination and collaboration.
- **Institutional development/coordination/collaboration**
  Depending on the various country institutional arrangements, some of the options to be examined might be:
  – identify a lead agency for coastal zone management and fisheries management;
  – establish a centralized coordinating unit for coastal zone management and fisheries management;
  – improve coordination and collaboration among agencies.
  The existence of informal institutional arrangements among agencies involved in coastal zone and fisheries management was recognized. It was felt, however, that more formal arrangements, such as the use of memoranda of understanding, should be put in place.
  Capacity-building was needed in regional and national institutions to ensure that human resources, equipment, etc. were available to carry out mandated functions and, more specifically, the use of socio-economic, demographic and cultural information in coastal zone management and fisheries management. This may involve recruitment of non-traditional specialties, e.g. resource economists, and further training of existing fisheries personnel in these disciplines.
  The capacity of fishers' organizations and other CBOs needs to be built up to enable them to participate in the coastal management process, including collection and use of socio-economic, demographic and cultural information.
- **Consultative mechanism**
  Mechanisms should be established to promote consultation between government and other stakeholders.
  – There was a need for careful stakeholder analysis.
  – Awareness of the need for coastal zone and fisheries management can be created by exposing stakeholders to experiences in other countries, regions, etc.
  – In the EIA process, there needs to be greater fisheries representation.
- **Information/data requirements**
  There was a critical need to incorporate social, economic and demographic information into the planning and development process in a meaningful way.

In many cases, it would be necessary to disaggregate the data required from existing data, e.g. censuses. In addition, there needs to be coordination among agencies on the data to be collected, so that fisheries and other interests could be included. The matter of privacy and confidentiality of data was noted as being very important.

Information and data to be collected may include: income, nature of household, savings, access to utilities, age structure, migration, employment, production, skills, education and transportation.

Quality control of the data needs to be addressed.

- **Socio-economic, demographic and cultural indicators and their collection and use**

(a) Information

Depending on the data required, cost of data collection, etc., the regularity of data collection needs to be decided upon.

There was a need to give feedback to stakeholders on the results of surveys undertaken, as this would provide a better understanding of changes taking place in the communities, coastal zone, etc. and the effects on their livelihoods.

Sources of data:

– Members of communities can assist in the collection of demographic and other data.
– Fisheries registration records can be used as a source of data. There may be a need to legislate with respect to mandatory registration of fishers.
– National statistical offices census data should be incorporated.

(b) Indicators

In terms of the monitoring of coastal zone and community-based management and development, some of the likely indicators identified were:

(i) Poverty alleviation:

– number of people with incomes above the minimum standards set by the state;
– percentage of community above/below the poverty line;
– number of people with access to health services;
– number of people with access to potable water, electricity and waste disposal;
– percentage of home ownership;
– access to education with respect to national level; literacy rate; number of school-age children in school.

(ii) Governance:

– percentage of government allocation to social services, community development and fisheries management;
– percentage of stakeholder organizations capable of and participating in fisheries/coastal zone management.

(iii) Environment:

– air quality of a desired standard;
– level of bacteria, agrochemicals and heavy metals in seawater in relation to accepted international/national standards;
– changes in ground-water level and quality and water consumption;
– change in acreage of wetland cover and functions;
– percentage of forest cover;
– number of endangered species protected;
– number of critical habitats protected;
– number of environmentally sensitive areas designated;
– change in standing stock of marine resources (conch, lobster, shrimp, groupers, snappers and sharks);
– volume of waste disposed/recycled per capita.

(c) Constraints and solutions

Inadequate institutional capacity to collect and analyse data. There was a need for training, financial resources, equipment and institutional enhancement, including the hiring of non-traditional specialists (social scientists, environmental engineers).

Accessibility of information. This could be remedied by using memoranda of understanding, legislation, web technology, improved collaboration and networking.

Information gaps. This could be solved by collecting information through original surveys/studies. Training, technical assistance, financial resources and equipment will be required.

Lack of political will (in some instances). This could be partially solved by creating greater awareness among decision-makers, the population and the political directorate.

- **Strengthening regional and interregional networking on the use of socio-economic, demographic and cultural indicators in integrated coastal zone and fisheries management**

  It was felt that this could be achieved in several ways:
  - mandate CRFM to pay more attention to the collection and use of socio-economic, demographic and cultural information in regional and national planning and policy formulation;
  - utilize the OECS linkage;
  - maintain linkages with FAO;
  - establish linkages with other regions, e.g. Southeast Asia (this workshop is an example);
  - promote networking among agencies involved in data collection (CANARI, IMA, University of the West Indies, Caribbean Conservation Association, FAO, United Nations Economic Commission for Latin America and the Caribbean and UNDP);
  - develop and strengthen networking (more workshops, study-team visits, sharing of information); and
  - increase the receptiveness of respondents to data collection by:
    - creating awareness
    - providing feedback
    - training enumerators
    - respecting confidentiality of information.
- **Role to be played by FAO**

  Provide support for a comparative study of coastal zone and community-based management approaches in other regions through study tours that include other than fisheries personnel.

  Continue work with CRFM in coordinating and promoting greater use of socio-economic, demographic and cultural indicators in integrated coastal zone and fisheries management within the CARICOM region.

  Assist in the preparation and dissemination of materials on community-based fisheries management, and the collection and use of socio-economic, demographic and cultural information by national planners, fisheries extension personnel and fishers' organizations.

  Provide support, through the CRFM, for national workshops on coastal zone and community-based fisheries management and collection and use of socio-economic, demographic and cultural information.

  Provide technical assistance to the review of existing legislation and the drafting of new legislation in the region (requests need to come from the respective governments).

Provide technical assistance to fish port development and management in coastal communities.

CLOSING REMARKS

The chairperson, Ms Jobity, thanked all present for making the workshop a success in terms of the achievement of its objective. She also thanked the CRFM secretariat and FAO for providing sound advice to the chair, and wished all overseas participants a safe trip to their respective countries.

In his closing remarks, Dr Uwe Tietze, Fishery Industry Officer, FAO, thanked the Fisheries Division of the Ministry of Agriculture, Lands and Marine Resources of Trinidad and Tobago, and particularly Ms Ann Marie Jobity and her team, for kindly hosting the workshop and for the very cordial hospitality extended to all workshop participants. He then thanked both the Fisheries Division and the CRFM secretariat, particularly Mr Terrence Phillips, Mr Anthony Mills and Dr David Brown, for the excellent arrangements made for the workshop. Lastly, he thanked the participants from the Caribbean countries and Southeast Asia and the South Pacific for their valuable contributions to the workshop deliberations, making special mention of the long hours they spent in the working groups formulating the workshop recommendations.

Dr Tietze pointed out that the recommendations and discussions of this workshop were a very good example of the usefulness of interregional, south-south exchange on the opportunities for and constraints on sustainable development and management of coastal and fisheries resources for the benefit of coastal populations, fishing communities and national economies. He also noted that the recommendations formulated at the workshop contained many useful suggestions and provided directions for future efforts to promote the recognition and development of the fishing community – through fishers and community-based organizations and through the use of socio-economic, demographic and cultural indicators in integrated coastal zone and community-based fisheries management. Dr Tietze indicated that FAO would be glad to assist in the implementation of the workshop recommendations, noting that the proceedings and recommendations, together with the case studies and the comparative study presented, would be published and disseminated jointly by CRFM and FAO.

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APPENDIX II AGENDA

CRFM/FAO/MALMR Regional Workshop on the Collection of Demographic Information on Coastal Fishing Communities and Its Use in Community-Based Fisheries and Integrated Coastal Zone Management in the Caribbean

Ambassador Hotel, Trinidad and Tobago, June 13-17, 2005

Day I – Monday, 13 June 12005

Opening Ceremony
Registration of Participants

Coffee break

Introduction to the Workshop And Workshop Arrangements
(Meeting Chair)

Presentation and Discussion:
- Comparative Study Mission to the Philippines and Malaysia for the study of the use of demographic and socio-economic information in coastal and fisheries management, planning and conservation – *Mr Leslie Straker, Fisheries Officer, Saint Vincent and the Grenadines*.
- The 26th Session of the FAO Committee on Fisheries and the Contribution of Small-scale Fisheries to Rural Development – *Ms Susana Siar, FAO Fishery Industry Officer, Rome.*

Lunch

Presentation and Discussion of Country Specific Case Studies:
- The Consideration of Socio-economic and Demographic Concerns in Fisheries and Coastal Area Management and Planning: Belize Case Study – *Mr Mauro Gongora, Inland Aquaculture Fisheries Officer, Belize.*
- Consideration of Socio-economic and Demographic Concerns in Fisheries and Coastal Area Management and Planning – *Mr Harold Guiste, Senior Fisheries Officer, Dominica.*

Coffee break

Presentation and Discussion:
- Fisheries Management in the Philippines: A Focus on the Fisheries Resource Management Project – *Ms Jessica Munoz, Project Director, Fisheries Research Management Project, Philippines.*

DAY II – Tuesday, 14 June 2005

Presentation and Discussion of Country Specific Case Studies (cont'd):
- The Consideration of Socio-economic and Demographic concerns in Fisheries and Coastal Area Management and Planning in Jamaica – *Dr David Brown, Co-ordinator, Advocacy, Policy and Planning, CRFM Secretariat, Belize.*
- The Consideration of Socio-Economic and Demographic Concerns in Fisheries and Coastal Area Management and Planning in Saint Lucia – *Mr Rufus George, Fisheries Officer, Saint Lucia.*

– Aspects of CERMES Regional Research and Training with Emphasis on Socio-economic and Demographic Information – *Dr Patrick Mc Conney, Lecturer, University of the West Indies, Barbados.*

Coffee break

Presentation:
– The Role of the Fisheries Development Authority of Malaysia in the collaboration and management of the Fisheries Resources and the welfare of the Fishing Communities in Malaysia. – *Mr Mohd Nor Hassan, Deputy Director – General of the Fisheries Development Authority of Malaysia, Malaysia.*

Presentation and Discussion of Country Specific Case Studies (cont'd):
– Status of Coastal Zone and Fisheries Resources Management and the Incorporation of Demographic and Socio-economic Considerations/ Indicators – *Ms Suzuette Soomai, Fisheries Officer, Trinidad and Tobago.*
– Use of Demographic Information from Coastal Fishing Communities in Fisheries and Integrated Coastal Zone Management: Case Study, Turks and Caicos Islands – *Mr Wesley Clerveaux, Deputy Director, Turks and Caicos Islands.*
– Progressing Towards Community-based Fisheries Management: A Case Study of Fishing Communities from Ortoire to Guayaguayare – *Rosemarie Kishore, Research Officer, Institute of Marine Affairs, Trinidad and Tobago.*

Lunch

Presentation:
– Latest Developments in Small/medium-scale Fisheries and Aquaculture Enterprises and Products with Regional and Global Export Markets – *Dr S. Subasinghe, Director, INFOFISH, Malaysia.*

Presentation:
– Coastal Fisheries Management and Community-Based Fisheries Management in the Pacific – *Mr Masanami Izumi, Fishery Officer, Somoa.*

Coffee break

Formation of Working Groups

DAY III– Wednesday, 15 June 2005

Working Group Session

Coffee break

Working Group Session cont'd

Lunch

Working Group Session cont'd

Coffee break

Preparation of Working Group Presentations

DAY IV – Thursday, 16 June 2005

Preparation of Working Group Presentations cont'd

Coffee break

Presentation of Working Group Reports and Discussion

Closing Remarks

DAY V – Friday, 17 June 2005

Field Trip to Nature Seekers, Matura and Toco Fishing Centre, North-east Trinidad