

Fisheries Development and Management in Southeast Asia: Spotlight on THE PHILIPPINES

The Philippines is a fisheries-rich, archipelagic state. Comprising 7,107 islands, it boasts nearly 17,500 km of coastline which shelters numerous fishing ports in its coves and inlets. Its marine territorial waters total 160 million hectares (ha), dwarfing its inland waters of 1.47 million ha.

Fisheries in the Philippines constitute an important segment of the economy, contributing 4.8% of the GNP, providing livelihood for 5% of the employed labor force, and constituting 0.3% of the value of all goods exported. Fish are also a staple in the Filipinos' diet, second only to rice in importance, and contribute 54% of their total protein intake.

Traditional fishermen are the most abundant class of fishermen, outnumbering those in the commercial sector about 13:1 (574,000 vs. 45,000) and comprising about 68% of the labor force in fisheries production. Of the total domestic output of fish in 1975 (1.3 million mt), traditional fishermen supplied 55%,

with commercial fishermen and fishponds contributing 37% and 8%, respectively. Since traditional fishermen usually fish on a part-time basis and are constrained by seasonal availability of the resource and often by lack of a boat, they catch only an estimated 0.3 to 2.5 mt per capita per year, an order of magnitude lower than the 14.4 mt per commercial fisherman.

The Sulu Sea is the nation's most productive fishing ground, followed by the Visayan Sea. In 1975, 2,500 commercial fishing vessels using primarily purse seines, otter trawls, and bagnets took 98,000 mt of fish from Philippine Waters, with round scad and slipmouth dominating the landings (31.7 and 13.5% by weight, respectively). About 50 other species are taken in commercial quantities, comprising from 5% to less than 1% of the catch.

Exports of fish and fishery products tripled between 1972 and 1975, from 10,700 to 31,000 mt. At the same time export earnings increased by an order

of nearly 6, soaring from P70M (70 million pesos) to P396M. While the export market has shown healthy expansion from 1971-1975, the import market has shown no consistent trend, fluctuating between 41,000 and 87,000 mt. Demand for fish by a rapidly growing populace dictates that the Philippines continues to be a net importer, and on average, the country imported 2.7X more than it exported between 1971 and 1975.

The United States is the Philippines' most lucrative export market, but Japan has been gaining ground rapidly. Of the total 1975 earnings of roughly P396M, 45% was derived from the U.S. and 43% from Japan, the latter's contribution increasing 50% over that of the previous year. The U.S. and Japan together contribute the lion's share to the Philippines' export earnings, while Guam, Canada, Hong Kong, and Puerto Rico are other major, though less important markets.

Frozen shrimp/lobster and frozen

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Bancas lie waiting for the next trip to sea beyond protective breakwater along Manila's waterfront.



Crowding against each other, fishpens in Laguna de Bay carve the nearshore waters into irregular grid. The fertile lake waters yield up to 4 tonnes of milkfish per hectare per year. Photograph courtesy of the Bureau of Fisheries and Aquatic Resources.

tuna have traditionally been the highest export earners, though shellcraft nudged them from the number one and two positions in 1975. Together these three commodities contribute 78% of the total fisheries export earnings. Less important exports include live fish, seaweeds, ornamental shells, reptile skins, mother of pearl, milkfish, and dried smoked fish.

Canned fishery products, primarily sardines and mackerel, are the primary imports and account for 85% of the total value of imported goods, followed by fish meal at 14%. Japan supplies most of the canned goods (80%), whereas the fish meal is obtained from Peru and Chile.

Considered in toto, not all of the Philippines' aquatic resources are fully developed, though some areas such as Manila Bay and Malampaya Sound have been overfished. The commercial fisheries sector has attained about 50% of its estimated potential; in contrast the present yield from aquaculture and inland fisheries is only 16.4% of that estimated possible for developed and undeveloped lands combined. Because estimates for yields from traditional fisheries vary so widely, they are not being considered here. Improved yields from commercial fisheries can be made through exploring new and deeper fishing grounds with cost-effective gear and strengthening the marketing/distribution infrastructure, whereas gains in

production from aquaculture require improved management and production methods and expansion of areas under cultivation in that order of priority.

The fresh and brackish waters of the Philippines have much potential for aquaculture. Of the total inland waters available, only 12% are used for fishponds. In 1975 brackishwater fishponds totalling 176,000 ha produced 106,000 mt of aquatic species, primarily milkfish, shrimp, and algae, compared to 18,400 mt of milkfish, carp, catfish, and tilapia produced in 10,000 ha of freshwater ponds and pens. If aquaculture and agricultural practices were integrated to effect the most efficient use of water, fertilizer, feed, and land, output could be significantly increased. Fish/rice culture is especially promising, for it could provide the small-scale farmer and his family with an additional source of protein and income. This fact has been recognized by the government which recently formally endorsed rice/fish farming by announcing it would implement a nationwide rice/fish farming program to increase the country's protein supply.

Aquaculture in the Philippines, as in most of Southeast Asia, has flourished as an art rather than a science and is constrained by its narrow scientific base and lack of trained manpower. To widen the scientific base, basic research on many of the critical problems in aquaculture is already underway at various institutions, including the College of

Fisheries at the University of the Philippines and the Aquaculture Department of the Southeast Asian Fisheries Development Center (SEAFDEC) which conducts numerous investigations through its milkfish, prawn, seafarming, and freshwater programs at its main station and 10 substations. Various projects are undertaken at the Freshwater Aquaculture Center at Central Luzon State University, a recently initiated one of which is a collaborative study with ICLARM on integrated animal/fish farming. In addition the Bureau of Fisheries and Aquatic Resources operates 51 demonstration stations and nurseries to disseminate modern techniques in aquaculture, and the joint Government of the Philippines/USAID Aquaculture Production project has helped to develop two aquaculture research centers, as well as aquaculture extension programs in the Bicol Region and on Panay Island.

Fishing and the fishing industry have firm backing from the government which recognizes and enhances their value through financial support and incentives. In recognition of the vital role played by fisheries in both Philippine economy and society, Presidential Decree (PD) 704 was promulgated in 1975 to accelerate and promote development of the fishing industry and to protect the nation's fisheries resources. In addition the decree also designated the fishing industry as a preferred area of investment and outlined objectives, goals, and duties

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of national fisheries and fisheries-oriented organizations in fulfilling government objectives for fisheries development.

The Department of Natural Resources (DNR) administers fisheries affairs through its Bureau of Fisheries and Aquatic Resources (BFAR) headquartered in Manila. Complementing BFAR's activities are those of two new agencies created by PD 704: the Fishing Industry Development Council (FIDC) and the Philippine Fish Marketing Authority (PFMA), both under the aegis of DNR. The FIDC was created to give direction and aid to developing the fishing industry, and toward fulfilling its mandate, it has prepared a 5-year Integrated Fisheries Development Plan which sets as its goal the attainment of self-sufficiency in fish supply through expanded production and development of import substitutes and promoting exportation of fishery products. The PFMA is responsible for the landing and marketing of fish from six major harbor sites, including the new Navotas Port in Manila, and 30 municipal ports. In addition it improves fish handling techniques, develops ice plants, and provides technical assistance for marketing.

National agencies with fisheries interests include the Philippine Council for Agriculture and Resources Research, whose primary objective is to coordinate and manage research, manpower, facilities, and funds, and the Development Academy of the Philippines which, in cooperation with DNR, has formulated the Fishery Resources Management Program, a cooperative project to develop the fishing industry and improve the socio-economic status of the small scale fisherman. Organizations with more peripheral interests in fisheries include the Department of Agriculture and the National Food and Agriculture Council whose involvement with fisheries centers on integrated rice/fish farming.

Several international organizations operate in the Philippines, lending their assistance to fisheries development through research, training, and grants. These include the Food and Agriculture Organization of the United Nations (FAO), the U. S. Peace Corps, the U. S.



Seaweeds, one of the Philippines' top ten export commodities, are shipped to over 15 countries. Almost 80% of the harvest comes from Sulu and southern Mindanao. Photograph courtesy of the Bureau of Fisheries and Aquatic Resources.

Agency for International Development, and ICLARM. FAO currently oversees two UNDP-funded projects, one of which is for brackishwater aquaculture and training to assist the government in implementing its expanded fish production program and in strengthening its brackishwater development and training activities. A second project is the South China Sea Fisheries Development and Coordinating Programme whose emphasis thus far has been on artisanal fisheries, engineering aspects of brackishwater aquaculture in the South China Sea region, and exploratory fishing for schooling fishes such as tuna. Its activities are closely allied to those of the Indo-Pacific Fisheries Council.

Credit and financing for fisheries are obtained from numerous sources, primarily the Development Bank of the Philippines, the Asian Development Bank, The World Bank, and rural banks which are supervised and financed by the Central Bank of the Philippines. These banks have underwritten many fisheries projects including the Navotas

Fish Harbor Project (ADB), fish farm improvement and development (WB, DBP), and credit programs.

In the private sector, fisheries interests are served through trade organizations, the largest and best known of which are the National Federation of Fishing Associations comprising regional associations, organizations, and municipal cooperatives, and the Philippine Fish Farming Association which includes about 32 fishpond operators' organizations and fishfarmers' cooperatives.

Statistics in this article have been obtained largely from the following publication:

Bureau of Fisheries and Aquatic Resources. 1975. Fisheries Statistics of the Philippines. Fishery Economics and Information Division, Bureau of Fisheries and Aquatic Resources, Arcadia Building, 860 Quezon Avenue, Quezon City, Philippines. 115p.

For further information, this publication or BFAR may be consulted.

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