Asian Development Bank for fisheries loans. In 1971, a fisheries loan fund of 6.32 million bahts was granted by the Agriculture and Agricultural-Cooperatives Bank which is a government-owned financial institution. Deep-sea fishing, fish cultivation and fish-processing industries are the industrial fisheries enterprises being eligible for the loans provided by the Industrial Finance Cooperation of Thailand. The maximum loan amount per borrower is 30 million bahts grants for up to 7 years at the rate of interest of 10.5% per annum. Fishermen and fish processors may apply for loans from any commercial bank; such adequately secured loans will be granted at the interest rate of 14% per annum.

Technical Assistance

Foreign expertise for fisheries development is being utilized by Thailand under a bilateral agreement with the Federal Republic of Germany relating to the establishment of the Marine Fisheries Laboratory. Under the Thai-Danish Co-operation in the field of marine biology; Marine Biological Center has been established in1971 at Phuket province. Expertise in recent years is obtained mostly for introducing improved techniques of fishery. Besides the utilization of the services of foreign experts technical assistance is also achieved by deputing the selected candidates to foreign countries for specific training.

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The country report of the Republic of Vietnam

Fishers Resources of Vietnam

by
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Abstracts

With cease fire and the reestablishment of peace in Vietnam, the country should be in a position to make major advance towards becoming self supporting and an economically stable nation. To achieve this end, every material and resource must be effectively used. Among the natural resources, fishery products represent an important contribution and a major factor in supplying the much needed additional protein food needs of the people. At the same time it may be possible to supply quantities of exportable fishery products to earn foreign exchange. In 972, total fishery production was 677,700 MT from which about 2,000 MT of shrimp have been exported with a value of 6 million US$.

Fish resources of Vietnam come from: (1) Inland waters (fresh water and brackish water) including the swampy and flooded areas of the Mekong Delta and an inextricable network of rivers and canals throughout the country. Most of the tropical species of fish of the Indomalaysian archipelago are found in inland waters. Some are widespred and are used for local consumption. These include snake-head fish and Trichogaster which are caught in flooded rice field and other types like common carp and catfishes which are cultivated in fish ponds. Some introudced species such as the Chinese carp promise to be adaptable to the local condiions. (2) Marine waters (inshore and offshore) abound with common species of the South China Sea and the Gulf of Thailand. These include red snappers, markerel, threadfin, pomfret grouper squid, herring, lizzard fish, etc.... Shell fish, such as shrimps and prawns, lobsters, mussels, clams, and crabs are also taken in variable quantities depending on the area.

Due to the geographical situation of the country adjacent to the wide continental shelf of most of Southeast Asia, Vietnam has a great potential for development of fishery resources. In spite of the ravaging war that hindered fisheries from developing, our production of fish in 1972 reached about 677,700 tons, comprised of more than 500,000 tons of marine products, 82,000 tons of fresh water fishes and about 96,000 tons of shrimp, crab and molluscs combined.

Nearly all of these resources were used for local consumption. The small remainder, some 2300 MT with high unit value in the international market were exported and brought nearly 6 million US$ into the trade balance. Export species includee shrimp, polynemeus threadfin, pomfret, red snapper, squid etc....

1. FRESH WATER AND BRACKISH WATER RESOURCES

Almost all tropical water resources are found in Vietnam, especially in the south west region flooded every year by the Mekong River. Many farmers in this region are also part-time fishermen. They use many kinds of fishing gears and small outboard boats for fast transportation of their catch to the market. Deep ponds near the rice fields are used for fish concentration when the water runs down toward the river.

The main species caught in the south west are as follows:

English name	Scientific name
Snake head fish	*Ophicephalus striatus*, and Ophicephalus micropeltes
Fresh water catfish	*Clarias batrachus*, and *Clarias fuscus*
Climbing perch	*Anabas testudineus*

Rice field eel	*Fluta alba*
Fresh water prawn	*Macrobrachium* sp, and *Macrobrachium rosenbergii*

Many other fresh water species re cultivated in ponds, lakes or rivers. Some of them, such as Pangasius and Puntius javanicus are reared in floating bamboo cages.

Government hatcheries provide fingerlings at low price to farmers. Indonesian carp, Chinese carp, kissing gourami and tilapia are reared throughout the country.

Some species of fingerligs,• such as silver carp (Hypophthalmichtys harmandi) and grass carp (Ctenopharyngodon idellus) must now be imported. However local production by induced spawning is under experiment and promising results have been obtained.

Fry of fresh water catfish (Pangasius pangasius) can be collected in the Mekong River for rearing in ponds.

Brackish wate fish (milk fish, mullet, tilapia) and shrimp are reared in thousands of acres of low lands and in mangrove areas along the coast, especially in the south west region. Milk fish fry are also available seasonally along the central Vietnam coast.

2. MARINE RESOUGES

1. Offshore resources

A survey made by two research boats, the Kyoshin Maru 52 and the Friendship shows that the main species of fish living offshore of Vietnam are:

English name	Scientific name
Red snapper	*Lutjanus sanguineus*
Big-eye snapper	*Priacanthus macracantus*
Cuttle fish	*Specia framea*
Travalley	*Alectis cilliaris*
Horse mackerel	*Magalapsis anomala*
Silver carp	*Psenoppsis anomala*
Dog head fish	*Saurida undosguamis*
Markerel scad	*Tnachurus japonicus*
File fish	*Amenses tossellatus,* and *Amenses hodlestus*
Ray	*Hypolophus sephen,* and *Miliobatus tobijei*
Horse shoe crab	*Ibacus ciliatus*

In addition, our trawlers have often caught the following species:

English name	Scientific name
Goby	*Glossogobius biocellatus*
Flat fish	*Psottodes erumei*
Lizard fish	*Saurida* sp.
Grunter	*Pomadasys kasta, Plustorhynchuc celebicus,* and *Parapristipoma trilineatus*
Catfish	*Netuma thalassimus*
Threadfin break	*Nemipterus taeniopterus,* and *Nemipterus tambuloides*
Hairtail	*Trichiurus lepturus*

2. INSHORE RESOURCES

The inshore fishing grounds are so heavily exploited that we must now think about possible overfishing. Fishermen use all kinds of fishing gear and adopt quickly to new techniques. Shrimp of all sizes bring a high price in the domestic market and the larger sizes are much desired in the international markets. Hundreds of fishing boats are trawling day and night for shrimp.

The main species caught are as follows:

English name	Scientific name
Tuna	*Scomberomorus commersoni*
Mackerel tuna	*Euthynnus affinis*
White pomfret	*Pampus argenteus*
Threadfin	*Polynemeus* sp.
Sea perch	*Psammoperca waigieusis*
Grouper (reef cod)	*Epinephelus* sp.
Flat fish	*Psettodes erumi*
Tassel fish	*Sciaena dussumieri*
Spotted spanish mackerel	*Cybium guttatum*
Squid	*Thysanateuthis rhombus*
Cuttle fish	*Sepia esculenta*
Catfish	*Netuma thalassimus*
Herring	*Harengula,* sp.
Lizard fish	*Saurida,* sp.
White tipped mackerel (scad)	*Decapterus maruadsi*
Red snapper	*Lutjanus sanguineus*
Dog shark	*Scoliodon palasorrh*
Manta ray	*Dasyatis* sp.
Anchovy	*Clupesides bornensis*
Flying fish	*Cypselarus artisignis*
Grunter	*Flectorhynchus celabious*
Threadfin	*Polynemeus bornensis*
Threadfin bream	*Nemipterus bleekeri*
Hairtail	*Trichiurus lepturus*
Pig face break	*Penptapodus setosus*
Shrimp	*Penaeus* sp. *Metapenaeus ensis,* and *Parapeneopsis affinis*

Lobster (spiny)	*Panulirus fasciatus*
Mysid	*Neomysis Japonica*
Mussels	*Mytilus crassitesta*, and *Mytilus edulis*
White clam	*Meretrix meretrix*

Many other fishes are caught. Due to our lack of ichthyologists and biologists, an accurate determination of their species cannot be made for the time being.

PART II TECHNICAL PAPERS

THE PELAGIC RESOURCES

SEAFDEC/SCS. 73: S-24

A PLAN FOR THE DEVELOPMENT OF SEA FISHERIES IN THE PHILIPPINES[1]

by
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1. INTRODUCTION

The demand for fish in 1973 is estimated at 1,635,600 metric tons, but the fisheries industry is expected to produce only 1,610,500 metric tons or a deficiency of 25,100 metric tons.

The Philippines has had to import fish annually to make up for this deficiency. The inability of the fisheries industry to meet the demand can be attributed to a number of problems. Foremost among them are:

1. Low productivity and declining yield of areas presently exploited and under-exploitation of many areas of fishery resources.
2. Lack of adequately trained manpower.
3. Lack of capital credit facilities.
4. Poor marketing and distribution of fish and other aquatic products.
5. Lack of ports, harbors, ice plants and cold storage, etc.
6. Need for the improvement of traditional products and development of new ones for export and for import substitution.

The Government through the Bureau of Fisheries hopes to solve these problems and consequently to increase fish production by implementing one or a combination of the following measures:

1. Increase the yield per hectare of inland waters and the catch per vessel; or
2. Increase the area for fishponds and the number of fishing vessels.

To accomplish them, the Bureau of Fisheries has prepared a fish expansion program which aims not only to schieve self-sufficiency in fish by late 1974, but also to able to produce, starting in1975, enough to meet both domestic and export needs.

Thus a loan proposal to the World Bank was made for the expansion of the production capacity of the fisheries industry through improvement of productivity levels in the fishponds, deepsea and municipal fisheries sectors.

This paper proposes a credit scheme whereby funds would be secured from the World Bank through the Development Bank of the Philippines to finance the acquisition of modern fishing equipment like engines, power blocks, winches, nets, navigational aids, fish finders, etc. and to support the investment needs for the acquisition of new fishing boats and fish carriers.

2. THE SEA FISHERIES PROJECT PROPOSAL

2.1 Project description

Basically, the project is a financing scheme designed to support the sea fisheries program directed at the improvement and expansion of the existing fleet. The project includes the acquisition of catcher and boats, carrier and the improvement of existing catcher boats (*i.e.*, installation of winches, power blocks, better engines and nets, motorization of bancas, etc.).

A more detailed breakdown of the composition facilities which make up the project are as follows:

Addition to the existing fleet:	No. of Units
1) 70–90 GT Trawlers	20
2) 20 GT Trawlers	20
3) Pure-seiners	20
4) Combined Trawler Purse-seiners	10
5) Carriers	(No definite no.)
Improvement of existing fleet:	
1) Trawlers and Purse-seiners	120–150
2) Mechanization of "bancas"	6,000

1. Most of the data included in this paper were based on a project study presented to the World Bank to develop the fishery industry.