

INVESTMENT AND DEVELOPMENT PROSPECT IN BANGOS

by

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The cultivation of bangos has always been one of the most important aspects of aquaculture in the Philippines. It has received considerable attention both from the government and the private sector because bangos is responsive to culture techniques. Moreover, it has extensive potential for development and is an attractive area for investment.

Profitability of Investments in Bangos

Financing available to the fishing industry used to be so limited that the industry could not expand at the desired rate. Through the Expanded Fish Production Program of BFAR, attention of financing institutions and investors was directed to the demand gap in fish and the investment requirements of the different sectors of the industry. This helped the investment pattern in fisheries, including the bangos industry, to improve steadily (Table 1). In fiscal year 1975, DBP alone granted 47,203 loans amounting to ₱550,531,000 to fisheries projects.

Table 1. - Loans Granted for Fisheries Production
1971 - 1973
(In Thousand Pesos)

	<u>1971</u>	<u>1972</u>	<u>1973</u>
D B P	952	9,387	17,251
P N B	2,669	5,204	7,066
Other Commercial Banks	29,191	79,300	95,000
Private Development Banks	2,060	1,645	NA
Rural Banks	41,342	1,503	44,000
A C A	-	952	NA
Savings Bank	-	17	.058
T O T A L	<u>76,214</u>	<u>98,008</u>	<u>163,317</u>

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Sometime in 1971, a mission from the International Bank for Reconstruction and Development (IBRD) came to the Philippines to study the investment prospects in the fishing industry and tentative findings pointed to the possibility of granting loans to commercial fisheries. However, studies show that with the available technology for increasing production in bangos fishponds, fishponds give more returns on investment per peso invested than commercial fisheries but the latter gives more protein per peso invested (Gonzales, 1970).

Further investigations confirm that investment in bangos fishponds compare favorably with those in commercial fisheries. Some findings of the IBRD preparation mission (1972) are as follows:

1. The annual net income from an otter trawler of about 130 G.R.T. costing US\$310,000 (₱2,170,000) is estimated at US\$69,100 (₱483,700) giving a financial rate of return over 12 years of about 19 per cent.

2. The annual net income from a purse-seiner costing US\$280,000 (₱1,960,000) is estimated at US\$81,750 (₱572,200) giving a financial rate of return over 12 years of about 28 per cent.

3. The incremental net income at full development for a fishpond of 100 ha with improvement costs amounting to about US\$55,000 (₱285,000) will be about US\$20,000 (₱140,000) giving financial rates of return over 20 years from 23 per cent to 34 per cent.

4. The incremental net income at full development for a fishpond of 200 hectares, with improvement costs amounting to about US\$97,000 (₱679,000) will be about US\$42,000 (₱294,000) giving financial rates of return over 20 years from 25 per cent to 32 per cent.

Consequently, when the IBRD Fisheries Loan of US\$11.6 million was approved in May, 1973, US\$3.5 million was allocated specifically for improvement of existing bangos fishponds (Inland Fisheries Project), rehabilitation of those damaged by typhoons, and development of new bangos fishpond areas. Another US\$0.6 million was provided for two feasibility studies: (1) the Smallholder (Bangos) Fishpond Study and (2) the Philippine Fish Marketing and Distribution Study. The latter has a separate volume on the potential for export of Philippine milkfish. It may also be mentioned that DBP which is the outlet for this loan has just submitted the proposal to IBRD for the Second Fisheries Loan which will expand the present coverage to include financing for the smallholder (bangos) fishpond.

The Third Rural Credit (IBRD) of US\$22 million which is being retailed by Central Bank through the rural banks has a component for financing both bangos fishponds and fishpens.

The inclusion of bangos projects in the financing schemes of local and leading international financial institutions is indicative of the profitability of these projects.

Improvement of Existing/Development of New Fishponds

The prevailing growth rates of population and income and the income elasticity of demand require that an average annual incremental fish production of about 80,000 MT be realized to eventually meet effective demand. Approximately 25% of the increment is programmed to come from bangos production. The need for development in other sectors of the bangos industry is well recognized; still, it is in the sector of production where the biggest potential for investment lies. Resources for this are the 176,000 ha existing fishponds, about 400,000 ha available mangrove swamps and major lakes for bangos fishpens.

Investment Strategy. The strategy for investment is based on the general premise that resources are limited and that scarce resources must be allocated to alternative projects that give the maximum net benefits.

In bangos fishpond production, the alternatives are (1) improvement of existing fishponds; and (2) development of new areas. Of these two, the former is preferred because it requires less incremental investment and has shorter gestation period. With initial improvement in the pond layout, dikes, gates, additional levelling, removal of stumps, etc. at an average investment of about ₱4,000 to ₱5,000/ha and coupled with the application of improved management methods, it is possible to attain full production levels averaging 1,500 kg/ha or more within two to three years. On the other hand, it would take an average of about ₱10,000/ha to develop a new fishpond area and some five years to attain full development levels of production.

The relative profitability of the two alternatives can be noted from a recent study by DBP where the internal rate of return (IRR) from a model 24-hectare improved existing fishpond is 50% as compared to only 33.5% for development of new fishpond area.

Investment Requirements. At the average investment of ₱5,000/ha the 176,000 ha existing fishponds would require ₱880 million. Assuming 5,000 ha of new areas are developed annually, approximately 30% of the 400,000 ha available swamplands shall have been developed by Year 2000, requiring about ₱1200 million investment at ₱10,000/ha, all based on conservative estimates.

Nursery Pond Operation. The multiple cropping features of modern fish management and the development of the fishpen industry created the necessity for steady supply of bangos fingerlings throughout the year and opened new opportunities for investment in commercial pond/fry bank operation.

Mixed Culture of Bangos with Prawn. With the headway we are making in the production of prawn fry, a possible area for development would be the mixed culture of bangos and prawn. It will be noted that in Taiwan where prawn culture is relatively advanced, it is reported that about 90% of the total area under cultivation is devoted to mixed culture of bangos and prawn and only 10% for monoculture of prawn.

Bangos Production and Fry Requirement, Year 2000

Table 4 gives a projection of bangos production and fry requirement in Year 2000. This considers only fishpond and fishpen culture and does not include production from and requirements for stocking communal bodies of water. These are based on conservative estimates.

Assuming an average of 5,000 ha of swamplands are developed annually and existing fishponds are improved so that the national average production per hectare is increased from the present 565 kg to a conservative level of 1,500 kg by Year 2000, there will be 311,000 ha fishponds with production of 466,500 MT. Bangos fry requirement will likewise increase from 550 million/year to 2,590 million or an increment of 2,040 million.

On the other hand, there will be an incremental production of 70,000 MT for fishpen if developed areas increase from the present 6,000 to 20,000 ha by Year 2000; corresponding incremental fry needed is 460 million.

Fishpond and fishpen are therefore estimated to produce 551,500 MT of bangos with total fry requirements of 3,070 million by Year 2000 as against the 1973 level of 129,600 MT and 750 million fry.

Other inputs such as manpower, financing, etc., for the projected expansion of the bangos industry can be programmed with a greater degree of certainty but as long as bangos fry is dependent on natural supply, it shall remain as the limiting factor for the growth of the industry.

Processing/Export of Bangos

As bangos production resulting from investment and development efforts build up, produce can be exported and/or processed as import substitutes. Processing synchronized with production of bangos is a possibility as size and quantity of fish can be controlled.

Although domestic demand is still far from being satisfied, exportation of bangos is being carried out in small quantities. The average annual export in 1971 to 1974 is 101,300 kg valued at ₱796,200 with the United States and Canada as the major importers of Philippine frozen bangos (Table 2). A study on the export potential of Philippine bangos conducted by Norconsult (1975) recommends that efforts for the expansion of exports be directed to the present consumer, namely the Filipino communities abroad particularly those in United States and Canada as prices obtainable from this market are substantially above levels presently obtainable in Asia. Markets in Singapore, Malaysia, and Japan may also be developed later as more exportable surplus is developed.

Estimated import potential in the first year of Singapore is 300 MT and 200 MT for institutional and private buyers respectively; 50-100 MT for Malaysia and more than 300 MT for Japan.

Product possibilities from different markets are deep frozen whole bangos and preparation directed to the convenience food market such as fish fillet and deep frozen deboned bangos.

Summary of the findings on the survey conducted on Southeast Asian countries that are potential importers of Philippine bangos is given in Table 3.

Other Prospective Areas for Investment/Development

The present coverage of financing is concentrated in the production aspect but an analysis of the different activities or sectors that make up the industry, namely, (1) bangos fry gathering; (2) rearing to fingerlings (or nursery pond operation); (3) rearing to marketable size; (4) post harvest operations, indicates still other areas for possible investment or development. Most of those have been pointed out in previous papers but a few are restated here.

Bangos Fry Gathering. The development and introduction of more efficient gears for catching fry is one of the means for increasing supply from natural source and is an area for investment where small fishermen and coastal folks can engage in.

Table 2. Export of Milkfish by Country of Destination
1971 - 1975

DESTINATION	1971		1972		1973		1974		1975	
	Quantity (kgs)	Value (P)	Quantity (kgs)	Value (P)	Quantity (kgs.)	Value (P)	Quantity (kgs)	Value (P)	Quantity (kgs)	Value (P)
United States	148,831	1,106,323	49,424	375,963	51,576	388,858	112,944	1,013,976	41,482	546,073
Guam	2,500	1,200	-	-	6,985	51,351	14,900	120,789	8,026	79,079
Japan	-	-	-	-	522	5,070	1,500	12,308	-	-
Hongkong	-	-	-	-	697	7,425	-	-	-	-
Canada	600	1,800	-	-	4,549	35,855	4,772	39,839	-	-
Other Countries	-	-	5,317	24,000	-	-	-	-	3,450	41,209
TOTAL	<u>151,931</u>	<u>1,109,323</u>	<u>54,741</u>	<u>399,963</u>	<u>64,329</u>	<u>488,559</u>	<u>134,116</u>	<u>1,186,912</u>	<u>52,958</u>	<u>666,361</u>

Table 3. Summary of S. E. Asian Market Survey-Potential Importers of Philippine Milkfish

	SINGAPORE	MALAYSIA	JAPAN
Domestic Market for Fish for Human	: 1974: 100, 000 T : Forecast 1980: : 200, 000 tons	: 1971: 326, 000 T : Forecast 1980 : 392, 000 tons	: 1972: 6. 5 million : Forecast 1980: : 7. 2 million
Import Regulations	: None	: None	: None : (5% Duty on C. I. F.)
Knowledge of Milkfish	: Trade: Limited : Consumers: None	: Some Consumer : Knowledge	: None
Initial Target Group Priorities	: 1. Institutional : (first Armed : Forces then Sch. : Hospitals, etc.) : 2. Private Con- : sumers	: Total : Market	: Institutional
Channel of Distribution	: Use Local Im- : porters (located : at JurongFishing : Port) to sell : through tradi- : tional channels	: Through : Malaysian : Fisheries : Development : Authority	: Importing/Trading : Organization : Fishing : Company
Product Possibilities	: Institutional : Deep Frozen : whole : Fish Fillets : Private : Deep Frozen : Whole	: Mainly Deep : Frozen : Whole-Possibly : Also De-boned	: 1. Deep Frozen : De-boned : 2. Fish Fillets
Approximate Initial Price Level C. I. F. (U.S. \$/Kg)	: Institutional:0.50: : Private:0.50-0.80: : Price Upgrading: : Possible	: 0. 65	: 0. 40 - 0. 50
Initial Promotional Strategy	: Institutional : Direct Contract : with Major : Consumers and : Private Media : Promotion	: Through : Malaysian : Fisheries : Development : Authority	: In-channel Promo- : tion; Cooperation : with Frozen Fish : Ass., and through : Importer

Table 3. Continued:

	: SINGAPORE :	MALAYSIA :	JAPAN
Estimated	: Institutional	:	:
	: 300	:	:
Potential in	: Private: 200	: 50-100	: 300 /
First Year (Tons)	:	:	:
	:	:	:
Other	: Chinese Account: 73% of Population	: Malaysia Plans to start own	: Do not enter sufficient quantities are available
	: Bony Fish	: Milkfish Pro-	: ble
	: Popular Test	: duction	: Test Panel Required
	: Panel Required :	:	:

SOURCE: Philippine Fish Marketing & Distribution Study, Vol. 7, by NORCONSULT.

Table 4. Projected Production and Fry Requirement of Bangos, Year 2000

BANGOS CULTURE	1973	2000	Increment
Fishponds			
Developed area (ha)	176,000	311,000	135,000
Average Prod. (kg/ha)	565	1,500	935
Total Production (mt)	99,600	466,500	266,900
Bangos Fry Requirement (million) ^{1/}	550	2,590	2,040
Fishpens			
Developed area (ha)	6,000	20,000	18,000
Average Prod. (mt)	50	50	-
Total Production (mt)	30,000	100,000	70,000
Bangos Fry Requirement (million) ^{2/}	200	660	460
Fishponds and Fishpens			
Bangos Production (mt)	129,600	566,500	436,900
Bangos Fry Requirement (million)	750	3,250	2,500

^{1/} Assumption: 3 pieces/kg marketable fish, 60% and 90% survival from fry to fingerlings and from fingerlings to marketable size.

^{2/} At minimal stocking rate of 20,000 bangos fingerling/ha or 33,000 fry.

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