Philippines

FRESHWATER FISHERIES DEVELOPMENT PROJECT

Project No. 492-0322

PROJECT PAPER

DECEMBER 1978

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LIST OF ACRONYMS

ADB	Asian Development Bank
AID/W	Agency for International Development/Washington
APAC	Asian Projects Review Committee
APP	Aquaculture Production Project
BAC	Brackishwater Aquaculture Center
BFAR	Bureau of Fisheries and Aquatic Resources
CLSU	Central Luzon State University
EOD	Entered on Duty
FAC	Freshwater Aquaculture Center
FIDC	Fishery Industry Development Council
FFDP	Freshwater Fisheries Development Project
FFH-ETC	Freshwater Fish Hatchery-Extension Training Center
FWS	US Fish and Wildlife Service
FY	Fiscal Year
GRP	Government of the Republic of the Philippines
IBRD	International Bank for Rural Development (World Bank)
ICLARM	International Center for Living Aquatic Resources Management
IFB	Invitation for Bids
IRR	Internal Rate of Return
IRRI	International Rice Research Institute
LDC	Less Developed Countries
MNR	Ministry of Natural Resources
NEDA	National Economic and Development Authority
NIA	National Irrigation Authority
OAD	Office of Agricultural Development
OIC	Officer-in-Charge
PAF	Project Authorization and Request for Allotment of Funds
PCARR	Philippine Council for Agriculture and Resources Research
PFMA	Philippine Fish Marketing Authority
PASA	Participating Agency Services Agreement
PDS	Project Development and Support
PID	Project Identification Document
PIO/C	Project Implementation Order/Commodities
PIO/P	Project Implementation Order/Participant Training
PIO/T	Project Implementation Order/Technical Services
PM	Person Months
PP	Project Paper
ProAg	Project Agreement
SEAFDEC	Southeast Asian Fisheries Development Center
TAMU	Texas A&M University
TDY	Temporary Duty
UNDP/FAO	United Nations Development Programme-Food and Agriculture Organization
USAID	United States Agency for International Development/Philippines
UPCE	University of the Philippines College of Fisheries

Units of Measure

ha	- hectare
kg	- kilogram
MT	- metric ton
m	- meter
cm	- centimeter

ANNEXES

LIST OF TABLES

AGENCY FOR INTERNATIONAL DEVELOPMENT

PROJECT PAPER FACESHEET

1. TRANSACTION CODE: A (A = ADD, C = CHANGE, D = DELETE) — PP

2. DOCUMENT CODE: 3

3. COUNTRY ENTITY: Philippines

4. DOCUMENT REVISION NUMBER:

5. PROJECT NUMBER (7 digits): 492-0322

6. BUREAU/OFFICE: A. SYMBOL: ASIA; B. CODE: 04

7. PROJECT TITLE (Maximum 40 characters): Freshwater Fisheries Development

8. ESTIMATED FY OF PROJECT COMPLETION: FY 83

9. ESTIMATED DATE OF OBLIGATION: A. INITIAL FY 79; B. QUARTER 2; C. FINAL FY 80 (Enter 1, 2, 3 or 4)

10. ESTIMATED COSTS ($000 OR EQUIVALENT $1)

A. FUNDING SOURCE	FIRST FY B. FX	FIRST FY C. L C	FIRST FY D. TOTA	LIFE OF PROJECT E. FX	LIFE OF PROJECT F. L C	LIFE OF PROJECT G. TOTAL
AID APPROPRIATED TOTAL	400		400	1,500		1,500
(GRANT)	400		400	1,500		1,500
(LOAN)						
OTHER U.S. 1.						
OTHER U.S. 2.						
HOST COUNTRY		1,268	1,268		1,810	1,810
OTHER DONOR(S)						
TOTALS	400	1,268	1,668	1,500	1,810	3,310

11. PROPOSED BUDGET APPROPRIATED FUNDS ($000)

A. APPROPRIATION	B. PRIMARY PURPOSE CODE	PRIMARY TECH. CODE	C. 1ST FY 79		D. 2ND FY 80		E. 3RD FY 81	
			C. GRANT	D. LOAN	E. GRANT	F. LOAN	G. GRANT	H. LOAN
(1) FN	B322	319	400		1,100			
(2)								
(3)								
(4)								
TOTALS			400		1,100			

A. APPROPRIATION	I. 4TH FY ___		J. 5TH FY ___		K. LIFE OF PROJECT	
	I. GRANT	J. LOAN	K. GRANT	L. LOAN	GRANT	J. LOAN
(1)					1,500	
(2)						
(3)						
(4)						
TOTALS					1,500	

12. IN DEPTH EVALUATION SCHEDULED: MM 03 YY 81

13. PAR CHANGE INDICATOR - WERE CHANGES MADE IN THE PID FACESHEET DATA, OTHER THAN ITEMS 12, 13, 14, OR 15 OR IN PRP FACESHEET DATA. BLOCK 12 IF YES, ATTACH CHANGED PID FACESHEET

1 (1 = NO, 2 = YES)

14. ORIGINATING OFFICE CLEARANCE

SIGNATURE: [signature]

TITLE: Chief, Office of Agricultural Development

DATE SIGNED: MM 12 DD 13 YY 78

15. DATE DOCUMENT RECEIVED IN AID W OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTION: MM DD YY

AID 1330-4 (3-78)

Part I SUMMARY

A. Project Description

The Freshwater Fisheries Development Project (FFDP) will provide a $1.5 million grant to the Government of the Republic of the Philippines (GRP) to establish a Freshwater Fish Hatchery-Extension Training Center (FFH-ETC) to support and increase freshwater fish production and consumption in the Central Luzon area of the Philippines. The grant will be made and the project implemented under the mode of Title XII of the U.S. Foreign Assistance Act.

The Ministry of Natural Resources (MNR), Bureau of Fisheries and Aquatic Resources (BFAR), is the GRP implementing agency. GRP inputs include expenditures equivalent to $1,810,000[1/]. The GRP will construct buildings and ponds, assign staff and allocate peso operating funds for the project. Allocation of peso funds is proposed as follows:

	Pesos (₱000)	Dollars[1/] ($000)
Capital expenditures (PL-480, Title I)	8,855	1,181
Operations expenditures for the FFH-ETC (BFAR Budget)	3,845	513
Housing, Local Travel and Education Allowance for US Personnel (Peso Trust Fund B)	662	88
International Travel, Participants (Peso Trust Fund A)	210	28
TOTAL (5 years)	₱ 13,572	$1,810

GRP inputs also include a [illegible] (ha) site for the FFH-ETC which is not included in project costs. BFAR will employ a total of about 50 full-time administrative, technical-professional and non-technical-professional staff members for the project. At project maturity (end of fifth year) the BFAR annual operating cost for the FFH-ETC is estimated to be $131,000 equivalent.[1/]

The grant will provide long-and-short-term technical advisory services, commodities, project management and evaluation support, and participant training. Allocation of grant funds is proposed as follows:

Technical Support and Advisory Services	$580,000
Equipment and [illegible]	485,000
Project Management and Evaluation	230,000
Participant Training	205,000
TOTAL (5 years)	$1,500,000

Technical support and advisory services and the procurement of all commodities except U[illegible] excess property items will be obtained through a direct AID contract.

1/ Conversion rate $1.00 = ₱7.50

The project strategy is to: (1) increase the supply of tilapia and carp fingerlings, (2) distribute fish seedlings to farmers to grow in a rice-fish polyculture system and to small-scale fish farmers to increase the fish yield in ponds through intensive culture, (3) improve the flow of information to farmers, and (4) assist fish farmers who wish to produce fish for consumption at home or for sale on the market and to farmers and entrepreneurs who wish to produce and distribute fingerlings themselves.

A project manager for the United States Agency for International Development Philippines (USAID) will be provided from grant proceeds. He will work under the Chief of the Office of Agricultural Development (OAD),USAID, Texas A & M University (TAMU) has been approved as project contractor under Title XII competitive selection procedures. TAMU will provide two long-term technical advisors and approximately 20 months of short-term technical assistance to assist BFAR. Participant training will be provided for: (1) six BFAR staff members to study in the U.S. under M.S. Degree-objective programs, (2) six BFAR staff members to receive short-term training in the U.S. and, (3) two BFAR staff to receive short-term training in the US and/or selected third countries. The participants will comprise the professional staff of the FFH-ETC which, in turn, will operate the fish hatchery, provide training to BFAR extension agents, and carry on outreach functions from the FFH-ETC. Commodities to be provided under the grant include vehicles (jeeps, tractors, trucks & motorcycles), office furnishings and equipment, shop and maintenance equipment and supplies, and training equipment and materials.

By the end of the project (5 years) the FFH-ETC will be fully organized and operational. Its staff will be trained, will have experience in hatchery management techniques and will be fully able to carry out effective extension programs. The FFH-ETC staff will have trained an extimated 50 extension agents from Central Luzon and other regions and who will function as an effective link between researchers at the Central Luzon State University (CLSU) and field extension agents. The senior research staff at CLSU received training as participants under the joint USAID-GRP Aquaculture Production Project (APP). Two BFAR extension workers that were also trained as participants under the APP are scheduled to serve key roles in project administration and implementation of the FFDP.

Annual freshwater fish production in Central Luzon will be increased by 3,187 tons (4% increase in the total from all sources) by the fifth year. Regional fish production is expected to increase rapidly in the decade beyond.

About 7,500 of the approximate total of 200,000 low-income rural families in the Central Luzon area who will have been directly reached by the project will enjoy more nutritious diets and higher incomes. Countless others will have been exposed to the rice-fish culture system and will have the opportunity to cross the technological threshold to achieve improved living standards and higher incomes than they had known before.

B. Findings

Increased fish production is technologically feasible in Central Luzon

under rice-fish polyculture systems. The major constraints currently are the lack of fingerlings and effective knowledge among farmers of aquaculture practices. The rice-fish culture technology is relatively simple, economically efficient, and requires only meager purchased inputs other than fish seedlings. Combined rice-fish culture will not result in a significant decrease in aggregate rice production. The increased production of fish will provide a nutritious protein supplement and a cash income increment to low-income producers. There are no known socio-cultural barriers to technological change in the project region; in fact, farmers in this area are highly receptive to other new ideas and are responsive innovators. Many farmers will likely integrate fish growing with rice farming as fish seedling become readily available and technology transfer programs become improved. The project is economically feasible. The GRP implementation agency (BFAR) is capable of executing the project with the planned advisory assistance. The project will not have any significant negative impact on the environment. The project will help to achieve fish production targets and goals of the GRP. The GRP desires the project and is prepared to provide the necessary peso funding to complement the grant. There are no major unresolved technological or implementation issues.

USAID concludes that the project is ready for implementation.

C. Recommendations

It is recommended that a $1.5 million grant be authorized to support the Freshwater Fisheries Development Project in the Republic of the Philippines as described herein. Project life is 5 years.

D. Issues

Issues raised in reviews of the project along with comments and reference to where the issues are addressed in the Project Paper (PP) are listed below:

1. State Telegram No. 166119, dated 16 July, 1977 (Annex B), raises the following issues/questions:

   a. There is a need to conduct a fisheries marketing survey and analysis.

      A marketing survey of Central Luzon was completed in December 1977, by E. W. McCoy. The survey revealed that there is a significant demand for additional fish in the Central Luzon area and that freshwater fish are acceptable and desirable. Also see Part III B.3. of the PP.

   b. Justify the need for a participant training program, how participants will be selected, and describe measures to insure maximum participation by women.

      See Annex I; Part II-F.2.c; and Part III-D.4.

c. **What are the merits and preconditions for rice-fish culture vs pond fish culture, and relative emphasis project will give to each?**

See Part III-A.2. and A.3; and B.1. through B.4; Tables 1 and 2; and Annexes J-1 and L.

d.

d. **A 3-year project completion period as proposed in the Project Identification Document (PID) appears too short to achieve end of project conditions.**

The Project completion period has been extended to 5 years. See Part II-C.

2. **Total funding in PID has been increased from $1.4 million to $1.5 million.**

This was necessary to cover costs of extending life of the project by 2 years, to provide project funds for the services of the USAID project manager, and to provide project funds instead of Project Development and Support (PDS) funds for project evaluations. Also, see Part II-C, Part II-F.2., and Part III-F. Also see Annex H and Annex K.

3. **What happens if rice farmers use pesticides?**

Pesticides are now available which are much less toxic to fish and which, when applied by prescribed methods and at prescribed rates, are harmless to fish but effective to control insects and other pests. Additionally, improved pest resistant strains of rice have been developed that allow for use of pesticides. Also see Part III-A. 1. and A.2.

4. **Is there danger of introducing exotic or non-indigenous species by promoting the culture of tilapia and common carp in the Philippines?**

Tilapia and common carp are not native to the Philippines. However, these species were introduced into the country many years ago and are now widely distributed and consumed throughout the Philippines. Also see Annex O, Section 2, b, (4).

Part II DETAILED PROJECT DESCRIPTION

A. Overview

The Freshwater Fisheries Development Project (FFDP) will provide a grant of $1.5 million to the Government of the Philippines (GRP) with the purpose of increasing freshwater fish production and consumption in Central Luzon. GRP inputs will be in the form of land, buildings and facilities and staff to carry out activities which will lead to increased fish production for small farmers in the project area. GRP capital investment is estimated at $.5 million and annual operating budgets at project maturity will be approximately $ 5,000. The project will contribute

directly to overall development goals of increasing production of high quality protein foods, improved nutrition among poor and disadvantaged people, and greater returns to low-income farmers in one of the most heavily populated rural areas of the country. The project strategy is to increase the production and improve distribution of freshwater fish fingerlings as a basis for expanding the area used for fish production. At the same time extension programs will be carried out to provide information, technical assistance and motivation to farmer-producers.

The major technology which is involved provides for stocking fingerlings in rice paddies after rice seedlings have been planted, and growing fish to marketable size as the rice matures in a period of 90-120 days. The species of choice are the Nile tilapia, Tilapia nilotica, and common carp, Cyprinus carpio, which have done well in research tests and field trials carried out by researchers at Central Luzon State University (CLSU).

The project will also support efforts by farmers to increase fish production from intensive culture in small ponds and reservoirs. At this time pond area suitable for this type of intensive culture is limited. Some expansion of areas for extensive methods of culture is possible, but the major emphasis will be on increasing yields from existing ponds. A threefold increase in yields from more intensive culture methods is expected. Further discussion of the technological feasibility of these production methods are found in Part III-A.

The $1.5 million grant will be used to obtain technical advisory services to assist the BFAR staff to organize and develop a FFH-ETC which will increase fingerling production and assist farmers in adopting the rice-fish polyculture technology and in improving fish pond production. The grant will also support training of BFAR staff and will provide equipment for the FFH-ETC. The FFH-ETC will be located on the CLSU campus adjacent to the University's Freshwater Aquaculture Center (FAC) where CLSU scientists who received training under [illegible] APP are carrying out research on freshwater fisheries production [illegible]. BFAR has already obtained an agreement with CLSU (see Annex Q) to utilize a 20-hectare (ha) site for the FFH-ETC complex. Partial GRP financing in the amoung of ₱5,000,000 from PL-480 Title I local currenty generations was approved in July 1978 (see Annex R). An additional amount of ₱3,855,000 PL-480 Title I generated funds will be requested by BFAR for the construction of and furnishings for housing units for the U.S. advisors and their families and for BFAR employees and their families; approximately 5 additional hectares of hatchery ponds; a security fence; improved access road; outdoor spawning tanks; additional electrical wiring; and to cover inflation of prices. Engineering plans and specifications for the FFH-ETC are well advanced. Construction of the buildings and ponds is expected to be initiated in January 1979, and completed by mid-CY 1979.

BFAR staff will be assigned to the FFH-ETC and funds will be provided through the normal GRP budget process for the operation and maintenance of the facilities. It is estimated that a total complement of about 50 people will be assigned to the FFH-ETC of which about 16 will be professional staff. The annual operating budget at project maturity (5 years) is estimated at about ₱[illegible],000 based on 1978 price levels.

B. Geographic Focus

The project will concentrate on increasing fish production in six provinces in the Central Luzon area: Bataan, Bulacan, Nueva Ecija, Pampanga, Tarlac and Zambales. (See Project Location Map, Annex D).

The six provinces have a combined population of about 4,320,000. However, some residents of the area fall outside of the target region for the FFDP, particularly those residing in coastal areas which are engaged in brackishwater fish production and are beyond the reach of this project.

The Central Luzon area is commonly referred to as the rice bowl of the Philippines. It consists of a flat, low-lying flood plan with no well defined relief features except toward the eastern and western edges. Drainage generally is to the south where river systems converged to drain run-off into Manila Bay. On the eastern and western edges, mountain ridges run generally in a north-south direction blending through foot hills and low rolling terrain into the flat fertile flood plain. The rice growing area extends about 100-125 km in an east-west direction and about 125-150 km from north to south. Central Luzon has about 600,000 hectares of rice paddies; about 325,000 hectares are irrigated and potentially suitable for fish-rice polyculture systems. There are about 8,900 hectares of fresh water in the area. Pantabangan Reservoir, located in the northern area of Nueva Ecija Province, comprises about 8,000 hectares of the total freshwater area. It is estimated that the area currently suitable for small-pond fish culture would not exceed about 1,000 hectares. Additional areas, however, could be developed to increase the total area available for intensive aquaculture production.

The rolling lands and foothills on the eastern edge of the region offer some potential for new impoundments and small pond development. Other ponds could be developed within the flood plain area on lands currently being used as rice paddies. Careful attention would need to be given to the relative profitability of the land use alternatives before such shifts should be encouraged. The extent to which additional ponds suitable for fish culture could be developed is not known. Major efforts to construct new ponds in these peripheral areas are not anticipated.

The FFH-ETC site is located in the northeastern part of Central Luzon and is within about 100 km from the farthest areas to be serviced by the project. Access by gravel and dirt road (often not well maintained) is available throughout most of the project area, although in flood season certain areas may be temporarily isolated.

C. Project Duration

The duration of the project is for 5 years although it is anticipated that most of the USAID financed inputs will be made in the first 3 years. Originally the Project Identification Document (PID) proposed a 3-year

project life. AID/Washington (AID/W) in its review of the PID suggested that a longer project completion period might be needed to reach end-of project objectives (See Annex B). In the preparation of the PP USAID recognized that a longer gestation period between inputs and outputs is required and that it would be difficult to achieve significant meaningful results much before the end of the fifth year. The scheduling of USAID financed inputs and the GRP capital investments in the project will still be concentrated in the first 3 years. Only a small budget for short-term technical assistance and final evaluation of the project would be programmed out of the grant in the final 2 years. GRP inputs for operations and maintenance of project activities would continue through the fifth year and beyond as the project reaches maturity.

D. Project Objectives, Strategy and Targets

The FFDP is an important part of the GRP effort to increase fisheries production and it conforms with the National Integrated Fisheries Development plan. The GRP has placed high priority on fisheries development as evidenced by the five year Philippine Development Plan, 1978-1982, which was approved and adopted by the GRP in 1977; the Integrated Fisheries Development Plan developed by the MNR in 1977; and the BFAR's 4-year Expanded Fisheries Development Program; 1975-78. The Philippine Council for Agriculture and Resources Research (PCARR) Governing Council approved Aquaculture as the highest priority research program during its 48th meeting in 1977. The FFDP also relates directly to USAID's goals and strategy to address basic human needs and to improve the quality of life for poor rural farmers in the target area.

The primary purpose of the project is to increase freshwater fish production and consumption in the Central Luzon area. The project strategy is to produce fish fingerlings to stock ponds and ricefields which in turn will produce fish for human consumption. At the same time it will be necessary to facilitate the transfer of technology which will encourage farmers to adopt cultural practices which will lead to these production increases. This transfer of technology involves (1) the cultural practices relevant to growing fish as food and (2) the extension of knowledge that will permit farmers to raise fingerlings themselves either to stock their own ponds or to sell to others. Fingerling production from the FFH-ETC will only partially meet the potential demand for fish seedlings once the rice-fish culture method becomes firmly established.

The fish hatchery element of the FFH-ETC will have a capacity to produce 20,000,000 fingerlings annually. At recommended stocking rates of 5,000 fingerlings/ha the output of the hatchery, if devoted entirely to rice-fish systems, will permit stocking of about 4,000 hectares. The hatchery obviously will not meet the expected demand for fingerlings nor support the full potential for this type of culture system in Central Luzon. While potentially some 375,000 hectares are suitable for rice-fish culture adoption of the technology on one-fourth or one-third of this area by the mid-1990's would be a satisfying accomplishment.

The extension element of the FFH-ETC will include a staff capability to train and support field extension agents in their efforts to assist

farmers to grow both fingerlings and to produce fish of marketable size. The extension component of the project will also provide assistance to private sector entrepreneurs who have resources to develop their own hatchery operation and fingerling distribution system. A target is to have 10-15 such hatcheries each with a capacity of 1 to 2 million fingerlings annualy in operation by the end of the project. Additionally, the project will provide technical assistance and guidance to farmers to develop small fish hatcheries having a capacity of about 300,000 to 400,000 fingerlings per year. A target is to have 60 such hatcheries in operation by the end of the fifth year.

The extension effort will be directed primarily toward providing assistance and encouragement to small-scale rice farmers to adopt the rice-fish technology, and secondarily toward assisting farmers to adapt small-scale, intensive aquaculture systems.

Anticipated output of fingerlings from all sources would be sufficient to stock an estimated 9,000 hectares under rice-fish polyculture methods and about 750 hectares of ponds for intensive fish culture. Aggregate output based on anticipated yields of 150 kg/ha and 2,450 kg/ha respectively would reach about 3,200 MT at the end of the fifth year and increase per capita availability of fish across the six-province region by about 4 percent.

E. Relationship to Previous AID Development Efforts and to Other Donor Plans

The FFDP is a logical follow-on activity to the Aquaculture Production Project (APP) which was financed by USAID and implemented over the 1974-78 period. The APP developed an important research capability at the FAC which led to the rice-fish polyculture technology around which this project is based. The recent agreement between the International Center for Living Aquatic Resources Management (ICLARM) and CLSU to collaborate on integrated livestock-fish production research at the FAC will also mesh well with this project. BFAR extension specialists at the FMH-ETC can literally go next door to see research in progress and thus can be an integral part of the vital communication linkage between scientific experimentation and application of knowledge to practical achievement.

Other donors have provided support to the GRP for commercial fisheries research development and exploitation, and to a lesser extent have been supportive of efforts to improve and develop municipal (artisanal) fisheries. USAID also financed activities under the APP to strengthen research and teaching capabilities at the Brackishwater Aquaculture Center (BAC), Leganes, Iloilo. Follow-on support to that effort is being provided by a United Nations Development Programme-Food and Agriculture Organization (UNDP/FAO) activity to strengthen extension programs directed toward brackishwater fish production (mainly milkfish).

The FFDP covers an aspect of total fisheries development which is needed and urgently desired by BFAR and the GRP.

The Asian Development Bank (ADB) and the Aquaculture Division of the South East Asian Fisheries Development Center (SEAFDEC) both have freshwater

fishery development projects under consideration that involve Laguna de Bay. Neither of the two projects will conflict with or duplicate efforts which are planned or underway.

F Project Inputs

The total cost of the project is estimated at $3,310,000. The GRP share of this is estimated at $1,810,000 in peso equivalent ($1.00 = ₱7.5) which includes $1,181,000 in peso equivalent PL 480 Title I generated funds. The grant portion of the project is $1,500,000. Thus the GRP's contribution is about 55 percent of total project costs.

1. GRP Contribution

The GRP contribution to the project includes the following: land for the site of the planned FFH-ETC (not included in PP as project costs); funds for construction of buildings and ponds at the FFH-ETC; housing, education allowance and local travel for US technical advisors and the USAID Project Manager; budget support for salaries of BFAR staff assigned to the FFH-ETC and for its operations; support for training and upgrading other BFAR extension staff capabilities; international travel for participants trained overseas; and support for extension staff in their regular field extension operations.

Land for FFH-ETC has already been obtained by BFAR under an agreement with CLSU (see Annex Q). The site is located adjacent to the FAC on the CLSU campus. It is bounded on the northerly side by a National Irrigation Authority (NIA) canal which will be the primary supply of water for the hatchery-extension training complex. Construction of the facilities at the site is expected to be initiated by January 1979;, an administration-cum-office building with classroom facilities, a hatchery building with wet-laboratory, a storage and maintenance facility, and hatchery facilities.

Funds for construction of the buildings and hatchery ponds are being provided from PL-480 Title I local currency generations. A copy of the Project Agreement (ProAg) providing ₱5,000,000 is attached as Annex S. BFAR has requested from NEDA the amount of ₱3,855,000 for additional facilities at the FFH-ETC, including staff housing.

The proposed staffing pattern and staff budget for the FFH-ETC is presented in Annex E. A total complement of about 50 is planned with about one-third of these being professional staff, another third being

assigned technical and secretarial support duties and the remainder being unskilled.

Staff mobilization is planned over a 3-year period to coincide with planned initiation and expansion of project activities. At project maturity the annual budget of the FFH-ETC will be about ₱985,000 with about 50 percent each for staff salaries and operational costs. Budget estimates requirements for BFAR are presented in Annex F.

Local currency financing in the amount of ₱662,000 to cover peso costs of housing, educational allowance, and local travel for the Participating Agency Services Agreement (PASA) Project Manager and the two long-term TAMU Technical Advisors will be provided from the Trust Fund B provided by the GRP and administered by USAID for such purposes. Additionally, approximately ₱10,000 will be provided by the GRP from Trust Fund A account for international travel costs of participants. These costs represent a further GRP contribution in support of the project. A summary of costs is provided in the Financial Plan in Part III-F.

2. AID Grant

Proceeds of the USAID grant will be allocated as follows:

Technical Support and Advisory Services	$580,000
Equipment and Furnishings	485,000
Project Management and Evaluation	230,000
Participant Training	205,000
TOTAL	$1,500,000

Further breakdown of the proposed allocation is presented in the Financial Analysis and Plan which appears in Part II-F. More specific descriptions of the project inputs and justification for their inclusion in the project follow.

a. Project Management and Evaluation - Project funds will be used to obtain the services of a Fisheries Specialist under a PASA agreement with the U.S. Fish and Wildlife Services (FWS), Department of Interior. The PASA employee will serve as the USAID Project Manager for the FFDP and in addition will devote a portion of his time to developing the proposed Artisan Fisheries-Agriculture Project which is being planned for Fiscal Year (FY) 1980 funding. He will also provide technical support to the USAID Mission and GRP on fisheries matters, perform analyses of various aspects of fisheries sector development, maintain liaison with other bilateral and multinational donor organizations and serve as a resource person to USAID on matters concerning fisheries (see Annex T). The Fisheries Specialist will be financed entirely with project funds for the first 2 years and for the first half of the third year. Thereafter, it is planned that his services will be financed under the Artisan Fisheries-Agriculture Project or from other funds which may be provided for project management beyond the third year.

A suitable candidate with knowledge of USAID procedures and first-hand experience with the Philipppine fisheries sector has been identified and exploratory discussions are being held which will facilitate early assignment of the Fisheries Specialist soon after the project is authorized.

The alternative to providing USAID project management as indicated would be to assign responsibility for the FFDP to existing staff who are already heavily committed and who lack technical knowledge in the fisheries area. Such staff would have little time to devote to USAID's other fisheries sector concerns which have been neglected because of manpower constraints.

Project funds would also be used to cover costs of the two external evaluations which are described in the Evaluation Plan (See Part IV-C).

b. Technical Support and Advisory Services - The project will provide 4 work-years of long-term technical advisory services and approximately 20 work-months of short-term advisory services. A long-term Fish Hatchery Management Advisor will be assigned early in the first year of project implementation for a period of 2 years. He will be responsible for assisting the FFH-ETC staff in organizing and installing project equipment, obtaining suitable brood stock, initiating the spawning activities and assisting with the general operation and maintenance of the hatchery facility. During his tenure he will be responsible for training his counterparts so they can manage the hatchery effectively after his departure at the end of his 2-year tour. He will also assist in organizing and will participate in presenting extension training programs and field demonstrations in hatchery management techniques.

A second long-term advisor will be assigned for 2 years at the beginning of the second year of the project. He will have primary responsibility for assisting the BFAR staff in organizing the extension training and outreach functions of the FFH-ETC. He may be called on to provide technical advice on hatchery management following the departure of the Fish Hatchery Management Advisor, but his primary counterpart relationships will be with the BFAR Extension Operations Staff at the center. He will assist and participate in organizing and conducting extension training courses and field demonstrations. He will be responsible for preparing counterparts to operate independently and effectively by the time of his departure at the end of the third year.

Up to a total of 20 work-months of short-term technical assistance will be provided as needed by contract during the 5-year project life. While plans for the deployment of the short-term staff advisory services are tentative at this time, there would be fairly heavy requirements during the first 2 years of project implementation. The following is illustrative of short-term specialists which may be required during the project.

Aquaculture economist and/or rural sociologist
Hatchery Specialist
Extension Specialist
Pond Management Specialist
Limnologist
Fish Nutritionist
Aquaculturist

Texas A & M University has already been selected to provide the Technical Advisory Services described above. Competitive procurement procedues were utilized and are described in Annex H. No further competition is contemplated and contract negotiations should begin as soon as the project is authorized although the contract for advisory services would not be signed until the USAID/GKP Project Agreement is executed. See further discussion in the Implementation Plant (Part IV-B).

c. Participant Training - The project provides for long-term training of six BFAR participants who will be assigned to the FFH-ETC. Candidates are to be identified by BFAR to fill the 12 professional positions in the staffing table of organization indicated in Annex E. Six of these will pursue long-term M.S. degree-objective programs in the U.S. in the following areas:

- Hatchery Production Methods (Fish Reproduction and Rearing)
- Pond Management (Water Quality and Limnology)
- Fish Feeding (Fish Nutrition and Physiology)
- Aquacultural Economics (Farm Management and Marketing)
- Pond Construction (Engineering and Pond Design)
- Fish Farming Extension (Aquaculture Extension Methods and Communications)

While it is anticipated that some (perhaps most) of the participants will be scheduled for training at TAMU it does not necessarily hold that all of the participants are to be enrolled there. Final determination will be based on the dandidates' level of training and experience, the suitability of alternative university programs for the respective participants and recommendations of the TAMU advisory staff and BFAR.

Intermediate-term training programs will be developed for six other Aquaculturists assigned to the professional staff of the FFH-ETC. Tentatively it is proposed that specially tailored programs shall be developed having a duration of about 4 months. These might include, attendance at short-courses in the U.S. (for example at Auburn University or at the U.S. FWS Training Center in Leesburg, West Virginia). Other observation and training might be scheduled at TAMU, Stuttgart, Arkansas, or another suitable location. Final determination of requirements for these intermediate term training programs will be based on the recommencations of the TAMU advisors and the GRP thru BFAR.

Additionally, the project provides for intermediate-term training for the Hatchery Manager Officer and/or Extension Operations Officer. This training is discretionary, dependent on the qualifications of the individuals assigned to those positions. The duration of such training could be for up to 5 months although it could vary depending on needs and funding availability. A semester at the University of Wisconsin, or the University of Missouri, Graduate Extension Training Program will be considered for the Extension Operations Officer.

Other courses in administration and management might also be appropriate. Again, the TAMU advisor's and BFAR's recommendations should be considered in formulating these training plans.

d. Commodities and Furnishings - A detailed list of equipment with tentative cost estimates is found in Annex G. These are self-explanatory and generally fall into the following categories:

1. Vehicles
2. Office Equipment
3. Maintenance and Shop Equipment
4. Hatchery Equipment and Supplies (including pumps, hoses, etc.)
5. Training Equipment and Supplies

Vehicles to be procured for the project includes the following:

Vehicles	No.
Jeeps or suitable vehicles	7
Pick-up truck	2
Truck w/Tank	4
Motorcycle	15
Carryall	1
Tractor	2

Six of the jeeps or suitable vehicles will be assigned to the following FFH-ETC staff:

Officer-in-charge	1
Extension Operations Officer	1
Aquaculturists (Fish-Farming Extension)	4

The remaining jeep or suitable vehicle will be assigned to the BFAR Region III Fisheries Extension Division Chief to permit him to carry out more effective supervision of the BFAR Regional Freshwater Fisheries Extension agents who will be operating in the six-province region.

The two pick-up trucks will be under the control of the Hatchery Management Officer for use in support of fingerling production activities. The trucks with fish delivery tanks will be under control of the Extension Operations Officer for the delivery and distribution of fingerlings in accord with recommendations and requirements of provincial extension officers. The carryall will be assigned to the TAMU project advisors for official use only. On their departure the vehicle will be transferred to BFAR.

The 15 motorcycles are for the use of provincial extension agents in the six provincial areas. Rather than assign these motorcycles to the regional extension office and thereafter to extension agents where their utilization for project purposes may be difficult to monitor, control of these motorcycles will remain with the FFH-ETC

OIC. The motorcycles would be "loaned" to provincial extension agents but they could be withdrawn and reassigned if the agents were not effective or if they were being diverted to other primary uses. Provisions for repair and maintenance will also be maintained at the FFH-ETC. Further details as to how this aspect will be implemented is described in Part IV-B.

Because motorcycles of the type envisioned for the project are not manufactured in the U.S. a waiver of source and origin requirements will be sought to permit timely procurement from non U.S. sources (see Annex P).

Maintenance experience with vehicles and motorcycle equipment in the Philippines generally has been good. Spare parts are readily available and skilled mechanics are extant throughout most of the country. USAID does not regard maintenance of the vehicle fleet to be a serious problem.

Procurement of most of the equipment and furnishings listed in Annex G will be handled by TAMU in their technical support role. U.S. excess property items that are available, useable and cost effective will be procured by USAID.

The cost estimates indicated in the equipment list are the best estimates available at the present time.

A contingency item is included in the equipment budget to cover acquisition of equipment and materials not anticipated at this time or to meet cost overruns above those now estimated. A reserve to cover shipping and transportation costs is also included.

G. Project Outputs and Targets

Quantitative estimates of project outputs and targets are presented in Table 1. These estimates are based on the assumption that project inputs--both GRP and USAID will be available as indicated and that project implementation will be completed as scheduled. Normal weather and the absence of major natural catastrophes or social upheavals are assumed. Input/Output response ratios are considered conservative and well within the achievement range of the project.

While it is expected that there will be some significant spill-over effects to other provinces in the country, the output targets are applicable only to the Central Luzon area.

TABLE 1

Estimated Project Outputs and Targets

	Year 1	Year 2	Year 3	Year 4	Total
BFAR Professional Staff Trained and in Place	4	10	16	16	16
Field Extension Agents Trained Per Year	-	12	16	16	16
Aggregate	-	12	28	44	60
Farmer-Aquaculturists Trained Per Year	-	-	20	40	40
Aggregate	-	-	20	60	100
Rice-Fish Demonstration Plots Established	-	24	60	90	120
Small Farmer Demonstration Hatcheries Established	-	3	6	12	24
Intensive Pond Culture Demonstrations Established	-	3	6	24	36
Fingerlings Produced at BFAR Hatchery (000)	-	8,000	12,000	16,000	20,000
Commercial Hatcheries Established Per Year	-	-	4	4	4
Aggregate	-	-	4	8	12
Fingerlings Produced at Commercial Hatcheries (000)	-	-	4,000	10,000	20,000
Small Farmer Hatcheries Established Per Year	-	-	10	20	30
Aggregate	-	-	10	30	60
Fingerlings Produced at Small Farmer Hatcheries (000)	-	-	3,000	10,000	20,000
Total Fingerlings Produced - All Sources	-	8,000	19,000	36,000	60,000
Hectares under Rice-Fish Polyculture System, 1 to 2 crops/year	-	1,200	2,800	5,400	9,000
Fish Produced @ 150 kg/ha (MT)[1/]	-	180	420	810	1,350
No. farm families engaged in rice-fish production	-	600	1,400	2,700	4,500
Hectares under Intensive Pond Culture	-	100	250	450	750
Fish produced @ 2,450 kg/ha (MT)	-	245	612	1,102	1,837
Farm Families Engaged in intensive pond culture 1/4 ha pond/farm	-	400	1,000	1,800	3,000
Total number of families engaged in fish production	-	1,000	2,400	4,500	7,500
Total fish produced (MT)	-	425	1,032	1,912	3,187

1/ MT = Metric Ton = 2,200 Pounds

H. End of Project Status

By the end of the fifth year of the project the following conditions are expected:

1. The FFH-ETC will be fully established as a going concern with professional capabilities of providing the extension linkage between researchers and field extension agents.

2. An effective system to provide information and technical assistance to farmers on freshwater fish production technology will be in place.

3. Central Luzon should have an established capacity to produce 60 million fingerlings annually and be poised to further increase this "seed production industry" to meet expected increases in the demand for seed stock.

4. Annual fish production should have increased by an estimated 3,187 metric tons and with further prospect for rapid growth during the following decade.

5. Some 7,500 low-income rural families will enjoy more nutritious diets and higher incomes.

Part III. PROJECT ANALYSIS

A. Technical Feasibility

1. State of the Art

A variety of species of wild fish grow in rice fields and in associated irrigation and drainage canals. Traditionally rice farmers around the world have encouraged the growth of these wild species as well as that of selected varieties stocked in the rice paddies and have benefited by harvesting a supplemental crop of fish with much needed protein and a highly desirable amino acid content. In the Philippines this practice has been encouraged and, as elsewhere, has been the topic of considerable research and development activity.

However, with the development of the first generation of "hard" insecticides and their widespread use to control rice pests, rice-fish culture received a serious setback. The pesticides were highly toxic to fish and fish culture in rice paddies was virtually eliminated. In recent years two important developments have taken place: (1) improved pest and disease resistant strains of rice have been developed by IRRI and are in wide use in the Philippines, and (2) more specific pesticides are now available which are much less toxic to fish and which, when applied at prescribed rates and times, can be harmless to fish. Expanded use of an old practice is once again possible and rice-fish culture is again gaining rapid acceptance by Filipino farmers.

2. Production Methodology for Rice-Fish Polyculture System

Methodology for rice-fish production practice with tilapia and carp has been refined recently [illegible] through the USAID/GRP APP. Generally, the procedures followed are [illegible] recommended by the GRP Ministry of Agriculture under the Masagana [illegible] Rice Farming Program. Special procedures developed for use in the Philippines involve the construction of a 1.0 x 0.5 meter (m) trench down the middle of the rice paddy, stocking at a rate of 5,000 tilapia, or 1,000 carp plus 4,000 tilapia per ha, maintaining water on the rice at a 10-20 centimeters (cm) depth, screening the water inlet and outlet to prevent loss or introduction of fish, following given fertilizer, herbicide and pesticide application procedures, and drawing water down to concentrate fish in the trench for harvest. No feeding of the fish is required. A dike slightly higher than that normally used to grow rice is needed to maintain the desired water depth.

Carbofuran can be used for control of insects either by applying it in the soil 7 days prior to stocking fish or applied as a spray, and 2, 4-D can be used for weed control without injury to the fish. Normal fertilization practices are acceptable, and in fact is beneficial to fish production except that acid-forming fertilizers such as ammonium sulfate cannot be used safely. Fish reared in rice paddies following these procedures have been shown to be free of carbofuran. In instances should arise when use of more toxic pesti-

cides is essential, fish can be concentrated in the center trench and removed from the pond temporarily.

It has been demonstrated that this practice will not reduce rice production from a paddy and that yields of 150 kg/ha of fish can be expected from each 120-day growing season.

A task force composed of representatives from six GRP agencies recently completed a field evaluation of rice-fish in the Philippines. Based on the results of 19 field trials in 14 provinces the task force concluded that rice-fish culture is technically and economically feasible. Yields from these trials averaged 204 kg/ha/crop of fish; adding a net value of ₱577/ha/crop. Yields of rice from paddies used in the field trials were not reduced.

The potential application of this production technology in the Philippines is very large. In Central Luzon alone there are 325,000 hectares of irrigated rice paddies suitable for producing two or more crops of rice-fish per year. In the country as a whole more than a million hectares are potentially available for rice-fish production. Integration of fish culture and rice farming does not require major changes in rice production practices, farmers are expressing strong interest in the technology and extension to the farm community will not pose major difficulties. Irrigation systems are adequate to supply water needed since little if any additional water will be required above that presently used for rice production. Labor is not a constraint because labor requirements are low and timing of fish stocking and harvesting is not critical. Broad application of this technology both in Central Luzon and in other rice-producing regions can be anticipated in the future.

3. Requirements for Finger

The major constraint limiting rice-fish farming is the lack of fingerlings for stocking. Very few fingerlings are presently available to farmers. Currently there are only about 15 active rice-fish farmers in the provinces of Pampanga and Nueva Ecija, for example. The new hatchery together with planned extension activities to develop new hatcheries can be expected to generate an annual production of 60 million tilapia and carp fingerlings of suitable size for stocking by the end of the project. It should be emphasized that a strong extension program will be required to reach this goal. Anticipated sources of these fingerlings are as follows:

BFAR FTH-ETC at CLSU	20,000,000/yr
Private Commercial Hatcheries (Managers trained in new extension program)	20,000,000/yr
Small Farmer Hatcheries	20,000,000/yr
TOTAL	60,000,000/yr.

In addition, by the end of the project the groundwork will have been laid for rapid future expansion of private hatcheries supported by a strong BFAR training and extension program. These hatcheries will be expected to produce the greatest part of the fingerlings required by the Philippine aquaculture industry in future years. Further, tilapia fingerlings can be produced by farmers with little extra effort because the tilapia will probably breed and spawn once during a single rice growing season. The farmer then has only to separate the very small fingerlings from the harvested fish; rear them to a suitable stocking size in a small pond or paddy (this will require holding for perhaps 30 days); and restock when a new rice crop is started.

In addition to the fingerlings required for rice-fish culture a second demand of substantial proportion for fingerlings has been identified, that for intensive freshwater pond culture, for integrated livestock-fish farming and for high-density cage culture in natural waters. These forms of aquaculture are well adapted to the Philippine environment and are presently in use in several areas. Research underway at CLSU may lead to rapid development of livestock-fish culture, thus contributing further to the demand for fingerlings.

If it is assumed that the 60 million fingerlings being produced a year by the end of this project are sold to rice-fish farmers and intensive fish farmers on a ratio of 3 to 1 respectively, the following annual aquaculture production can be expected:

Farming Method	No. Fingerlings	Hectares	Production
Rice-Fish	45,000,000	9,000	1,350 tons
Intensive-Aquaculture	15,000,000	750	1,837 tons
TOTAL	60,000,000	9,750	3,187 tons

4. Relationship of FFDP to Technology and Extension Needs

Because of time lags in construction and training of hatchery and extension personnel, and because of the time required for government personnel, farmers and private hatchery operators to gain technical and managerial competence, only a small portion of the project impact will have been realized by the end of the fifth year. While it is difficult to make accurate projections, it is reasonable to assume that groundwork will have been laid during the project life which will permit steady expansion of aquacultural production with GRP management and inputs.

The technology to be used in the hatchery for tilapia and carp production is well known and will require no adaptive research. Standard methods will be used for holding broodstock, spawning, incubating and hatching eggs and rearing fry and fingerlings. Training of BFAR staff on up-to-date hatchery species are considered routine and technical problems will not be constraints. Training will be achieved

through short-and long-term training abroad and through courses presented at the FFH-ETC by both Filipino and foreign experts. It is expected that the hatchery staff will gain in proficiency with time and resulting refinements in procedures will lead to increased production from the facility. Development of the staff's technical skills will permit production of additional species in the future if that is deemed desirable. The hatchery and hatchery staff will not be involved in research. CLSU's FAC adjacent to the hatchery will be cooperating closely with BFAR's FFH-ETC. BFAR has agreed to supply CLSU with fingerlings required for their research projects. CLSU research will be directly applicable to BFAR and fish farmer needs.

The extension activities will likewise require training and development of personnel but will utilize existing extension methodology and techniques. Initial training of extension personnel will include short-term training of key people overseas and participation of all personnel in intensive courses at the center. Both extension methods and philosophy and aquaculture methods will be taught in these courses and U.S. technical assistance will be provided to strengthen course content. Following initial training, regularly scheduled short courses and interaction with both FFH-ETC and outside advisors will be used to maintain and upgrade extension practices. Farmers and private hatchery operators will "grow" in technical competence and increase the level of sophistication of their operations with time, with continual assistance from the extension arm of the FFH-ETC.

B. Economic Analysis

1. Enterprise Feasibility

A key factor as to whether the project will be successful is whether farmers will respond to the new technology. Economic feasibility is a necessary condition. Of particular importance in this project is whether the rice-fish culture system will be profitable since rice-fish farmers are the primary targeted beneficiaries of the project. Comparative analyses of unit budgets presented in Annex J-1 indicates that rice-fish culture will return from 30% to 100% of the marginal production costs incurred by the rice-fish polyculture system.

Another important consideration is the economic feasibility of small farmer hatcheries. Can farmers be induced to shift land out of rice production and forego income from two rice crops per year? The analysis presented in Annex J-2 indicates that a small hatchery capable of producing 3 to 4 million fingerlings annually would return ₱5,190 compared with about ₱1,850 if the same area were used to produce two crops of rice per year. We believe that this return will be an attractive inducement to many farmers to establish small hatchery operations.

The third economic consideration is that of intensive fish culture, either in [illegible] or in cages in natural waters. Demonstration

projects in the Philippines and elsewhere have repeatedly demonstrated the profitability of intensive fish farming, integrated livestock-fish husbandry and in fewer cases of pen culture of freshwater fish. As indicated in the Philippine Position Paper presented at the 1976 FAO Regional Conference for Asia and the Far East, two major constraints to widespread adoption of existing technology are the lack of fry for stocking, and the shortage of technical assistance for training. Because these culture systems require feed inputs and more careful management, greater technical capabilities are needed.

Present average production of 2.4 MT/ha is not a high level of production based on practical demonstrations of this technology. Nevertheless, this level of production can provide a gross income of ₱16,800/ha (@₱7/kg) with relatively low capital costs and inexpensive inputs in terms of labor and feeds.

The highest production costs in terms of both capital investments and feeds are incurred in cage culture. Experimentation at CLSU with $1m^3$ cages has led to the conclusion that a farmer can expect a gross income of ₱350/cage every 2 months with costs of about ₱250/cage. A farmer managing 10 such cages (costing ₱400 to ₱700) can expect a net income of ₱3,000/year with a small labor input.

Specific financial analyses for these forms of culture are not attempted here because good data are lacking for this setting and because the practices are clearly profitable when good methodology is applied. Based on broad experience throughout Asia it is likely that intensive fish farming will be the most profitable of the enterprises promoted by the FFH-ETC. The fish species (tilapia and carp) are usually efficient ones, climate is ideal, feed (rice bran and millings) is readily available and markets are strong.

2. Cost/Benefits

Included as project costs in Table 2 are all quantifiable GRP and USAID inputs into the project. The USAID costs include 30 work-months (WM) of project management and sector support, 48 WM of long-term technical support and advisory services; 20 WM of short-term technical advisory services; 120 WM of long-term participant training and 31 WM of short-term participant training; commodities; and project evaluation (Annex K).

Benefits shown in Table 2 are only the value of fish produced from rice-fish polyculture as a result of the project. It is expected that benefits (fish production) from intensive culture either in ponds or in cages in natural waters, integrated livestock-fish husbandry, and small-scale hatcheries will occur as a result of the project. These production systems are technically and economically feasible. However, these expected benefits were not considered because adequate data are not available and because primary emphasis is to be placed upon rice-fish polyculture in order that benefits will reach the greatest number of low income farm families.

The internal rate of return (IRR) on the project investment is 13.5% when benefits from rice-fish polyculture alone are examined (Table 2). This indicates ample economic justification for the project.

3. Aggregate Supply and Demand and Market Capacity[1]

The total supply of fish being produced in the Central Luzon Region is about 75,000 MT/year. This is almost entirely from brackishwater production of milkfish and other species and from small-scale municipal fisheries which are consumed in the region indicating net imports of about 7,000 MT. With continuing population and income growth expected over the next several years the demand for fish is also expected to increase. For the Philippines as a whole the demand for fish is expected to grow at a rate of about 4%/year. Thus by the 1990's it would not be unreasonable to expect aggregate regional demand for Central Luzon to reach 130,000 to 140,000 MT/year. While some increases in supply from municipal (coastal marine) fisheries and brackishwater culture operations may be expected it is not likely that these sources can begin to meet this rapid increase in demand. Fish prices would be expected to remain strong and exert a positive influence on fish production from freshwater sources.

The market system appears to be well adapted and responsive to increased supplies. The market structure is characterized by few middlemen and market intermediaries. Most fish producers sell directly to retailers. Most retailers are small operators and entry and exit in the market appears to be fairly open. Average daily sales per retailer are in the 30 to 40 kg range indicating that retailers could probably increase their daily trade significantly without making major investments. With the relatively open market structure and few constraints on entry, it is concluded that marketing of fish would not be a major constraint on production in the forseeable future.

With the fish species to be cultured crops can be stored temporarily in small ponds or harvesting can be postponed to avoid periods of market glut. Delivery from production ponds or from holding ponds or tanks can be made in small batches to correspond with local daily demand.

1/ This section draws on data presented in McCoy E., et. al. "Fish Marketing in Central Luzon, Philippines, A Study of Existing Demand and Supply 1978." Most data are for 1976 but the levels are believed to be a reasonable approximation of current situation.

Table 2. Preliminary Social Cost/Benefit Analysis of Project on Basis of Rice-Fish Polyculture System Alone

Year	Project Costs ($000) U.S. Grant Costs	GRP Costs	Total Project Costs	Project Benefits Tons of Fish Produced 1/	Value ($000) @$600/ton 2/	Net Benefits ($000)
1	735	1,283	2,018	-	-	- 2,018
2	482	136	618	180	108	- 510
3	184	141	325	420	252	- 73
4	36	123	159	810	486	327
5	63	140	203	1,350	810	607
6	-	131	131	1,500	900	769
7	-	131	131	1,650	990	859
8	-	131	131	1,800	1,080	949
9	-	131	131	1,950	1,170	1,039
10	-	131	131	2,100	1,260	1,129

IRR = 13.5%

1/ Projections for Years 1-5 taken from Table 1. Projections for Years 6-10 are based upon estimates of supplies and resources available for rice-fish farming under the Project.

2/ Price derived on following basis: weighted average price per ton delivered to local markets $710 less variable production costs - $70 ton (see table Annex J-1); and, an amount of $40/ton to cover off-farm marketing expenses and losses.

4. Income Effects

The gross annual output of 3,200 MT from rice-fish polyculture plus intensive pond culture by the end of this project (year 5) will result in a ₱16,000,000 (₱5/kg) annual aggregate additions to income. The gross output of 1350 MT from rice-fish polyculture alone by the end of this project will result in a ₱6,750,000 annual aggregate addition to income.

Effects on employment will include 50 professional and unskilled workers at the FFH-ETC, and fuller utilization of the talents of existing and new field extension agents. These effects are minor; however, in comparison to rural employment effects. The overall impact including large and small private hatcheries, rice-fish culture and intensive aquaculture will be increased employment opportunities and fuller utilization of labor resources of at least 7,500 families (perhaps 35,000 people since children can assist with feeding, etc.) during the life of the project. While it is difficult to speculate regarding effects beyond the life of the project, it is expected that existing demand and resource availability will result in a "snowballing effect" once the technology is in general use. Effects several times those outlined above will be expected within 5 years after project termination.

Additional secondary labor requirements will be generated by inputs (fertilizer, feed, nets, transportation and supplies) and outputs (wholesaling, processing, retailing, ice, transportation).

C. Institutional Considerations

There are no known modifications to Philippine laws, rules, or regulations that are required to make the project a success. The relevant GRP agencies which will be involved in the project will be operating within their respective authorities. No specific requirements for government policy changes are necessary.

Adequate credit resources to permit farmers to adopt the rice-fish production technology are available and fish farming is considered a legitimate enterprise for credit financing.

Government policies with respect to use of pesticides or agricultural chemicals (or the absence thereof) will not restrict the achievement of production targets under the assured technology.

D. Social Soundness Analysis

1. Responsiveness to Change

There has been little or no research performed to determine the social changes likely to occur during and following a relatively large-scale program of integrating rice-fish production at the small farmer level. However, an examination of existing information relative to Filipino rice farmers, their farming practices, their available resources, and

their attitudes and responsiveness to change indicates no adverse social effects that would prevent the FFDP from being a success. It appears highly likely that many rice farmers will adopt rice-fish culture if fish seedlings are available, a strong extension program is developed, the farmers are kept informed on rice-fish technology, and if economic feasibility of the technology continues as expected. The net results of adoption of rice-fish culture will be increased incomes and overall improvement in the life standard of the participating farmer and his family.

The GRP Agrarian Reform Program, has been successful in making it possible for many rice farmers to become land owners and/or lease-holders and to become entitled to full benefits of their productive inputs. Land ownership has motivated the small rice farmers to adopt improved and profitable farm practices. The Masagana 99 program, and other beneficiary participant programs and services have been developed to assist farmers and to provide incentives for farmers to adopt new practices that will lead to improved socio-economic conditions and general well-being for his family. These services and programs and the desire by rice farmers to seek to improve the quality of their life standards have led to rice production increases in the Philippines such that the country exported rice in 1977 and 1978. Since systems and services for assisting rice farmers are already functional and rice farmers as a group have demonstrated their ability and willingness to accept beneficial change, it is likely that they are willing to continue to adopt new technology that is culturally acceptable and economically feasible.

There is strong evidence to suggest that Filipino rice farmers are willing to adopt the practice of growing fish cum rice. Several hundred rice farmers visit the FAC each year to observe and inquire about rice-fish techno... Many farmers have made reques's to BFAR and CLSU for fish ... s to grow in paddies with rice. Requests for fish seedlings ... rice farmers have greatly exceeded the available supply. The recent nationwide field tests of rice-fish culture stimulated widespread interest by rice farmers. The FFDP will help satisfy existing demand for fish seedlings and strengthen extension capabilities. The project will fulfill the basic needs for a substantial and successful rice-fish program in Central Luzon.

2. Profile of the Target Beneficiary[1/]

The following features generally characteri... rice farmer families (1975) in Central Luzon toward which this project is directed:

1/ Information based ...marily on: Valiente, A.M. Jr., et. al. "Social-Economic Study of Families in Licab, Nueva Ecija," July 1976.

- The average size of farm is about 2.8 hectares.

- The typical crop grown is palay (rice) about one-third of which is sold on the market.

- Average money income per farm family is about $525/year.

- The average family size in Central Luzon is 7.3.

- A typical house is one room, single story and made of wood and sheets of tin.

- Most homes are located less than 5 km from an an improved road.

- Most men and women have finished grade school (69%) and read and write English and Pilipino.

- About 72% of the farmers are leases and 11% are owners; about 17% are part-owner, lease-tenants, or share-tenants.

- A typical farmer has access to credit. The rural bank is his major source of credit.

- Typical farm livestock inventory includes a carabao (or access to one), a pig and a few chickens.

While obviously there will be some variance around these norms the typical small farmer in Central Luzon is clearly a suitable target beneficiary in consonance with AID's "New Directions Philosophy" and concerns for basic human needs.

3. Nutrition Impact

Filipinos have practiced fishfarming for centuries and fish is readily acceptable as a diet item. While most of the fish production in the past has been from brackishwater or marine species, the tilapia and carp species which will be produced as a result of this project are also readily acceptable.

Fish ranks second as a source of protein, after rice which is primarily an energy carbohydrate, for the entire Filipino population. Per capita availability and consumption of fish in the inland provinces of Central Luzon are among the lowest in the country. The average per capita fish consumption in the six provinces is 18.9 kg--well below the goal of 34 kg per capita which is the GRP's nutrition target.

The production increases generated by this project are expected to lead to improved nutrition on the part of farm families who are growing fish for their own use and will result in increased money incomes from the sale of fish which are surplus to the family's consumption needs.

If those farm families producing fish in combination with rice consume one-third (450 MT) of their production on the farm and market the remaining two-thirds, 900 MT of fish will be available for consumers by the end of the fifth year. Assuming further that about 95 percent of the production from farmers engaged in intensive fish production is marketed commercially (1,750 MT) the total increase would be 2,650 MT.

Taken as an average across Central Luzon these increases in fish production generated in the fifth year would raise per capita availability by about 0.75 kg and augment total fish availability by about 4 percent. The growth potential for the decade beyond would be of much greater significance.

4. The Role of Women

This project is clearly responsive to USAID's concerns for women as both beneficiaries and agents of change. Approximately 55 percent of the BFAR extension agents are women. They participate at all levels of the government decision process and are well placed in administration and professional positions with management responsibility. They are considered to be highly effective field extension agents because they relate well to the farm decision makers who are also women.

There is no need to design the project with a special bias toward women, for in the Filipino social-cultural milieu they already are significant contributors to the development process.

It is expected that a number of the professional staff at the FFH-ETC will be women although at this time incumbents have not been assigned against the staffing pattern. Student enrollment in university Fisheries programs is composed of about 60% women.

E. GRP Administrative and Organizational Capabilities

1. Introduction

The National Economic and Development Authority (NEDA) will represent the GRP as the recipient of the grant and monitor the proper application of the grant funds. NEDA has clearly demonstrated its capabilities to perform these functions effectively.

The BFAR of the Ministry of Natural Resources (MNR) will serve as the GRP agency responsible for project implementation and will provide the GRP counterpart financial and manpower requirements for operations of the FFH-ETC through the normal GRP budgetary allocation process. The project will assist in improving the administrative capabilities of the relatively new Extension Division of the BFAR by upgrading the administrative, leadership and technical skills of personnel who play key roles in the project. Part of this assistance will be provided during the first 2 years of the project and will augment the managerial skills of extension workers, journeyman professional

staff, and administrative and management personnel. It is the opinion of USAID that strong guidance and assistance from the highest echelon of BFAR supplemented by training and advisory services provided by the project will strengthen substantially the capabilities to implement and manage the project to its completion and to sustain activities at the FFH-ETC in the future.

2. GRP Organization and Capabilities

The MNR is the parent Ministry for the Fishery Industry Development Council (FIDC), the Philippine Fish Market Authority (PFMA), the Bureau of Mines, the Bureau of Forestry Development and the Bureau of Lands as well as for BFAR. It was formed from the former Department of Agriculture and Natural Resources in 1973. A high level of interaction occurs between the MNR and the BFAR.

The BFAR is responsible for regulation and supervision of the production and capture of fishery products, operation of fishery extension services and training manpower for this service, and collection of certain fishery statistics.

Over 3,000 people are employed in the agency which is organized on the basis of 12 functional Divisions and is further subdivided into 13 regional offices. Special projects are under the direct supervision of the BFAR Director. The FFDP will be considered a special project and will be administered through the Director's Office by the Chief of the BFAR Extension Division. All FFH-ETC personnel will be employees of the BFAR Extension Division. In 1975 BFAR received a significant increase in its budget allocation for the purpose of strengthening its extension activities. Follow-up support appears to be adequate.

The current Director of BFAR has served in that position for 5 years and has a number of years previous experience in the organization. He is trained as a fisheries scientist and respected both within his organization and internationally. BFAR has successfully implemented UNDP/FAO projects as well as other large development projects. BFAR clearly has the legal authority to carry out this project. Provisions within BFAR's operational format for incentives to extension workers are sufficient to insure that they can attract, motivate and hold qualified extension personnel. Project activities will fit well with the goals and plans of BFAR and have been endorsed as being relevant and important by both the leadership of BFAR and by Extension Division.

The Extension Division of BFAR has 620 employees of which 12 are in the Central Office, 304 are assigned to marine fisheries, 100 to fish processing and about 200 to aquaculture. Most of the 200 assigned to aquaculture are involved with milkfish farming, and only a few currently devote much time to freshwater aquaculture activities. Plans call for the addition of 232 new extension personnel to this Division by 1982. While numbers of extension personnel are considred adequate, much needs to be done to improve the technical capabilities

especially of field agents, many of whom have been trained only in polytechnic schools.

Shortcomings of the BFAR Extension Division other than lack of well trained personnel have been their inability to collect baseline data and lack of viable programs to carry to farmers. The linkage between the research community and extension is weak. A committee reviewing the research-extension linkage of the APP in July 1977 concluded that coordination with the BFAR Extension Division and GRP commitment to the project were inadequate. Positive steps have been taken by BFAR and the research centers to improve research-extension linkages since the review. Location of the FFH-ETC near the FAC should improve this linkage with respect to freshwater fisheries extension. The coordination of regional priorities and national fisheries extension priorities is sometimes difficult due to unclear lines of authority between field extension workers and headquarters. Communication between the Central Office and the field is sometimes inadequate.

In spite of these shortcomings the BFAR is, in USAID's opinion, capable of carrying out the project with the training and technical assistance provided for in this paper. Furthermore, the commitment by BFAR appears adequate to insure continuation of extension and hatchery functions and consequently the continual expansion of rice-fish and other forms of freshwater aquaculture after termination of USAID support.

3. Interaction with Other Philippine Agencies

Activities of other agencies working on freshwater fishery problems which may relate to project are as follows:

(a) CLSU's FAC is [illegible] the CLSU campus, Munoz, Nueva Ecija adjacent to the si[illegible] the FFH-ETC. This research center was established and developed with USAID assistance over the past 8 years. It has a small but capable staff engaged in research oriented toward increasing freshwater aquaculture production. The CLSU staff has the technical capacity to support in part, some training of BFAR hatchery and extension personnel and will continue to conduct research on problems encountered at the FFH-ETC. While they are research oriented they are expected to carry out a backstopping role for the FFH-ETC when unusual problems arise.

(b) The SEAFDEC Aquaculture Department has a large research facility at Tigbauan, Iloilo. Research work there is related primarily to reproduction of shrimp and milkfish. Plans have been developed for a freshwater station on Laguna de Bay. However, since SEAFDEC is primarily an international organization with a strong research interest its activities will not likely include teaching and distribution of freshwater fishes to farmers in the Philippines and no duplication of efforts with the FFH-ETC [illegible]

(c) A FAO/UNDP project is currently underway which will develop four brackishwater extension centers including demonstration farms. The objectives parallel those of the FFDP, but activities of that assistance effort are oriented entirely toward brackishwater fish production and will not overlap with the freshwater hatchery proposed here.

(d) The University of the Philippines, College of Fishries (UPCF), has plans to expand and strengthen their capabilities and thereby train an increased number of better qualified fisheries graduates. The International Bank for Rural Development (IBRD) is considering assistance to this effort but plans are not yet well defined. Both present and proposed educational activities at UPCF will be valuable in supplying university trained fisheries personnel needed so badly by the fishery industry, and by government agencies.

Additional activities within BFAR also will be related to the FFH-ETC. BFAR conducts marketing studies and promotes the utilization of fishery products through brochures and the communication media. Most of this effort is presently oriented toward encouraging use of marine and brackishwater species. Under the USAID-assisted APP an extension program was successfully established in BFAR to serve fish farmers (primarily brackishwater) in Region V (Bicol) and Region VI (Panay Island). The program is functioning well and has also resulted in the placement of two extension workers at CLSU to initiate freshwater fisheries extension activities in Region III.

The activities outlined above are all complementary to the FFDP plans. Close coordination and open communication will be needed; however, present working relationships are good among these groups.

F. Financial Analysis and Plan

Financial requirements for the project are presented in Table 3 and Table 4, and in Annexes F and K. It is assumed that housing costs for the technical support and advisory services shown in Table 3 will have to be reimbursed to CLSU for use of staff housing and utilities. BFAR proposes to build and furnish project housing at CLSU which when completed will eliminate the need for housing rental costs for the project advisors but it is assumed that peso for utilities would still be required

Annual requirements in the Financial Plan are presented in terms of the "project implementation year" which will not necessarily coincide with USAID's FY. Table 4 gives estimates of obligation requirements by fiscal year and financial requirement by project year. While some flexibility may be anticipated and some obligations can be deferred it is expected that major commitments for Technical Advisory Services, Participant Training and Commodities will need to be marked early in the project life; thus about one-fourth of the dollar grant obligations are scheduled for FY 79 and the balance in FY 80.

TABLE 3

Financial Plan

Estimated Dollar Requirements ($000)

	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Project Management and Evaluation						(230)
Project Management (30 months)	77	81	42	-	-	200
Project Evaluation	-	15	-	-	-	30
Technical Advisory Services						(560)
Long term (48 months)	50	160	110	-	-	320
Short term (20 months)	70	40	20	30	40	200
On-Call Services (60 months)	19	15	12	6	8	60
Participant Training						(205)
Long term (122 months)	72	61	-	-	-	133
Intermediate term (31 months)	72	-	-	-	-	72
Equipment and Furnishings	375	110	-	-	-	(485)
Total	735	482	184	36	63	$1,500

Peso Requirements from Trust Fund B (₱000)[1/]

	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Project Manager						
Housing	60	60	30	-	-	150
Utilities	30	30	15	-	-	75
Local Travel Costs	10	10	5	-	-	25
Technical Support and Advisory Services						
Housing Rental	40	60	20	-	-	120
Utilities	20	60	40	-	-	120
Local Travel Costs[2/]	18	37	31	-	-	86
Vehicle O & M	7	10	29	-	-	26
Educational Allowance	10	30	20	-	-	60
Total	195	297	170	-	-	₱662

1/ Excludes Capital Expenditures, Trust Fund A Account (International Travel for Participants) and Peso Requirements by BFAR for Operational Costs (see Annex K-2).

2/ Includes salary and per diems for driver.

(c) A FAO/UNDP project is currently underway which will develop four brackishwater extension centers including demonstration farms. The objectives parallel those of the FFDP, but activities of that assistance effort are oriented entirely toward brackishwater fish production and will not overlap with the freshwater hatchery proposed here.

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[illegible] months)	70	40	20	30	40	200
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Long term (122 months)	72	61	-	-	-	133
Intermediate term (31 months)	72	-	-	-	-	72
Equipment and Furnishings	375	110	-	-	-	(485)
Total	735	482	184	36	63	$1,500

Peso Requirements from Trust Fund B (₱000)[1/]

	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Project Manager						
Housing	60	60	30	-	-	150
Utilities	30	30	15	-	-	75
Local Travel Costs	10	10	5	-	-	25
Technical Support and Advisory Services						
Housing Rental	40	60	20	-	-	120
Utilities	20	60	40	-	-	120
Local Travel Costs[2/]	18	37	31	-	-	86
Vehicle O & M	7	10	19	-	-	36
Educational Allowance	10	30	20	-	-	60
Total	195	297	170	-	-	₱662

1/ Excludes Capital Expenditures, Trust Fund A Account (International Travel for Participants) and Peso Requirements by BFAR for Operational Costs (see Annex K-2).

2/ Includes salary and per diems for driver.

TABLE 4

Annual Financial Requirements and Proposed Obligation Schedule
($ and ₱ in 000)

Implementation Year		Year 1	Year 2	Year 3	Year 4	Year 5	Total
Financial Requirements (Expenditures)	US	$ 735	$ 482	$ 184	$ 36	$ 63	$1,500
	GRP[1/]	₱ 195	₱ 297	₱ 170	-	-	₱ 662
	GRP[2/]	₱ 405	₱ 725	₱ 845	₱ 885	₱ 985	₱3,845
	GRP[3/]	₱8,855	-	-	-	-	₱8,855
	GRP[4/]	₱ 55	-	₱ 45	-	-	₱ 210

Fiscal Year (Oct. 1-Sept. 30)		FY 79	FY 80	FY 81	FY 82	FY 83		
Obligation Schedule	US	$ 400	$1,100	-	-	-	-	$1,500
	GRP[1/]	₱ 143	₱ 222	₱ 218	₱ 79	-	-	₱ 662
	GRP[2/]	₱ 305	₱ 640	₱ 805	₱ 860	₱ 950	₱285	₱3,845
	GRP[3/]	₱8,855	-	-	-	-	-	₱8,855
	GRP[4/]	₱ 210	-	-	-	-	-	₱ 210

1/ GRP Peso requirement from Trust Fund B for Housing and Local Travel for Technical Advisors and Project Manager and Educational Allowance for Technical Advisors.

2/ BFAR Peso requirement for project operations.

3/ GRP PL-480 Title I funds for construction of FFH-ETC and Housing. ₱5 million was obligated in FY 78

4/ GRP Peso requirement from Trust Fund A Account for International Travel for participants.

GRP financial requirements and budget estimates have been discussed in Part II-F.1 and details appear in Annexes E, F and K.

A summary of project costs for the five year life follows:

1. GRP Contribution

a.	Construction of the FFH-ETC and two housing units	₱ 8,855,000 (P.L. 480 Title I)
b.	Annual Operating Costs of FFH-ETC (5 years)	₱ 3,845,000 (BFAR Budget)
c.	Housing, local travel and Educational Allowances U.S. Advisors and Project Manager	₱ 662,000 (Trust Fund B Account)
d.	International Travel, Participants	₱ 210,000 (Trust Fund A Account)
	Total GRP Pesos	₱13,572,000
	Total GRP Dollars @₱7.5=$1.00	$ 1,810,000

2. AID Grant $ 1,500,000

TOTAL PROJECT FINANCING $ 3,300,000

Thus the GRP contribution to the project is approximately 55 percent.

G. Environmental Analysis

After a thorough examination of activities related to the project (Annex O) several activities were identified which could result in some modifications of the environment. Analysis of the specific influences of these activities leads to the following conclusions:

1. Hatchery and building construction will cause land use changes for about 2 hectares of land adjacent to the CLSU campus and will result in some environmental modifications. The establishment of the FFH-ETC at the site is consistent with the long-run development plan for the area and will complement other planned development. No adverse effects are anticipated.

2. Operation of the hatchery will have no recognizable impact on resources or water quality of the area.

3. Fish farming activities will cause slight changes on land usage pattern. The changes would be neutral with respect to the dynamic effect on the environment.

4. Water quality will be improved, and contamination of foods and of the environment generally will be reduced through rice-fish culture.

5. Health impacts of the project will be positive and important.

6. Socio-economic impacts will be positive as a result of increased employment and income.

7. Cultural impacts will be positive.

In summary the FFDP will have no adverse effects on the environment. Beneficial results are expected to occur as outlined above.

On the basis of this initial environmental examination it has been concluded that beneficial environmental results are expected to occur and negative environmental impact determination is recommended.

Part IV PROJECT EXECUTION

A. Administrative Responsibilities and Project Mobilization

Responsibility for project monitoring and execution of the A.I.D. funded elements of the project will be vertical within the Office of Agricultural Development (OAD), USAID. The usual support of other USAID Divisions (Program Office, Controller, Executive Office) will be provided when appropriate. An USAID Project Manager will be project funded under a PASA agreement with the FWS, Department of Interior (see earlier discussion in Part II-F.2). The Project Manager will be directly responsible to the Chief, OAD or his designee.

Because timely implementation of project activities will depend on early assignment of the Project Manager, it is important that action be taken to effect the PASA as soon as possible after the project has been authorized and the project agreement signed.

A description of services which will be requested under the PASA is attached as Annex T.

Technical Advisor Services for the project will be obtained under a Title XII Collaborative Assistance Method (CAM) contract with TAMU. TAMU was selected as the contractor following the steps outlined in the Guidelines for the Role of the JCAD issued March 13, 1978. Subsequently, three TAMU staff traveled to the Philippines under contract AID/ASIA-C-1370 to provide assistance to the GRP in finalizing the PP. It is anticipated the follow-on contract will be executed as a Direct AID contract with TAMU.

The TAMU Fish Hatchery Management Advisor will be required to begin work as soon as possible on problems involving hatchery construction, development of specifications for commodities to be procured, and planning for both long-and short-term training. He should be prepared to undertake a 1-2 month short-term assignment in the Philippines to begin work on these critical activities.

B. Implementation Plan

The chronological schedule of key implementation activities or events are listed in Annex V. The dates indicated should be considered as targets and the schedule will serve as a guide for those with action responsibilities.

While the implementation schedule covers the full 5-year life of project it should be noted that the grant funds will be obligated in the first 2 years.

The timing and scheduling of events is much more tentative in the later years of the project. Activities to be undertaken at the FFH-ETC particularly with respect to the scheduling of training for extension agents and farmers will be described and scheduled in the Annual Work Plans to be submitted by the TAMU project advisors. Timely completion of these work plans is important as these plans will establish yearly targets and goals for the operation of the center and will be the basis for scheduling short-term consultant inputs from TAMU.

The USAID Project Manager will be occupied during the first 5 or 6 months of implementation with critical implementation components including assisting with procurement of equipment, arrangements for participant training, and arrival of long-term and short-term technical advisors. As indicated in Part IV-A, his early assignment is critical to maintain the scheduled progress.

Orderly procurement will be critical to timely arrival of equipment for the FFH-ETC. The USAID Project Manager needs to be well versed in AID procurement methods. For this reason, it is planned that prior to his departure from the U.S. under the PASA assignment that he spend up to 5 days in AID/W reviewing relevant procurement procedures, participant training arrangements and Title XII operations with appropriate staff. Ideally he should be scheduled for the AID/W course on procurement training for project managers. Scheduling of that course and the planned arrival date of the Project Manager will determine whether this is possible.

Additionally, about 3 days TDY at TAMU are planned prior to the Project Manager's travel to post. This will permit him to become acquainted with the campus coordinator and other relevant staff at TAMU. Procurement of some commodities as agreed in the contract will be done by TAMU. This relates particularly to specialized hatchery equipment and unusual items for which technical specification and procurement through the normal procedures might not ordinarily attract supplier interest. Responsibility for customs clearance and payment or waiver of customs duties for procured items will rest with BFAR.

Annual Work Plans as indicated above will outline planned short-term consultant requirements. Such work plans may be submitted to NEDA to obtain clearance for consultant services on an annual basis, or alternatively the Project Manager will initiate country clearance requests on a case to case basis.

Temporary vehicle support for the TAMU advisors will have to be arranged between TAMU and BFAR until project vehicles arrive.

The motorcycles to be purchased with project funds will be assigned to and maintained by the FFH-ETC. Twelve of these vehicles will be "loaned" to provincial BFAR extension agents to give them mobility to undertake activities related to project objectives. The additional three motorcycles shall be retained at the FFH-ETC for local use and rotation out when other motorcycles are in for repairs or maintenance. Control of the motorcycles in such a "motorpool" provides for adequate and regular maintenance and avoids the notion that the motorcycles are permanently assigned to the extension agents. An adequate spare parts inventory will be requisitioned as part of the procurement. Safety helmets are also to be requisitioned. Additionally, the supplier of the motorcycles shall be asked to include proper instructions for both operation and maintenance of the vehicles. A 2-week safety and operation training course for up to 20 provincial extension agents shall be requisitioned along with the commodities. As indicated elsewhere a waiver of the U. S. source and origin requirements is to be obtained at the time of project authorization (Annex P).

C. Evaluation Plan

Evaluation of the project will be carried out at three different levels. During the first 3 years of the project, monthly progress reports will be prepared by the TAMU Project Advisor in conjunction with the GRP Project Manager. These reports shall be submitted to the Director, BFAR and to the USAID Project Manager. The purpose of the monthly progress reports is mainly to monitor the progress and rate at which project inputs are being provided and to identify problems and shortfalls with respect to accomplishments scheduled in the project design and the Annual Work Plan. The USAID Project Manager will also prepare quarterly reports noting progress in implementation and problems encountered. These reports will be used by USAID in determining the need for special USAID actions over and above those which routinely will be handled by the USAID and GRP Managers.

At a second level, Annual Progress Summaries will be prepared at the end of each of the first 3 years by the TAMU Project Advisor and USAID Project Manager again in conjunction with the GRP Project Manager. The purpose of this annual evaluation report will be to review the overall progress in meeting input targets and to assess project outputs. The Annual Progress Summary will be utilized as a reference document for a joint USAID-BFAR review by senior management officials of both agencies. Such review will address questions of the adequacy of the level and quality of inputs being provided by TAMU, USAID and BFAR, the progress being made toward achieving planned outputs and any special implementation problems which require USAID or BFAR management attention. The USAID Project Manager and BFAR Project Manager will be responsible for scheduling and preparing for these Annual Reviews.

At a third level, two external reviews will be held. The first of these will be scheduled near the end of the second year of project implementation and shall assess overall progress toward attaining the project purpose and outputs. At this time consideration will be given to any revision in project design which might be needed (additional inputs required from either USAID or GRP, modifications of implementation schedule, changes in output targets, etc.). While this evaluation would measure progress primarily in terms of the project design criteria, some attention shall also be given to spill-over effects--both beneficial and adverse--which may be discernible at this stage of the project life. This evaluation would be carried out by a three-man team, including a representative from AID/W, a representative of the GRP outside BFAR (someone designated either by the MNR, or NEDA), and a third outsider with knowledge and experience in freshwater fisheries development. This latter team member would likely be selected from a roster of U.S. scientists. The project provides funds to cover the anticipated costs of this evaluation.

A final external evaluation by a similar team would be scheduled in the final year of the project. The purpose of this final review would be threefold: to determine progress toward achieving the project objectives; to identify and evaluate significant impacts (beneficial and/or adverse) outside of those anticipated by the project design, and to consider the appropriateness of the project design as a basis for replicating similar development activities in other areas of the Philippines and/or other developing countries. Responsibility for organizing and scheduling these external evaluations rests with the GRP and USAID Project Managers.

Routine site visits and inspections by USAID and GRP personnel during project implementation will be scheduled as appropriate. Additional evaluations and audits also may be called for if circumstances so dictate.

D. Negotiating Status, Conditions Covenants

A draft text of the project description for inclusion in the project agreement is attached as Annex S. Several key conditions necessary for effective project execution have already been met including the agreement between BFAR and CLSU for use of the site, and approval of funds for construction of buildings and ponds for the FFH-ETC. While it is expected that actual construction will be underway well before the project is authorized the GRP should present to USAID prior to disbursement of grant funds (except funds for the USAID Project Manager) evidence that the FFH-ETC facilities will be substantially completed within a 6-month period after signing the Project Agreement.

Evidence is to be provided by the GRP that adequate arrangements have been made for housing of the TAMU advisors at Munoz near the FFH-ETC. Preliminary discussions with BFAR officials and representatives of CLSU indicate that limited housing can be obtained on the CLSU campus, but it is expected that BFAR shall obtain agreement from NEDA and USAID to provide PL-480 Title I local currency generations to construct and furnish a dwelling suitable for one expatriate advisors and his family. Additionally, funds for a staff dwelling to be constructed at or near the

FFH-ETC should be provided. As a condition precedent to disbursements of funds (except funds for the USAID Project Manager) the GRP must present satisfactory evidence that such funds will be provided and that construction of the staff dwelling can be completed early in the project implementation period. Additionally, BFAR is to present evidence that adequate staff housing for both long- and short-term TAMU advisors will be available. A memorandum of agreement providing for utilization of CLSU staff facilities on an availability basis would be satisfactory.

As a covenant to disbursement of grant funds (except funds for the USAID Project Manager), the GRP is to present evidence that qualified managerial and professional staff will be assigned to the FFH-ETC and that they will be available for long- and short-term participant training as described in the Project Paper. An exchange of letters between USAID and BFAR identifying actual or potential incumbents for the staff positions and presenting bio-data for each will be satisfactory.

The Project Agreement will provide for adequate GRP support staff and budgets for annual operation and maintenance of the FFH-ETC throughout the life of the project. In addition, the Project Agreement will contain a provision that participants trained under this project will be assigned to positions which support project objectives through the life of the project unless concurrence by USAID in the discontinuance of their service under the Project is obtained.

Part V. REFERENCES

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Arce, R. G. and C. de la Cruz, "Improved Rice Fish Culture in the Philippines", Unpublished Report, Freshwater Aquaculture Center, Central Luzon State University, Munoz, Nueva Ecija 1978.

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ANNEXES

FRESHWATER FISHERIES DEVELOPMENT PROJECT
Project No. 492-0322

Annex A
1 page only

AGENCY FOR INTERNATIONAL DEVELOPMENT

PROJECT IDENTIFICATION DOCUMENT FACESHEET

To Be Completed By Cognizant Office

1 TRANSACTION CODE: [A] (A = Add, C = Change, D = Delete)

2 DOCUMENT CODE: 1

3 COUNTRY/ENTITY: Philippines

4 DOCUMENT REVISION NUM.:

5 PROJECT NUMBER (7 digits): 492-0322

6 BUREAU OFFICE: A Symbol: Asia; B Code: 04

7 PROJECT TITLE (maximum 40 characters): Freshwater Fisheries Development

8 PROPOSED NEXT DOCUMENT: A [2] (2 = PID, 3 = PP); B DATE: 01 17

9 ESTIMATED FY OF AUTHORIZATION/OBLIGATION: a INITIAL FY 79; b FINAL FY 81

10 ESTIMATED COSTS ($000 or equivalent, $1 = ₱7.5)

FUNDING SOURCE	Life of Project
a AID Appropriated	1,400
b OTHER U.S. 1	
b OTHER U.S. 2	
c Host Country	717
d Other Donor(s)	
TOTAL	2,117

11 PROPOSED BUDGET AID APPROPRIATED FUNDS ($000)

A. APPROPRIATION	B PRIMARY PURPOSE CODE	PRIMARY TECH. CODE C Grant	PRIMARY TECH. CODE D Loan	E COST FY 79 Grant	E COST FY 79 Loan	LIFE OF PROJECT H Grant	LIFE OF PROJECT I Loan
(1) FN	B322	319		400		1,400	
(2)							
(3)							
(4)							
TOTAL				400		1,400	

12 SECONDARY TECHNICAL CODES (maximum six codes of three digits each): 339 | 329

13 SPECIAL CONCERNS CODES (maximum six codes of two digits each): BS | BR | BU

14 SECONDARY PURPOSE CODE: 122

15 PROJECT GOAL (maximum 240 characters):

To improve nutrition of Filipino rural and urban poor and increase income of small fish farmers.

16 PROJECT PURPOSE (maximum 480 characters):

To increase freshwater aquaculture production and consumption.

17 PLANNING RESOURCE REQUIREMENTS (staff/funds):

2 M/M - Fish Hatchery Specialist - $14,000
4 M/M - Marketing Specialist - 26,000

18 CLEARANCES OF OFFICES CONCURRING:

Signature: for Lane E. Holdcroft

Title: Assistant Director for Agricultural Development

Date Signed: MM 05 DD 10 YY 77

19 Date Document Received in AID/W, or for AID/W Documents, Date of Authorization: MM DD YY

AID 1330-2 (3-76)

DEPARTMENT OF STATE

ANNEX B
1 page only

INCOMING
Amembassy, MANILA

TELEGRAM

CN: 1391

ACTION: AID-12

INFO: AMB, DCM, POL, POLR, CONS, DAO, ECOM, LGAT, LO, ADM, USIS, CPRP, JMAG, CEBU, AID, ADB, AGR, B&F, DISP, GSO, HU, TU, PER, RSO, RSC, ATO, RCO, CRO, CRU, CY/INIT 15/16

UNCLASSIFIED
Classification

16 JUL 1977

R 160043Z JUL 77
FM SECSTATE WASHDC
TO AMEMBASSY MANILA 7509
BT
UNCLAS STATE 166119

AIDAC

E.O. 11652: N/A

TAGS:

SUBJECT: FRESHWATERS FISHERIES DEVELOPMENT PID (PROJECT NO. 492-0322)

Return to AD/AD

1. APAC HAS APPROVED SUBJECT PROJECT FOR DEVELOPMENT OF PP.

2. IN VIEW OF PID'S DISCUSSION OF POSSIBLE MARKETING PROBLEM FOR FRESHWATER FISH AND NEED FOR MARKET ANALYSIS, APAC APPROVAL IS PREDICATED UPON EARLY COMPLETION AND FAVORABLE DETERMINATION OF SUCH ANALYSIS. AID/W BELIEVES THAT MARKET ANALYSIS SHOULD COMMENCE ASAP. PRESUMABLY THIS CAN BE DONE BY FILIPINOS AND HOPEFULLY FUNDED BY LOCAL RESOURCES.

3. APAC ALSO IDENTIFIED FOLLOWING ISSUES/PROBLEMS AS PARTICULAR TOPICS FOR DISCUSSION IN PROJECT PAPER.

(A) TRAINING. AS MISSION AWARE, CONGRESS HAS BECOME INCREASINGLY CRITICAL OF LARGE NO. OF GRADUATE-DEGREE TRAINING (PARTICULARLY U.S.) PROPOSED UNDER AID PROJECTS. TRAINING PROGRAM SHOULD BE FULLY JUSTIFIED IN PP, WITH SPECIAL ATTENTION TO CONTRIBUTION OF GRADUATE DEGREE TRAINING TO ACHIEVEMENT OF PROJECT PURPOSE. IN ADDITION, PP SHOULD DESCRIBE HOW TRAINEES WILL BE SELECTED AND WHAT MEASURES WILL BE TAKEN TO INSURE MAXIMUM POSSIBLE PARTICIPATION BY WOMEN AND PERSONS FROM LOWER SOCIO-ECONOMIC STRATA.

(B) PADDY AND POND PRODUCTION. PP SHOULD DISCUSS THE RELATIVE MERITS AND PRECONDITIONS FOR RICE/FISH CULTURE VS. POND FISH CULTURE AND RELATIVE EMPHASIS PROJECT WILL GIVE TO EACH.

(C) PROJECT COMPLETION PERIOD. PROPOSED THREE-YEAR LIFE OF PROJECT APPEARS TOO SHORT TO ACHIEVE END OF PROJECT CONDITIONS. PP SHOULD REFLECT CONSISTENCY BETWEEN IMPLEMENTATION PLANS AND PROJECT DURATION; THIS MAY SUGGEST LONGER IMPLEMENTATION PERIOD THAN THREE YEARS. VANCE
BT

UNCLASSIFIED
Classification

ANNEX C
1 page only

CRP Application for Project Assistance
To be Submitted by NEDA

Application to be submitted to AID/W
as separate item by 1/11/79

ANNEX C
one page only

Tels 50-39 71 to 95
Cable Address NEDAPHIL

December 21, 1978

Mr. Peter M. Cody
Director, USAID Mission
M a n i l a

Dear Mr. Cody,

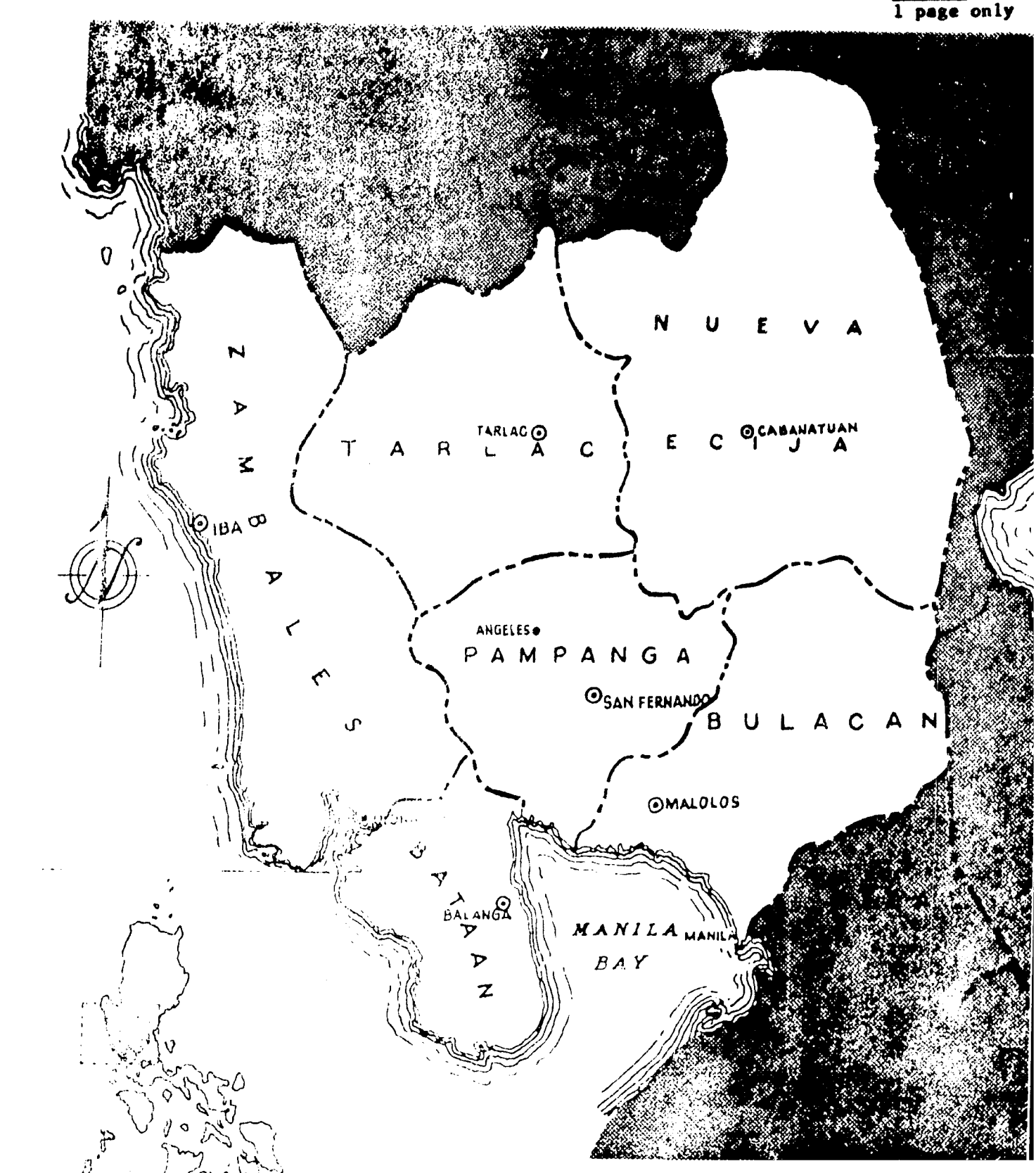
I wish to refer to attached Project Paper for Freshwater Fisheries Development.

Following our review of the proposal, this Office endorses the project paper as revised and consequently requests a US$ 1.5 million grant for this project.

Sincerely yours,

[signature]
CESAR A. P. VIRATA
Minister of Economic Planning
(Director-General)

ANNEX D
1 page only



Freshwater Fisheries Development Project
Location Map - Central Luzon

PROPOSED BFAR STAFFING REQUIREMENTS
AND BUDGET FOR FFH-ETC

Item No.	Name of Position	Annual Salary Requirements (₱000) Year 1	Year 2	Year 3	Year 4	Year 5
1	Project Officer-in-Charge	17	18	19	19	20
2	Secretary-Receptionist	6	6	7	7	7
3	Driver-Messenger	-	4	5	5	6
4	Administrative Officer	13	13	14	14	15
5	Office Manager cum Bookkeeper	8	8	9	9	9
6	Storekeeper	5	5	6	6	6
7	Secretary	5	5	6	6	6
8	Maintenance Foreman	9	9	10	10	11
9	Vehicle Mechanic	-	6	6	7	7
10	Motorcycle Mechanic	-	6	6	7	7
11	Mechanic Helper-Driver	-	5	5	6	6
12	Carpenter	-	6	6	7	7
13	Electrician	-	6	6	7	7
14	Plumber	-	6	6	7	7
15	Laborer	-	4	4	4	5
16	Security Guard	-	4	4	4	5
17	Security Guard	-	4	4	4	5
18	Janitor	-	4	4	4	5
19	Hatchery Operations Officer	15	16	17	17	18
20	Aquaculturist - Broodstock Maintenance & Spawning	10	11	12	12	13
21	Aquaculturist - Incubation & Fry Rearing	10	11	12	12	13
22	Aquaculturist - Fry Nursery Operations	10	11	12	12	13
23	Pond Management Specialist - Water Chemistry & Limnology	10	11	12	12	13
24	Fish Feeding Specialist - Nutrition and Physiology	10	11	12	12	13
25	Secretary-Typist	-	5	5	6	6
26	Truck Driver	-	4	5	5	6
27	Laborer	-	4	4	4	5
28	Laborer	-	4	4	4	5
29	Laborer	-	4	4	4	5

Item No.	Title of Position	Annual Salary Requirements (₱000) Year 1	Year 2	Year 3	Year 4	Year 5
30	Extension Operations Officer	15	16	17	17	18
31	Training Coordinator-Communications Specialist	10	11	12	12	13
32	Information Specialist-Librarian	8	8	9	9	9
33	Audiovisual Aids Assistant	6	6	6	7	7
34	Aquaculturist - Fish Farming Extension Outreach	10	11	12	12	13
35	Aquaculturist - Fish Farming Extension Outreach	10	11	12	12	13
36	Aquaculturist - Fish Farming Extension Outreach	10	11	12	12	13
37	Aquaculturist - Fish Farming Extension Outreach	10	11	12	12	13
38	Pond Construction Specialist	10	11	12	12	13
39	Aquacultural Economist - Marketing Specialist	10	11	12	12	13
40	Secretary-Typist	-	5	5	6	6
41	Driver-Messenger	-	4	5	5	6
42	Truck Driver	-	4	5	5	6
43	Truck Driver	-	4	5	5	6
44	Truck Driver	-	-	5	5	6
45	Truck Driver	-	-	5	5	6
46	Laborer	-	4	4	4	5
47	Laborer	-	4	4	4	5
48	Laborer	-	-	4	4	5
49	Laborer	-	-	4	4	5
50	Laborer	-	-	4	4	5
	TOTAL WAGES AND SALARIES	227	343	392	396	442

Summary Staffing Pattern	Number	Position Numbers
Management and Supervisory Personnel	4	(1, 4, 19, 30)
Professional Staff	12	(20, 21, 22, 23, 24, 31, 34, 35, 36, 37, 38, 39)
Technical and Administrative Support Staff	11	(5, 6, 8, 9, 10, 11, 12, 13, 14, 32, 33)
Secretarial Staff	4	(2, 7, 25, 40)
Drivers and Messengers	7	(3, 26, 41, 42, 43, 44, 45)
Laborers and Security Guards	12	(15, 16, 17, 18, 27, 28, 29, 46, 47, 48, 49, 50)
	50	

ESTIMATED BFAR BUDGET REQUIREMENTS
FOR FFH-ETC (₱000)

	Year 1	Year 2	Year 3	Year 4	Year 5	Total
FFH-ETC Operations						
Salaries and Wages	₱227	₱343	₱392	₱396	₱442	₱1,800
Fringe Benefits @ 15% of Salaries	34	51	59	59	66	269
Travel Allowances	20	60	70	80	90	320
Supplies and Materials	40	60	70	80	90	340
Sundries	30	60	80	90	100	360
Equipment	20	40	60	70	80	270
Contingency	29	36	29	25	32	151
Honoraria and Expenditures for Professional Services	5	25	35	35	35	135
Travel, Per Diem, and other Costs for Extension Workers during Training Status In-Country	-	50	50	50	50	200
TOTAL	₱405	₱275	₱845	₱885	₱985	₱3,845

ANNEX F
1 page only

EQUIPMENT LIST AND COST ESTIMATES

Item	US $
A. For Operation of Hatchery	
Office Equipment	
1. Office desks, w/chair, 13 ea @300	3,900
2. Visitor chairs, 15 ea @75	1,125
3. Bookcase, 13 ea. @120	1,560
4. Water fountain, 1 ea. @300	300
5. Typewriters, 3 ea. electric @350; 3 ea. manual @200	1,650
6. Secretary Desks, 4 ea. @200	800
7. Filing cabinets, legal size, 20 ea. @80	1,600
8. Waste Paper baskets, 20 ea. @5	100
9. Pencil sharpener. 5 ea. @5	25
10. Copying machine w/paper supply. 1 ea. @4000	4,000
11. Desk basket (in/out). 20 ea. @8	160
12. Supply Cabinet, metal w/lock, 1 ea. @250	250
13. Transformers for converting 220V to 110V. 20 ea. @40	800
14. Calculator, desk, with tape. 1 ea. @800	800
15. Adding machine, desk. 1 ea. @300	300
16. Mimeograph machine. 1 ea. @1000	1,000
B. For Conference/Teaching Room	
1. Projector, 35MM, zoom le s, remote control 1 ea.@300	300
2. Screen, portable, large size. 1 ea. @300	300
3. Slide tray, for projector. 6 ea. @12	72
4. Opaque projector. 1 ea. @450	450
5. Easel for flip chart, metal frame. 1 ea. @50	50
6. Lecturn, portable, battery operated speakers 1 ea. @500	500
7. Blackboard, portable on [illegible]. 1 ea. @100	100
8. Table, conference, wooden [illegible] irs. 1 ea. @2000	2,000
9. Shelving, adjustable	400
10. Chairs, desk type w/desk top for writing 30 ea. @60	1,800
11. Pointer, wooden. 1 ea. @5	5
12. Pointer, battery operated light. 1 ea. @25	25
13. Slide storage file. 1 ea. @120	120
14. Projector, movie, 16 mm for training film, w/speakers 1 ea. @800	800
15. Bull horn, battery operated. 1 ea. @80	80
16. Pocket thermometer, readings in C°. 20 ea. @8	160
17. Calculator, pocket. 10 ea. @65	650
18. Hand centrifuge. 2 ea. @250	500
19. Macerator, for processing pituitary material. 1 ea. @120	120
20. Refrigerator, 20 cu. ft., 2 ea. @450	900
21. Freezer, chest type. 21 cu. ft. 2 ea. @500	1,000
22.	
Miscellaneous	
22. Drafting tab[illegible] ea. @250	250
23. Drafting pens [illegible] ils, plus misc. equipment for visual aid preparation	300

Item	US $
24. Camera mount for copying slides, visual aids	120
25. Lawn mower, rotary, high wheel, 6 hp. 1 ea. @450	450
26. In-line water filters, Cuno, 24 w/3 gross cartridges	1,400
27. In-line air filters, 12 w/ 1 gross cartridges	630
28. Fine plankton, netting. 10u -$5m^2$), 50u -$30m^2$) $65m^2$ @5, 100u - $30m^2$)	325
C. For Operation of Hatchery	
1. Truck, 1½ ton/500 g. of fish hauling tank, aerator 2 ea. @14,000	28,000
2. Truck, 1½ ton w/ 500 gal 1/ fish hauling tank,aerator 2 ea. @14,000	28,000
3. Truck ½ ton pickup 2 ea. @9,000	18,000
4. Carryall. 1 ea. @10,000	10,000
5. Jeep, 4 wheel drive. 6 ea. @7,000	42,000
6. Jeep trailer, metal. 2 ea. @2,000	4,000
7. Tank, fiberglass, for fish hauling, w/aerators, 2 ea. @1,200	2,400
8. Water tank, buffalo type on trailer, 2 ea. @3,000	6,000
9. Tractor 25-35 DBH, 2 ea. @8000	16,000
10. Mower, side mounted, high ray type sickle bar, 1 ea. @1,500	1,500
11. Water pump 4" w/ 8 meter suction and discharge hose, w/engine. 1 ea. @700	700
12. Water pump 1½"portable w/suction & discharge hose. 2 ea. @400	800
13. Sprayer, power w/ 50 gal. tank. 1 ea. @1,200	1,200
14. Cylinder for O_2. 5 ea. @90	450
15. Generator, 20 KVA, diesel power 1 ea. @6,000	6,000
16. Generator, portable, gas operated 1 ea. @ 600	600
17. Generator, portable, gas diesel. 1 ea. @1,400	1,400
18. Electric agitators 1/10 hp. (?). 40 ea. @40	1,600
19. Electric agitator 1/10 hp. 12 v, 12 ea. @40	480
20. Agitators ½ hp, 110v. 16 ea. @180	2,880
21. Blower unit for aeration of hatchery, 2 hp. 2 ea. @400	800
22. Rain gauge. 1 ea. @20	20
23. Camera, 35 MM. 2 ea. @300	300
24. Hatching jars, McDonald type, 36 ea. @75	2,700
25. Hardware cloth, galvanized, $30m^2$ rolls,8ea. @180	1,440
26. Saran Screen, 100-mesh. 33 x 1m roll, 3 ea. @300	900
27. Nylon netting, 0.5 mm spacing, 2m x 100 m roll. 1 ea. @350	350
28. Seines, haul, 100 x 6 ft. 3 ea. @500	1,500
29. Heavy plastic screen, 1/4 in. 100 ft. roll, 5 ea. @140	700
30. Heavy plastic screen, 1/8 in. 100 ft.roll, 5 ea. @180	900
D. For Fish Hatchery Bld	
1. Blackboard, portable. 1 ea. @250	250
2. Easel for fl[illegible] charts, metal. 1 ea. @200	200
3. Microscopes, [illegible]ting. 10 ea. @700	7,000
4. Microscopes, [illegible] high power. 2 ea. @2,200	4,400

Item	US $
5. Oxygen meter, portable. 5 ea. @300	1,500
6. Oxygen meter, table model. 1 ea. @600	600
7. Ph meter, portable. 5 ea. @100	500
8. Ph meter, table model. 1 ea. @230	230
9. Human chorionic gonadotropin (HCG) 500,000 IU	1,000
10. Dried pituitary (carp), 20g.	800
11. Dissecting kits , 10 ea. @20	200
12. Feed pelleting machine. 1 ea. @2,400	2,400
13. Hammer mill. 1 ea. @2,000	2,000
14. Drying oven, laboratory. 1 ea. @400	400
15. Muffler furnace, 1 ea. @380	380
16. Water Distillation Unit. 1 ea. @800	800
E. For Service Bldg./Storage	
1. Carpenter tools set - hammer, saws, square, level, wood planner etc. 1 set	300
2. Mechanic tools, sockets, open and box end wrenches, metric & US sizes 2 sets @600	1,200
3. Bench saw 1 ea. @1,100	1,100
4. Drill press 1 ea. @1,500	1,500
5. Belt sander 1 ea. @1,000	1,000
6. Machinist. 1 ea. @400	400
7. Plumbers tools. 1 set @600	600
8. Battery chargers, 6 x 12v. 1 ea. @150	150
9. Hydraulic jack. 2 ea. @80	180
10. Drill, portable, 3/8 hp. 1 ea. @60	60
11. Drill, portable, 1/2 hp. 1 ea. @100	100
12. Saber saw, 1 ea. @60	60
13. Electrician tools, 1set	300
14. Chain hoist, w/ "A" frame, 1 ea.	400
15. Welding, oxygen-acetylene w/ tanks, regular	600
16. Pipe threader, 1 ea.	400
F. Extension Workers (For 12 workers in 6 regions)	
1. Jeep or 1/4 ton pick-up truck. 1 ea. @7,000	7,000
2. Motorcycle, small. 16 ea. @1,200	19,200
Motorcycle parts inventory plus service and training course	6,500
3. Cameras, 35 MM, Single lens reflex, 12 ea. @300	3,600
4. Projector, 35 MM slide w/ spare bulbs, 8 ea. @200	1,600
5. Screen, portable, small, 8 ea. @150	1,200
6. Transformer, 220v-110v 20 ea. @40	800
7. Typewriters, manual, 8 ea. @200	1,600
8. Desk, office. 8 ea. @250	2,000
9. Water analysis kit - Ph, O_2, CO_2, etc. 8 ea. @360	2,880
10. Thermometer, pocket, readings in C^o 24 ea. @8	192
11. Refractometer for measuring salinity 2 ea. @500	1,000
12. File Cabinets, 4 drawer, legal size, 8 ea. @270	2,160
13 Flip chart easel ea. @75	600
14. Portable microphone, battery operated 6 ea. @80	480

	ITEM	US $
15.	Opaque projector. 6 ea. @450	2,700
16.	Portable tape recorder rechargeable battery. 6 ea. @60	360
	Miscellaneous	
1.	PVC pipe and fittings for modification and hatchery finishing	5,500
2.	Reinforced, collapsable plastic hose, 1½ in., 100m	360
3.	Rubber tubing, 6 rolls @40	240
4.	Analytical balances, 2 ea. @1,200	2,400
5.	Fish graders	100
6.	Rotary mower	1,500
7.	One clorinator for Potable water system	500
8.	Four Fire extinguishers with cabinets and hose, 4 @250	1,000
9.	Rotary Saw, hand held	100
10.	Portable fire extinguishers, 6 @100	600
11.	Library materials	2,000
12.	Tanks, aquaria and fiberglass	1,500
13.	Lab glassware, scales, misc. equipment	750
	Subtotal	314,437
	Reserve for Shipping & Transportation	58,500
	Contingency**	67,932
	Subtotal	440,869
	Inflation (10%)	44,087
	TOTAL	484,956
	rounded to	485,000

*Notes on commodities list:
Prices are estimates only made for preliminary calculations

Consideration will be given to savings that can be realized through utilization of excess property.

**It is expected that these funds will be used primarily during the second year to purchase additional items needed.

ANNEX H
1 page only

Selection of TAMU for a Technical Services Contract Under the Title XII Mode

A joint GRP-AID Selection Committee, which included the Director of BFAR, was formed to review and evaluate the capabilities, experience and interest of universities which had expressed an interest in providing technical services to the Freshwater Fisheries Development Project under the Title XII mode. The decision to select Texas A&M University (TAMU) is based on TAMU's balance of fish hatchery development experience, economics and social science expertise, and extension capability. The following summarizes the rationale and basis for TAMU's selection by the Committee.

TAMU staff work with private sector producers in the design of fish hatcheries and bringing them into operation is impressive. Their experience in this area along with organizing transportation and distribution systems for fish fry will be applicable to project needs in the Philippines. Although TAMU has been working primarily with shrimp and fresh water prawns, they do have substantial experience with freshwater finfish notably catfish and tilapia. They have little direct experience with carp. TAMU scientists point out that species differentiation is not a serious problem when it comes to hatchery design and management; rather it is adapting well understood principles to the reproduction and rearing problem.

TAMU has a strong extension program with a total of 16 full-time fisheries extension workers. Six counties have fishery agents working in both marine and freshwater areas. They have experience in organizing extension activities and in particular they have, in conjunction with Prairie View A&M University, a fisheries extension-demonstration activity which is aimed at limited-resource farmers. This experience would be particularly applicable in the Philippine context. TAMU's interest in international development activities receives excellent support from all levels within the University. The University President in particular is a strong advocate of TAMU staff involvement in international work. Intermediate level administrators and scientists are keenly interested in this project and express an eagerness to participate.

The Selection Committee judged TAMU as the best qualified University to undertake this project and ranked them first among the institutions under consideration.

ANNEX I

JUSTIFICATION FOR LONG-TERM PARTICIPANT TRAINING FOR BFAR STAFF

The training component of the AID input includes long-term training for six (6) people at the M.S. level and intermediate-term training for eight (8) people (two to five months) in specific short courses with visits to selected laboratories.

While an extensive educational program in the fisheries field is developing in the Philippines, e.g., CLSU, UP, SEAFDEC, the depth of the teaching staffs, their experience, technical expertise, and competence are somewhat below that of stronger and more mature institutions in the U.S. Although this in no way reflects on the personal abilities, work or dedication of Philippine faculties, the graduates of these institutions still are lacking in depth and competence by U.S. standards. Professional faculty are few in number and turnover rates are rapid. The training proposed provides an opportunity for upgrading of technical and managerial skills through exposure to well-qualified U.S. scientists and well-run institutions. This broadening experience builds an awareness of policies, procedures, and technology used elsewhere and opens new possibilities in the minds of the trainees. In short, what is proposed in this training is exposure to people, institutions, and methodology which cannot be obtained in the Philippines. In many cases, the expertise exists in the U.S. because of the resources, advanced technology, and experience of U.S. institutions.

The training proposed will serve to motivate selected personnel, to build their self confidence and to permit them to share new ideas and technology at home.

The M.S. program is necessary in the case of certain scientists so they can relate to U.S. counterpart personnel in the project, to increase their leadership capabilities, and to improve their basic knowledge base.

Short-term training in the Philippines by U.S. and Philippine personnel has been carefully considered and will be an integral part of the overall training program. Some of the overseas training is being used explicitly to build Filipino staff competence for in-country training. In-country training cannot fully replace the overseas training for the reasons outlined above.

In providing this training, AID is looking forward to the need for stronger leadership in organizations such as BFAR. Previously, this type of training has proven to be successful in this regard. Such organizations which are run by only a few highly competent people can be strengthened by broadening the leadership base.

ANNEX J-1
1 page only

Comparative Production Costs in Pesos of Alternative Rice Culture Enterprises[1/]

	Rice Culture Only	Rice-Fish Polyculture
Production Input Cost Per Hectare		
Variable Costs		
Labor	₱1,148	₱1,206
Rice Seed	127	127
Fertilizer	377	377
Pesticides	219	219
Fingerlings	-	250
Screens, nets, and other equipment	-	220
Fixed Cost for Irrigation and Land	241	241
	₱2,112	₱2,640
Production Output and Earnings		
Quantity of Rice (Cavans)	122	116
Value of Rice @ ₱55/cavan	6,710	6,380
Quantity of Fish	-	205 kg.
Value of Fish @ ₱5/kg.	-	1,025
Gross Returns	6,710	7,405
Net Returns Per Hectare	₱4,598	₱4,765
Net Return Per Hectare from Growing Fish Cum Rice	-	167

The rice-fish culture technology would return about ₱167 per hectare more than the single crop system and thus would be an attractive enterprise for rice farmers.

The foregoing analysis may be conservative in that the price for fingerlings @ ₱5/100 is considered a [illegible] While observed market prices for fingerlings have been reported as high as ₱8 per 100 (indicating that some rice-farmers will pay that much), it is more likely that with increased fingerling production the cost will fall to the ₱2 per 100 range. If the price were to stabilize at ₱2, then the net returns for rice-fish would increase to ₱317 over rice culture alone.

The ₱5 price per kg of fish is also considered conservative. Fish prices for [illegible] of ₱7/kg are common in Central Luzon. An increase ₱1/kg would increase the comparative profitability to the ₱500-525 range.

Looked at another way, an investment of ₱528 at planting time would return ₱167 [illegible] over 30 percent under conservative price expectations and could result in a doubling of the rate of return under more favorable assumptions.

Based on the above, it is concluded that the rice-fish culture system is economically feasible and attractive to rice-farmers in the Central Luzon region.

1/ Based on summary of [illegible] demonstrations conducted by NFAC Field Test Evaluation Committee, [illegible].

Annex J-2

A hatchery suitable for production of 300,000 - 500,000 fingerlings annually would require about 0.2 hectares. Two adjacent ponds each of about 0.1 hectare would be suitable. One pond could hold about 250 pairs of brood fish capable of providing roughly 250 fry per pair at least six times per year. This would result in a total output of 350,000 fingerlings per hatchery per year. Such a hatchery could probably be handled by a farm family without requiring any extra hired labor because labor requirements could be timed to utilize family labor resources during slack periods. Under conditions observed in Central Luzon, it would probably be necessary to feed fish stocked at these rates some supplemental feeds. Light feeding of 2 kg. of grain waste per day for about 50 days would be adequate to insure frequent spawing of adults and rapid development of fingerlings. Additional feeding or light fertilization might be desirable to increase the phytoplankton and would almost certainly be profitable, resulting in even greater fry production.

The major costs involved in a hatchery such as this would be the initial construction cost. Construction of a 0.2 hectare hatchery would involve about 150 work-days for earthmoving. At the observed wage rate of 7.50 pesos per day and adding about 400 pesos for purchased standpipes, screens and gates the total cost of construction of the hatchery would be:

Earthmoving - 150 x ₱8	₱1,200
Pipes and drains, screens	400
Nets and miscellaneous	900
Brood stock	100
	₱2,600

Annual cash costs would include following:

Feed	₱ 980
Fertilizer	210
Plastic bags and other expenditures	200
Irrigation charges	100
	₱1,490

Fingerlings for sale 350,000 @ ₱2/100	₱7,000
Amortization of capital costs @ 20%	320
Annual operating costs	1,490
NET	₱5,190

Rice production (the competing land use) would return about ₱9,200 per hectare at two crops per year or about ₱1,850 per 0.2 hectares of land. The hatchery return is clearly more profitable even if production has been overestimated.

FINANCIAL ANALYSES AND COSTS ESTIMATES

Annex K-1

Annual Cost Projections for Project Manager and Long-Term Technical Advisors

	Project Manager	Advisor I	Advisor II
Basic Salary	$ 41,000	$ 28,000	$ 32,000
Fringe Benefits	4,100 1/	4,200 2/	4,800 2/
Post Differential	4,100 1/	5,600 3/	6,400 3/
Agency Overhead	10,800 4/	9,800 5/	11,200 5/
Pre-Departure Orientation	-	1,000 6/	1,000 6/
International Travel to Post	2,000 7/	3,500 8/	3,500 8/
International Meeting or Other Professional Purposes	2,000	3,000	3,000
Reserve for Emergency Visitation Travel	2,000	3,000	3,000
Packing and Shipment of Air Freight 9/	1,000	1,000	1,000
Packing and Shipment of HHF 10/	4,000	4,000	4,000
Shipment of POV	1,500	3,000	3,000
Storage of HHE in U.S.	1,000	1,000	1,000
Contingency	3,500	6,900	8,100
Total Cost for First Year	$ 77,000	$ 74,000	$ 82,000
Cost for Second Year at About 5% Increase	81,000	$ 78,000	$ 86,000
Cost for One-Half of Third Year at About 5% Increase	42,000	NA	NA
TOTAL	$200,000	$152,000	$168,000

1/ 10% of Basic Salary
2/ 15% of Basic Salary
3/ 20% of Basic Salary
4/ 22% of Salary plus Fringes
5/ 35% of Basic Salary
6/ Two weeks TDY in AID/W and economy airfare (College Station Texas - Washington and return)
7/ Two people @ $1,000
8/ Three people at full fare, one at half fare x $1,000
9/ 500 lbs @ $2.00/lb
10/ 4,000 lbs @ $1.000/lb

Annex K-2

PESO REQUIREMENTS

I. Estimates of Peso Requirements from Trust Fund B Account

	Year 1	Year 2	Year 3	Total
Project Manager				
Housing	60,000	60,000	30,000	150,000
Utilities	30,000	30,000	15,000	75,000
Local Travel	10,000	10,000	5,000	25,000
Technical Advisor I*				
Housing (Rental)	40,000	60,000	20,000	120,000
Utilities	20,000	30,000	10,000	60,000
Local Travel	6,000	10,000	4,000	20,000
Educational Allowance	10,000	15,000	5,000	30,000
Technical Advisor II				
Housing	Constructed with PL 480 Funds			
Utilities	-	30,000	30,000	60,000
Local Travel	-	10,000	10,000	20,000
Educational Allowance	-	15,000	15,000	30,000
Operation and Maintenance of Project Vehicle				
Driver	8,000	12,000	12,000	32,000
Per Diems for Driver - Local Travel	4,000	5,000	5,000	14,000
Gasoline for Vehicle	4,000	7,000	6,000	17,000
Repairs for Vehicle	3,000	3,000	3,000	9,000
TOTAL TRUST FUND B	₱195,000	₱297,000	₱170,000	₱662,000

*Assumes arrival of long-term advisor in fourth month of project implementation.

II. Estimates of Peso Requirements from PL 480 Title I Funds

	Year 1	Year 2	Year 3	Total
Construction				
FFH-ETC (obligated in FY 78)	8,155,000	-	-	8,155,000
Two Housing Units				
Construction	500,000	-	-	500,000
Furnishings	200,000	-	-	200,000
TOTAL PL 480, TITLE I	₱8,855,000	-	-	₱8,855,000

Annex K-2 (Continued)

III. Estimates of Peso Requirements from Trust Fund A Account

	Year 1	Year 2	Year 3	Total
International Travel of 14 Participants	₱210,000	-	-	₱210,000

IV. Estimates of Peso Requirements for BFAR Operational Costs, Years 1-5 (See Annex F) ₱3,845,000

GRAND TOTAL ₱13,572,000

Annex K-3

Estimated Cost Per Month for Short-Term Technical Assistance

Basic Salary	$ 3,000
Fringes @ 15%	450
Agency Overhead @ 67% of Base	2,000
Preparation of Materials and Reports	300
International Travel and Per Diem	2,000
In-Country Per Diem	1,250
Contingency	1,000
	$10,000

Assume 20 months short-term TA = $200,000

Annex K-4

Cost of Each Evaluation Scheduled in Second and Fifth Year

Cost of Contractor - 1 Month	$10,000[1/]
Cost of International Travel and Per Diem for one AID/W Employee for 1 Month	4,000
Contingency	1,000
	$15,000

Assume total of two months for the two evaluations = $30,000

1/ See Annex K-3 for basis of estimate.

Annex K-5

Estimated Costs (US$) of Participant Training[1/]

No.	Long Term	Duration (Months)	Cost/ Month[2/]	Total Training Cost
1	Aquaculturist	24	$1,000	$ 24,000
1	Pond Management Specialist	24	1,000	24,000
1	Fish Feeding Specialist	24	1,000	24,000
1	Pond Construction Specialist	24	1,000	24,000
1	Aquacultural Economist	18	1,000	18,000
1	Extension Specialist	18	1,000	18,000
	Total Long Term	122		$132,000
	Short Term			
6	Aquaculturists	4 mos. ea.	$2,500	$ 60,000
1	Extension Operations Officer	5 mos.	1,800	9,000
1	Hatchery Mgt. Officer	2 mos.	2,000	4,000
	Total Short-Term	31 mos.		$ 73,000
	TOTAL PARTICIPANT TRAINING			$205,000[1/]

1/ Does not include international travel for participants. Cost for international travel is to be paid from Trust Fund A, Peso Account. (See Annex K-2, III.)

2/ Includes tuition and other training costs, books, local travel, and maintenance allowance.

AID 1020-20 (1-73)

ANNEX I
1 page only

PROJECT DESIGN SUMMARY
LOGICAL FRAMEWORK

Life of Project:
From FY 79 to FY 1983
Total U S Funding $1,500.00
Date Prepared October 20, 1978

Project Title & Number: Freshwater Fisheries Development

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
Program or Sector Goal: The broader objective to which this project contributes: (A-1) To improve nutrition and income of small rice farmers and fish farmers.	**Measures of Goal Achievement: (A-2)** 1. Consumption of locally produced freshwater fish in Central Luzon increased by 3,250 tons/year by end of 1983; increasing per capita consumption of fish for Central Luzon residents by 0.75 kg. Per capita consumption of fish increased 14 kg for 4500 rural families producing rice-fish by 1983. 2. Net income (based on value of fish consumed at home and sold) of 4,500 rice-farmers that begin the production of fish cum rice increased an average of $22/ha/year by end of 1983. 3. Net income (based on value of fish consumed at home and sold) of 3,000 fish farmer who begin the production of fish utilizing intensive aquaculture systems average at least $350/ha/year by the end of 1983.	(A-3) 1. Ministry of Agriculture, NFAC records and surveys 2. NEDA, socioeconomic surveys 3. Special studies and field interviews	**Assumptions for achieving goal targets: (A-4)** 1. Rice farmers and producers of fish will have the available freshwater aquaculture technology and will be motivated to grow more fish to improve their family's nutrition and to increase their family's income 2. Filipinos continue their habits of being fish-eating people. Accepting freshwater fish when available at favorable prices. 3. The population in Central Luzon will not increase to more than five million by the end of 1982 from a total of 4.3 million in 1977.
Project Purpose: (B-1) To increase freshwater aquaculture production and consumption in Central Luzon.	**Conditions that will indicate purpose has been achieved: End-of-Project status. (B-2)** 1. 1,350 metric tons of fish produced per year in paddies with rice by the end of 1983. 2. 1,837 metric tons of fish produced per year in intensive fish culture systems by the end of 1983.	(B-3) 1. BFAR reports 2. Ministry of Agriculture, NFAC records and surveys 3. NEDA, socioeconomic surveys 4. Special studies and field interviews	**Assumptions for achieving purpose: (B-4)** 1. The price and market conditions of freshwater fish remain favorable 2. The GRP will formulate policies which promote and are conducive to integrated agro-fisheries production. 3. New rice pests will not emerge that will require the application of amounts or types of pesticides that will not permit fish to be grown in paddies with rice. 4. Prolonged adverse weather, destruction to rice-fish or fish pond production, will not occur.
Project Outputs: (C-1) A fully organized and operational FFH-ETC for Central Luzon that: 1. Produces and distributes fish seedlings to rice-fish farmers and fish pond operators. 2. Extends freshwater fish hatchery-aquaculture technology to farmers. 3. Trains extension workers and farmers in freshwater fish hatchery-aquaculture technology and extension workers in extension principles and skills.	**Magnitude of Outputs: (C-2)** 1. 12 extension workers trained for specialized key positions and assigned to FFH-ETC by end of 1981; 12 freshwater extension workers assigned to provinces, Region III by end of 1981. FFH-ETC producing-distributing to farmers 12 million fish seedlings/year by end of 1981 and 20 million/year by end of 1983. 2. 2,400 farmers by the end of 1981 and 7,500 by end of 1983 practicing freshwater aquaculture. Private fish hatcheries producing 7 million freshwater fish seedlings/year by end of 1981 and 40 million/year by 1983. 3. 28 extension workers and 20 fish farmers trained at FFH-ETC by end of 1981; 40 extension workers and 100 farmers trained by end of 1983.	(C-3) 1. Production records of the BFAR FFS 2. BFAR timing, staffing, personnel records, USAID PIO/Ts. Training records of the FFH-ETC. Interviews with rice-fish farmers. 3. Reports published by BFAR, Govt., NFAC	**Assumptions for achieving outputs: (C-4)** 1. The FFH-ETC is constructed on schedule. 2. Trained extension workers will be assigned to and will serve at key posts in Central Luzon for at least three years after completing special training. 3. The GRP agencies will place high priority on increased freshwater fish production and be responsive to improved coordination in fish production and best utilization of land-water resources.
Project Inputs: (D-1) 1. USAID - Commodities - Technical assistance - Project Management, Operation, Evaluation - Participant training 2. GRP - Capital improvement - O & M Costs - Other Costs - Trust Fund	**Implementation Target (Type and Quantity) (D-2)** 1. USAID ($'000) A. Commodities: Yr.1 375, Yr.2 110, Yr.3 -, Yr.4 -, Yr.5 -, Total 485 B. Tech. Assistance Long-term: 50, 160, 110, -, -, 320 Short-term: 70, 40, 20, 30, 40, 200 Campus Support: 17, 15, 12, 6, 8, 60 C. Project Mgt., Eval-uation: 77, 96, 42, -, 15, 230 D. Part. Training Long-term: 72, 61, -, -, -, 133 Short-term: 72, -, -, -, -, 72 TOTALS: $735, $482, $184, $36, $63, $1,500 2. GRP ('000 Pesos) A. Cap. Improv.: 8,855, -, -, -, -, 8,855 B. O and M: 400, 650, 760, 800, 900, 3,510 C. Others: 5, 75, 85, 85, 85, 335 D. Trust Fund B: 195, 297, 170, -, -, 662 E. Trust Fund A: 210, -, -, -, -, 210 TOTALS: P9,665, P1,722, P1,015, P885, P985, P13,272	(D-3) AID - AID financial and project records GRP - GRP staff, financial and project records	**Assumptions for providing inputs: (D-4)** AID and GRP inputs will be provided on a timely basis. Inputs provided under the project will be of the highest reasonable quality obtainable.

5C(1) -COUNTRY CHECKLIST - Included in Agricultural Research II Project (492-0286)
5C(2) - PROJECT CHECKLIST

Listed below are, first, statutory criteria applicable generally to projects with FAA funds, and then project criteria applicable to individual fund sources: Development Assistance (with a sub-category for criteria applicable only to loans); and Security Supporting Assistance funds.

CROSS REFERENCES: IS COUNTRY CHECKLIST UP TO DATE? IDENTIFY. HAS STANDARD ITEM CHECKLIST BEEN REVIEWED FOR THIS PROJECT?

A. GENERAL CRITERIA FOR PROJECT.

1. App. Unnumbered; FAA Sec. 653(b); Sec. 671

(a) Describe how Committees on Appropriations of Senate and House have been or will be notified concerning the project; (b) is assistance within (Operational Year Budget) country or international organization allocation reported to Congress (or not more than $1 million over that figure

(a) Project description included in 1979 CP, Page

(b) Yes

2. FAA Sec. 611(a)(1). Prior to obligation in excess of $100,000, will there be (a) engineering, financial, and other plans necessary to carry out the assistance and (b) a reasonably firm estimate of the cost to the U.S. of the assistance?

(a) Yes

(b) Yes

3. FAA Sec. 611(a)(2). If further legislative action is required within recipient country, what is basis for reasonable expectation that such action will be completed in time to permit orderly accomplishment of purpose of the assistance?

Further legislation action by recipient country is not required.

4. FAA Sec. 611(b); App. Sec. 101. If for water or water-related land resource construction, has project met the standards and criteria as per *the Principles and Standards for Planning Water and Related Land Resources dated October 25, 1973*?

Not Applicable

5. FAA Sec. 611(e). If project is capital assistance (e.g., construction), and all U.S. assistance for it will exceed $1 million, has Mission Director certified the country's capability effectively to maintain and utilize the project?

Not Applicable. Project is not a capital project (e.g. construction).

6. FAA Sec. 209, 619. Is project susceptible of execution as part of regional or multilateral project? If so why is project not so executed? Information and conclusion whether assistance will encourage regional development programs. If assistance is for newly independent country, is it furnished through multilateral organizations or plans to the maximum extent appropriate?

No

7. FAA Sec. 601(a); (and Sec. 201(f) for development loans). Information and conclusion whether project will encourage efforts of the country to: (a) increase the flow of international trade; (b) foster private initiative and competition; (c) encourage development and use of cooperatives, credit unions, and savings and loan associations; (d) discourage monopolistic practices; (e) improve technical efficiency of industry, agriculture and commerce; and (f) strengthen free labor unions.

(a) The project is not expected to encourage the flow of international trade. (b) Private initiative and honest competition will likely follow the training of fish farmers to produce fish fingerlings for sale and private use. (c) As freshwater fish production develops and income increase, marketing systems, cooperatives, credit unions and savings and loan association are likely to be encouraged. (d) No predictable effect. (e) Technical efficiency of farmers and extension workers will be improved. (f) Not applicable.

8. FAA Sec. 601(b). Information and conclusion on how project will encourage U.S. private trade and investment abroad and encourage private U.S. participation in foreign assistance programs (including use of private trade channels and the services of U.S. private enterprise).

U.S. suppliers will benefit from the sale of commodities for project use and U.S. educational institutions will benefit from participatory and technical advisory components of the project.

9. FAA Sec. 612(b); Sec. 636(h). Describe steps taken to assure that, to the maximum extent possible, the country is contributing local currencies to meet the cost of contractual and other services, and foreign currencies owned by the U.S. are utilized to meet the cost of contractual and other services.

The GRP has already appropriated and spent funds for construction costs. Total GRP project costs will exceed 48% of total project costs.

10. FAA Sec. 612(d). Does the U.S. own excess foreign currency and, if so, what arrangements have been made for its release?

No

11. *FAA 14. Are any FAA funds for FY 78 being used in this Project to construct, operate, maintain, or supply fuel for, any nuclear powerplant under an agreement for cooperation between the United States and any other country?*

No

B. FUNDING CRITERIA FOR PROJECT

1. Development Assistance Project Criteria

a. FAA Sec. 102(c); Sec. 111; Sec. 281a. Extent to which activity will (a) effectively involve the poor in development, by extending access to economy at local level, increasing labor-intensive production, spreading investment out from cities to small towns and rural areas; and (b) help develop cooperatives, especially by technical assistance, to assist rural and urban poor to help themselves toward better life, and otherwise encourage democratic private and local governmental institutions?

About 7,500 rural, low-income families will directly benefit from fish farming training programs and extension programs by improving their skills and producing fish for home consumption and for sale at local markets.

B1

b. FAA Sec. 103, 103A, 104, 105, 106, 107. Is assistance being made available: [Include only applicable paragraph -- e.g., a, b, etc. -- which corresponds to source of funds used. If more than one fund source is used for project, include relevant paragraph for each fund source.]

(1) [103] for agriculture, rural development or nutrition; if so, extent to which activity is specifically designed to increase productivity and income of rural poor; [103A] if for agricultural research, is full account taken of needs of small farmers;

Yes. Project is designed to increase production of fish in Central Luzon by 3,187 thousand metric tons, equivalent to an increase in per capita availability of fish of 0.75 kg for the areas' 45 million residents. Family income of 7,500 farmers will be increased.

(2) [104] for population planning or health; if so, extent to which activity extends low-cost, integrated delivery systems to provide health and family planning services, especially to rural areas and poor;

Not Applicable

(3) [105] for education, public administration, or human resources development; if so, extent to which activity strengthens nonformal education, makes formal education more relevant, especially for rural families and urban poor, or strengthens management capability of institutions enabling the poor to participate in development;

Not Applicable

(4) [106] for technical assistance, energy, research, reconstruction, and selected development problems; if so, extent activity is:

(a) technical cooperation and development, especially with U.S. private and voluntary, or regional and international development, organizations;

(b) to help alleviate energy problem;

(c) research into, and evaluation of, economic development processes and techniques;

(d) reconstruction after natural or manmade disaster;

(e) for special development problem, and to enable proper utilization of earlier U.S. infrastructure, etc., assistance;

(f) for programs of urban development, especially small labor-intensive enterprises, marketing systems, and financial or other institutions to help urban poor participate in economic and social development.

81b

(5) [107] by grants for coordinated private effort to develop and disseminate intermediate technologies appropriate for developing countries.	Not Applicable
c. FAA Sec. 110(a); Sec. 208(e). Is the recipient country willing to contribute funds to the project, and in what manner has or will it provide assurances that it will provide at least 25% of the costs of the program, project, or activity with respect to which the assistance is to be furnished (or has the latter cost-sharing requirement been waived for a "relatively least-developed" country)?	Yes, the GRP has already spent or agreed to spend about 48% of total project costs. Assurances and administrative arrangements for GRP contribution will be included in the Grant Agreement.
d. FAA Sec. 110(b). Will grant capital assistance be disbursed for project over more than 3 years? If so, has justification satisfactory to Congress been made, and efforts for other financing, *or is the recipient country "relatively least developed"?*	Yes, however, over 90% of the grant capital assistance will be disbursed during first 3 years. See PP Table 4.
e. FAA Sec. 207; Sec. 113. Extent to which assistance reflects appropriate emphasis on; (1) encouraging development of democratic, economic, political, and social institutions; (2) self-help in meeting the country's food needs; (3) improving availability of trained worker-power in the country; (4) programs designed to meet the country's health needs; (5) other important areas of economic, political, and social development, including industry, free labor unions, cooperatives, and Voluntary Agencies; transportation and communication; planning and public administration; urban development, and modernization of existing laws; or (6) integrating women into the recipient country's national economy.	(1) The project will encourage small-scale fish production and improve socio-economic status of farm families; (2) encourage self-help by growing food fish in paddies with rice; (3) improve the number of trained extension workers; (4) improve the nutrition of 7,500 farm families by providing more high quality protein; (5) encourage entrepreneurs to produce and sell fish seedlings; and (6) train and integrate women extension workers into the recipient country's economy.
f. FAA Sec. 281(b). Describe extent to which program recognizes the particular needs, desires, and capacities of the people of the country; utilizes the country's intellectual resources to encourage institutional development; and supports civic education and training in skills required for effective participation in governmental and political processes essential to self-government.	The project will assist the GRP develop its own institutional capability in freshwater fish farming which has been recognized as a way of increasing the country's food supply. Filipino workers will be trained to develop and utilize available resources and institutions to encourage fish farming and to train other Filipinos in skills required to develop and sustain a national freshwater aquaculture extension program.

B1

g. FAA Sec. 201(b)(2)-(4) and -(8); Sec. 201(e); Sec. 211(a)(1)-(3) and -(8). Does the activity give reasonable promise of contributing to the development: of economic resources, or to the increase of productive capacities and self-sustaining economic growth; or of educational or other institutions directed toward social progress? Is it related to and consistent with other development activities, and will it contribute to realizable long-range objectives? And does project paper provide information and conclusion on an activity's economic and technical soundness?

Yes, the project will help develop a freshwater fisheries program that will improve the quality of life of rural families which relates directly to the CRP's long-range goals and strategies to meet basic human needs of Filipinos. The PP provides information and conclusions on the project's economic and technical soundness (See PP Part III-A and B).

h. FAA Sec. 201(b)(6); Sec. 211(a)(5), (6). Information and conclusion on possible effects of the assistance on U.S. economy, with special reference to areas of substential labor surplus, and extent to which U.S. commodities and assistance are furnished in a manner consistent with improving or safeguarding the U.S. balance-of-payments position.

The project will have only a slight but positive effect on the U.S. economy. A portion (about 25%) of the grant will be used to purchase commodities which will come from U.S. sources.

2. Development Assistance Project Criteria (Loans only)

Not Applicable

a. FAA Sec. 201(b)(1). Information and conclusion on availability of financing from other free-world sources, including private sources within U.S.

b. FAA Sec. 201(b)(2); 201(d). Information and conclusion on (1) capacity of the country to repay the loan, including reasonableness of repayment prospects, and (2) reasonableness and legality (under laws of country and U.S.) of lending and relending terms of the loan.

c. FAA Sec. 201(e). If loan is not made pursuant to a multilateral plan, and the amount of the loan exceeds $100,000, has country submitted to AID an application for such funds together with assurances to indicate that funds will be used in an economically and technically sound manner?

d. FAA Sec. 201(f). Does project paper describe how project will promote the country's economic development taking into account the country's human and material resources requirements and relationship between ultimate objectives of the project and overall economic development?

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e. FAA Sec. 202(a). Total amount of money under loan which is going directly to private enterprise, is going to intermediate credit institutions or other borrowers for use by private enterprise, is being used to finance imports from private sources, or is otherwise being used to finance procurements from private sources?

f. FAA Sec. 620(d). If assistance is for any productive enterprise which will compete in the U.S. with U.S. enterprise, is there an agreement by the recipient country to prevent export to the U.S. of more than 20% of the enterprise's annual production during the life of the loan?

3. Project Criteria Solely for Security Supporting Assistance — **Not Applicable**

a. FAA Sec. 531. How will this assistance support promote economic or political stability?

b. FAA Sec. 533(c)(1). *Will assistance under the Southern African Special Requirements Fund be used for military, guerrilla, or paramilitary activities?*

4. Additional Criteria for Alliance for Progress — **Not Applicable**

[Note: Alliance for Progress projects should add the following two items to a project checklist.]

a. FAA Sec. 251(b)(1), -(8). Does assistance take into account principles of the Act of Bogota and the Charter of Punta del Este; and to what extent will the activity contribute to the economic or political integration of Latin America?

b. FAA Sec. 251(b)(8); 251(h). For loans, has there been taken into account the effort made by recipient nation to repatriate capital invested in other countries by their own citizens? Is assistance consistent with the findings and recommendations of the Inter-American Committee for the Alliance for Progress (now "CEPLES," the Permanent Executive Committee of the OAS) in its annual review of national development activities?

5C(3) - Standard Item Checklist - **Not Applicable**

ANNEX N

U.S. AGENCY FOR INTERNATIONAL DEVELOPMENT
Manila, Philippines

Ramon Magsaysay Center
1680 Roxas Boulevard

Telephone: 59-80-11

CERTIFICATION PURSUANT TO SECTION 611 (e) OF THE FOREIGN ASSISTANCE ACT OF 1961, AS AMENDED

I, Peter M. Cody, the Principal Officer of the Agency for International Development in the Philippines, having taken into account, inter alia, the maintenance and utilization of the Project in the Philippines previously financed or assisted by the United States, do hereby certify that, in my judgment, the Philippines has both the financial capacity and the human resources capability to effectively implement and execute the proposed Freshwater Fisheries Development Project Grant.

This judgment is based upon the project analysis as detailed in the Freshwater Fisheries Development Project Paper and is subject to the conditions imposed upon.

Peter M. Cody
Mission Director
USAID/Philippines

December 14, 1978
Date

Initial Environmental Examination

Project Location	:	Philippines
Project Title	:	Freshwater Fisheries Development
Funding	:	FY 1979 - $ 400,000; Total for Subsequent Years FY 1980-84 - 1,100,000
Life of Project	:	5 Years
IEE Prepared by	:	Johnie H. Crance and Richard Neal
Date	:	October, 1978
Environmental Action Recommended	:	Negative Determination, See Part II
Concurrence	:	

Peter M. Cody
Mission Director

Date: 10/19/78

Threshold Decision by Assistant Administrator:

Approval/disapproval of negative determination recommended on page 7 of this IEE.

Approved: _____

Disapproved: _____

Date: _____

IMPACT IDENTIFICATION AND EVALUATION FORM

Impact Areas and Sub-areas	Impact Identification and Evaluation*
A. LAND USE	
1. Changing the character of the land through:	
a. Increasing the population	N
b. Extracting natural resources	N
c. Land clearing	L
d. Changing soil character	L
2. Altering natural defenses	N
3. Foreclosing important uses	N
4. Joepardizing man or his works	N
B. WATER QUALITY	
1. Physical state of water	L
2. Chemical and biological states	L
3. Ecological balance	L
C. ATMOSPHERIC	
1. Air additives	N
2. Air pollution	N
3. Noise pollution	N
D. NATURAL RESOURCES	
1. Diversion, altered use of water	L
2. Irreversible, inefficient commitments	N
E. CULTURAL	
1. Altering physical symbols	N
2. Dilution of cultural traditions	N

* N - No environmental impact
L - Little environmental impact
M - Moderate environmental impact
H - High environmental impact
U - Unknown environmental impact

	Impact Identification and Evaluation
F. SOCIOECONOMIC	
1. Changes in economic/employment patterns	L
2. Changes in population	N
3. Changes in cultural patterns	N
G. HEALTH	
1. Changing a natural environment	N
2. Eliminating an ecosystem element	N
H. GENERAL	
1. International impacts	N
2. Controversial impacts	N
3. Larger program impacts	N
I. OTHER IMPACTS (not listed above)	N

See attached Discussion of Impacts.

Initial Environmental Examination
Freshwater Fisheries Development

I. Examination of Nature, Scope and Magnitude of Environmental Impacts

Description of Environmental Effects of the Project

A. Description of Project

A freshwater fish hatchery-extension training center-consisting of buildings and earthen ponds will be constructed on a 20-hectare site adjacent to the Freshwater Aquaculture Center (FAC) located on the campus of Central Luzon State University (CLSU) near Munoz, Nueva Ecija. BFAR is building the hatchery; AID's input will be equipment, and technical assistance with hatchery and extension. Although AID's input through this project is only a part of the entire activity, the total program impact is considered here. A fish hatchery will be constructed consisting of up to 81 earthen ponds ranging in size from 500 to 10,300 sq. meters; buildings including staff housing, an administrative office building (300 m^2), a hatchery laboratory (1,500 m^2) and a service-storage building (600 m^2); and a series of outdoor concrete tanks. Two deep wells and a water tank will be built, and existing road beds will be improved and tarred.

This facility will be used to rear fingerling fish utilizing both static water ponds and tanks for which some water exchange is required. Two 1.2 hectare ponds will serve as storage basins and will receive effluent being recycled to conserve water. Water sources for the hatchery will be an irrigation feeder canal (approximately 90%) and deep wells (approximately 10%).

Extension short courses and practical demonstrations will be given at the Center. Resident staff will be about 42 people and an additional 10 to 40 people may attend short courses.

About 18-20 million fish seedlings produced at the hatchery will be distributed to small rice farmers for use in rice-fish paddies. The rice-fish farmers to be served live in six provinces of Central Luzon (Pampanga, Bulacan, Nueva Ecija, Tarlac, Bataan and Zambales). Very few modifications of the rice paddies are involved in converting from rice only to rice-fish. Additional farmers will build small ponds for intensive fish culture, fish-livestock farming or private hatcheries.

B. Identification and Evaluation of Environmental Impacts

1. Summary

The proposed project is expected to have few if any adverse effects on the environment. Ultimately, a beneficial impact on the environment will likely result. Rice farmers who adopt the practice of growing fish in irrigated paddies are apt to use pesticides more discriminately. The quantities of pesticides used will be less and applications are likely to be less frequent as rice-fish farmers become aware of the need to use pesticides prudently to grow fish.

See attached Identification and Evaluation Form.

2. Discussion of Impact

(a) Land Use: Alterations in land use of 20 hectares will result from construction of the fish hatchery and associated facilities. The hatchery site was formerly a rice field. About 18 hectares of the area will be excavated to a depth of up to 2 meters for pond construction. Part of the area will be filled for dikes, roadways and building sites. The site is adjacent to an existing freshwater aquaculture research center and will utilize existing access roads and electric power lines. The deepwater wells will provide potable water and septic tanks will enter a seepage field on the hatchery site.

Land use changes in farming areas resulting from project activities will primarily shifts from rice to rice-fish culture on approximately 9,000 hectares of land during the life of this project. Since very few physical changes are required for this transition land use changes are negligible. As much as 750 additional hectares of land of marginal value for rice may be converted to ponds for fish culture only during the project. It is assumed that these changes will be made by land owners only if it has been clearly demonstrated to be a more profitable option then present uses.

(b) Water Quality: At the hatchery site most of the water received from the irrigation canals and the deep wells will be recirculated through the storage basins and reused. Primary water loss will be through evaporation.

A small effluent (ranging from 0 to 120 m^3/day during normal operation and reaching peaks of 1000 m^3/day occasionally when ponds are drained) will enter a drainage ditch serving the area.

Because high water quality must be maintained for fish culture the water quality of the effluent will always be good. No pesticides or chemical pollutants will be present, and although nitrates and phosphates will characteristically be present at higher levels than in the well water, this effluent will be much "cleaner" than drainage from nearby rice fields entering the same watershed. No negative effects of this effluent are anticipated.

Sewage from the buildings will enter septic tanks and drainage will enter a gravel drainage field on the site. A separate set of tanks will be used to handle laboratory wastes which may contain acids or chemicals with toxic characteristics.

In the farming areas a similar situation will exist. Waters containing fish will have to be maintained in a "cleaner" condition than is the usual practice for rice fields. The overall impact will be a positive one with respect to water quality.

Initial construction at both the hatchery and in farm areas will result in some erosion of unprotected soils and consequent siltation of adjacent waters. Stabilization of exposed soils will be accomplished quickly with appropriate ground covers.

(c) Atmosphere: Atmospheric conditions will not be affected by project activities.

(d) Natural Resources: Other than land, which is discussed above, water is the only natural resource to be used directly in the project. Ground water and irrigation water are adequately available to insure no negative effects.

The species to be reared at the hatchery, carp, Cyprinus carpio, and tilapia, Tilapia nilotica, have been cultured for many years in the Philippines and occur in natural waters and irrigation systems throughout the country. No negative environmental effects have been attributed to the presence of these

species in the Philippines and none will be caused by this project. The BFAR has stocked these species in reservoirs and other natural waters in Central Luzon for many years as a means of increasing fish productio

(e) Cultural: The cultural heritage of the Filipino peopl includes a strong fishing and fish farming tradition which will be strengthened through this project.

(f) Socioeconomic: The socioeconomic impact will be a positive one. Increased employment and income will be generated for 7,500 or more families during the life of the project and potentially for many times this number in the future.

(g) Health: Impacts on health of the rural and urban poor will also be positive since 3,200 tons of high protein food having a desirable amino-acid balance will be produced, and this food will be low priced (₱7/kg) relative to meat, poultry and other fish.

Shistosomiasis is not a problem in Central Luzon. Mosquito survival in heavily stocked fish ponds is very low because fish used consume mosquito larvae; therefore, mosquito-borne diseases will not be increased.

(h) General: No negative impacts of an overriding international, national or local nature likely to cause concern or affect the U.S. are expected. Broad international interest among developing countries in rice-fish culture is evident and other countries can be expected to adopt the technology used in the Philippines.

II. Recommendation for Environmental Action

The project is expected to improve the nutrition and increase the income of rural and urban poor Filipino families. The character of the project and initial environmental examination indicate no significant adverse effects on the environment. Beneficial environmental results are expected to occur as farmers adopt the practice of growing rice-fish which requires more judicious use of selected pesticides. Therefore, it is recommended that a negative environmental determination be made for the Freshwater Fisheries Production Project.

AGENCY FOR INTERNATIONAL DEVELOPMENT

PROJECT AUTHORIZATION AND REQUEST FOR ALLOTMENT OF FUNDS PART I

1. TRANSACTION CODE: [A] A ADD, C CHANGE, D DELETE — PAF
2. DOCUMENT CODE: 5
3. COUNTRY/ENTITY: Philippines
4. DOCUMENT REVISION NUMBER:
5. PROJECT NUMBER (7 digits): [492-0322]
6. BUREAU/OFFICE: A SYMBOL: ASIA; B CODE: [04]
7. PROJECT TITLE (Maximum 40 characters): [FRESHWATER FISHERIES DEVELOPMENT]
8. PROJECT APPROVAL DECISION — ACTION TAKEN: [ ] A APPROVED, D DISAPPROVED, DE DEAUTHORIZED
9. EST. PERIOD OF IMPLEMENTATION: YRS [05] QTRS [0]

10. APPROVED BUDGET AID APPROPRIATED FUNDS ($000)

A. APPROPRIATION	B. PRIMARY PURPOSE CODE	PRIMARY TECH. CODE		E. 1ST FY		H. 2ND FY		K. 3RD FY	
		C. GRANT	D. LOAN	F. GRANT	G. LOAN	GRANT	J. LOAN	L. GRANT	M. LOAN
(1) FN	B 322	319		400		1,100			
(2)									
(3)									
(4)									
TOTALS				400		1,100			

A. APPROPRIATION	N. 4TH FY		O. 5TH FY		LIFE OF PROJECT	
	O. GRANT	P. LOAN	R. GRANT	S. LOAN	T. GRANT	U. LOAN
(1) FN					1,500	
(2)						
(3)						
(4)						
TOTALS					1,500	

11. PROJECT FUNDING AUTHORIZED — A. GRANT; B. LOAN
ENTER APPROPRIATE CODE(S): 1 = LIFE OF PROJECT; 2 = INCREMENTAL LIFE OF PROJECT
A. GRANT: 2
C. PROJECT FUNDING AUTHORIZED THRU: FY [80]

12. INITIAL PROJECT FUNDING ALLOTMENT REQUESTED $.00

A. APPROPRIATION	B. ALLOTMENT REQUESTED — GRANT
(1)	400
(2)	
(3)	
(4)	
TOTALS	400

13. FUNDS RESERVED FOR ALLOTMENT
TYPED NAME (LAST, FIRST, MI)
SIGNATURE
DATE

14. SOURCE ORIGIN OF GOODS AND SERVICES: [ ] 000 [X] 941 [ ] LOCAL [ ] OTHER 935

15. FOR AMENDMENTS NATURE OF CHANGE PROPOSED

FOR PPC/PIAS USE ONLY	16. AUTHORIZING OFFICE SYMBOL	ACTION DATE MM DD YY	18. ACTION REFERENCE (Optional)	ACTION REFERENCE DATE MM DD YY

AID 1880-6 (7-76)

PROJECT AUTHORIZATION AND REQUEST FOR ALLOTMENT OF FUNDS

Name of Country: Philippines Name of Project: **Freshwater Fisheries Development**
Number of Project: 492-0322

Pursuant to Part, I, Chapter I, Section 103 of the Foreign Assistance Act of 1961, as amended, I hereby authorize a grant to the Government of the Republic of the Philippines of not to exceed One Million Five Hundred Thousand United States Dollars ($1,500,000), the ("authorized amount") to help in financing certain foreign exchange and local currency costs of goods and services required for the project as described in the following paragraph.

The project consists of establishing a Freshwater Fish Hatchery-Extension Training Center to support and increase freshwater fish production and consumption in the Central Luzon area of the Republic of the Philippines.

I approve the total level of AID appropriated funding for this project of not to exceed Four Hundred Thousand United States Dollars ($400,000) Grant funded, including the funding authorized above, during the period FY 1979, I approve a further increment AID appropriated funding for this project of not to exceed One Million One Hundred Thousand United States Dollars ($1,100,000) during the period FY 1980, subject to the availability of funds in accordance with AID allotment procedures.

I hereby authorize the initiation of negotiation and execution of the Project Agreement by the office to whom such authority has been delegated in accordance with AID regulations and delegations of authority subject to the following essential terms and major conditions, together with such other terms and conditions as AID may deem appropriate.

A. Source and Origin of Goods and Services

Goods and services except for ocean shipping and except as authorized in Paragraph D.(a) below and except as AID may otherwise agree in writing, financed by AID under the project shall have their source and origin in the United States of America. Ocean shipping financed under the grant shall be procured in any eligible source country except the Republic of the Philippines.

B. Conditions Precedent

a. While it is expected that actual construction will be underway well before the project is authorized the GRP will present to USAID prior to disbursement of grant funds (except funds for the USAID Project Manager) evidence that the PFH-ETC facilities will be substantially completed within 6-month period after signing the Project Agreement. An executed contract between the GRP and a construction firm with construction initiated would be satisfactory.

b. Prior to the disbursement of grant funds (except funds for the USAID Project Manager) the GRP must present satisfactory evidence to USAID that adequate staff housing for both long and short-term TAMU advisors will be available at CLSU. A memorandum of agreement providing for utilization of CLSU staff facilities on an availability basis would be satisfactory

c. Evidence that qualified managerial and professional staff will be assigned to the [illegible]TC and that they will be available for long and short-term participant training as described in the Project Paper. An exchange of letters between USAID and BFAR identifying actual or potential incumbents for the staff positions and presenting bio-data for each will be satisfactory evidence of intent.

d. Evidence that the GRP will charge a nominal fee for fish seedlings produced at the FFH-ETC and distributed to private individuals

C. Covenants

a. The GRP covenants to support staff and budgets for annual operation and [illegible]enance of the FFH-ETC throughout the life of the Project.

b. The GRP covenants that participants trained under this Project will be assigned to positions which support Project objectives through the [illegible] Project unless concurrence by USAID in the disc[illegible] their service under the Project is obtained.

D. Procurement Waiver

a. A waiver for procurement source from AID Goegraphic Code 941 to AID Geographic Code 935 countries for the purchase of 15 motorcycles with spare parts, 15 safety helmets and instruction to 20 individuals for operating and maintenance of the motorcycles. The motorcycles are to serve as a means of official travel for extension workers under the project. Subject equipment and instruction is essential to the project and equipment of similar specifications and local maintenance for the equipment are not available from Geographic Code 941 countries.

b. A waiver [illegible]ocurement source from AID Geographic Code 941 to AID Geog[illegible]ode 935 countries for the purchase of 12 35 MM SLR cam[illegible]service the needs of the Training Center and the Extens[illegible]gents. Subject Equipment is essential to the project cameras of similar technical specifications are not available from [illegible] sources.

c. A waiver for authorization to purchase ten hand-held calculators. Subject equipment is necessary for use by field extension workers in making on-the-site calculations for determining the area of water in ponds and paddies to be stocked and the correct number of fish to be stocked. Subject equipment is available from U.S. sources.

MEMORANDUM OF AGREEMENT

KNOW ALL MEN BY THESE PRESENTS:

. . This Memorandum of Agreement, made and entered by and between:

. The CENTRAL LUZON STATE UNIVERSITY, a government-owned educational institution, created and existing under and by virtue of RA No. 4067 with principal office at Muñoz, Nueva Ecija, represented herein by its President, DR. AMADO C. CAMPOS, of legal age, Filipino, married and with postal address at Central Luzon State University, Muñoz, Nueva Ecija duly authorized by the Board of Regents to enter into this contract under its resolution No. 1797-2 S. 1978, dated May 23, 1978 hereinafter referred to as the CLSU,

- and -

The BUREAU OF FISHERIES AND AQUATIC RESOURCES, created and existing under and by virtue of Presidential Decree Nos. 1 and 461, represented herein by its Director, FELIX R. GONZALES, of legal age, Filipino, married and with postal address at the Bureau of Fisheries and Aquatic Resources, Arcadia Building, 860 Quezon Avenue, Quezon City hereinafter referred to as the BFAR;

W I T N E S S E T H :

. WHEREAS, CLSU is the absolute owner of a certain parcel of land situated in the Municipality of Muñoz, Province of Nueva Ecija, covered by Original Certificate of Title No. 0-3690 of the Register of Deeds of Nueva Ecija and containing an area of SIX MILLION FIVE HUNDRED FORTY THOUSAND FIVE HUNDRED FIFTEEN (6,540,515) SQUARE METERS, more or less and which is more particularly described as follows:

"A parcel of land (lot No. 2260 of the cadastral survey of Muñoz cad. case No. 12, LRC cad. Record No.273), situated in the Municipality of Muñoz, Province of Nueva Ecija. Bounded on the N., points 11-12, by lot No. 1954, points 12-14, by lot No. 1947, points 14-15, by lot No. 1948, points 15-17, by lot No. 1949, points 17-18, by lot No. 2258, points 18-19, by lot No. 2259, points 19-20, by lot No. 2534,,points 20-21, by creek, points 21-23, by lot No. 2253, points 23-24, by creek, points 24-25, by lot No. 2261, points 25-26, by road and points 26-27, lot No. 2262: on NE.,

SIGNED IN THE PRESENCE OF:

CENTRAL LUZON STATE UNIVERSITY
By:
AMADO C. CAMPOS
President

SIGNED IN THE PRESENCE OF:

BUREAU OF FISHERIES AND AQUATIC RESOURCES
By:
FELIX R. GONZALES
Director

points 27-28, by lot No. 308: on the E., point 28-29, by lot No. 2272, points 29-30, by lot No.2273, points 30-31, by lot No. 48, points 31-33, by lot No. 2275, points 33 to 35, by lot No. 2288, points 35-36, by creek and points 36-37, by lot No. 2287 : on the S., points 37-38, by lot No. 2299, points 38-39, by lot No. 2300, points 40-41, by creek, points 41-43, by lot No. 2303, points 43-44, by creek, points 44-45, by lot No. 2305, points 45-46, by lot No. 2306, points 46-47, by lot No.1565, points 47-48, by creek, points 48-49, by lot No. 1666, points 49-50, by lot No. 1667, points 50-51, by lot No. 1669, points 51-52, by irrigation , and points 52-53, by lot No. 1809, and on the W., points 53-54, by lot No. 1809, points 54-1 and 1-2, by lot No. 2449, points 2-3, by lot No. 1921, points 3-4, by creek, points 4-5, by lot No. 1926, points 5-6, by lot No. 1927, points 6-8, by lot No. 1934 points 8-9, by lot No. 1935, points 9-10, by lot No. 1945 and points 10-11, by lot No. 1946, beginning at a point marked "1" on plan, being S. 11 deg. 55°E., 260.40 m. from No. 25: T H E N C E :

N	11°	35'W	135.09 m.	to point 2
N	11°	47'W	153.24 m.	to point 3
N	11°	53'W	43.31 m.	to point 4
N	11°	51'W	77.52 m.	to point 5
N	11°	51'W	189.45 m.	to point 6
N	11°	51'W	56.75 m.	to point 7
N	11°	[illegible]'W	164.12 m.	to point 8
N	11°	[illegible]'W	277.45 m.	to point 9
N	11°	51'W	58.40 m.	to point 10
N	11°	51'W	112.49 m.	to point 11
N	88°	37'E	110.00 m.	to point 12
N	88°	37'E	353.67 m.	to point 13
N	88°	37'E	101.08 m.	to point 14
N	88°	25'E	604.99 m.	to point 15
N	88°	37'E	290.00 m.	to point 16
N	88°	37'E	14.49 m.	to point 17
N	88°	37'E	143.90 m.	to point 18
N	88°	37'E	197.61 m.	to point 19
S	73°	22'E	6.67 m.	to point 20
N	88°	37'E	26.70 m.	to point 21
N	88°	37'E	104.43 m.	to point 22
N	88°	37'E	173.57 m.	to point 23
N	88°	35'E	13.39 m.	to point 24
N	88°	37'E	338.63 m.	to point 25
N	88°	38'E	15.10 m.	to point 26
N	88°	37'E	346.77 m.	to point 27
N	57°	02'E	465.14 m.	to point 28
S	8°	21'E	215.50 m.	to point 29
S	9°	01'E	448.00 m.	to point 30
S	9°	01'E	93.33 m.	to point 31
S	9°	01'E	108.10 m.	to point 32
S	9°	01'E	74.90 m.	to point 33
S	9°	01'E	44.85 m.	to point 34
S	9°	01'E	619.06 m.	to point 35

SIGNED IN THE PRESENCE OF:

CENTRAL LUZON STATE UNIVERSITY

By:

AMADO C. CAMPOS
President

SIGNED IN THE PRESENCE OF:

BUREAU OF FISHERIES & AQUATIC RESOURCES

By:

FELIX R. GONZALES
Director

S	9° 01'E	24.11 m.	to point 36
S	9° 01'E	237.04 m.	to point 37
S	89° 15'W	79.46 m.	to point 38
S	89° 15'W	219.68 m.	to point 39
S	89° 15'W	32.90 m.	to point 40
S	89° 15'W	7.04 m.	to point 41
S	89° 15'W	18.51 m.	to point 42
S	89° 15'W	530.60 m.	to point 43
S	89° 15'W	7.62 m.	to point 44
S	89° 15'W	377.57 m.	to point 45
S	89° 15'W	285.31 m.	to point 46
S	89° 15'W	493.72 m.	to point 47
S	89° 15'W	6.66 m.	to point 48
S	89° 15'W	206.30 m.	to point 49
S	89° 15'W	221.24 m.	to point 50
S	89° 15'W	193.94 m.	to point 51
S	89° 15'W	8.61 m.	to point 52
S	89° 15'W	325.00 m.	to point 53
N	11° 29'W	373.51 m.	to point of

beginning: containing an area of SIX MILLION FIVE HUNDRED FORTY THOUSAND FIVE HUNDRED FIFTEEN (6,540,515) SQUARE METERS. more or less. All points referred to are indicated on the plan and marked on the ground: bearings true; date of cadastral survey, August 1917-February 1919. "

WHEREAS, CLSU has offered the use and BFAR desires to use and occupy a certain portion of the aforementioned lot as Freshwater Fish Hatchery and Fisheries Extension Center with emphasis on demonstration and training, with an area of TWENTY (20) HECTARES more or less, and which is more particularly described as follows:

"A parcel of land Lot 2260-N-1 (portion of Lot 2260-N Psd 5072 of cadastral survey of Muñoz Case No. 12 LRC Cad. record No. 273) situated in the Municipality of Muñoz, Province of Nueva Ecija. Bounded in the North by Lot 2260-N, on the east by lots 2875, 2288, on the south by lot 2260-N, on the west by Lot 2260-N beginning at a point marked "1" on the plan being point 22 of the original plan T H E N C E :

S	9° 01'E	74.90 m.	to point 2
S	9° 01'E	44.85 m.	to point 3
S	9° 01'E	180.00 m.	to point 4
S	83° 47'W	547.00 m.	to point 5
N	12° 05'W	368.00 m.	to point 6
N	83° 25'E	554.00 m.	to point 7
S	9° 01'E	69.25 m.	to point of

beginning: containing an area of TWO HUNDRED THOUSAND (200,000) SQUARE METERS, more or less. All points referred to are indicated on the plan; bearing true; date prepared April 28, 1978."

SIGNED IN THE PRESENCE OF:

CENTRAL LUZON STATE UNIVERSITY

By:

AMADO G. CAMPOS
President

SIGNED IN THE PRESENCE OF:

BUREAU OF FISHERIES AND AQUATIC RESOURCES

By:

FELIX R. GONZALES
Director

NOW, THEREFORE, for and in consideration of the terms and conditions herein contained, the parties hereto have agreed, as they hereby agree, as follows:

1. This agreement shall be for a period of TWENTY FIVE (25) YEARS, commencing from the date of its approval by all government authorities concerned;

2. BFAR shall not sublet the property or any part thereof;

3. BFAR shall use the premises exclusively as building site, demonstration farms and hatchery ponds, training center and other related activities in order to promote the program on freshwater aquaculture development of the national government;

4. CLSU may avail of the facilities of the center for the benefit of the university staff and students;

5. BFAR may avail of CLSU facilities such as the training and dormitory buildings, as well as the services of the library, athletics, security force, medical, recreational and other activities thereat;

6. Before construction plans are finalized, BFAR should discuss it with CLSU authorities to make the development plans of the two agencies complement each other;

7. That all permanent improvements of the Freshwater Fish Hatchery and Fisheries Extension Center of BFAR shall be donated to CLSU gratuitously upon termination of the agreement or when the [illegible] is not met, after an inventory, accounting of the same has been conducted by the Commission on Audit;

8. This agreement shall be subject to the approval of the CLSU Board of Regents and of the Ministry of Natural Resources;

9. This Memorandum of Agreement may be changed or renewed upon mutual agreement of both parties for another twenty five (25) years;

10. That the parties agree to have this Memorandum of Agreement be annotated at the back of the aforementioned OCT.

SIGNED IN THE PRESENCE OF:

CENTRAL LUZON STATE UNIVERSITY

By:

AMADO C. CAMPOS
President

SIGNED IN THE PRESENCE OF:

BUREAU OF FISHERIES AND AQUATIC RESOURCES

By:

FELIX R. GONZALES
Director

IN WITNESS WHEREOF, THE CLSU have hereunto affixed his signature this _____ day of _____, 1978 at Muñoz, Nueva Ecija, Philippines.

CENTRAL LUZON STATE UNIVERSITY

By:

AMADO C. CAMPOS
President

SIGNED IN THE PRESENCE OF:

1. _____ 2. _____

BUREAU OF FISHERIES AND AQUATIC RESOURCES

By:

FELIX R. GONZALES
Director

SIGNED IN THE PRESENCE OF:

CENTRAL LUZON STATE UNIVERSITY

By:

AMADO C. CAMPOS
President

SIGNED IN THE PRESENCE OF:

BUREAU OF FISHERIES AND AQUATIC RESOURCES

By:

FELIX R. GONZALES
Director

A C K N O W L E D G E M E N T

REPUBLIC OF THE PHILIPPINES)
PROVINCE OF NUEVA ECIJA : S. S.
MUNICIPALITY OF MUÑOZ)

BEFORE ME, a Notary Public for and within the Province of Nueva Ecija and the Cities of Cabanatuan and San Jose, on this _____ day _____, 1978, personally appeared DR. AMADO C. CAMPOS with Residence Certificate No. A & B 58815643 issued at Muñoz, Nueva Ecija on January 13, 1978 in his official capacity as President of the Central Luzon State University, known to me and to me known to be the same person who executed the foregoing Memorandum of Agreement and he acknowledged to me that the same is his own free voluntary act and deed.

This instrument consisting of eight (8) pages including this page on which this acknowledgement is written has been signed by CLSU and his instrumental witnesses on the left hand margin of pages one (1), two (2), three (3), four (4), six (6), seven (7), eight (8) and at the bottom of five (5) hereof and referring to a Memorandum of Agreement land containing twenty (20) hectares, more or less, of the six million five hundred forty thousand, five hundred fifteen (6,540,515) square meters, more or less, situated in the Municipality of Muñoz, Province of Nueva Ecija and covered by Original Certificate of Title No. 0-3690 of the Register of Deeds of Nueva Ecija.

WITNESS MY HAND AND SEAL ON THE DATE AND PLACE ABOVE WRITTEN.

Notary Public
Until Dec. 31, 1978

Doc. No._____:
Page No._____:
Book No._____:
Series of 1978.__:

SIGNED IN THE PRESENCE OF:

AND, the Bureau of Fisheries and Aquatic Resources, represented herein by its Director, has hereunto affixed his signature this _____ day of _____ 1978 at the City of Manila, Philippines.

BUREAU OF FISHERIES AND
AQUATIC RESOURCES

By:

FELIX R. GONZALES
Director

SIGNED IN THE PRESENCE OF:

1. _____ 2. _____

CENTRAL LUZON STATE
UNIVERSITY

By:

AMADO C. CAMPOS
President

SIGNED IN THE PRESENCE OF

CENTRAL LUZON STATE UNIVERSITY

By:

AMADO C. CAMPOS
President

SIGNED IN THE PRESENCE OF:

BUREAU OF FISHERIES AND AQUATIC RESOURCES

By:

FELIX R. GONZALES
Director

REPUBLIC OF THE PHILIPPINES)
: S. S.
CITY OF MANILA)

BEFORE ME, a Notary Public for and in the City of Manila, Philippines, personally appeared FELIX R. GONZALES, Director of the Bureau of Fisheries and Aquatic Resources, with Residence Certificate No. A & B 04016471, issued at Manila on 3-11-78, known to me and to be known to be the same person who executed the foregoing instrument and he acknowledged to me that the same is his free and voluntary act and deed.

This instrument consisting of eight (8) pages including this page on which this acknowledgement is written has been signed by the BFAR represented herein by its Director and his instrumental witnesses on the left hand margin of pages one (1), two (2), three (3), four (4), five (5), six (6), eight (8) and at the bottom of page seven (7) and referring to a Memorandum of Agreement of a certain portion of land containing an area of twenty (20) hectares, more or less, of the six million five hundred forty thousand five hundred fifteen (6,540,515) square meters, more or less, situated in the Municipality of Muñoz, Nueva Ecija and covered by Original Certificate of Title No. O-2[illegible] of the Register of Deeds of Nueva Ecija.

) SEAL This _____ day of _____, 1978 at _____, Philippines.

Notary Public
Until Dec. 31, 1978

Doc. No. _____
Page No. _____
Book No. _____
Series of 1978 _____

PRO AG
USAID/P

ANNEX B
Page 1 of 5 pages

PROJECT AGREEMENT

BETWEEN THE DEPARTMENT OF STATE, AGENCY FOR INTERNATIONAL DEVELOPMENT (AID)
AN AGENCY OF THE GOVERNMENT OF THE UNITED STATES OF AMERICA, AND
THE NATIONAL ECONOMIC XXXXXXXXX & DEVELOPMENT AUTHORITY
AN AGENCY OF THE GOVERNMENT OF THE PHILIPPINES

Under the terms of the Economic and Technical Cooperation Agreement signed April 27, 1951, and the Standard Provisions ☐ Foreign Currency Standard Provisions ☐ annexes attached; it is agreed to carry out a project in accordance with the terms set forth herein.

1. PROJECT NO.: 492-0325
2. ORIGINAL: ☒
3. REVISION NO.: ☐
4. PROJECT TITLE: Freshwater Aquaculture Development (Hatchery Construction)
AGREEMENT NO.: 78-08
5. ANNEX A PROJECT DESCRIPTION AND EXPLANATION
6. APPROPRIATION:
7. ALLOTMENT:

8. AID FINANCING	PREVIOUS TOTAL (A)	INCREASE (B)	DECREASE (C)	TOTAL TO DATE (D)
a. PERSONNEL COSTS				
PASA				
Contract				
b. PARTICIPANTS				
c. COMMODITIES				
d. OTHER COSTS				
AID Direct				
Contract				
e. TOTAL (Cols)				
f. UN-[illegible]				
9. COP FINANCING				
a. COUNTERPART				
[illegible] PL 480 Title I		5,000,000		5,000,000
Other				
TOTAL (Cols)				
b. OTHER				

10. REFERENCES AND REMARKS:

The purpose of this Project Agreement is to provide funds for the construction of freshwater fish seedling production facilities for freshwater fisheries development and for extension training facilities that will lead to increasing freshwater fisheries production by small producers in the Central Luzon region

CLEARANCES

CLSU -
BFAR -
USAID
Program Manager
Program Officer

11. DATE OF ORIGINAL AGREEMENT: June 15, 1978
12. DATE OF THIS REVISION:
13. EST FINAL CONTRIBUTION DATE: September 30, 1983

14. GOVERNMENT OF THE PHILIPPINES
Signature: MANUEL S. ALBA
Acting Director-General
Title: NEDA

AGENCY FOR INTERNATIONAL DEVELOPMENT
Signature: DR. HERBERT W. DODGE
Acting Director, USAID
Title:

AID 1330-1A (3-78)	PROJECT AGREEMENT	1. Project/Activity No. 492-0345	PAGE 2 OF 5 PAGES
PRO AG CONTINUATION SHEET	BETWEEN THE NATIONAL ECONOMIC AND DEVELOPMENT AUTHORITY	2. Agreement No. 78-03	3. ☒ Original or Revision No.
ANNEX A	AN AGENCY OF THE GOVERNMENT OF THE PHILIPPINES	4. Project/Activity Title: Freshwater Aquaculture Development (Hatchery Construction)	

I. Background

The potential of fish culture in paddies with rice has become a certainty with the advent of new technology for applying chemicals as well as insect/disease resistant varieties of rice. Rice/fish culture perhaps offers the easiest, quickest, and least costly way to produce fish as well as to improve the nutrition and economy of the greatest number of low income people. Technology is available to produce 200 kg/ha/yr of fish in two crops with rice. Few rice paddies are being utilized yet for rice/fish culture, but over 1.3 million hectares exist that could be adapted to this practice.

Yields of up to 3,000 kg/ha/yr can now be obtained from freshwater ponds using such species as tilapia and carps. However, there are only about 6,000 hectares of freshwater fishponds in the country.

The Philippine Government and Central Luzon State University (CLSU), with USAID assistance, have established a Freshwater Aquaculture Center at Munoz, Nueva Ecija, which has conducted basic research on freshwater fishfarming technology, making feasible expanded development of this portion of the fisheries sector. A recently completed fish marketing survey in Central Luzon, jointly conducted by BFAR and USAID, indicates a shortage and high demand for fish in Central Luzon.

Essentially, a freshwater fishfarming industry does not exist in the country although the need is obvious, the potential is great, and the essential requirements of land, water and technology are available. The major constraining factors which limit the immediate and extensive development of a freshwater fishfarming industry are: (1) the lack of a system of producing and distributing large numbers of fish seedlings to fishfarming, and (2) capabilities to extend fishfarming technology.

II. Purpose and Description

The purpose of this Project Agreement is to provide funds to construct basic facilities needed for freshwater fish seedling production and for freshwater aquaculture extension training. Facilities to be constructed and the estimated size and costs are:

For the Cooperating Government or Agency	For the Agency for International Development
SIGNATURE: _____ DATE: _____	SIGNATURE: _____ DATE: _____
TITLE:	TITLE:

ANNEX B

AID 1350-12 (1-69) PRO AG CONTINUATION SHEET ANNEX A	PROJECT AGREEMENT BETWEEN [illegible] NATIONAL ECONOMIC AND DEV. AUTHORITY AN AGENCY OF THE GOVERNMENT OF THE PHILIPPINES	1. Project/Activity No. [illegible] 2. Agreement No. 78-0[illegible] 3. Project/Activity Title: Freshwater Aquaculture Development (Hatchery Construction)	PAGE 3 OF 5 PAGES 3. [x] Original or Revision No. ____

Item	Approximate Size	Estimated Cost (Pesos)
Seedling production ponds 1/	160,000 m^2	2,100,000 2/
Water storage reservoir	13,000 m^2	300,000 3/
Deep well and pump	-	150,000
Administrative building	300 m^2	277,500
Hatchery laboratory	1,500 m^2	1,050,000
Service Building	400 m^2	300,000
Guard House/storage building	200 m^2	105,000
Sub-Total		4,282,500
Contingency		434,500
Cost of Civil Works		4,717,000
Architectural and Engineering Plans		283,000
GRAND TOTAL		5,000,000

1/ Includes all [illegible] inlet/outlet structures and distribution piping.
2/ Volume of earthwork - 350,000 m^3
3/ Volume of earthwork - [illegible]0,000 m^3

III. Designation and Implementing Responsibility

A. Designations

1. The Director, Bureau of Fisheries and Aquatic Resources, or his designee will serve as the Philippine Government Project Manager until construction of facilities described in Item II is complete.

For the Cooperating Government or Agency	For the Agency for International Development
SIGNATURE: ____ DATE: ____	SIGNATURE: ____ DATE: ____
TITLE:	TITLE:

AID 1020-1A (10-68) PRO AG CONTINUATION SHEET ANNEX ___	PROJECT AGREEMENT NATIONAL ECONOMIC AND DEV. AUTHORITY	1. Project/Activity No. 492-0325	PAGE 4 OF 5 PAGES
	AN AGENCY OF THE GOVERNMENT OF THE PHILIPPINES	2. Agreement No. 78-08	3. ☐ Original or Revision No. ___
		3. Project/Activity Title: Freshwater Aquaculture Development (Hatchery Construction)	

2. The Project Manager shall have responsibilities to oversee contracts entered into by the GOP for construction of the facilities.

B. Implementing Responsibilities and Relationships

1. Central Luzon State University shall supply the land for the site of the fish hatchery and extension training facilities. A technical description of the site and a scheme showing the proposed location of the facilities to be constructed are included in Annex 1 of this Project Agreement.

2. The Bureau of Fisheries and Aquatic Resources shall have full responsibilities for operating and maintaining the fish hatchery and extension facilities, including the recruiting of all necessary staff and the rearing and distribution of fish seedlings. Estimates of manpower needs and costs, and operation and maintenance costs for the fish hatchery and extension activities for 1978-1981 are listed in Annex 2 of this Project Agreement.

IV. Explanation of Financing

A. The entire construction costs shall be financed from PL 480 Title I funds, including architectural and engineering plans and specifications for construction.

B. Immediately following approval of this Project Agreement, in accordance with standard Philippine Government practice, the Budget Commission will issue an allotment of PL 480 Title I generated funds to BFAR in the amount of 5.0 million pesos for the purpose of meeting the costs detailed in Section II of this agreement.

C. A timetable for construction of facilities and approximate dates for release of funds by the Project Manager are included in Annex 3 of this Project Agreement.

For the Cooperating Government or Agency	For the Agency for International Development
SIGNATURE: ___ DATE: ___	SIGNATURE: ___ DATE: ___
TITLE:	TITLE:

AID 1350-1A (10-77) PROAG CONTINUATION SHEET ANNEX A	PROJECT AGREEMENT BETWEEN AND NATIONAL ECONOMIC AND DEV. AUTHORITY AN AGENCY OF THE GOVERNMENT OF THE PHILIPPINES	1. Project/Activity No. 492-0325	PAGE 5 OF 5 PAGES
		2. Agreement No. 78-08	3. [X] Original or Revision No.
		3. Project/Activity Title. Freshwater Aquaculture Development (Hatchery Construction)	

D. No obligations will be incurred subsequent to June 30, 1979. Payments of outstanding obligations will be made within 90 days after the terminal date, except as otherwise approved in writing by the NEDA and USAID. Any funds then remaining will revert to the NEDA for reprogramming.

E. Funds and property acquired from funds provided by this project agreement shall be subject to physical examinations, and books of account and other records including contractor reports and records associated with the utilization of these funds shall be subject to audit and examination by the NEDA and/or the USAID controller at such reasonable times as they may desire to make such examinations.

V. Reporting Requirements

A. Bimonthly reports of receipts, disbursements and outstanding obligations or commitments on standard accounting forms together with a trial balance shall be submitted by the Project Manager to the NEDA and the USAID Controller no later than fifteen (15) days following the close of the reporting period.

B. A brief monthly status report to include major actions, progress, problems and plans for the following month will be submitted by the Project Manager to the NEDA and the USAID Office of Agriculture no later than ten (10) days following the close of each month.

VI. Special Provision

A. Development of architectural and engineering plans and the construction of facilities shall be contracted in accordance with Philippine government procedures.

B. Priority in the distribution of fish seedlings produced by the hatchery will be given to meeting the needs of small fish farmers in Central Luzon (Pampanga, Tarlac, Bataan, Zambales, Bulacan and Nueva Ecija), an area that produces about one-fourth of the rice grown in the Philippines.

For the Cooperating Government or Agency	For the Agency for International Development
SIGNATURE: DATE:	SIGNATURE: DATE:
TITLE:	TITLE:

DESCRIPTION OF PROJECT

This grant of One Million Five Hundred Thousand US Dollars ($1,500,000) which will be made under the mode of Title XII of the US Foreign Assistance Act, will provide technical assistance, commodities, project management and evaluation, and participant training for establishing a Freshwater Fish Hatchery-Extension Training Center (FFH-ETC) to support and increase freshwater fish production and construction in the six provinces of Central Luzon. The strategy is to produce fish seedlings to stock rice paddies and ponds which in turn will produce fish for human consumption. At the same time it will be necessary to improve freshwater aquaculture extension capabilities and facilitate the transfer of technology to farmers. Specifically, the Project is aimed at (1) increasing the supply of freshwater fish seedlings, (2) the distribution of fish seedlings to rice-fish farmers and to small scale fishpond operators, (3) improving the flow of aquaculture information to farmers, and (4) assisting farmers to produce fish for use by the family or to sell on the market, and assisting farmers and entrepreneurs to grow fish seedlings.

The life of the Project is 5 years. However, most of the AID-financed inputs will be during the first 3 years. The Grantee (also hereinafter GRP) implementing agency is the Bureau of Fisheries and Aquatic Resources (BFAR) which is under the Ministry of Natural Resources. The USAID project manager whose services will be obtained under a PASA agreement with the (U.S. Fish and Wildlife Service) and paid for with grant funds, will serve under the USAID Office of Agricultural Development.

Technical support and advisory services will be obtained through a direct AID contract with Texas A&M University (TAMU).

Increased fish production is technologically feasible in Central Luzon. Rice-fish culture is relatively simple, economically feasible, and requires only meager-purchased inputs other than fish seedlings. A lack of fish seedlings and effective knowledge among farmers of aquaculture practices are the major constraints. Increased fish production will provide a nutritious protein supplement and a cash income increment to low-income producers. There are no known socio-cultural barriers to technological change in the project region and the Project will not have any significant negative impact on the environment. It will help to achieve fish production targets and goals of the GRP.

The fish hatchery element of the FFH-ETC will become fully operational after 5 years at which time it will have a capacity to produce and deliver 20,000,000 fish seedlings annually. This will be an insufficient amount of seedlings to meet the expected demand. Therefore, the extension element of the FFH-ETC will include the development of a staff capability to train and support field extension agents in their efforts to assist farmers to grow fingerlings and to produce fish for family consumption and the market.

A. Project Inputs

The total cost of the project is estimated to be $3,310,000. The GRP share of this amount is $1,810,000 in peso equivalent ($1.00 = ₱7.50). The GRP will also contribute land for the site of the FFH-ETC. The land is not included as a project cost. More specific descriptions of the allocation of the AID Grant and GRP Peso funds and project inputs follow

1. AID Grant

Proceeds of the AID grant will be allocated as follows:

a.	Technical Support and Advisory Services	$580,000
b.	Equipment and Furnishing (commodities)	485,000
c.	Project Management and Evaluation	230,000
d.	Participant Training	205,000
		$1,500.000

Annual Financial Requirements and the obligation schedule of US and GRP funds are listed in Table 1.

a. Technical Support and Advisory Services. The project will provide 48 work-months of long-term and 20 work-months of short term technical advisory services to BFAR. Technical services will be provided under contract by Texas A&M University (TAMU) which was selected by a joint GRP-AID Committee to provide these services under the Title XII mode.

A long-term Fish Hatchery Management Advisor will be assigned early in the first year of project implementation for a period of 2 years. He will be responsible for assisting the BFAR staff in organizing and installing project equipment, obtaining suitable brood stock, initiating the spawning activities and assisting with the general operation and maintenance of the hatchery facility. During his tenure he will be responsible for training FFH-ETC staff to manage the hatchery effectively. He will also help to organize and will participate in presenting extension training programs and field demonstrations in hatchery management techniques.

A second long-term advisor will be assigned for 2 years at the beginning of the second year of the project. He will have primary responsibility for assisting the BFAR staff in organizing the extension training and outreach functions of the FFH-ETC. He may be called on to provide technical advice on hatchery-management following the departure of the Fish Hatchery Management Advisor, but his primary counterpart relationships will be with the BFAR Extension Operations Staff at the center. He will assist and participate in organizing and conducting extension training courses and field demonstrations. He will be responsible for preparing counterparts to operate independently and effectively by the time of his departure at the end of the third year.

Up to a total of 20 work-months of short-term technical assistance will be provided as needed during the 5-year Project. The deployment of the short-term staff advisory services will be greatest during the first 2 years of Project implementation. TAMU will provide certain on-campus services and Project coordination and will assist in procurement and delivery of specialized hatchery equipment and supplies.

b. Commodities - Equipment and furnishings to be provided with grant funds generally fall into the following categories:

1. Vehicles
2. Office Equipment
3. Maintenance and Shop Equipment
4. Hatchery Equipment and Supplies (including pumps, hoses, etc.)
5. Training Equipment and Supplies

Vehicles to be procured for the project includes the following:

Vehicle	
Jeeps or suitable 4-WD vehicles. . .	7
Pick-up truck	2
Trucks w/Tanks	4
Motorcycles	15
Carryall	1
Tractors	2

One of the jeeps or a suitable vehicle will be assigned to the FFH-ETC officer-in-charge (OIC), one to the Extension Operations Officer and one each to four Aquaculturists (Fish-Farming Extension). The remaining jeep or vehicle will be assigned to the BFAR Region III Fisheries Extension Division Chief to permit him to carry out more effective supervision of the BFAR Regional Freshwater Fisheries Technicians who will be operating in the six-province region.

The two pickup trucks will be under the control of the Hatchery Management Officer for use in support of fingerling production activities. The trucks with fish delivery tanks will be under control of the Extension Operations Officer for the delivery and distribution of fingerlings in accord with recommendations and requirements of provincial extension officers. The carryall will be assigned to the TAMU project advisors for official use only. The vehicle will be transferred to BFAR at the termination of the project.

The 15 motorcycles are for the use of provincial agents in the six provincial areas. Rather than assign these motorcycles to the regional extension office and thereafter to extension agents where their utilization for Project purposes may be difficult to

monitor, control of these motorcycles will remain with the FFH-ETC OIC. The motorcycles would be "loaned" to provincial extension agents but they could be withdrawn and reassigned if the agents were not effective or if they were being diverted to other primary uses. Provisions for repair and maintenance will also be maintained at the FFH-ETC.

It savings would accrue through the purchase of available U.S. excess property items, then such items will be procured by USAID for use by the Project.

c. Project Management and Evaluation

Project funds will be used to obtain the services of a Fisheries Specialist under a PASA agreement with the USFWS, Department of Interior. The PASA employee will serve as the USAID Project Manager for the FFDP and in addition will devote a portion of his time to developing the proposed Artisan Fisheries-Agriculture Project which is being planned by the GRP/USAID for Fiscal Year (FY) 1981 funding. He will also provide technical support to the USAID Mission and GRP on fisheries matters, perform analyses of various aspects of fisheries sector development, maintain liaison with other bilateral and multinational donor organizations and serve as a resource person to USAID in matters concerning fisheries The Fisheries Specialist will be financed entirely with project funds for the first 2 years and for the first half of the third year. Thereafter, his services will be financed under the Artisan Fisheries Agriculture Project or from other funds which may be provided for Project management beyond the third year.

Project funds will also be used to cover costs of two external evaluations. The first of these will be during the end of the second year of the Project. It will assess overall progress toward attaining the Project purpose and outputs. While this evaluation will measure progress primarily in terms of the Project design criteria, some attention will also be given to spill-over effects-- both beneficial and adverse-- which may be discernible at this state of the Project life. The evaluation will be carried out by a 3 person team, including a representative from AID/W, a representative of the GRP outside BFAR (someone designated either by the MNR, or NEDA0, and a third outsider with knowledge and experience in freshwater fisheries development. The latter team member will be selected from a roster of U. S. scientists. The second external evaluation will be made by a similar team in the final year of the Project to: (1) determine progress toward achieving the Project

objectives; (2) identify and evaluate significant impacts (beneficial and/or adverse) outside of those anticipated by the Project design; and (3) consider the appropriateness of the Project design as a basis for replicating similar development activities in other areas of the Philippines and/or other developing countries.

d. Participant Training - Long term training will be provided for six BFAR participants who will be assigned to the FFH-ETC. The six participants will pursue long-term M.S. degree-objective programs in the U.S. in the following areas:

- Hatchery Production Methods (Fish Reporduction and Rearing)
- Pond Management (Water Quality and Limnology)
- Fish Feeding (Fish Nutrition and Physiology)
- Aquacultural Economics (Farm Management and Marketing)
- Pond Construction (Engineering and Pond Design)
- Fish Farming Extension (Aquaculture Extension Methods and Communications

It is anticipated that most of the participants will be scheduled for training at TAMU but final determination will be based on the candidates' level of training and experience, the suitability of alternative university programs for the respective participants and recommendations of the TAMU advisory staff and BFAR.

Intermediate-term training programs will be developed for six other Aquaculturists assigned to the professional staff of the FFH-ETC. Specially tailored programs for these participants will be developed having a duration of about 4-5 months. These might include, attendance at short-courses in the U.S. (for example at Auburn University or at the U.S. FWS Training Center in Leesburg, West Virginia). Other observation and training might be scheduled at TAMU, the research center at Stuttgart, Arkansas, or another suitable location. Final determination of requirements for these intermediate term training programs will be based on the recommendations of the TAMU advisors and BFAR.

Additionally, the Project provides for intermediate-term training for the Hatchery Manager Officer and/or Extension Operations Officer. This training is discretionary, dependent on the qualifications of the individuals assigned to those positions. The duration of training could be of about 5 months duration although it could vary depending on needs and funding availability. A semester at the University of Wisconsin, or the University of Missouri Graduate Extension Training Program will be considered for the Extension Operations Officer.

2. GRP Peso Contribution

The allocation of peso funds will be as follows:

	Pesos (₱000)	Dollar Equivalent* ($000)
a. Capital Expenditures (PL-480 Title I)	8,855	1,181
b. Operations Expenditures for the FFH-ETC (BFAR Budget)	3,845	513
c. Housing, Local Travel and Education Allowance for US personnel (Peso Trust Fund B)	662	88
d. International Travel for participants (Peso Trust Fund A)	210	28
Total	₱13,572	$1,810

*Conversion rate $1.00 = ₱7.50

a. Capital Expenditures: Funds for construction of the FFH-ETC and staff housing with furnishings are being provided from PL-480 Title 1 local currency generations. Construction of the hatchery ponds, and an administration-office building with classroom facilities, a hatchery building with wet-laboratory, and a storage and maintenance facility is expected to be initiated by January 1979.

b. Operation Expenditures for the FFH-ETC: The BFAR will mobilize a staff of approximately 50 people to be assigned to the project. The BFAR will provide all funds for operation expenditures of the FFH-ETC. Annual operation expenditures for the FFH-ETC are estimated to be $131,000 equivalent at project maturity.

c. Housing, Local Travel and Education Allowance for US Personnel. The GRP will provide local currency financing (Trust Fund B) for housing, education allowance, and local travel for the TAMU long-term technical advisors and the USAID Project Manager.

d. Participant Training - The GRP will provide local currency financing (Trust Fund A) for international travel for the participants trained out of the country.

B. End of Project Status

By the end of the fifth year of the Project the following conditions are expected:

1. The FFH-ETC will be fully established as a going concern with professional capabilities of providing the extension linkage between researchers and field extension agents.

2. An effective system to provide information and technical assistance to farmers on freshwater fish production technology will be in place.

3. Central Luzon should have an established capacity to produce 60 million fingerlings annually and be poised to further increase this "seed production industry" to meet expected increases in the demand for seed stock.

4. Annual fish production should have increased by an estimated 3,200 metric tons and with further prospect for rapid growth during the following decade.

5. Some 7,500 low-income rural families will enjoy more nutritious diets and higher incomes.

C. Negotiating Status, Conditions and Covenants

Several key conditions necessary for effective project execution have been met including the agreement between BFAR and CLSU for use of the site of the FFH-ETC.

1. Conditions Precedent

a) While it is expected that actual construction will be underway well before the Project is authorized the GRP will present to USAID prior to disbursement of grant funds (except funds for the USAID Project Manager) evidence that the FFH-ETC facilities will be substantially completed within a 6-month period after signing the Project Agreement. An executed contract between the GRP and a construction firm with construction initiated would be satisfactory.

b) Prior to the disbursement of grant funds (except funds for the USAID Project Manager) the GRP must present satisfactory evidence to USAID that adequate staff housing for both long and short-term TAMU advisors will be available at CLSU. A memorandum of agreement providing for utilization of CLSU staff facilities on an availability basis would be satisfactory.

c) Evidence that qualified managerial and professional staff will be assigned to the FFH-ETC and that they will be available for long and short-term participant training as described in the Project Paper. An exchange of letters between USAID and BFAR identifying actual or potential incumbents for the staff positions and presenting bio-data for each will be satisfactory evidence of intent.

d) Evidence that the GRP will charge a nominal fee for fish seedlings produced at the FFH-ETC and distributed to private individ

2. Covenants

a) The GRP covenants to support staff and budgets for annual operation and maintenance of the FFH-ETC throughout the life of the Project.

b) The GRP covenants that participants trained under this Project will be assigned to positions which support Project objectives through the life of the Project unless concurrence by USAID in the discontinuance of their service under the Project is obtained.

TABLE 1

Annual Financial Requirements and Proposed Obligation Schedule
($ and ₱ in 000)

Implementation Year		Year 1	Year 2	Year 3	Year 4	Year 5	Total
Financial Requirements (Expenditures)	US	$ 735	$ 482	$ 184	$ 36	$ 63	$1,500
	GRP[1/]	₱ 195	₱ 297	₱ 170	-	-	₱ 662
	GRP[2/]	₱ 405	₱ 725	₱ 845	₱ 885	₱ 985	₱3,845
	GRP[3/]	₱8,855	-	-	-	-	₱8,855
	GRP[4/]	₱ 165	-	₱ 45	-	-	₱ 210

Fiscal Year (Oct. 1-Sept. 30)		FY 79	FY 80	FY 81	FY 82	FY 83		
Obligation Schedule	US	$ 400	$1,100	-	-	-	-	$1,500
	GRP[1/]	₱ 143	₱ 222	₱ 218	₱ 79	-	-	₱ 662
	GRP[2/]	₱ 305	₱ 640	₱ 805	₱ 860	₱ 950	₱285	₱3,845
	GRP[3/]	₱8,855	-	-	-	-	-	₱8,855
	GRP[4/]	₱ 210	-	-	-	-	-	₱ 210

1/ GRP Peso requirement from Trust Fund B for Housing and Local Travel for Technical Advisors and Project Manager and Educational Allowance for Technical Advisors.

2/ BFAR Peso requirement for project operations.

3/ GRP PL-480 Title I funds for construction of FFH-ETC and Housing. ₱5 million was obligated in FY 78

4/ GRP Peso requirement from Trust Fund A Account for International Travel for participants.

SCOPE OF WORK FOR PASA PROJECT OFFICER

SPAR Position Title & Fisheries Project Manager/Advisor

Nature and Scope of Work

As Chief of Fisheries Division in the Office of Agricultural Development, he serves as USAID/Project Manager for the Freshwater Fisheries Development Project (FFDP) and will supervise development of the proposed Artisan Fisheries-Agriculture Development Project (AF-ADP) which will require coordinating a variety of activities in at least two GRP Ministries, as well as several Bureaus, Agencies and universities, including U.S. Title XII institutions selected for participation. He will also develop and maintain liaison and working relationships and coordinate USAID Mission fisheries activities with bilateral and multilateral organizations providing fisheries assistance to the GRP. He coordinates with and provides general guidance to both long-term and short-term contract personnel assigned to the FFDP and other USAID funded fisheries activities.

As USAID/Philippines Senior Fisheries Advisor with broad expertise in freshwater and estuarine fisheries programs including aquaculture, he provides review and technical input into USAID fisheries or fisheries related projects; provides policy advice and program advisory services to the GRP, especially to the senior staff in the Ministry of Natural Resources and the Bureau of Fisheries and Aquatic Resources on development of freshwater and Artisan fisheries including aquaculture.

He provides continuous advice to the GRP on the planning, implementation and evaluation, as well as continuous managerial direction to USAID's contribution to the FFDP including the function of planning, organizing, motivating, communication, monitoring and coordinating the overall efforts of the GRP, contract groups and individuals to fulfill the objectives of the FFDP and other USAID funded fisheries activities.

He assures timely preparation, review, approval and other necessary action of required documentation pertinent to AID programming in the Fisheries Division of the OAD, including obligations, implementation and evaluation documents. These actions must conform with applicable U.S. legislation, AID policies, regulations and procedures and USAID/Philippines policies and procedures.

He reports to the Chief, Office of Agricultural Development or his designee and coordinates and cooperates with other USAID offices and staff.

Representative Duties

1. Serves as the project manager of the FFDP.

2. Serves as the Office of Agricultural Development's Senior Fisheries Advisor to the GRP.

3. Provides continuous liaison with appropriate individuals and offices of the GRP, private sector, academic and international and regional organizations concerned with fisheries development in the Philippines, espe-

cially the freshwater and artisan fisheries sub-sectors.

4. Identifies new policies and programs to strengthen fisheries development in the Philippines.

5. Encourage the development of linkage mechanisms between GRP, international and regional fisheries agencies to effectively coordinate fisheries projects to help insure that maximum benefits accrue to targeted beneficiaries.

Qualifications

This position requires a graduate degree in fisheries with 10 or more years of experience in fisheries development. At least three years experience in the administration of freshwater and estuarine fisheries projects, including aquaculture is highly desirable.

Demonstrated managerial and administrative skills and the ability to relate well to host country and American personnel are required.

Professionally known and respected by contemporaries and peers is highly desirable.

At least two years overseas experience in tropical fisheries and familiarization and experience with planning, implementing, and evaluating USAID development projects are highly desirable.

ANNEX U
1 page only

SCOPE OF WORK FOR TAMU TECHNICAL SUPPORT AND ADVISORY SERVICES

1. Develop preliminary outline of Annual Work Plan for year 1.

2. Review with BFAR and USAID the contract mode for Title XII collaborative assistance and its requirements and obligations.

3. Collaborate with GRP and USAID to finalize details of the PP, giving special attention to the assessment of training needs and the process for selecting of participants to be trained in the U.S. and at the FFH-ETC.

4. Develop preliminary list of commodities to be purchased, including specifications and review procedures for purchasing.

5. Study housing, transportation and logistical needs for TAMU technical advisors and finalize arrangements with BFAR; schedule of arrival of TAMU advisors. Submit preliminary list of names and bio-data of recommended advisors and alternates to USAID and GRP.

6. Original scope of work which will be slightly modified was included in cable (Manila 9993) from USAID to AID/W, dated June 15, 1978.

Chronological Schedule of Key Implementation Activities or Events

Key Event	Target Date 1979	Action Responsibility
Draft ProAg Forwarded to NEDA	January 5	USAID
Project Authorized	January 15	AID/W, AA/Asia
Funds Alloted to Mission	January 29	AID/W, FM
ProAg Negotiations Completed	February 20	USAID/NEDA/TAMU/BFAR
ProAg Signed	March 5	USAID/BFAR/NEDA
BFAR Project Coordinator Formally Designated	March 10	BFAR
PIO/T for PASA Signed	March 15	USAID/GRP
PIO/T for PASA forwarded to AID/W	March 19	USAID
Negotiations Initiated with TAMU	March 20	AID/TAMU
PASA Signed	April 8	AID/W, FWS
Conditions Precedent Met	April 13	BFAR
Project Manager, EOD	April 16	AID/W, FWS
TAMU Contract Signed	April 19	AID/TAMU
TAMU Hatchery Management Specialist Arrives TDY	May 1	TAMU
Key BFAR Staff Assignments Completed	May 10	BFAR
PIO/C's Issued for Selected Vehicles	May 15	USAID/GRP
Training Needs and Participant Candidates Identified	May 20	BFAR/TAMU/USAID
Specifications for Hatchery Equipment Finalized and PIO/C's Issued	May 30	BFAR/TAMU/USAID
TAMU Work Plan for Year 1 Due	June 1	TAMU
Recruitment and Assignment of BFAR Technical and Support Staff Underway	June 1	BFAR
PIO/P's for Short-Term Training Issued	June 10	Project Manager
Hatchery Advisor EOD	June 15	TAMU, BFAR, USAID
PIO/P's for Long-Term Training Issued	June 30	Project Manager
Short-Term Participants Call Forward for Training	July 10	Project Manager AID/W, DS/IT - BFAR
Construction of FFH-ETC Buildings and Ponds Substantially Completed	July 15	BFAR
Key BFAR Personnel and Hatchery Management Advisor in Residence at FFH-ETC	July 15	BFAR and TAMU
Long-Term Participants Call Forward for Training	August 15	Project Manager AID/W, DS/IT and BFAR
Testing of FFH-ETC Pond System Underway	September-October	TAMU/BFAR

Key Event	Target Date 1979	Action Responsibility
FFH-ETC Furnishing; Equipment Arriving and Being Installed	October-December	
Vehicles Arrive	October-November	
Short-Term Participants Return and Begin In-Service Training and Operation of Fish Hatchery	November 15	TAMU/BFAR
	1980	
TAMU Specialists Arrive for TDY	December-February	Project Manager/TAMU
Initial Production of Fingerlings from Hatchery Expected	February	FFH-ETC Staff
TAMU Specialists Arrive for TDY	Feb.-March	Project Manager/TAMU
TAMU Work Plan for Year 2 Due	April 1	TAMU
Specifications Developed for Additional Hatchery Equipment and Procurement Initiated	April 15	Project Manager
First Annual Progress Summary Due	May 1	Project Manager
USAID/BFAR Project Review	May 15	USAID/BFAR
Training of Extension Field Agents Initiated and in Progress	April - December	BFAR
TAMU Extension Advisor EOD	June 15	TAMU
TAMU Specialist Arrive for TDY	May-October	TAMU/Project Manager
Specifications Developed for Motor cycles and Remaining Vehicles	May 30	Project Manager
Additional BFAR/FFH-ETC Staff Recruited and Assigned	June 1	BFAR
Documentation for TA for External Evaluation Issued	December 1	Project Manager
	1981	
Second Annual Progress Summary Due	March 1	Project Manager
External Project Evaluation Underway	March	Project Manager
Mission/BFAR Project Review	March 25	USAID/BFAR
TAMU Work Plan for Year 3 Due	April 1	TAMU
Hatchery Management Advisor Completes Tour and Departs	June 15	TAMU
Short-Term Specialist Arrive on TDY	May-December	
Long-Term Participants Return	July	
	1982	
Third Annual Progress Summary Due	March 1	Project Manager
AID/BFAR Annual Progress Review	March 15	USAID/BFAR

Key Event	Target Date	Action Responsibility
	1982	
TAMU Work Plan for Fourth Year Due	April 1	TAMU
TAMU Extension Advisor Completes Tour and Departs	June 15	TAMU
TAMU Advisors Arrive for TDY as needed	May-December	TAMU
	1983	
TAMU Hatchery Management Advisor and Extension Advisor Arrive for TDY	Jan.-Feb	TAMU
Additional Equipment Procurement Needs Determined	February	Project Advisor
Fourth Annual Progress Summary Due	March 1	Project Manager
AID/BFAR Annual Progress Review	March 15	USAID/BFAR
TAMU Work Plan for Final Year Due	April 1	TAMU
Documentation for Procurement of Equipment Issued	April 1	Project Manager
TAMU Advisors Arrive for TDY as Needed	May-Dec	TAMU
PIO/T and other Documentation for TA for Final External Evaluation Issued	August 15	Project Manager
All Project Commodites Delivered	Aug.-Oct	
TAMU Hatchery Management Advisor and Extension Advisor Arrive for final TDY	August-November	TAMU
Final External Evaluation Begins	November 15	Project Manager
Final USAID/BFAR Project Review	December 15	USAID/BFAR
	1984	
Summary of all Reports and Results Prepared and Forwarded to AID/W	January	Project Manager
End of Project Report Prepared	January	Project Manager
Project Completed	February	USAID

ANNEX W

Request for Waiver of Host Country Contract

To be Submitted

24

4920322

OPTIONAL FORM NO. 10
MAY 1962 EDITION
GSA FPMR (41 CFR) 101-11.6

UNITED STATES GOVERNMENT

Memorandum

TO : Distribution

DATE: March 16, 1979

FROM : ASIA/PD/EA, J. R. Nussbaum

SUBJECT: Authorization of Philippine Projects:
Freshwater Fisheries Development 492-0322
Agricultural Research II 492-0286

Attached is copy of subject document signed by AA/ASIA, John H. Sullivan March 13, 1979.

Distribution:

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DS/DIU(2)
USAID/PHILIPPINES

DEPARTMENT OF STATE

AGENCY FOR INTERNATIONAL DEVELOPMENT

WASHINGTON, D.C. 20523

12 MAR 1979

ACTION MEMORANDUM FOR THE ASSISTANT ADMINISTRATOR, ASIA BUREAU

FROM: Dennis J. Brennan DB

SUBJECT: Authorization of Philippine Projects:
Freshwater Fisheries Development (492-0322)
Agricultural Research II (492-0236)

Problem: Your authorization is required for two Philippine projects.

Discussion: On February 16 the APAC approved Project Papers for the Philippine Freshwater Fisheries Development and Agricultural Research II Projects. The APAC revised project designs in the PPs as follows:

Freshwater Fisheries -- a requested waiver for purchase of motorcycles from non-U.S. source was not approved although no U.S. source vehicle satisfactory for the project could be found. Other funds will have to be found for these vehicles (about 15 vehicles worth about $10,000 are involved).

Agricultural Research II -- Before disbursing project funds for construction, equipment or training, a joint GRP-AID evaluation of Agricultural Research I will be required. In addition, the GRP will be required to covenant that funds will be made available on a timely basis for construction of infrastructure for which reimbursement under the project will be financed.

The attached Project Authorizations have been prepared reflecting the above design revisions and minor changes in form from the draft authorizations submitted with the PPs. If you sign these Project Authorizations, you will approve funding as follows:

Freshwater Fisheries -- In FY 1979-1980, $1,500,000 life-of-project, of which $400,000 is immediately authorized.

Agricultural Research II -- In FY 1979-1981, $10,000,000 life-of-project, of which $4,000,000 is immediately authorized.

You will also authorize procurement waivers for hand-held calculators, cameras and projectors, and scientific publications set forth in the Project Authorizations.

Recommendation: That you sign the attached Project Authorizations.

Attachments:

A. Authorization - Freshwater Fisheries Development (492-

B. Agricultural Research II (492-0286) Authorization

Clearances:
[illegible]
[illegible]gan
ASIA/DR:DMitchell
GC/COM:RWilson
ASIA/PT/P:RNachtrieb
ASIA/[illegible]

Drafted by:JRNussbaum:eb:2/27/79:EXT:235-8910

AGENCY FOR INTERNATIONAL DEVELOPMENT

PROJECT AUTHORIZATION AND REQUEST FOR ALLOTMENT OF FUNDS PART I

1. TRANSACTION CODE: [A] (A = ADD, C = CHANGE, D = DELETE) — PAF

2. DOCUMENT CODE: 5

3. COUNTRY ENTITY: Philippines

4. DOCUMENT REVISION NUMBER: [ ]

5. PROJECT NUMBER (7 digits): [492-0322]

6. BUREAU/OFFICE: A. SYMBOL: ASIA; B. CODE: [04]

7. PROJECT TITLE (Maximum 40 characters): [Freshwater Fisheries Development]

8. PROJECT APPROVAL DECISION — ACTION TAKEN: [A] (A = APPROVED, D = DISAPPROVED, DE = DEAUTHORIZED)

9. EST. PERIOD OF IMPLEMENTATION: YRS. [0 5] QTRS [0]

10. APPROVED BUDGET AID APPROPRIATED FUNDS ($000)

A. APPROPRIATION	B. PRIMARY PURPOSE CODE	PRIMARY TECH CODE		E. 1ST FY 79		H. 2ND FY 80		K. 3RD FY ___	
		C. GRANT	D. LOAN	F. GRANT	G. LOAN	GRANT	J. LOAN	GRANT	M. LOAN
(1) FN	B322	319		400		1,100			
(2)									
(3)									
(4)									
TOTALS				400		1,100			

A. APPROPRIATION	N. 4TH FY ___		Q. 5TH FY ___		LIFE OF PROJECT		PROJECT FUNDING AUTHORIZED	
	O. GRANT	P. LOAN	R. GRANT	S. LOAN	T. GRANT	U. LOAN		GRANT / LOAN
(1) FN					1,500		ENTER APPROPRIATE CODE(S): 1 = LIFE OF PROJECT; 2 = INCREMENTAL LIFE OF PROJECT	
(2)								
(3)								
(4)								
TOTALS					1,500		PROJECT FUNDING AUTHORIZED THRU: FY 80	

12. INITIAL PROJECT FUNDING ALLOTMENT REQUESTED $000

A. APPROPRIATION	B. ALLOTMENT REQUEST NO. ___	
	C. GRANT	D. LOAN
(1) FN	400	
(2)		
(3)		
(4)		
TOTALS	400	

13. FUNDS RESERVED FOR ALLOTMENT

TYPED NAME (Chief, SER FM FSD)

SIGNATURE

DATE

14. SOURCE/ORIGIN OF GOODS AND SERVICES: [ ] 000 [ ] 941 [ ] LOCAL [X] OTHER See Part II

15. FOR AMENDMENTS, NATURE OF CHANGE PROPOSED

FOR PPC/PIAS USE ONLY	16. AUTHORIZING OFFICE SYMBOL	17. ACTION DATE (MM DD YY)	18. ACTION REFERENCE (Optional)	ACTION REFERENCE DATE (MM DD YY)
	AA/ASIA			

AID 1330-6 (7-76)

PROJECT AUTHORIZATION AND REQUEST FOR ALLOTMENT OF FUNDS

PART II

PHILIPPINES

Freshwater Fisheries Development
A.I.D. Project No. 492-0322

Pursuant to Part I, Chapter I, Section 103 of the Foreign Assistance Act of 1961, as amended, I hereby authorize a Grant to the Government of the Republic of the Philippines (the "Cooperating Country") of not to exceed Four Hundred Thousand United States Dollars ($400,000) (the "authorized amount") to help in financing certain foreign exchange and local currency costs of goods and services required for the project as described in the following paragraph.

The Fresh Water Fisheries project (hereinafter referred to as the "Project") consists of establishing a Freshwater Fish Hatchery-Extension Training Center (FFH-ETC) to support and increase freshwater fish production and consumption in the Central Luzon area of the Cooperating Country.

I approve the total level of A.I.D.-appropriated funding planned for this Project of not to exceed One Million Five Hundred Thousand United States Dollars ($1,500,000), including the funding authorized above, which will be grant-funded during the period FY 1979 thru FY 1980. I approve further increments during that period of grant-funding of not to exceed One Million One Hundred Thousand United States Dollars ($1,100,000), subject to the availability of funds and in accordance with A.I.D. allotment procedures.

I hereby authorize the initiation of negotiation and execution of a Project Agreement by the officer to whom such authority has been delegated in accordance with A.I.D. regulations and Delegations of Authority subject to the following essential terms and major conditions, together with such other terms and conditions as A.I.D. may deem appropriate.

A. Source and Origin of Goods and Services

Except for ocean shipping and except as authorized in Paragraph D. below and except as A.I.D. may otherwise agree in writing, goods and services financed by A.I.D. under the Project shall have their source and origin in the United States of America or in the Cooperating Country. Ocean shipping financed under the Grant shall be procured in accordance with current A.I.D. regulations.

B. Conditions Precedent

Prior to disbursement under the Grant, or to the issuance by A.I.D. of any documentation pursuant to which disbursement will be made, for the purpose of financing goods and services for the Project (except for the USAID Project Manager) the Cooperating Country will present evidence in form and substance satisfactory to A.I.D. that:

a. The FFH-ETC facilities will be substantially completed within a six-month period after signing the Project Agreement. An executed contract between the GRP and a construction firm with construction initiated would be satisfactory.

b. That adequate staff housing for both long and short-term Advisors will be available at Central Luzon State University (CLSU). A memorandum of agreement providing for utilization of CLSU staff facilities on an availability basis would be satisfactory.

c. That qualified managerial and professional staff will be assigned to the FFH-ETC and that they will be available for long and short-term participant training as described in the Project Paper. An exchange of letters between USAID and the Bureau of Fisheries and Aquatic Resources identifying actual or potential incumbents for the staff positions and presenting bio-data for each will be satisfactory evidence of intent.

d. That the GRP will charge a nominal fee for fish seedlings produced at the FFH-ETC and distributed to private individuals.

C. Covenants

a. The Cooperating Country covenants to support staff and budgets for annual operation and maintenance of the FFH-ETC throughout the life of the Project.

b. The Cooperating Country covenants that participants trained under this Project will be assigned to positions which support Project objectives through the life of the Project unless concurrence by USAID in the discontinuance of their service under the Project is obtained.

D. Procurement Waivers

On the basis that exclusion of procurement from Free World countries other than the Cooperating Country and countries included in Code 941 would obviously impede attainment of U.S. Foreign Policy objectives and objectives of the Foreign Assistance program, a waiver is hereby authorized for procurement sources and origin from A.I.D. Geographic Code 941 to Geographic Code 935 for the purchase of:

1. Twelve (12) 35 mm SLR cameras to service the needs of the Training Center and the Extension Agents; and

2. Ten (10) hand-held calculators for use by field extension workers making on-the-site calculations.

Clearances	Office Symbol	Date	Initials
D. J. Brennan	ASIA/PD	3/14/79	
[illegible] A. Doyle	ASIA/TR		
[illegible] Johnson	ASIA/DP		
K. Nechtrieb	ASIA/PT		
H. Morris	GC/ASIA		
F. Schieck	DAA/ASIA		

Signature

John M. Sullivan
Assistant Administrator
Bureau for Asia

Drafted by: ASIA/PD/EA:JMNussbaum:eb:2/28/79:ext 235-8910

AGENCY FOR INTERNATIONAL DEVELOPMENT

PROJECT AUTHORIZATION AND REQUEST FOR ALLOTMENT OF FUNDS PART I

1. TRANSACTION CODE: [A] A = ADD, C = CHANGE, D = DELETE — PAF

2. DOCUMENT CODE: 5

3. COUNTRY/ENTITY: Philippines

4. DOCUMENT REVISION NUMBER: [ ]

5. PROJECT NUMBER (7 digits): [492-0286]

6. BUREAU/OFFICE: A. SYMBOL: ASIA; B. CODE: [04]

7. PROJECT TITLE (Maximum 40 characters): [Agricultural Research II]

8. PROJECT APPROVAL DECISION — ACTION TAKEN: [A] A = APPROVED, D = DISAPPROVED, DE = DEAUTHORIZED

9. EST. PERIOD OF IMPLEMENTATION: YRS. [0 6] QTRS [0]

10. APPROVED BUDGET AID APPROPRIATED FUNDS ($000)

A. APPROPRIATION	B. PRIMARY PURPOSE CODE	PRIMARY TECH. CODE		E. 1ST FY 79		H. 2ND FY 80		K. 3RD FY 81	
		C. GRANT	D. LOAN	F. GRANT	G. LOAN	GRANT	LOAN	L. GRANT	M. LOAN
(1) FN	3141		080		4,000				6,000
(2)									
(3)									
(4)									
TOTALS					4,000				6,000

APPROPRIATION	N. 4TH FY ___		Q. 5TH FY ___		LIFE OF PROJECT	
	O. GRANT	P. LOAN	R. GRANT	S. LOAN	T. GRANT	U. LOAN
(1) FN						10,000
(2)						
(3)						
(4)						
TOTALS						10,000

PROJECT FUNDING AUTHORIZED — A. GRANT; B. LOAN

ENTER APPROPRIATE CODE S.:
1 = LIFE OF PROJECT
2 = INCREMENTAL LIFE OF PROJECT

C. PROJECT FUNDING AUTHORIZED THRU: FY 81

12. INITIAL PROJECT FUNDING ALLOTMENT REQUESTED ($000)

B. ALLOTMENT REQUEST NO. ___

A. APPROPRIATION	C. GRANT	D. LOAN
(1) FN		4,000
(2)		
(3)		
(4)		
TOTALS		4,000

13. FUNDS RESERVED FOR ALLOTMENT

TYPED NAME (Chief, SER FM FSD)

SIGNATURE

DATE

14. SOURCE/ORIGIN OF GOODS AND SERVICES: [ ] 000 [ ] 941 [ ] LOCAL [X] OTHER See Part II

15. FOR AMENDMENTS, NATURE OF CHANGE PROPOSED

FOR PPC/PIAS USE ONLY	16. AUTHORIZING OFFICE SYMBOL	17. ACTION DATE	18. ACTION REFERENCE (Optional)	ACTION REFERENCE DATE
	AA/ASIA	MM DD YY		MM DD YY

AID 1330-6 (7-76)

Project Authorization and Request for Allotment of Funds

Part II

PHILIPPINES

Agricultural
Research Loan II
A.I.D., Project
No. 497-0286

Pursuant to Part I, Chapter 1, Section 103 of the Foreign Assistance Act of 1961, as amended, I hereby authorize a loan to the Government of the Republic of the Philippines (the "Borrower") of not to exceed Four Million United States Dollars ($4,000,000), (the "authorized amount") to help in financing foreign exchange and certain local currency costs of goods and services required for the project as described in the following paragraph.

The Agricultural Research Loan II project (hereinafter referred to as the "Project") consists of developing and/or improving eight Agricultural Research Centers to research, verify, and disseminate information and improved and/or new agricultural technology to small farmers. Agricultural research includes crops, livestock, agro-forestry, soils and water, fisheries and related socio-economic studies.

I approve the total level of A.I.D.-appropriated funding planned for this project of not to exceed Ten Million United States Dollars ($10,000,000), including the funding authorized above, which will be entirely loan-funded during the period FY 1979 through FY 1981. I approve further increments during the period of loan funding up to a total of six Million United States Dollars ($6,000,000), subject to the availability of funds and in accordance with A.I.D. allotment procedures.

I hereby authorize the initiation of negotiations and execution of a Project Agreement by the officer to whom such authority has been delegated in accordance with A.I.D. regulations and Delegations of Authority subject to the following essential terms and major conditions, together with such other terms and conditions as A.I.D. may deem appropriate.

A. Interest Rate and Terms of Repayment

The Borrower shall repay the Loan to A.I.D. in United States Dollars within forty (40) years from the date of first disbursement of the Loan, including a grace period of not to exceed ten (10) years.

The Borrower shall pay to A.I.D. in United States Dollars interest from the date of first disbursement of the Loan at the rate of (1) two percent (2%) per annum during the first ten (10) years, and (2) three percent (3%) per annum thereafter, on the outstanding disbursed balance of the Loan and on any due and unpaid interest accrued thereon.

Source and Origin of Goods and Services

Except for ocean shipping and except as authorized in paragraph below, and except as A.I.D. may agree in writing, goods and services financed by A.I.D. under the project shall have their source and origin in countries included in A.I.D. Geographic Code 941 and in the country of the Borrower. The goods and services procured in the country of the Borrower will be limited to those defined in the Agricultural Research Loan II Project Paper. Ocean shipping financed under the Loan shall be procured in accordance with current A.I.D. regulations.

C. Conditions Precedent to Commitments/Disbursement

1. Prior to disbursement under the loan or the issuance by A.I.D. of any documentation pursuant to which disbursement will be made for the purpose of financing goods and services for the Project, the Borrower shall furnish in form and substance satisfactory to A.I.D.:

   a. Contract format(s) for procurement of technical services, for both in-country and out-of-country consultants.

   b. A basic minimal list of laboratory and field research equipment and library references deemed essential for the conduct of research at each regional center. The list will be compared to existing inventories at each center and deficits included in the commodity procurement component.

   c. Detailed schedule for construction of loan-assisted infrastructure at each site in consonance with the goal of completing it within three years.

2. Prior to disbursement under the Loan, or the issuance of any documentation pursuant to which disbursement will be made, for the purpose of financing construction, training or equipment for the Project, the Borrower and A.I.D. shall complete an evaluation of the progress and achievements under the Agricultural Research I Loan.

D. Covenants

The Borrower shall covenant that:

1. Funds will be made available on a timely basis for the construction of loan-assisted infrastructure in accordance with the schedule for construction.

2. To the maximum extent possible design and specification for infrastructure developed under Loan I will be utilized in order to achieve cost reductions and accelerate implementation.

3. Baseline data for each research center and for the service area, as proposed in the Evaluation Plan, Annex K, will be completed within twelve months following execution of the Loan Agreement.

4. The approved operational budgets for research in agriculture, forestry, and fisheries will be provided USAID annually, showing the breakdown on personnel and operational costs.

5. The technical services will be utilized as scheduled in the Project Paper.

6. Arrangements will be made to ensure that adequate numbers of qualified candidates for training are available to fill the positions as scheduled.

E. Procurement Waivers

On the basis that exclusion of procurement from Free World countries other than the cooperating country and countries included in Code 941 would obviously impede attainment of U.S. Foreign Policy objectives and objectives of the Foreign Assistance program, a waiver is hereby authorized for procurement sources and origin from A.I.D. Geographic Code 941 to Geographic Code 935 for the purchase of:

1. Selected scientific references and journals;

2. Approximately ten (10) single lens reflex cameras and normal accessories;

3. Approximately two (2) 16 mm movie cameras and projectors; and

4. Approximately twelve (12) hand-held electronic calculators for use in field locations.

Clearances	Office Symbol	Date	Initials
D. J. Brennan	ASIA/PD	3/12/79	
M. A. Doyle	ASIA/TR		
C. Johnson	ASIA/DP		
R. Nachtrieb	ASIA/PT		
H. Morris	GC/ASIA		
F. Schieck	DAA/ASIA		

Signature _____

John H. Sullivan
Assistant Administrator
Bureau for Aisa

Drafted by: JNNussbaum:eb:3/6/78:Ext 235-8910

A.I.D. Project No. 492-0322
Project Grant Agreement No. 79-03

AMENDMENT NO. 1

TO

PROJECT GRANT AGREEMENT

BETWEEN

THE REPUBLIC OF THE PHILIPPINES

AND

THE UNITED STATES OF AMERICA

FOR

FRESHWATER FISHERIES DEVELOPMENT

February 19, 1980

FRESHWATER FISHERIES DEVELOPMENT
Project No. 492-0322

AMENDMENT NO. 1 TO PROJECT GRANT AGREEMENT NO. 79-03

This AMENDMENT No. 1, entered into as of the 19th day of February, 1980, between the REPUBLIC OF THE PHILIPPINES ("Grantee"), and the UNITED STATES OF AMERICA, acting through the AGENCY FOR INTERNATIONAL DEVELOPMENT ("A.I.D.")

WITNESSETH THAT

WHEREAS, A.I.D. and the Grantee entered into Project Grant Agreement No. 79-03 (the "Agreement") on March 30, 1979 to provide grant amount of $400,000.00;

WHEREAS, the intent was to provide additional financing for the Project, subject to the availability of funds and the continuing agreement of the Parties; and

WHEREAS, A.I.D. has alloted an additional grant amount of $1,000,000.00;

THEREFORE, the Grantee and A.I.D. hereby agree to amend the Agreement as follows:

Article 3: Financing.

Section 3.1. The Grant. This Section is hereby amended to delete "Four Hundred Thousand United States ('U.S.') Dollars ($400,000.00) ('Grant')" and substitute therefor "One Million Four Hundred Thousand United States ('U.S.') Dollars ($1,400,000.00) ('Grant')

Section 3.2. Grantee Resources for the Project.

Paragraph (b) of this Section is hereby amended to delete "U.S. $1,268,000.00" and to substitute therefor "U.S. $2,968,400.00".

Annex 1, Attachment 1, Revised Financial Plan is attached.

Except as expressly amended herein, the said Agreement shall continue in full force and effect in accordance with all of its terms.

IN WITNESS WHEREOF, the Parties to said Agreement, each acting through its duly authorized representatives, have caused this Amendment No. 1 to the Agreement to be signed in their names and delivered as of the day and year first above written.

REPUBLIC OF THE PHILIPPINES

By: _____
Gerardo P. Sicat

Title: Minister of Economic Planning
(Director-General)
National Economic & Development Authority

UNITED STATES OF AMERICA

By: _____
Anthony M. Schwarzwalder

Title: Director
U.S. Agency for International Development

Annex I
Attachment I

Revised Financial Plan
(Obligation Basis)

Project No. 492-0322

	FY 1979	FY 1980	FY 1981	FY 1982	FY 1983	Total
U.S. Dollar Expenditures ($000)[1/]						
Project Management	77	123	-	-	-	200
Evaluation	-	30	-	-	-	30
Technical Advisory Services	163	417	-	-	-	580
Participant Training	60	145	-	-	-	205
Equipment/Furnishings	100	385	-	-	-	485
Total	400	1100	-	-	-	1500

Local Currency Expenditures (₱000)	CY 1979	CY 1980	CY 1981	CY 1982	CY 1983	Total
Personnel Support	183	407[2/]	-	-	-	590
Participant Travel	60	40	110	-	-	210
Operation and Maintenance (BFAR)	405	725	845	885	985	3845
Construction of FFI, ETC and Housing	8855[3/]	8763[4/]	-	-	-	17618
Total	9503	9935	955	885	985	22263

1/$400,000 obligated in FY 79; $1,100,000 to be obligated in FY 80
2/Funded through life of project.
3/₱5,000,000 PL 480 Title I obligated in CY 78 and ₱3,855,000 PL 480 Title I obligated in CY 79.
4/₱8,763,000 to be obligated by BFAR in FY 80.