MODERNIZATION OF TRAINING IN THE FISHERY SECTOR

TC-95-05-04-3

EXECUTIVE SUMMARY

EXECUTING AGENCY: University of Piura

BENEFICIARIES: Fishermen, fisheries students, micro and small on-shore fish processors, marine biologists, fishery industry.

OBJECTIVES: The general objectives of the project are to (a) modernize the training available in the fishery sector; and (b) strengthen the national capacity to implement a resource management regime for tuna, sharks, and other pelagic fisheries.

The specific objectives are to: (a) develop in-firm and participatory training programs in the pelagic long-lining fishery sector and in the handling and processing of fresh fish; (b) improve the marketable skills and earning capacity of Peruvian long-line fishermen and fresh fish handlers and processors; and (c) develop the capacity of scientists and technicians to collect and analyze population and catch data for the sustainable management of selected pelagic fisheries.

DESCRIPTION: The project consists of three components: (a) Training in Long-Line Fishing; (b) Training in Fresh Fish Handling and Processing; and (c) Training of Scientists and Technicians in the Management of Shark, Ray and Chimaera Fisheries.

While maintaining overall responsibility for the administration and execution of the project, the University of Piura, a private university, will enter into agreements with the three institutions which, as co-executors, will be responsible for the implementation of specific activities under each component. The co-executors will be the National University of Piura (UNP), a public university, and the Consorcio Pesquero (CP) for component A, the Institute of Fisheries Technologies (ITP) for component B, and UNP for component C. See Annex II organization chart.

Component A - Training in Long-line Fishing Technology - will finance in-firm training over a two year period. Due to the nature of the activity and specialization of the technology, hands-on

instruction is required on board modern long-line fishing vessels. Three international experts will serve as trainers aboard each ship.

Component B - Training in Fresh Fish Handling and Processing - will finance a pilot training program in fish handling and processing. Although sufficient data currently exists to define the basic structure of this training program, the final design and curriculum will be developed based on the results of a one month needs assessment to be undertaken within the first four months of the project. The needs assessment will be undertaken by an international consultant, in coordination with the staff of ITP, the co-executor for this component.

Component C - Training of Scientists and Technicians in Management of Shark, Ray, and Chimaera Fisheries - will finance the instruction of Peruvian marine scientists and graduate students in basic elasmobranch (shark, ray, and chimaeras) science and data collection methods, as a foundation for future management of inshore and offshore stocks. The training courses will equip participants with a fundamental understanding of biology, ecology, life-history, systematic, reproduction, population dynamics, and uniform sampling theory related to sharks, rays and chimaeras, with the objective of establishing a reliable database for future fisheries management of these resources.

FINANCING:

Modality:	Grant (MIF Facility II: Human Resources)
Recipients:	US$2,360,000
MIF:	US$3,000,000
Total:	US$5,360,000

IMPLEMENTATION SCHEDULE: Execution Period: 27 months
Disbursement Period: 33 months with the exception of an additional payment for the ex-post evaluation which would occur at 43 months.

ENVIRONMENTAL CLASSIFICATION: The Environmental Committee, at its meeting of June 6, 1995, classified this as a Category III operation.

SPECIAL CONDITIONS: Prior to the first disbursement, the Executing Agency must fulfill special conditions designed to ensure:

a. The contracting of the Project Coordinator and the firm which will conduct the evaluation of the project (Para. 3.36a).

b. The signature of agreements with the co-executors of the Project (Para. 3.36b), and

c. Submission to the Bank of an action plan. (Para. 3.36c)

STANDARD CONDITIONS: The Technical Cooperation Agreement will also contain the Bank's standard clauses relating to, inter alia, auditing, progress reports, inspection, evaluation and procurement.

I. COUNTRY ELIGIBILITY

1.1 Peru was declared eligible for all modalities of financing under the Multilateral Investment Fund (MIF) by the Donors Committee on December 14, 1993, based on a Memorandum of Eligibility prepared by the Bank.

II. BACKGROUND

A. Fishery Sector

2.1 Peru, because of its favorable oceanographic conditions and submarine topography, has some of the most abundant fish resources in the world. These resources have been harvested successfully in the past 30 years, making the fishing industry one of the most dynamic sectors of the Peruvian economy. The fishing industry provides Peruvians with their main source of protein and also represents a major export industry, providing some 15 percent of Peru's total exports.

2.2 The labor force employed in the fishery sector is comprised primarily of low to semi-skilled workers, either operating their own small artisanal boats, working as fishermen on industrial boats, or working in fishmeal or other processing plants. While the fishing crews are primarily men, the majority of the shore related fishing activities (processing, selling) are handled by women.

2.3 The main product in the Peruvian fishing industry is fishmeal (and fish oil, a byproduct). Although fishmeal has provided a major source of employment and export income to Peru over the last few decades, the future growth of the fishery industry in Peru will depend on the modernization of fishing techniques and expansion into products other than fishmeal. A large international market exists for various species which are not yet fished extensively by Peru. Recently, fresh, canned, and frozen fish products have become increasingly important components of the Peruvian fishing industry, accounting for 14 percent of Peru's fishery products in 1994.

2.4 Both the Peruvian Government and private sector have begun to recognize the growing importance and potential to Peru of the rapidly expanding domestic and international markets of fish for human consumption. In response to this growing market, the Government has implemented new standards on preservation methods for fresh fish, and the private sector has begun to explore and finance new ventures with modern fishing vessels. As the Peruvian fishery industry expands into the capture of new species, the development of the capacity to develop and implement a management regime for these species is essential.

B. Industrial Long-Line Fishery

2.5 One of the areas in which the Peruvian fishery industry is expanding is in deep sea long-line fishing. The technique known as long-line fishing is used widely in many parts of the world for the capture of high quality fish primarily for human consumption. The technique consists of laying a line or cord of 50 or more kilometers in length (hence its name) with intermediate branches of lines with hooks and bait on each one. Different species can be targeted by changing the speed at which the lines are laid and thus the depth of the hooks, fishing time, type of bait, and other variables. Tuna and shark are the main target species; tuna being the usual target and shark a substantial by-catch. Smaller quantities of swordfish and other species are also obtained with this method. Compared to other types of fishing techniques such as drift nets and trawling, long-line fishing is considered less wasteful with lower rates of by-catch. Modern long-line fishing vessels have on-board processing and freezing capabilities.

2.6 Approximately 100 foreign vessels are engaged in modern pelagic long-line fishery in international waters off Peru's coast. The catch from these vessels is primarily for export to Asian markets. The targeted species for this fishery are mainly bigeye tuna, yellowfin and albacore with incidental catches of billfishes and various species of sharks. Peruvians in the past had not tapped into this market through local businesses or even as crewmen on the foreign vessels due to lack of training and equipment. The first Peruvian industrial long-line fishing company, the Consorcio Pesquero, became operational in 1993. However, the successful expansion of the Peruvian industry into this market will be dependant upon obtaining adequate training of human resources in the use of the long-line fishing technology.

2.7 During project preparation, a survey was conducted of the demand for trained personnel for the long-line fishing industry. The report, which is available in the project files, indicates a definite demand for experienced Peruvian long-line fishermen to work aboard both domestic and international ships. Currently, foreign vessels are travelling to Peruvian waters with full crews but would prefer the more cost-efficient alternative of recruiting Peruvian fishermen if qualified labor were available. In addition, the local Peruvian long-line fishing industry is planning to expand in the coming years.

C. Fresh Fish Handling and Processing

2.8 The estimated current catch of fish for human consumption in Peru is 300,000 tons per year. Of this, 80 percent, or approximately 240,000 tons, is provided by the artisanal sector and approximately 60,000 tons by the large trawlers which are principally fishing for export species. The 240,000 ton catch includes salt water, river and lake caught fish, with the majority being salt water caught.

2.9 There is little knowledge among Peruvian fishermen, processors and handlers of quality requirements and proper handling procedures

from the moment the fish is caught through the time it is landed, processed, and ultimately enters the distribution chain. Appropriate post-catch handling is particularly critical in certain species such as sharks and rays which have a high bacterial content which can cause illness when consumed by humans if not properly treated within the first few hours after the animal has been caught.

2.10 While programs have recently been implemented to provide infrastructure on shore such as ice plants, cold stores, and hygienic landing areas, there is a need for funding to provide training in proper fish handling and processing practices both for the crew of the catcher vessels as well as for those handling and processing the fish once it is landed. Training in this area is important to ensure higher quality fresh fish to consumers.

D. Resource Management

2.11 Peru manages only a few of its fisheries at present, with the largest efforts being applied to the anchovy (*Engraulis ringens*) and giant squid (*Dosidicus gigas*), which comprise a high percentage of overall catch, and are high value resources domestically and internationally. The limitation of fisheries management to these species is due to limited resources and the need to focus on those fisheries which have been economically important. However, as additional species begin to gain in importance, effective management is essential from the onset of expansion into these additional species so as to ensure the sustainability of the resource.

2.12 The biological sustainability of fisheries is achieved when catch levels are within or lower than the rate of growth of a targeted stock. This concept has undergone an important evolution in recent years, particularly given the natural variability of stocks. Increasingly, resource managers are recognizing that a precautionary management approach is needed to ensure the sustainability of marine fisheries. This approach calls for the collection and use of the best data on catches and stocks, reductions in by-catch and post-harvest losses, and elimination of subsidies that stimulate overcapacity.

2.13 International experience has shown that, when resource management development lags behind fishery development, the result is usually a decline of harvestable resources and serious economic dislocations associated with "late overcapitalization" aimed at offsetting losses in total value as catches decrease.

2.14 The two principal categories of fish which will be harvested by the offshore pelagic long-lining fishery, tunas and sharks, are both exhibiting extraordinary fishery pressure in other locations worldwide. Management of both groups has been fragmentary and not particularly successful due to gaps in biological and ecological data, often compounded by industry resistance to management strategies aimed at keeping harvesting levels within sustainable yields. Since sharks have not been a significant target species in

Peru until recently, they have not been included in the country's management regime. However, there is evidence suggesting that inshore demersal stocks of sharks and rays are under pressure and that additional data is needed for effective management. Should inshore stocks become depleted, harvesting pressure could shift towards the offshore stocks for which there are no reliable data on status or specific management provisions.

2.15 Fishery management laws were enacted in Peru in 1994 to update tuna fishery management and include provisions that strictly limit the percentage of by-catch to 5% of the targeted catch. The by-catch limitation provisions provide a potentially powerful conservation tool for sharks and other pelagic species taken incidentally by pelagic long-lining vessels. In addition, the growth of the tuna fishing fleet is limited by a Ministerial Resolution issued in March of 1994 which states that the fleet will be permitted to increase gradually only as the knowledge of stock availability increases. Peru undertakes intensive management of those species which are currently under the Peruvian management regime, with strict enforcement of fishery laws by the Peruvian Navy. Violations of fishery laws result in seizure of vessels and the levy of extraordinary fines that usually result in vessel forfeiture. The tuna fishery is also subject to the United Nations Convention on Straddling Fish Stocks and Highly Migratory Fish Stocks.

2.16 Management of sharks and other elasmobranch stocks is constrained by several biological factors such as slow growth, low reproductive rates and long gestation. Concern is great enough for their future well-being that sharks were the only group of fishes taken under study by the Animals Committee of the Convention on International Trade in Endangered Species at their 1994 meeting. The International Union for the Conservation of Nature, a consortium of member nations and non-governmental organizations, created a Shark Specialist Group in the early 1990s to assess the status and future conservation needs of the sharks, rays, and chimaeras. Both organizations will likely list many species in this group of fishes (Class Chondrichthyes) as threatened to critically endangered during their next round of meetings in 1996 and 1997.

2.17 The Peruvian government realizes that both inshore and offshore shark fisheries will have to be brought under management. In recognition of the need to begin developing biological baseline information on Peru's inshore shark stocks, the Government has initiated some limited field research in the past several years. However, there is little Peruvian expertise in these species among those entities responsible for developing and implementing management protocols aimed at keeping fishing levels within sustainable limits. It is widely acknowledged within the fishery sector that local human resources must be developed in order to equip Peru for the tasks of sustainable shark and ray fishery management.

E. Project Justification

2.18 In order to ensure the successful adoption and expansion of new technologies in the Peruvian fishing industry, the upgrading of training is essential to provide an experienced labor force to work within that industry as well as scientists to manage the sustainable development of the industry. The current training programs for workers in the fisheries sector is almost exclusively focused on traditional fisheries (i.e related to fishmeal production), with little emphasis placed on training workers in new competitive technologies. Similarly, the training of marine scientists is focused on those fisheries which have traditionally been economically important in Peru. Intensive on-the-job training programs are the most effective means of transferring new technology within this sector and satisfying the demand for a rapid skills upgrading of the current workforce. The types of programs to be implemented under this project will ensure that the training is linked to the changing demands of the industry.

III. THE PROJECT

A. Objectives

3.1 The general objectives of the project are to (a) modernize the training available in the fishery sector; and (b) strengthen the national capacity to implement a resource management regime for tuna, sharks, and other pelagic fisheries.

3.2 The specific objectives are to: (a) develop in-firm and participatory training programs in the pelagic long-lining fishery sector and in the handling and processing of fresh fish; (b) improve the marketable skills and earning capacity of Peruvian long-line fishermen and fresh fish handlers and processors; and (c) develop the capacity of scientists and technicians to collect and analyze population and catch data for the sustainable management of selected pelagic fisheries.

B. Components

3.3 The project, which will be executed by the University of Piura (UP), consists of three components: (a) Training in Long-Line Fishing; (b) Training in Fresh Fish Handling and Processing; and (c) Training in the Management of Shark, Ray and Chimaera Fisheries. A calendar of activities is available in the project files.

3.4 While maintaining overall responsibility for the administration and execution of the project, the University of Piura, a private university, will enter into agreements with the three institutions which, as co-executors, will be responsible for the implementation of specific activities under each component. The co-executors will be the National University of Piura (UNP), a public university, and

the Consorcio Pesquero (CP) for component A, the Institute of Fisheries Technologies (ITP) for component B, and UNP for component C. See Annex I organization chart.

1. Component A: Long-Line Fishing Technology Training Program

3.5 Component A - Training in Long-line Fishing Technology - will finance in-firm training over a two year period. Due to the nature of the activity and specialization of the technology, hands-on instruction is required on board modern long-line fishing vessels. Three international experts will serve as trainers aboard each ship. In contrast to traditional short term training, the in-firm training aboard the fishing vessels will involve full time intensive instruction as well as supervision by the trainers. The safe operation of the boat and the quality of the catch will depend on the success of the trainees in acquiring and mastering the new skills. The training will involve instruction in the use of modern long-line techniques and equipment, including on-board preservation using refrigeration, as well as the importance of environmental considerations such as by-catch reduction to the sustainability of fishery resources. The training will be scheduled in 3 courses of 4 months each offered aboard each of 3 vessels, for a total of 9 courses offered each year. Indicative terms of reference for component A consultants are available in the project files.

3.6 Two of the 3 boats will belong to Peruvian private sector interests, the Consorcio Pesquero. A third boat will be provided by UNP. The inclusion of the University's vessel, with its large on-board student capacity, will allow for the training not only of Peruvian fishermen but also of Peruvian students in navigation and engineering as well as local Peruvian trainers, thus building the skill base for the industry which will contribute to sustainability.

3.7 This component will be implemented by the owners of the participating vessels, UNP and the Consorcio Pesquero, whose responsibilities will include: (a) selecting trainees, in accordance with criteria to be agreed with the executing agency; (b) supervising the trainees aboard their respective vessels; and (c) supervising the work of the consultant trainers recruited by the executing agency.

3.8 In compliance with Peruvian tuna fishery regulations in effect since March 1994 (pursuant to Ministerial Resolution no. 110-94-PE), scientific observers from the National Marine Research Institute (IMARPE) are required to be aboard all vessels engaged in commercial tuna fishing. The observers monitor the vessels' tuna catch and record the details of by-catches so that the development of the fishery can be controlled in an appropriate manner. The catch data which is compiled by IMARPE is presented to the Ministry of Fisheries which uses this data in the ongoing management of the tuna fishery. The data on by-catch species which are not currently under a management regime, is maintained by the Ministry for the future development of a management regime for these species.

3.9 It should be noted that lack of experience in the monitoring of sharks, rays, and chimaera detracts from the ability of the IMARPE scientists to provide comprehensive reliable catch data for those species. In order to address this problem, the IMARPE scientists who are implementing the monitoring system will be eligible to participate in the training program under Component C (see below) with the objective of ensuring the validity of the existing by-catch monitoring program.

2. Component B: Training in Fresh Fish Handling and Processing

3.10 Component B - Training in Fresh Fish Handling and Processing - will finance a pilot training program in fish handling and processing. Although sufficient data currently exists to define the basic structure of this training program, the final design and curriculum will be developed based on the results of a one month needs assessment to be undertaken within the first four months of the project. The needs assessment will be undertaken by an international consultant, in coordination with the staff of ITP, the co-executor for this component. Indicative terms of reference for component B consultants are available in the project files .

3.11 The needs assessment will include an evaluation of the conditions of fresh fish handling in the principal coastal landings. Research for the assessment will involve discussions with local authorities, training institutions, and fishermen involved in food fish handling and processing, and on-site inspections of current practices. The results of the assessment will include recommendations on: (i) training needs; (ii) beneficiary groups; (iii) institutional strengthening; and (iii) an outline curriculum.

3.12 The main activity of the pilot training program will be to train fishermen and processors in the quality aspects of fish handling and the techniques for producing value added products. This training is expected to improve the participants' skills and enable them to expand their knowledge and production, which would in turn increase both the demand for their services and their income potential.

3.13 Topics to be covered in the training courses are expected to include handling of catches, production and quality of ice and icing techniques, preparation of raw material for further processing, including fish handling and preservation techniques, various methods of processing, quality control requirements, and production of animal feed from waste as a by-product, thus ensuring utilization of one hundred percent of the catch.

3.14 The training program will be conducted over two years, with two international experts conducting training of fishermen and fish handlers and processors, local ITP trainers, and extension workers during year one and then turning over all training to ITP local trainers and extension workers for year two. At the end of year one the international experts will return to review the curriculum and training during the first year and make such recommendations for modifications as may be required.

3.15 The training will be undertaken in eight coastal communities chosen based on their importance to the artisanal fresh fish sector, volume of landings, and geographic coverage of the coastline. 1/ Courses will be offered in both on-board training for fishermen and on-shore handling and processing procedures for food fish processors. The specific types of fish to be covered per course at each location will be determined based on the needs assessment, but are expected to include mahi mahi, sea bass, rock fish, flounder, shark and related species. The courses would each be of 15 days duration and have a target of 40 trainees per course: 20 fishermen and 20 processors. During year one, the international experts will train an estimated 160 fishermen and processors as well as some 16 extension workers and 2 local trainers who will in turn train an estimated 384 people in year two, for a total of 562 beneficiaries.

3.16 Training in the proper handling and processing of fresh fish is expected to have the following benefits: (i) improve the income of the fishermen and fish processors through the sale of higher quality fish and the reduction of post harvest losses; (ii) improve the marketable skills of the fishermen and fish processors as a result of their increased understanding of modern handling requirements and improved processing techniques;

3. Component C: Training of Scientists and Technicians in Management of Shark, Ray and Chimaera Fisheries

3.17 Component C - Training of Scientists and Technicians in Management of Shark, Ray, and Chimaera Fisheries - will finance the instruction of Peruvian marine scientists and graduate students in basic elasmobranch (shark, ray, and chimaeras) science and data collection methods, as a foundation for future management of inshore and offshore stocks. The training courses will equip participants with a fundamental understanding of biology, ecology, life-history, systematic, reproduction, population dynamics, and uniform sampling theory related to sharks, rays and chimaeras, with the objective of establishing a reliable database for future fisheries management of these resources. The curriculum will cover basic principles of fisheries management, including property rights and economic incentives. The review conducted in preparing this operation recommended that the current on-board monitoring of shark by-catch should not be enhanced until basic training had been provided to avoid inconsistent data gathering and wasted efforts in costly monitoring.

3.18 The project will utilize the services of two international scientific experts with demonstrated proficiency in shark biology and fisheries management as well as successful track records teaching on the related subjects. The experts will develop curriculum, prepare course materials and train national scientists and technicians who in turn will undertake training over the long

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1/The eight locations are expected to be Cancas, Talara, Paita, Parachique, San Jose, and Chimbote in the north and Pisco and Ilo in the south.

term. The teaching materials developed for and used during the project will be incorporated into the curriculum of UNP. These actions will help to ensure both sustainability of the program and dissemination of information throughout the fishing industry regarding the need to manage stocks in a sustainable manner. Indicative terms of reference for component C consultants are available in the project files.

3.19 The course will be modular in nature and taught in two repeating three-month cycles during the time of year when sharks are most abundant and fishing is the most active (October-March). Instruction will take place in laboratories, classrooms and aboard sampling vessels, utilizing infrastructure of the National University of Piura.

3.20 This component will be implemented by UNP which, as co-executor, will provide facilities for the training under this component and will maintain the training materials developed under the project in order to continue the program as part of its future curriculum.

C. Beneficiaries

The beneficiaries of Component A will include fishermen with varying levels of experience in long-line fishing and students completing fishery studies (particularly in navigation and engineering). The number of participants in this program (264) has been determined based on the capacity on-board the vessels. Trainees will be selected based on criteria agreed between the co-executors and the executing agency. These criteria will include previous relevant training and work experience as well as physical and mental capability to undertake manual labor for long hours and remain at sea for extended periods of time. There will be three categories of trainees accommodated on the vessels as follows:

a. Short Term Trainees - Approximately 66 of the trainees will undergo approximately 4 months of hands-on training. While these participants will be experienced fishermen, they will not normally have had prior commercial long-line fishing experience.

b. Long Term Trainees - Approximately 47 of the trainees will be long-term, and will undergo a total of two years of training as semi-permanent members of the vessels' crew. The best among them will eventually constitute a core group of experts capable of providing training on an ongoing basis.

c. Navigation and Engineering Students - Approximately 150 of the trainees will be university students trained exclusively on board the University's vessel. These will be students of formal education programs in fisheries who are pursuing supervisory positions in the field. These students will each participate in four months of instruction at sea, divided into three courses per year. In addition, a professor from UNP will receive instruction in the training of long-line fishery technology.

3.21 Component B will train some 562 beneficiaries, including ITP trainers, extension workers, fishermen, and fish processors. Given the fact that the sector is dominated by small enterprises, the participants will be drawn from owners and supervisors of these enterprises, thus ensuring the long term adoption of the new processing techniques within the industry. Women are very active in the on-shore fish processing industry; it is therefore estimated that 70 to 80 percent of the process workers trained under the project will be women. The selection criteria for participants, which will include knowledge of and working experience in the sector, will be defined during the needs assessment.

3.22 The participants in the training offered under Component C will be from two target groups: (i) practicing marine scientists and technicians; and (ii) graduate students who comprise Peru's future scientists and technicians. Participants in the first group will be selected based on their level of academic training and work experience in marine biology. Participants in the second group will be selected based on their participation and academic performance in graduate level programs in marine biology. The course will be promoted through advertisements in local press and scientific journals.

3.23 A total of some 50 scientists and technicians would be trained under Component C, of which 30 would be practicing scientists and the remainder would be graduate students who would be benefiting from this training in advance of obtaining their post-graduate degrees. The training provided to the practicing scientists will include instruction in ongoing training in these topics so as to ensure sustainability of the program.

D. Costs and financing

3.24 The total project cost is estimated at US$5,360,000, of which the MIF donation will finance US$3,000,000 and local counterpart will finance US$2,360,000. Each component contains distinct cost-sharing mechanisms, as discussed in paragraphs 4.9 below. Estimated costs (in US$) are presented in the table below. A detailed break out of costs is available in the project files.

SUMMARY BUDGET (US$)			
	MIF	COUNTERPART	TOTAL
1. Professional Services	**393,300**	**76,800**	**470,100**
(Comp.A) Component implementation unit staff	86,400	62,400	148,800
(Comp.B) Component implementation unit staff	48,000	14,400	62,400
(Comp.C) Covered in Component A			
(Executing Agency) Project implementation unit staff	258,900		258,900
2. Individual Consultants	**1.889,330**	**703,400**	**2.592,730**
(Comp.A) Fees, travel & Per Diem 9 Int'l trainers & 1 local trainer	1.498,000	626,400	2.124,400
(Comp.B) Fees, travel & Per Diem Need Assessment & Curriculum Dev. Fish handling & processing trainer	147,650	77,000	224,650
(Comp.C) Fees, travel & Per Diem Fisheries management trainers	243,680		243,680
3. Participant Cost	**80,000**	**1.470,000**	**1.550,000**
(Comp.A) Student's, food, insurance & stipend		1.470,000	1.470,000
(Comp.B) Teaching materials	75,000		75,000
(Comp.C) Course materials	5,000		5,000
6. General Support	**42,700**	**109,800**	**152,500**
(Comp.A) Premises, supplies & communications	17,000	17,000	34,000
(Comp.B) Premises, supplies & communications	5,000	17,000	22,000
(Comp.C) Classrooms, use of training vessels and equipment	2,200	21,800	24,000
(Executing Agency) Premises, equipment, supplies and communications	18,500	54,000	72,500
7. Publication/Promotion	**4,000**		**4,000**
(Comp.C) Pub., info., re. courses	4,000		4,000
8. Evaluation	**100,000**		**100,000**
Fees Consulting Firm	100,000		100,000
98 Contingencies	**490,670**		**490,670**
T O T A L	**3,000,000**	**2,360,000**	**5,360,000**

E. Organization and Execution

1. Executing Agency

3.25 The executing agency responsible for coordination of the project and signing the contract with the Bank will be the University of Piura, a private university located in the northern region of the country where fishing activities are concentrated. The University was selected based on an evaluation of potential candidates which was conducted during project preparation. The key selection criteria included experience in management of projects financed by bilateral and multilateral donors, familiarity with the sector, capacity to coordinate a project with various distinct components and several co-executors with offices and facilities in numerous locations. Indicative terms of reference for the executing agency are available in the project files.

3.26 Founded in 1969, the University of Piura has been at the forefront of efforts to further the economic and social development of the northern region, and has participated in numerous technical cooperation projects with international donors, as a result of which the University has demonstrated an ability to manage international technical cooperation agreements. In addition, the University has considerable experience in management consulting in the fisheries sector.

3.27 The University of Piura will establish a project coordinating unit (PCU) with overall responsibility for the project. The University will be responsible for: (i) maintaining project accounts and making disbursements based on formal requests from co-executors; (ii) undertaking annual audits; (iii) maintaining statistics and monitoring program development; (iv) presenting progress reports to the Bank; and (v) contracting, in accordance with Bank and MIF procedures, all consultants required for the implementation of the project.

3.28 The staff of the PCU will include a project coordinator, budget and contracts officer, fisheries data analyst, and a secretary. The final terms of reference for each of the staff members will be included in the action plan to be submitted as a condition prior to first disbursement. Indicative terms of reference for the PCU staff are available in the project files.

2. Co-executors

3.29 While maintaining overall responsibility for the administration and execution of the project, the University of Piura, as executing agency, will enter into agreements with the three institutions which, as co-executors, will be responsible for the implementation of specific activities under each component. Indicative terms of reference for the co-executors of components A, B, and C as well as their respective staff are available in the project files.

3.30 The responsibilities of the co-executors will include: (i) implementation of their respective components; (ii) selection and

supervision of trainees for each component, based on established criteria; (iii) submission to the University of Piura of a short list of candidates for each consultancy; (iv) supervision of the consultants recruited under the program by the executing agency; (iv) collection and submission to the executing agency of data, as required; (v) submission of bi-monthly progress reports to the executing agency; and (vi) ensuring the technical quality of the program.

3.31 For Component A, which will develop the activities set out in paragraphs 3.5 - 3.9 above, agreements will be signed with UNP and the Consorcio Pesquero, as owners of the participating long-line fishing vessels aboard which the in-firm training will be undertaken. UNP is one Peru's leading institutions in fishery education and has academic cooperation agreements with several international universities as well as Peruvian fisheries institutions such as IMARPE. UNP is the owner of an industrial long-line fishing vessel which it obtained through a bilateral donation aimed at fostering training in this technology within Peru. This project will provide that training so enabling UNP to optimize its use of the training vessel. The Consorcio Pesquero, the first Peruvian industrial long-line fishing company, has been operational since 1993. The Consorcio has initiated an in-firm training program which will be expanded under this project, thus increasing the human resource base needed to facilitate the growth in this industry.

3.32 Component B, which will develop the activities set out in paragraphs 3.10 - 3.16 above, will be implemented by the Institute of Fisheries Technologies (ITP) which is one of Peru's leading institutions in the area of research, development, and training in modern fish preservation and processing techniques. ITP carries out training programs in on-board handling of fishery products, develops new food products from underutilized species, and conducts training courses in fish processing and handling. ITP has executed a number of international technical cooperation projects. It has modern research and training facilities centrally located adjacent to Lima in the port of Callao, and a capability to provide training throughout the major fishing centers of Peru where the activities associated with this program will be located. For the purposes of implementing this project, ITP will establish an administration unit within ITP staffed by a program administrator, technical advisor in food fish handling, and a secretary.

3.33 Component C, which will develop the activities set out in paragraphs 3.17 - 3.20 above, will be implemented by UNP, which has been selected based on their experience in marine biology, facilities for this type of training based in the city of Paita outside of Piura, and their commitment to undertaking research and training in marine biology.

3. Execution Timetable

3.34 The period of execution of the project will be 27 months from the date of first disbursement. The disbursement period will be 33

months with the exception of a final payment for the firm conducting the ex-post evaluation one year after completion of the project. The disbursement period for this additional payment will be 43 months.

F. Disbursements

3.35 The resources of the grant will be utilized in accordance with standard Bank procedures. At the request of the executing agency, an advance of funds up to ten percent of the Bank's contribution may be provided. This advance may be replenished at the request of the executing agency, once the expenditure of the previous amount has been justified to the satisfaction of the Bank.

3.36 The technical cooperation agreement will contain the Bank standard clauses relating to, *inter alia*, auditing, progress reports, inspection, evaluation and procurement. Prior to the first disbursement, the Executing Agency must fulfill special conditions designed to ensure:

(a) The contracting of the Project Coordinator at the University of Piura, and the firm which will conduct the evaluation of the project in accordance with terms of reference approved by the Bank;

(b) The signature of agreements with the co-executors of the Project outlining the responsibilities of each institution in the execution and administration of each component; and

(c) Submission to the Bank of an action plan which would include timetable of activities, detailed budgets, and terms of reference for the staff of the executing agency and the co-executors.

3.37 The contracting of services required for the project will be done in accordance with the relevant procedures of the Bank and MIF.

G. Monitoring and supervision

3.38 The executing agency will be responsible for implementing a monitoring program which will facilitate management and evaluation of the project and also provide elements for the eventual development of fisheries management systems. For this purpose, the staff of the executing agency will include a fisheries data analyst, recruited in accordance with terms of reference approved by the Bank, responsible for monitoring of indicators for all aspects of the project and for the maintenance of statistics to be provided by the co-executors which will be used for progress reports and the evaluation of the project. Indicative terms of reference for the fisheries data analyst are included in the indicative terms of reference for the staff of the University of Piura coordinating office available in the project files.

3.39 An evaluation consultant recruited as a condition prior to first disbursement, will be responsible for determining the indicators to

be monitored as well as designing the monitoring system to be used by the executing agency (see paragraphs 3.36(a) and 8.1). Monitoring indicators will measure the impact of the project on three levels: (a) impact on beneficiaries through indicators such as number and characteristics of participants (e.g. gender, education level), completion rate of courses, skills acquisition, employment diversification and upgrading, and income gains; (b) degree of compliance with environmental concerns through indicators such as the collection of stock and by catch data, and the training of scientists and technicians in the management of shark, ray, and chimaera fisheries and stocks. Indicative terms of reference for the evaluation consultant are available in the project files.

H. Reports

3.40 The executing agency will present to the Bank, together with its corresponding observations and recommendations, the following reports: (i) quarterly reports summarizing the project's progress to date; (ii) an interim report covering the first eighteen months of the projects execution, to coincide with the Banks intermediate evaluation of the project; and (iii) the final report.

3.41 These reports should be based on the information collected through the monitoring system as well as progress reports which will be presented bi-monthly to the executing agency by the co-executors responsible for each of the components. The quarterly reports should demonstrate the project's compliance with the benchmarks set out in the Benchmarks for Project Development available in the project files, including compliance with the Peruvian fisheries management regime as it is developed and refined over the course of the project.

3.42 During the execution of the project meetings will be held between the Bank and the executing agency on a schedule to be agreed between both parties, to review the progress of the project.

IV. VIABILITY AND RISKS

A. Environmental Impact

4.1 Given the nature of the fishery sector, care was taken during project preparation to ensure that the project mitigates any potential risks associated with the environmental sustainability of the operation. Component A does not pose direct risks to the environment but could lead to increased pressure on fishery resources in the future based on expansion of the industry. Component B is expected to have a moderate positive impact on the environment, to the extent that the training would lead to more efficient use of fish products and reduced fish waste. Component C directly contributes to the environmental viability of the project and mitigates the potential risk associated with Component A.

4.2 The relevant factors in determining the environmental

sustainability of Component A (long-line fisheries training) are: (i) the status of the fishery stocks in the proposed harvesting areas; (ii) existing conditions and trends in the reported catch; and (iii) measures currently in place to monitor and manage the fishery in Peru. During project preparation, a fisheries management specialist was recruited to assess these factors in light of the proposed size of the operation, its training focus and the extent to which eventual additions to the long-line fishing labor force would add to the current levels of effort in that fishery. 2/ The conclusion of that assessment was that the experimental training program for long-line capture of tunas, sharks and lesser quantities of other pelagic species in Peruvian waters is small and as such, it would not be considered to represent any substantial negative environmental impact within the Peruvian Exclusive Economic Zone.

4.3 Catch of yellowfin tuna in the southeast Pacific were relatively stable between 1970 and 1987 at about 30,000 tons/year. In 1988, the catch rose dramatically to about 70,000 tons, reaching a peak of 88,000 tons in 1990 and has since dropped to 70,000 tons. The increased catch was mostly due to increased purse seining by Colombia and Ecuador. The recent large increase indicates that further analyses of the stocks should be made. Tuna landings for Peru as recorded by IMARPE and the Ministry of Fisheries also show considerable fluctuations in part due to "El Niño" events. The recent on-board catch monitoring program introduced by the Government of Peru will provide the critical data needed to refine and assess the effectiveness of management regulations in the future.

4.4 The potential risk of over-harvesting beyond sustainable yields does not lie in the training program implemented under this project, but rather in how fast success in the experimental pelagic long-lining fishery program will attract other vessels and businesses to petition to enter the fishery. In this regard, there is consensus in both government and fishery businesses that inshore and offshore shark stocks will have to be brought under a specific management regime given their susceptibility to rapid depletion.

4.5 To prevent the potential risks of a rapidly expanding new fishery in the absence of management provisions, Component C of the project will include a program to train Peruvian scientists in the management of sharks, rays, and chimaera fisheries in order to provide a human resource base capable of developing and enforcing management of these species in the future. While it is both premature, given the status of the shark, ray and chimaera fishery in Peru, and also beyond the scope of this project to develop a resource management regime for these species, it is expected that the training program under Component C will lay the groundwork for

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2/ Report available in the project files: Sid Cook, *Assessment of Environmental Impacts in the Experimental Pelagic Long-line Fishery for Tunas and Sharks in Peru with Supplemental Notes on Elasmobranchs in the Peruvian Inshore Artisanal Fishery.*

the development of such a regime at a later date. That training would include recommendations on best practices for the collection of catch data. Furthermore, the monitoring system implemented by IMARPE aboard the vessels participating in Component A will facilitate the provision of much-needed data to the Government for the development of the management regime. The executing agency will provide the Bank with quarterly reports demonstrating that the project is consistent with the recently established tuna fisheries management regulations.

B. Sustainability

4.6 The project includes a number of elements which will ensure the sustainability of the program beyond the two year execution period. These elements address the capacity of the participating institutions to continue the program, cost-recovery mechanisms which contribute to the long term financing of the program, and the sustained demand for these training programs.

4.7 One of the key factors ensuring the sustainability of the program is the institutional strength of the institutions which will continue the training programs after the execution of this project. All three components include the training not only of direct beneficiaries (i.e. workers and students within the sector) but also of local trainers who will continue to provide this training over the long term. In the case of Component A, the long-term beneficiaries who will receive two years of intensive, hands-on training, as well as the University professor aboard the Ibaraki, will be qualified to provide similar training aboard other industrial long-line vessels.

4.8 The project will work with key institutions in the fisheries sector and facilitate the transfer of international expertise which will upgrade the curriculum and training programs at those institutions in the subject areas covered by the project. The capacity of the local institutions to continue the training beyond the scope of this project is demonstrated by the fact that the majority of costs of local trainers and infrastructure are covered under the project by counterpart contributions. The new training methodologies as well as the training materials developed under the project will be incorporated into the programs of the participating training institutions.

4.9 Sustainability is further strengthened by the distinct cost-sharing and cost recovery mechanisms in each component. For component A, the counterpart funds, which account for some 58% of the total costs, will be contributed by the owners of the participating vessels which will finance some 30% of the cost of the international consultant trainers and cover all costs of the participants while on board including food, accommodations, insurance, and stipends. For components B and C, costs of the program will be shared with counterpart funds contributed by the participating training institutions, ITP and UNP, respectively. In addition, the scientists participating in Component C will contribute to the cost of their training through payment of a

registration fee.

4.10 In order to ensure the long term sustainability of long-line fishery training activities for students aboard the University's vessel, the project will establish a revolving fund. The University students who participate in Component A will re-pay 70% of the MIF contribution to the cost of the consultant trainers aboard the Ibaraki. This cost, estimated at approximately $1,700 per student, will be paid over a five year period through arrangements established by UNP, in agreement with the executing agency and the Bank. The ability of students to pay, based on the positions they take after graduation (whether public or private sector), will be taken into account in the payment scheme. The specific details of the fund mechanisms will be presented to the Bank within the first three months of the project. The funds recuperated from participating students will be used to establish a revolving fund which will be used exclusively for the financing of future training programs aboard the vessel. Careful attention will be placed on monitoring and evaluating this cost-recovery mechanism which may be modified on as is needed basis in accordance with the recommendations presented in the progress and interim evaluation reports.

4.11 Furthermore, the project is expected to have a direct impact on the income potential of trainees under each of the components, thus generating future demand for this type of training. Based on the expected growth of the industry and economic potential, as confirmed by the demand study undertaken during project preparation, it is expected that the demand for trained personnel will be both strong and sustained.

4.12 The National University of Piura has expressed the strong conviction that once they have acquired the technology and have trained personnel available in both long line fishing and the training of scientists, it will be possible to continue training not only for the benefit of Peruvian nationals but also, for individuals from other Andean Countries which are involved in fishing similar species. With regard to component B fresh fish handling and processing ITP is likewise committed to continuing the training of Peruvian nationals in these areas. It is also expected that this training could be provided to individuals of other Andean Countries.

V. COMPLIANCE WITH PROJECT ELIGIBILITY CRITERIA

A. General Criteria for Project Eligibility

5.1 The project is consistent with the general purposes of the MIF as stated in Article 1 of the MIF Agreement which establishes that the MIF shall encourage increased private investment and an expanding private sector, and also that the MIF shall stimulate micro-enterprise, small businesses and other entrepreneurial activities

in member countries.

B. Facility criteria for project eligibility

5.2 The project is also consistent with the criteria for financing under the Human Resources Facility, Article 3, Section 3 of the MIF Agreement, which establishes, among other criteria, that financing shall be provided for the training of professionals who are considered important to the development of the local economy, through strengthening the scientific, technical and managerial capabilities of the human resource base, and for the strengthening of vocational training and other institutions which would serve to train workers and managers.

VI. CONSISTENCY WITH THE BANK'S COUNTRY PROGRAM

6.1 This project is fully consistent with the Bank's country strategy for Peru which focuses on facilitating growth of the private sector. This strategy includes the improvement of education and technical training in order to create a human resource base which would meet the needs of the expanding private sector. By increasing training capacity and introducing modern techniques into the fishery sector, the project will contribute to the development of this key sector of the Peruvian economy.

VII. AVAILABILITY OF MIF RESOURCES

A. Financing Modality.

7.1 It is expected that the project will be financed through a grant based on the following points: (i) Peru was declared eligible for all modalities of financing under the Multilateral Investment Fund by the Donors Committee on December 14, 1993; (ii) details on compliance of Peru with the eligibility criteria for obtaining grant funds at the country level (Article III, Section 5(b) of the MIF Agreement) are given in the country eligibility memorandum; and (iii) the proposed project will have an important impact on the flow of investment funds by facilitating increased productivity among the workforce. The validity of the criteria was confirmed by the Donors Committee in a meeting held on March 30, 1994 (MIF/GN-23).

VIII. INTERMEDIATE AND EX-POST EVALUATION

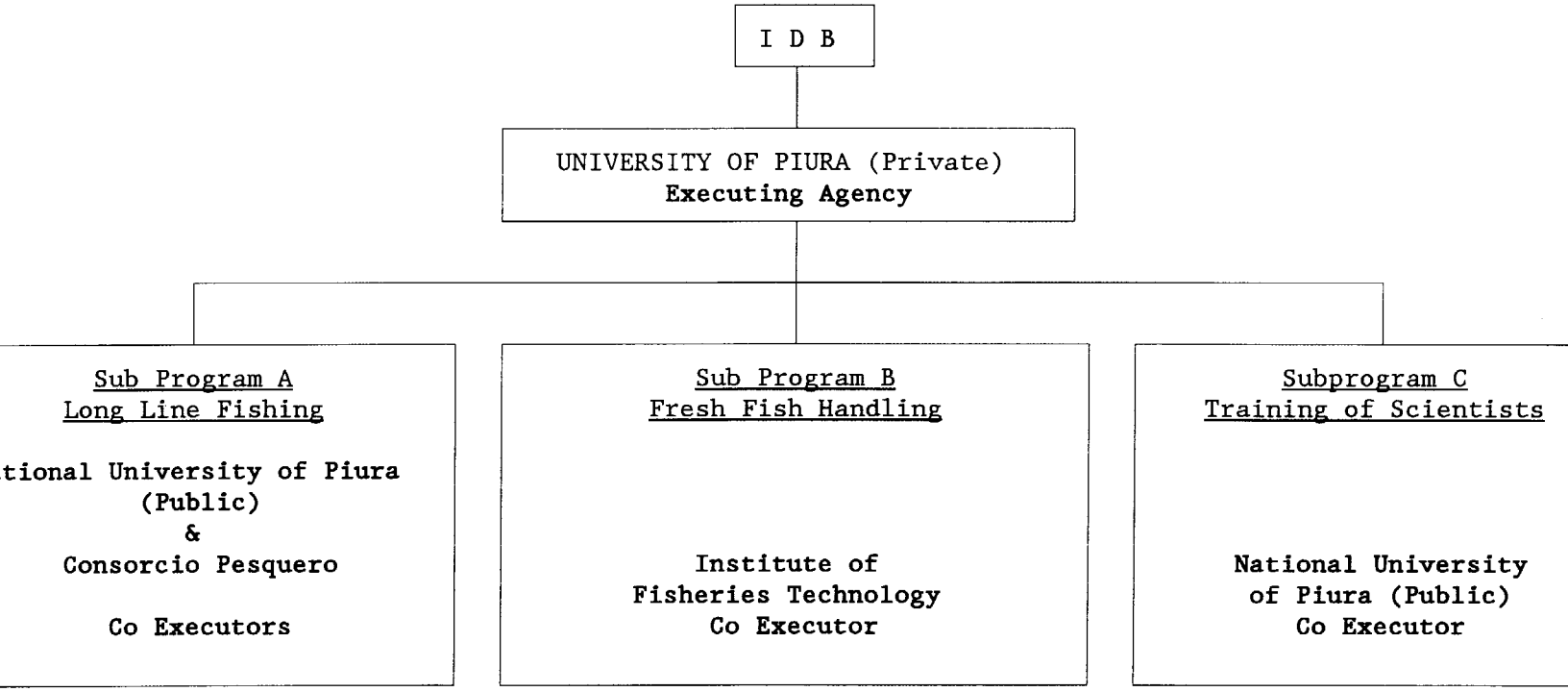
8.1 Evaluation of the project will be conducted by an independent consulting firm to be contracted prior to the first disbursement (see para. 3.36, 3.38 and 3.39). The terms of reference for the evaluation consultants will include: (a) definition of the monitoring and evaluation indicators, including specific indicators which can be used to assess the effectiveness of the fisheries management training; (b) design and establishment of the monitoring

system to be used by the executing agency to collect data on the indicators throughout project execution; (c) design of the methodology to be used in evaluating the project outcomes; and (d) evaluation of the project including the preparation of two formal evaluation reports: an interim report after completion of the first 15 months and an ex-post evaluation one year after completion of project execution.

8.2 The interim evaluation will allow the Bank to assess the level of compliance with project objectives and benchmarks, identify any problems with project execution and modify the project as needed. The ex-post evaluation will assess the cost-effectiveness of the program, gains to fisheries management institutions in terms of data acquisition for management purposes, gains to individual participants in terms of employment diversification and upgrading, as well as income gains and skill acquisition. In addition, the evaluation will assess, to the extent possible, the *contribution of* the training program to investment and export levels in the sector, suing indicators which measure the efficiency gains of the participating companies in terms of changes in quantity, quality, and value of their products, as well as changes in the level of investment and export in the sector. Indicative terms of reference for the evaluation consultancy are contained in the project files.

Annex

ORGANIZATION CHART TC-95-05-04-3



PROPOSED RESOLUTION

PERU. NONREIMBURSABLE TECHNICAL COOPERATION FOR
THE PROGRAM FOR MODERNIZATION OF TRAINING IN THE FISHERY SECTOR

The Donors Committee of the Multilateral Investment Fund

RESOLVES:

1. That the President of the Bank, or such representative as he shall designate, is authorized, in the name and on behalf of the Multilateral Investment Fund, to enter into such agreements as may be necessary and to adopt such other measures as may be pertinent for the execution of the project referred to in Document MIF/AT-_____ with respect to a technical cooperation with the University of Piura for the Program for Modernization of Training in the Fishery Sector.

2. That up to the sum of US$3,000,000 is authorized for the purposes of this resolution, chargeable to the Human Resources Facility of the Multilateral Investment Fund.

3. That the above-mentioned sum is to be provided on a nonreimbursable basis.