

AGENCY FOR INTERNATIONAL DEVELOPMENT  PROJECT PAPER FACESHEET		1. TRANSACTION CODE <div style="border: 1px solid black; display: inline-block; padding: 2px;">A</div> A ADD C CHANGE D DELETE	PP
		2. DOCUMENT CODE 3	
3. COUNTRY ENTITY S&T/AGR/RNR Type C. Field Service		4. DOCUMENT REVISION NUMBER <div style="border: 1px solid black; display: inline-block; padding: 2px;">-</div> Original	
5. PROJECT NUMBER (7 digits) <div style="border: 1px solid black; display: inline-block; padding: 2px;">936-4024</div>	6. BUREAU/OFFICE A. SYMBOL S&T	7. PROJECT TITLE (Maximum 40 characters) <div style="border: 1px solid black; display: inline-block; padding: 2px;">Fishery Development Support Services</div>	
8. ESTIMATED FY OF PROJECT COMPLETION FY <div style="border: 1px solid black; display: inline-block; padding: 2px;">9</div>   <div style="border: 1px solid black; display: inline-block; padding: 2px;">1</div>		9. ESTIMATED DATE OF OBLIGATION A. INITIAL FY <div style="border: 1px solid black; display: inline-block; padding: 2px;">8</div>   <div style="border: 1px solid black; display: inline-block; padding: 2px;">2</div> B. QUARTER <div style="border: 1px solid black; display: inline-block; padding: 2px;">3</div> C. FINAL FY <div style="border: 1px solid black; display: inline-block; padding: 2px;">9</div>   <div style="border: 1px solid black; display: inline-block; padding: 2px;">1</div> (Enter 1, 2, 3, or 4)	

10. ESTIMATED COSTS (\$000 OR EQUIVALENT \$) -						
A. FUNDING SOURCE	FIRST FY 82			LIFE OF PROJECT		
	B. FX	C. L/C	D. TOTAL	E. FX	F. L/C	G. TOTAL
AID APPROPRIATED TOTAL	320	-	320	4,000	-	4,000
(GRANT)	320	-	320	4,000	-	4,000
(LOAN)						
OTHER U.S.						
HOST COUNTRY						
OTHER DONOR(S)						
TOTALS	320	-	320	4,000	-	4,000

11. PROPOSED BUDGET APPROPRIATED FUNDS (\$000)									
A. APPROPRIATION	B. PRIMARY PURPOSE CODE	PRIMARY TECH. CODE		E. 1ST FY 82		H. 2ND FY 83		K. 3RD FY 84	
		C. GRANT	D. LOAN	F. GRANT	G. LOAN	I. GRANT	J. LOAN	L. GRANT	M. LOAN
(1) ARDN	1291	097	-	320	-	320	-	360	-
(2)									
(3)									
(4)									
TOTALS				320	-	320	-	360	-

A. APPROPRIATION	N. 4TH FY 85		FY'S 86 to 91		LIFE OF PROJECT		12. IN-DEPTH EVALUATION SCHEDULE  <div style="border: 1px solid black; display: inline-block; padding: 2px;">MM YY 016 85</div>
	O. GRANT	P. LOAN	R. GRANT	S. LOAN	T. GRANT	J. LOAN	
(1) ARDN	385	-	2,615	-	4,000	-	
(2)							
(3)							
(4)							
TOTALS		385	-	2,615	-	4,000	-

13. DATA CHANGE INDICATOR: WERE CHANGES MADE IN THE PID FACESHEET DATA, BLOCKS 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				15. DATE DOCUMENT RECEIVED IN AID W. OR FOR AID W. DOCUMENTS. DATE OF DISTRIBUTION.			
SIGNATURE  <i>Donald R. Flester</i>				DATE SIGNED 4 16 82			
TITLE Donald Flester Director, Office of Agriculture Bureau for Science and Technology							

**PROJECT PAPER**

**Fishery Development Support Services**

---

**A Cooperative Agreement With  
the University of Rhode Island**

**Renewable Natural Resources Division  
Office of Agriculture  
Bureau for Science and Technology**

## FISHERY DEVELOPMENT PLANNING ASSISTANCE

### Table of Contents

<b>Part I</b>	<b>Recommendations &amp; Summary</b>	
	A. Recommendations - - - - -	1
	B. Summary Description - - - - -	1
<b>Part II</b>	<b>Project Background and Detailed Description</b>	
	A. Background - - - - -	4
	B. Detailed Description - - - - -	7
	1. Introduction - - - - -	7
	2. Logical Framework - - - - -	8
	3. The Sector Goal - - - - -	9
	4. Project Purpose - - - - -	9
	5. Project Inputs - - - - -	9
	6. Project Outputs - - - - -	10
<b>Part III</b>	<b>Project Analyses</b>	
	A. Technical Analysis - - - - -	11
	B. Initial Environmental Examination - - - - -	14
	C. Financial Analysis - - - - -	14
	D. Social Analysis - - - - -	15
	E. Economic Analysis - - - - -	16
	F. Women in Development - - - - -	17
<b>Part IV</b>	<b>Implementation Arrangements</b>	
	A. Analysis of Administration Arrangements - - - - -	17
	B. Implementation Plan - - - - -	20
	C. Evaluation Plan - - - - -	20
	D. Project Reporting - - - - -	20
	E. Related Activities of Other Donors - - - - -	21
	F. Scope of Work - - - - -	21
<b>Part V</b>	<b>Five Year Budget - - - - -</b>	<b>24</b>

## PART I RECOMMENDATIONS AND SUMMARY

### A. RECOMMENDATIONS

It is recommended that a \$2,000,000 project be approved for a five-year activity to transfer existing fishery information and technology services available at the University of Rhode Island (URI) to LDCs. This would be achieved by a cooperative agreement between AID and URI. The project would be funded as follows: \$320,000 - first year; \$360,000 - second year; \$400,000 - third year; \$440,000 - fourth year; \$480,000 - fifth year; total - \$2,000,000. An additional \$50,000 will be provided for two in-depth evaluations, one between the first and second years and the other between the third and fourth years.

### B. SUMMARY DESCRIPTION

#### Background

URI has been a Land Grant institution since it was founded as the Agricultural Experiment Station in 1888. It became one of the four charter Sea Grant institutions in 1967. It is also a Title XII institution. With regard to its fisheries capabilities and this project, it is noted that Title XII states that agriculture includes aquaculture and fisheries, and that the term farmer includes "fishermen and others engaged in cultivating and harvesting food resources from salt and fresh waters."

The proposed project will insure the continued availability to AID/Washington, AID missions and selected LDCs of the small scale fisheries talent, capabilities and facilities developed at URI and coordinated by the University International Center for Marine Resource Development (ICMRD) over the past twelve years under various AID contracts and grants, primarily the ten-year Section 211(d) grant. As used in this project, small scale fisheries are near shore, labor intensive fisheries as opposed to capital intensive, large scale, deep-sea fisheries.

The fisheries capabilities developed by URI include the ability to conduct applied research and state-of-the-art surveys, offer degree and specialized non-degree training, maintain a unique fisheries library and related information resource, and offer consulting and technical assistance.

Under the campus-wide authority of the Provost for Marine Affairs, ICMRD can call on faculty in the following areas to assist in fisheries projects:

Extension Education	Fisheries and Marine	Microbiology
Animal Pathology	Technology	Ocean Engineering
Anthropology	Food and Nutritional	Oceanography
Aquaculture	Science	Organizational Manage-
Biochemistry and	Food and Resource	ment and Industrial
Biophysics	Chemistry	Relations
Biology	Geology	Plant and Soil Science
Botany	Home Economics	Plant Pathology
Chemistry	Management Science	Entomology

Community Planning  
Computer Science  
Earth Science

Marine Affairs  
Marketing Management  
Zoology

Political Science  
Resource Economics  
Sociology

These capabilities have enabled ICMRD to develop a systems (holistic) approach to deal with small scale fisheries problems in all their complexity, giving full consideration not only to the resource base, technical aspects and distribution networks, but also to the political, economic, social and cultural matrix within which the fisheries are located. The systems approach involves a wide range of specialists, including fisheries biologists/ecologists, sociologists, technologists and engineers, resource economists, anthropologists, food scientists, extension educators, librarians, and public administrators.

The systems approach will be used to assist coastal LDCs in the development of the small scale fisheries sector of their agricultural economy. The broad objective will be (1) to increase production of relatively low-cost, high quality food protein for consumption and/or export, and (2) to provide additional employment for those who are or could be employed in "cultivating and harvesting food resources" from both the land and the sea. Coastal LDC fishermen are often part-time farmers and vice versa. They are hard-working, highly independent representatives of free enterprise.

#### The Project

The project will consist of three integrated components, namely (1) Information Services; (2) Advisory and Consultant Services; and (3) Participant Training.

#### (1) Information Services

The project will provide funds for 24 person-months of faculty professional time per year for the continuation and expansion of the fisheries library and information delivery capability at URI. The services will include: (a) compilation of a catalog of all services available to AID under the project which will be distributed to AID Regional and Central Bureaus, AID missions, and through the missions to selected LDCs; (b) development of a rapid response information delivery system through on line access to fisheries publications; (c) publication of a quarterly technical fisheries bulletin for distribution as provided in (a) above; and (d) preparation of relevant fisheries training aids and materials.

#### (2) Advisory and Consultant Services

AID missions as well as AID/Washington have insufficient technical expertise in fisheries development. URI will, under this project, take the initiative in offering its services to AID mission directors to help inform mission staff on the potential for fisheries development as well as the possible impacts of such development.

ICMRD will maintain a team to provide technical advisory services which will include: (a) project planning and design assistance; (b) adaptation of technology and methodologies to specific local conditions; (c) overseas short courses; (d) technical assistance; and (e) project evaluation, all in response to mission, LDC and regional bureau needs.

The team will be comprised of specialists in resource economics, anthropology, fisheries biology, fisheries technology, marine affairs, food technology, public administration, information services, extension education, and other fields as required.

These services will require the funding of 17 person-months of faculty time annually.

### (3) Participant Training

These programs will be available to graduate and special students, and to other participants from LDCs to provide for the utilization of capabilities developed at URI for transferring existing fishery development and management technology, and will allow for expansion of the University fisheries information delivery capability. Positions for up to 20 qualified graduate LDC students may be made available as well as 20 places in the non-degree program for applied fisheries training. Short courses covering priority areas such as stock assessment, fish handling and distribution, and fisheries extension education with possible expansion into enforcement and surveillance will be offered both in the U.S. and in LDCs.

The programs will be supported by 25 person-months of faculty time annually.

### Conclusion

This three-component project will be supported by AID financed inputs totaling approximately 66 person-months of faculty services each year, although the distribution of faculty time will vary according to changes in project priorities. Library and administrative staff time, publication, travel and other operating costs are additional. The five-year duration of the project can best be funded under the cooperative agreement mechanism. The Fisheries Information Services currently funded under grant AID/DSAN-G-0173 will be incorporated into the cooperative agreement as an integral component when the latter is approved and funded.

## PART II PROJECT BACKGROUND AND DETAILED DESCRIPTION

### A. BACKGROUND

The importance of the contribution of fisheries to total supplies of high protein foods has long been recognized. In many developing countries, fish products represent a significant proportion of animal protein consumed. FAO estimates that in certain localized situations in Asia and Africa these proportions may approach 55 and 24 percent, respectively. While FAO and others estimate that the demand for fish could more than double by the year 2000, the Global 2000 report to the President indicates that due to ecological constraints, production from traditional capture fisheries may already be approaching its maximum, with no appreciable increase possible by the year 2000, if present trends in population growth and environmental alteration continue at present rates.

However, while production from capture fisheries may be reaching a peak due to present levels and methods of exploitation, the introduction of fisheries management and improved methods of catching, processing, preserving, and distributing fish can lead to increased production and availability of fish.

In this context, fisheries management, of which stock (resource) assessment is a part, is the science of making and implementing decisions to maintain or alter the structure, dynamics and interaction of fisheries components to achieve specific human objectives. Fisheries management is normally exercised by a government agency.

Areas that are capable of sustaining greater fishing effort can benefit from the introduction of improved capture methods; and the development of appropriate management measures. In addition, areas that are presently overfished can provide sustained levels of harvest at optimal rates. It is estimated that in the tropics over 60 per cent of the fish harvested from the sea are lost due to spoilage or pest attack. Innovative developments in post-harvest utilization and improved distribution methods could drastically reduce this unnecessary waste, making an increased supply of needed animal protein available to man without major changes in total harvest.

For many types of capture fisheries, the basic technology for improved production, management, and utilization exists. This is especially significant for small-scale fishermen who represent the poorest of the poor in many countries who produce the bulk of fish consumed domestically. According to FAO data, 96 per cent of the fish consumed by the poor in LDCs are "wild" fish, caught in the ocean, rivers, streams and lakes, (as opposed to cultured fish produced under controlled conditions - 4 per cent).

The key needs for LDC utilization of the existing technology are those of education, training, technical assistance, and information exchange at all levels from the fisheries administrator to the fishermen. The proposed

cooperative agreement addresses these problem areas with respect to the transfer of technology required to promote increased production and availability of fish by small-scale fishermen through improved production methods and the development and introduction of effective management and post harvest utilization.

To accomplish this technology transfer, AID will utilize the specialized capabilities in fisheries which have been developed at URI during the twelve years of AID contracts and grant assistance, including a ten year 211(d) grant.

URI has been a Land Grant institution since it was founded as the Agricultural Experiment Station in 1888. The present URI College of Resource Development is the direct descendant of the College of Agriculture and Mechanical Arts and includes the present-day Agricultural Experiment Station, the Department of Fisheries and Technology, and the International Center for Marine Resource Development (ICMRD). In 1976, URI became one of the four charter Sea Grant institutions, and it is now a Title XII institution. Title XII, which provides for the application of more effective agricultural sciences to "the goal of increasing world food production" states that the term "agriculture" should be considered to include aquaculture and fisheries. It also states that the term "farmers" should "include fishermen and other persons employed in cultivating and harvesting resources from salt and fresh waters."

URI has been involved in a number of successful activities, including responses to 30 requests for assistance made by AID and others which have made use of educational training and technical assistance capabilities. Other examples of its activities include training of fisheries administrators (Western Samoa, Fiji, Ecuador, Kuwait), training of fishery scientists (Chile, Ghana, Thailand, Brazil), studies and reports on small scale fisheries (Central America, West Africa), research and assistance to countries in the development of their small scale fisheries (Costa Rica, Panama, Guatemala, Tanzania, Ghana and Portugal).

URI enrolls an average of 48 international students per year in marine related graduate courses and programs. ICMRD international development activity is supported in part through contracts with AID, foundations, development banks and the Peace Corps. ICMRD activities also involve being the lead institution in the Consortium for the Development for Technology (CODOT) which has contracts with Saudi Arabia, Brazil, Guatemala and Chile.

An AID team carried out a review of the ten year 211(d) grant program in August 1979. This review team concluded that URI had met and surpassed the conditions of the grant and indicated that URI has developed the capability to make significant contributions to small scale fisheries

development through AID or other units of the broad development community. The review team recommended that AID continue to provide long-term core support to URI in order to maintain and better utilize the capability developed.

The acceptance of an extended economic jurisdiction of coastal waters in 1977 resulted in large numbers of developing countries, which formerly had no control over their coastal fisheries resources, finding themselves with an expanded zone of economic marine influence. Vast new supplies of capturable fish became available either for their domestic use or to be licensed out to foreign commercial fleets. The U.S. with its special expertise in small capture fisheries methods was the natural choice for these countries to approach to request technical assistance. Recently considerable numbers of such requests have been received for assistance in stock assessment, surveillance methods and small-scale fisheries development and management. They are for the most part from the West African Countries, Asia and the newly independent islands of the former British West Indian Commonwealth. If the U.S. does not meet their requests these countries will be forced to lease their resources out or to accept assistance from countries that have other interests in their development than those of the U.S. The initiative in developing this newly available source of protein may well be lost to the developing world.

A major problem in meeting such needs has been to find qualified experts and/or services in a timely manner. The proposed cooperative agreement with URI seems to be the ideal solution to meet the need for responding to these requests for technical services.

To further define and document the demand for services in this area, we solicited expressions of interest from appropriate AID offices. Positive responses were received from country missions (both on their own behalf and in some cases on behalf of the host countries), Regional Offices and Regional Bureaus. The strongest interest in this project came from Africa, with nearly every African country on the east and west coasts of the continent, with an AID mission, requesting AID assistance. REDSO/EA, REDSO/WA and Quagadougou (for the Sahel) also expressed strong interest in fisheries assistance, either for country projects or in conjunction with Regional Programs or Accelerated Impact Projects. This interest has intensified recently and has resulted in a proposal for a West African Regional Fisheries project, which URI has assisted in developing. Seven missions in the Caribbean and Central America, plus ROCAP and RDO/C expressed strong interest in using the services that would be provided under this project. In addition USAID/Uraguay responded that the GOU could possibly make use of the services if they could be provided without any mission financing or personnel support, since the AID program has phased out. Finally AID offices in the Philippines, South Pacific, Portugal and Lebanon expressed strong interest in using the services. More recently, Oman has expressed a strong interest in using URI in the design and implementation of a Fisheries Development project for that country.

Thus, AID has a continuing need for access to a technical capability in fishery management and development to provide training and a response capability to requests for technical assistance from AID missions and Regional Bureaus and from LDCs. This can be accomplished through a cooperative agreement with URI. To be most effective, the cooperative agreement should extend over a 5-year period; however, it is anticipated that the need for core support to maintain and utilize URI's capabilities will continue beyond the present 5-year proposal. Some state and federal funds are available to support URI in its work related to the US fisheries industries, but for the most part these services are not available for development assistance to LDCs, nor should that be expected.

## B. DETAILED DESCRIPTION

### 1. Introduction

The cooperative agreement is contemplated as an extension and expansion of the assistance that AID provided under a 211(d) grant, for the development and maintenance of URI's International Center for Marine Resources Development (ICMRD) during the ten year period 1969 to 1979. This resulted in the development of a unique capability to assist LDCs in increasing and improving their use of small scale coastal fisheries.

A 211(d) grant was first awarded in 1969 and supplemented several times, with a total input of just over two million dollars. The main purpose of the grant was to build a capacity at URI, through ICMRD, to assist AID in its small scale fisheries development activities. As a result of the grant, ICMRD developed an effective multi-disciplinary approach to the identification, design and implementation of small-scale fisheries projects. Included were studies to establish the knowledge base and the state of the art within the small scale fisheries subsector, directed education and training program, a technical assistance response capability and the development on the University campus of a unique library and information services center.

This project would provide for development of a "Resource Center" at URI that would be a repository for skills and information in fishery development through the combination of applied research and practical experience. AID and other interested parties could draw upon this resource for short term advisory and consultant services in day to day planning, implementation, and evaluation of projects. This would enhance AID's responsiveness and effectiveness in program development and implementation.

LOGICAL FRAMEWORK

From FY 1981 to FY 1985  
 Total U.S. Funding \$2,000,000  
 Date Prepared:

Project Title & Number: FISHERY DEVELOPMENT PLANNING ASSISTANCE (963-4024)

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
<p><b>Program or Sector Goal:</b> The broader objective to which this project contributes:</p> <p>By assistance to the fishery sector in the LDCs, to increase production and utilization of animal protein, and employment opportunities.</p>	<p><b>Measures of Goal Achievement:</b></p> <ol style="list-style-type: none"> <li>1) National statistics on increased fish harvested, sold and consumed in participating LDCs.</li> <li>2) National statistics on increased employment in fisheries and fisheries processing.</li> <li>3) Improved nutrition as recorded in controlled school lunch programs</li> </ol>	<ol style="list-style-type: none"> <li>1) National reports &amp; statistics</li> <li>2) National GNP statistics</li> <li>3) School nutrition survey run by URI or an AID selected contractor</li> </ol>	<p><b>Assumptions for achieving goal targets:</b></p> <ol style="list-style-type: none"> <li>1) Potential for fisheries development exists within the individual LDC and that host government is both interested and able to advance it.</li> </ol>
<p><b>Project Purpose:</b></p> <p>To provide assistance in 3 areas of fisheries as follows:</p> <ol style="list-style-type: none"> <li>1) LDC participant training</li> <li>2) Advisory &amp; consultant services (including adaptation of appropriate technology</li> <li>3) Maintenance of a fisheries information service</li> </ol>	<p><b>Conditions that will indicate purpose has been achieved: End of project status.</b></p> <ol style="list-style-type: none"> <li>1) 20 LDC students in training at URI first year</li> <li>2) At least 17 LDC requests for technical assistance first year of program &amp; a proportionate increase in demand each year thereafter</li> <li>3) No less than 10 requests for information per month; publication of information bulletins</li> </ol>	<ol style="list-style-type: none"> <li>1) In-house project review</li> <li>2) " " "</li> <li>3) " " "</li> <li>4) " " "</li> </ol>	<p><b>Assumptions for achieving purpose:</b></p> <ol style="list-style-type: none"> <li>1) That AID funding for project can be made available before the facilities developed under the 211(d) mode at URI has to disband due to a lack of support funds.</li> <li>2) A demand analysis of AID missions justifies AID support for this project</li> </ol>
<p><b>Outputs:</b></p> <ol style="list-style-type: none"> <li>1) Long term degree training, special long and short term courses, seminars and workshops</li> <li>2) 17 person months of overseas technical assistance at request of AID missions.</li> <li>3) Provision of reference materials and information upon request</li> </ol>	<p><b>Magnitude of Outputs:</b></p> <ol style="list-style-type: none"> <li>1) 20 LDC students in long term training &amp; one workshop offered during first year</li> <li>2) 17 person mos. TA provide LDCs first year</li> <li>3) Up to 120 requests for information responded to first year</li> </ol>	<ol style="list-style-type: none"> <li>1) In-house project review</li> <li>2) " " "</li> <li>3) " " "</li> <li>4) " " "</li> </ol>	<p><b>Assumptions for achieving outputs:</b></p> <ol style="list-style-type: none"> <li>1) Mission demands for TA meet expectations</li> <li>2) Host countries express interest &amp; support projects with local funds</li> <li>3) USAID missions and host governments make use of the available service</li> <li>4) USAID missions and other international donors are able to support their participation with their participant training funds</li> </ol>
<p><b>Inputs:</b></p> <ol style="list-style-type: none"> <li>1) Faculty &amp; Professional Support</li> <li>2) Fringe Benefits</li> <li>3) Equipment &amp; Supplies</li> <li>4) Support of Fisheries Library &amp; Information Service</li> <li>5) Travel &amp; Transportation</li> </ol>	<p><b>Implementation Target (Type and Quantity)</b></p> <ol style="list-style-type: none"> <li>1) \$174,100</li> <li>2) 34,683</li> <li>3) 14,204</li> <li>4) 18,500</li> <li>5) 55,410</li> </ol> <p>\$296,297 total direct cost          23,703 indirect cost 8% of LDC          \$320,000 total first year cost</p>	<p>AID BUDGET &amp; fiscal review</p>	<p><b>Assumptions for providing inputs:</b></p> <p>That AID funding will be available for the purpose herein subscribed.</p>

2. LOGICAL FRAMEWORK.

101

### 3. Sector Goal

The sector goal is dual purpose; a) to increase fish production and utilization of high quality animal protein by the poor majority; and b) to increase employment opportunities in fisheries and related industries among the poorest groups in LDCs. That there is a need for short-and long-term technical assistance in this field is evidenced by the responses from AID offices as described in Section II A.

### 4. Project Purpose

AID's continued support of the core budget of ICMRD will assist in maintaining and expanding the facility that has been developed at URI, with primary support from the AID 211(d) grant. The project purpose is to more effectively utilize the capabilities available at URI in programs that will backstop fisheries development in the LDCs, to provide fisheries information and technical assistance at the request of AID missions and host country governments, and to utilize this facility to continue strong educational programs in fisheries for students from LDCs.

### 5. Project Inputs

The cost of this activity over a 5-year period will be approximately \$2,000,000. An initial funding of \$320,000 is anticipated for the first year. Thereafter annual increments are proposed of \$360,000 for the second year, \$400,000 for the third year and \$440,000 and \$480,000 respectively for the fourth and fifth years of implementation, a total of \$2,000,000. In addition \$50,000 will be required for two in-depth evaluations.

Inputs of a specific nature for core support will be:

- (a) 24 person months of faculty time per year for information services of both a routine and special nature to respond to requests from AID missions, LDC's and others.
- (b) 17 person months faculty time per year for technical advisory and consultant services to AID missions and host country governments (including adaptation of technology and methodology).
- (c) 25 person months of faculty time per year to develop training programs, teach graduate courses, and supervise LDC graduate student studies and research.
- (d) Special library and information services acquisitions required to keep abreast of and, to provide on request, international literature in the field.
- (e) Costs of printing, translation, and distribution of newsletters, reports, technical manuals and other publications.

- (f) Travel support for professional staff to study relevant LDC problems and training needs and to participate in meetings and conferences which help to maintain communication links and professional competence related to the program.
- (g) Administrative, secretarial and communications costs and equipment and supplies as required to accomplish objectives.

## 6. Project Outputs

The ICMRD Library will provide world-wide access to fisheries publications and information for AID missions and host countries on request. Technical assistance will be made available to mission and LDC government personnel, as well as to fishermen, as part of the technology transfer process. Up to 20 qualified LDC graduate students and 20 long term trainees in formal and personalized training programs may be enrolled in fisheries courses at URI each year for preparation for leadership roles as government administrators, teachers, researchers, and industrialists in LDCs. There is an existing international network of universities and agencies working together in fisheries technology which will be strengthened through this project's activities.

Specific identifiable outputs on the URI campus will be:

- (a) Publications, Manuals and Information Services. (1) Working manuals and other packaged training materials and aids in English, Spanish, and possibly other languages; (2) A quarterly technical bulletin to include information on international activities of interest to LDC small-scale fishery personnel to keep LDC ministries of fisheries, AID missions and Regional Bureaus, and other interested parties up to date with current developments in the field of small scale fisheries; (3) An up-to-date reference library, staffing and delivery capability, and computer clearing house capability in the field of small scale fisheries to provide a research and quick response reference service for research and other workers in the field; and (4) A catalog of all services available to AID under the project for distribution to Regional Bureaus, Missions and LDCs.
- (b) Short Term Advisory Services. These services, plus on campus adaptation of technology and methodology for use in LDCs, will be facilitated under this program in order to allow URI to respond to requests from AID missions and Regional Bureaus, and host countries for technical assistance in project design, implementation and evaluation for small scale fisheries development and management projects.
- (c) Basic Educational Programs. A strong graduate and long term formal training program maintained at URI with orientation toward application of fishery technology to problems of tropical fisheries in LDCs. Positions for up to 20 students from LDCs will be maintained each year.

- (d) **Special Training.** Degree and non-degree specialized training courses provided at URI in a number of areas of importance to LDC fisheries workers and fishermen.
- (e) **Short Courses and Seminars in LDCs.** As part of the continuing education program, URI will provide short courses and seminars in LDCs in response to needs defined by the LDCs in making the requests. During the first year a two-week in-country short course in small scale fisheries will be conducted in a specific LDC. Thereafter additional in-country short courses and international and regional seminars and short courses on specific topics to be selected based on LDC identified needs will be conducted.
- (f) **Short Courses, Workshops and Seminars.** These intensive short term training programs will prepare LDC participants for important support functions in small scale fisheries in their respective countries.

### PART III PROJECT ANALYSES

#### A. TECHNICAL ANALYSIS

Fisheries can play an important role as a low cost form of protein, a productive means of employment, and a potential source of foreign exchange for many developing countries throughout the world. World production from fisheries in 1978 was approximately 75 million metric tons of which 40 per cent or over 30 million metric tons was taken by developing countries. While the world catch is slowly approaching its peak due to present levels and methods of exploitation, and ecological constraints, it is estimated that substantial increases are still possible under controlled conditions. Aquaculture has a tremendous potential, but significant shorter term increases are more practical through proper management of inland and coastal fisheries resources and improved post harvest utilization. It has been estimated that developing countries could increase their catches by approximately 25 million metric tons per year by harvesting resources near their shores at an optimal rate under proper management. Currently, over 10 million metric tons of fish are lost annually through spoilage or pest attack and this figure could be substantially reduced through the introduction of improved methods of post harvest storage, distribution, and processing.

The importance of fish protein in the diets of AID target groups is significant, but the role varies from region to region. FAO estimates that on the average about 60 per cent of the population in the developing countries of much of the world derive more than 30 per cent of its animal protein (excluding eggs and milk) from fish. This figure underestimates the importance of fish in Asia and many island countries where it is often an indispensable part of the diet. The importance of fish protein in the diets of rural poor is increased by the fact that fish products are generally available at a lower cost than other animal products. Fish may be one of the few protein sources affordable by the poorest population strata in developing countries.

Fisheries have an important employment impact on AID target groups. Much of the harvest taken by developing countries is caught by millions of small-scale fishermen and any catch increases would also benefit them. FAO estimates that the world fishery provides employment, some of it part-time, for about 10 million fishermen with as many as 40 million more people engaged in associated activities such as processing and marketing. The greater part of this work force is associated with small-scale fisheries located in developing countries. These fishermen often represent the poorest groups in developing countries and, if dependents are taken into account, several hundred million people in developing countries rely in a major way on fisheries for their livelihood.

Recent changes in the Law of the Sea related to extension of national jurisdiction to 200 miles has brought increased attention to the importance of fishery and marine resources, particularly the role that they can play in the development process. This new emphasis is especially critical to small-scale fishermen who make up the bulk of the fisheries sector in many developing countries. If all coastal states extend jurisdiction to 200 miles, almost 99 per cent of all living marine resources harvested will come under national control. Small-scale fishermen can benefit from the introduction of fishery management measures designed to optimize production while protecting the resource. Before the onset of extended jurisdiction, foreign fishing fleets often exploited the fishery resources off the coasts of developing countries to the detriment of the small-scale fisheries, which depended on the same resources. Under extended jurisdiction, governments of developing countries can grant fishing rights in their waters in return for joint ventures, licensing fees, and technical assistance designed to improve national fishing capabilities. Regulations can be introduced by LDC government agencies limiting the catches of foreign fleets and creating special areas where only small-scale fishermen can fish, and these management regulations can promote sustained levels of harvest at optimal yields.

Greater attention to the role of fisheries resources in the development process can lead to greater efficiency in methods of post-harvest utilization. This can directly benefit the small-scale fisherman by improving his income through the sale of a higher quality catch.

Developing countries require assistance in all facets of fisheries development and management. Technical assistance in areas such as stock assessment, surveillance and enforcement, and developing management measures is required to determine the extent of the resources and prevent overfishing by both foreign and domestic fleets. Improved gear and boat designs can upgrade the fishing capabilities of the small-scale fishermen and improve his income through increased catches. Better methods of post harvest utilization can help reduce currently estimated loss of 10 million metric tons of fish and improve the final product.

A significant number of requests for technical assistance in fisheries have been received within the past year, largely as a result of a recognition of the significance of zones of extended jurisdiction to the development and

management of national coastal fisheries resources. Although it is impossible to accurately estimate the number of future requests for assistance in fisheries, an increasing number of such requests are being received and further increases are anticipated during future years in response to successful application of fisheries development and management methodologies in LDCs. The following list represents countries which have expressed interest in utilizing URI for assistance or countries for which preliminary discussions have indicated formal requests may be forthcoming within the next year. URI may not be able to provide the services needed in every instance; however, URI will be considered the most likely source of assistance for these countries.

<u>Country</u>	<u>Anticipated Service</u>
1. Guinea	Technical Assistance
2. Somalia	Technical Assistance and Training
3. Sierra Leone	Technical Assistance
4. Tunisia	Training, Information Services
5. Mauritania	Technical Assistance
6. Morocco	Technical Assistance
7. Tanzania	Technical Assistance
8. Liberia	Fisheries Project Development
9. Senegal	Fisheries Project Development
10. Cameroon	Technical Assistance
11. Equatorial Guinea	Technical Assistance
12. Kenya	Fisheries Project Development
13. Guinea Bissau	Technical Assistance and Training
14. Cape Verde	Fishery Project Development
15. The Gambia	Technical Assistance
16. Djibouti	Technical Assistance and Evaluation
17. Guatemala	Technical Assistance
18. Honduras	Technical Assistance, and Information Services
19. Costa Rica	Technical Assistance, and Training
20. Ecuador	Technical Information Service
21. Peru	Technical Assistance
22. Nicaragua	Technical Assistance
23. Uruguay	Technical Assistance, and Information Services
24. Colombia	Technical Assistance
25. Panama	Technical Assistance and Training
26. Philippines	Technical Assistance and Training
27. Indonesia	Technical Assistance and Training
28. India	Fishery Project Development and Training
29. Burma	Technical Assistance
30. Portugal	Technical Assistance
31. Lebanon	Technical Assistance, and Information Services
32. Oman	Technical Assistance and Training

In addition, interest has been expressed in using URI's assistance in Regional Fisheries activities by REDSO/WA, REDSO/EA, Upper Volta (for Sahel), ROCAP, RDO/C and RDO/South Pacific.

## B. INITIAL ENVIRONMENTAL EXAMINATION

No adverse environmental effects will result from the activities supported under this project. In fact, a major component of the project will be to assist LDC's to better manage and protect their marine and coastal resources in order to assure expanded and sustained harvests of fishery resources. This is especially necessary as LDCs extend national jurisdiction beyond traditional maritime boundaries and assume responsibility for the surveillance and legal enforcement of their fishing rights. Where the services of this project are drawn upon, its effect on the coastal shelf ecology should have noticeable, positive effects.

The activities of this project fall into the area described in Environmental Procedure Regulations, Para 216.2 (c) "Analyses, Studies, Academic or Investigative Research. Workshops and Meetings." These classes of activities will not normally require the filing of an Environmental Impact Statement or the preparation of an Environmental Assessment. It is possible that an output of this project will be a set of procedures, guidelines or research results which when used would require such assessment. However, the project itself only proposes training and technical assistance directly supportive of AID and host country activities. Under these guidelines this activity clearly qualifies for a negative determination at the time when a threshold decision is determined.

To the extent that pesticides may be used for the preservation of fish, URI will comply with Rule 16 on Environmental Procedures.

## C. FINANCIAL ANALYSIS

The money provided for this project will accomplish two distinct functions. The first is to provide core support for the International Center for Marine Resource Development established at the University of Rhode Island so that this facility developed under 211(d) grant funding can be sustained. The second function is to make use of that facility to provide technical assistance to the LDCs in the development and management of their inland and marine fisheries. This technical assistance consists of three integrated components: (1) Information Services; (2) Advisory and Consultant Services; and (3) Participant Training.

Work for the initial five years will require support of approximately \$2,000,000 of which \$50,000 would be requested by AID for evaluations. Approval of the five year disbursement period is recommended at the time of project approval although funding is requested only for the first year of operations, a total of \$320,000. Thereafter expenditures are expected to proceed at the rate of \$360,000 the second year, \$400,000 the third year, \$440,000 the fourth year and \$480,000 the fifth year. It is expected that the services of the University of Rhode Island in marine resource management will be required beyond the five-year period.

This project will not provide direct support for basic research as it is anticipated that basic research in fisheries will, for the most part, be implemented by the Joint Research Committee of BIFAD under a series of CRSPs.

Support is, however, provided for the adaptation of technology and methodology which has proven successful under the conditions of small scale fisheries in one country to the small scale fishery needs of another.

Costs incurred for short-term technical assistance provided to AID missions and their host governments will be funded by this project for up to 30 person days on any one assignment. Thereafter costs will be paid by the AID mission or LDC requesting such services.

#### D. SOCIAL ANALYSIS

Properly planned fishery development projects potentially have many positive social consequences. Not only can they increase the supply of food to the poor but they can also stimulate economic development in the private sector among the most independent of small-scale entrepreneurs, the small small-scale fisherman. Projected increases in fishery production depend on either the introduction or improvement of appropriate technologies and methodologies. Recommendations made must be appropriate socially and culturally as well as technically and environmentally. Understanding the sociocultural impacts of fishery development programs is important. It is only through knowledge of these potential impacts that undesirable social consequences can be avoided.

Among the undesirable social consequences which can result from fishery development are unacceptable increases in the degree of social stratification in fishing communities which can result in conflict, a few grow richer while the majority remain impoverished. Adequate consideration of costs and financing of proposed changes can reduce the potential of negative social impact.

Some technological changes force rural to urban migration and rural unemployment--two problems that plague many parts of the developing world today. Such migrations result in negative social impacts; however, adequate analysis can avoid or minimize the problem.

Due to logical problems, some form of local organization is often needed to deliver development project inputs to the grass-roots level. If the proposed organizational form is locally inappropriate, (eg. inconsistent with local values and social forms) it can result in undesirable social consequences such as unemployment or polarization of the target region into disruptive factions. Adequate social analysis of the fishery can provide a framework for development of appropriate organizations to facilitate delivery of project inputs.

URI social scientists interact constantly with other URI specialists increasing their awareness of potentially undesirable social consequences that can arise from improperly planned fishery development programs. All URI consultants who go to the field are briefed prior to departure concerning potential problems in the target region and are prepared to identify project components needing social analysis. This awareness reduces the potential for undesirable social consequences.

## E. ECONOMIC ANALYSIS

In most LDCs arable land tends to be at a premium. Considerable numbers of the rural poor tend to be underemployed or unemployed for long periods of the year depending on the sale of their labor during the peak seasons generally at planting and harvest times. Under these conditions artisanal fisheries often provide an economic alternative to farming. They can offer employment either on a full-time or seasonal basis, with a relatively low-cost investment.

For the most part, the fishing gear required such as trawling nets and fishing lines and, at times, even fishing vessels can be locally produced in home or cottage industries. The harvest provides a superior source of food which unlike many farm products is available throughout most of the year.

Finally, the secondary industries related to fishing such as the marketing of the product and the processing of fresh fish by low technology inputs such as smoking, salting and brining are customary sources of part time employment for women and children.

In the absence of an LDC fishery development project in which all elements of the URI holistic, multi-disciplinary approach have been used, the above general conclusions reflect reported State-of-the-Art surveys, field research and development projects in which some of those elements have been utilized.

More specific conclusions are being reached in a report being prepared for AID's Africa Bureau by URI Professors J. G. Sutinen and R. B. Pollnac and Michigan State University Professor H. P. Jossierand, entitled The Fisheries of West Africa and Prospects for Development.

With reference to coastal fisheries, the authors note that West African fishery resources are among the richest in the world, but only since acceptance of the extended economic zone have the coastal states had an opportunity to reap the economic benefits of their resources. They estimate there are 600,000 artisanal fishermen in the region and that landings could be increased by as much as 50% or up to 1 million tons. This total could be further increased by eliminating the current post-harvest losses which amount to between 20% and 40%. This increase could create 250,000 to 500,000 jobs in secondary fisheries employment - processing, marketing and distribution.

In further support of the above general conclusions, an international agency report on a proposed LDC fishery development project estimates the economic return to the country in the fourth year would be about 30% on an investment of just over \$4 million. The project involves high cost construction of shore facilities and up-grading of fishing vessels. The value of the catch increase would be about \$1.5 million annually, including exports, according to the report. Thus, the investment would be paid off in an additional three years.

It is possible that the above estimates are somewhat optimistic, but given the same optimum fishery resource, skilled small-scale fishermen, a usable infrastructure, high demand and good management, it is possible to hypothesize that a fishery development project involving all the elements of the holistic method should result in a return on investment of 10% to 25% annually through increased production.

This project is designed to make use of small-scale, low technology operations. As a consequence, the catch will for the most part be destined for local consumption. Small scale fishing has been demonstrated to be economically profitable in a large number of countries under a wide variety of circumstances. The technologies to be encouraged will be those which over the years have proven to be well suited and profitable for large numbers of small fishermen.

Although large operations using labor saving methods may develop simultaneously in some developing countries as a result of the increased fisheries resources which can become available under extended jurisdiction, this need not be a problem. Under the program of rational planning which this project is designed to provide, it should be possible to maintain small-scale fisheries for local consumption as well as commercial fisheries with special marketing facilities for the larger cities and for export. In other instances where it may prove desirable; however, development may be directed to converting small-scale fishermen to a higher level of technology using labor saving methods and developing a more competitive type of secondary fish processing industry at the local level. As the control of the resource becomes the responsibility of an LDC, these choices should be made on a basis of adequate analysis and it is the purpose of the present project to assist in the provision of such required technical guidance.

#### F. WOMEN IN DEVELOPMENT

Women play a predominant role in the cottage industries associated with the manufacture of small scale fishing gear such as trawling nets and fishing lines. Women also are dominant in the processing of fish. Finally in many LDCs the marketing of fish tends to be almost exclusively a profession of women.

### PART IV IMPLEMENTATION ARRANGEMENTS

#### A. ANALYSIS OF ADMINISTRATIVE ARRANGEMENTS

It is essential that the implementing institution have considerable knowledge, experience and a disciplinary background in fisheries and related subject matter as well as an international reputation in these fields as evidenced by experience and service with international organizations and societies. Such background and experience is considered to be essential to the establishment of linkages between project activities and personnel and institutions in the LDCs.

During the last twelve years AID has assisted in the development of a specialized capability in fisheries at URI through ten years of 211(d) grant assistance and more recently by means of a strengthening grant and a small activity grant for support of the fisheries information service. The capability that now exists is unique among U.S. institutions. No other U.S. institution has an international fisheries facility of comparable size, equal extension and research facilities, and an international marine fisheries curriculum as complete as that of URI. More importantly, URI's program is unique in that it is oriented toward small-scale fisheries in developing countries as opposed to harvest by highly commercialized fleets as in the

U.S.. During the period of AID grant support, URI personnel gained a base of experience working on a large number of projects in LDCs.

A total of 68 graduate degree alumni, 39 of them from foreign countries, participated in AID-funded Section 211(d) fisheries projects or research on campus and in LDCs. Listed below are those known to occupy key positions in fisheries ministries, in fisheries-oriented academic positions or in international agencies. Four U.S. graduates occupy faculty or staff positions at URI and one is on the faculty of the University of Maine, all in fisheries activities. One U.S. graduate is reported to be a member of the Guinea-Bissau AID mission.

One person from Bangladesh who is a high government official involved in fisheries management.

One Malaysian is in the second highest position in the "Majuikam" - the National Fisheries Development Authority of Malaysia.

Five Indonesians are third level officials (Section Chiefs) in the Directorate of Fisheries, Ministry of Agriculture, Jakarta, Indonesia.

One Costa Rican is in a high level position, exact rank not known, in the fisheries department of the Ministry of Agriculture in Costa Rica.

12 Republic of China graduates occupy positions involving fisheries or fish food in their government.

One Argentine graduate is with UNESCO.

One Swedish graduate is the Program Director for Fisheries in the World Bank, with primary responsibility for Southeast Asia.

One Chilean is the Senior Economist in Fundacion Chile which performs all fisheries research in the country.

Another Chilean is on the faculty of the University of Valparaiso where he is involved in the economics of rational fisheries programs.

A graduate from Ghana holds a position with the national research institute where he continues to work on the application of modern technology to traditional methods of smoking fish - the basis for his Ph.D.

A Brazilian graduate is head of a section of a food research institute in Campinas, Brazil.

A Thai graduate is involved in fisheries work with both the government and the university in Bangkok.

The Head of Fisheries in the government of Fiji (he holds an Associate Degree in Fisheries and Marine Technology).

In addition to graduate level alumni, URI has provided specialized non-degree training for a number of FAO Fellows and other trainees who occupy

positions of importance. Non-degree training differs from degree training in that the students are not admitted to the university for normal curriculum work but instead take only those courses that meet the needs of their employment. These courses are usually given by the Department of Fisheries and Marine Technology. This specialized training includes a two-year course in fisheries developed in response to a request made by the government of Guinea Bissau and under an AID-financed contract with the African-American Institute. It is believed that this is the only two-year, non-degree international fisheries course in the United States. The graduates receive a Certificate for a course of study that is closely related to the two-year Associate Degree program.

16 Guinea-Bissauans completed the two-year Certificate course at the Department of Fisheries and Marine Technology.

Seven Ecuadorian fisheries administrators were given a designed summer course in fisheries administration under the Fulbright Program, as requested by the American Embassy, Quito.

A Fisheries Specialist from the Fisheries Division, Joint Commission on Rural Reconstruction, Taiwan, as given instruction on fishing boat designs; another who was a Junior Specialist in the Council for Agricultural Planning & Development, received general fisheries training.

Two FAO Fellows from Kuwait were given short courses in fishing gear and fishing practices.

A trainee from the Fisheries Division, Economic and Development Department, Government of Western Samoa, took the equivalent of the Associate Degree in the Department of Fisheries and Marine Technology. He also earned a Master of Marine Affairs degree and it is understood that he is now the head of the Fisheries Division, Western Samoa.

The URI Fishery Development Support Services project will be closely coordinated with the ICLARM Fisheries Development project and the Auburn University Aquaculture Technology Development project. Although the projects will be independent, each institution will appoint a staff member to coordinate related activities and arrange exchanges of professional staff as appropriate; and promote to jointly sponsored seminars and joint project development. Additionally, URI will coordinate with the University of Maryland on the CRSP for fisheries stock assessment. The overall coordination of all projects is very important to the administration of a unified and integrated effort in fisheries development.

The project will be managed within the International Center for Marine Resource Development, under the overall supervision of the Associate Director. Day to day project management will be directed by a team consisting of the chairman of the working committees for training, information services, applied research, and state-of-the-art work. The Associate Director will be assisted in administrative aspects by the Center Staff.

## B. IMPLEMENTATION PLAN

This PP has been developed by S&T/AGR based on their assessment of what URI can do and on the needs for project activities as seen by S&T/AGR. An effort has been made to be responsive to needs expressed by missions and Regional Bureau representatives contacted during preparation of the paper. Cost estimates and the scope of activities may need to be revised during contract negotiations. The on-campus support portion of the budget is to be used by URI at their discretion within the categories specified except that responsibilities itemized in the scope of work are considered essential components of the project. A cooperative agreement seems to be an appropriate mechanism for this project as under that mode both the on-campus activities and the technical services component can be jointly funded. It will be desirable for S&T/AGR to exercise control over the use of funds designated for technical services including activities involving adaptation of technology and methodologies. This will require S&T/AGR approval of each service activity before funds are allocated.

## C. EVALUATION PLAN

The project will be managed by a designated fisheries specialist within the Renewable Natural Resources Management Division of S&T/AGR. The Renewable Natural Resources Subcommittee of the Sector Council for Agriculture will serve in an advisory evaluation role for AID.

URI will appoint a Project Director who will be directly responsible for project operations and project supervision on a day to day basis. This person will serve as URI's immediate contact with the AID Project Manager. The AID Project Manager and the URI Project Director will maintain communications with one another on a routine basis as may be necessary for effective project management. Ad Hoc meetings between the AID Project Manager and the URI Project Director will be facilitated as necessary, taking advantage of the URI Project Director's visits to Washington in connection with project and non-project related activities.

Four evaluations are contemplated during the current five-year project activity. Between the first and second year after project implementation an indepth team review will be undertaken to determine whether the project implementation is proceeding on course as specified by URI. The possibility of Regional Bureau participation in project funding will be investigated. At the end of the first and third years of project activity, routine evaluations will be performed with the project manager presenting a progress report to the Renewable Natural Resources subcommittee of the Agriculture Sector Council. The fourth evaluation will take place no later than 12 months prior to the termination of the fifth year of project activity and as a primary objective it will consider whether the cooperative agreement should be further extended. This evaluation will be an indepth team review.

## D. PROJECT REPORTING

1. An annual report of project activities will be submitted in 50 copies to the AID Project Manager by April 30 each year.

2. A fiscal report will be prepared every six months from the date of project initiation showing actual expenditures and projected expenditures for the following six months. This report will be submitted in six copies to SER/CM.

3. Three copies of all trip reports involving international travel in support of this project will be sent to the AID Project Manager.

4. 10 copies of all reports, manuals, and publications will be sent to the AID Project Manager.

5. 10 copies of each information letter will also be sent to the AID Project Manager.

#### E. RELATED ACTIVITIES OF OTHER DONORS

The FAO, UNDP, World Bank and several donor nations are supporting fisheries research and development activities oriented toward encouraging the efficient production of protein in LDCs.

The AID Project Manager in association with the URI Project Director will have the responsibility for assuring that these contract activities do not compete with or duplicate work being supported by other donors.

Cooperation and information exchange among donors is generally good and complementary activities are planned whenever possible. Because the needs are large and the assistance activities are relatively small, cooperation among groups has been effective. A close relationship has developed in fisheries between AID and the FAO.

#### F. SCOPE OF WORK

To achieve the objectives of this project in the provision of technical assistance through (a) the dissemination of small-scale fisheries information, (b) advisory and consultant services, and (c) LDC participant training, the implementing agency shall carry out the following services in each of the three project components which follow.

##### 1. Information Services

The ICMRD Library and Information Service is expected to provide a rapid response capability for information delivery under this project, directed toward the needs of small-scale fisheries. It should be capable of responding to up to 400 individual requests for information each year and for providing up to 800 documents a year taped on microfilm. The Information Service and associated ICMRD library shall serve as a clearinghouse for "gray" literature not generally available in most libraries. Included will be such literature as student theses, research reports, seminar proceedings, and bibliographies dealing with fisheries. ICMRD can provide on line access to thousands of fisheries publications available from academic, government, professional societies and international agency sources. The information service will publish in English, Spanish, and possibly other languages, a quarterly technical bulletin covering pertinent new developments and research findings in marine resources development of interest to LDC Ministries, AID missions,

and fisheries personnel. It will also publish appropriate manuals on matters related to small-scale fisheries as well as special training manuals and aids required for the ICMRD training program. A catalog of all services available to AID under this project will be compiled for distribution to Regional Bureaus, missions and LDCs.

A total of 24 person months of professional time are to be allocated to the library and information service during the first year of project funding.

## 2. Advisory and Consultant Services

The ICMRD will maintain a team of technical personnel to provide AID missions and host governments advisory and consulting services. This team shall be comprised of specialists in resource economics, anthropology, and fisheries biology, food technology, fisheries technology, extension education, public administration, marine affairs, information services, and other fields as required.

An important component of the Advisory Service will be on-campus adaptation of different technologies and methodologies to new LDC environments. The ICMRD will provide assistance to LDCs in adapting techniques which have proven effective elsewhere to specific needs. These include adaptation of models for project identification and design, stock assessment, fisheries management, harvesting, and processing. Methodologies to be adapted will relate to evaluating socio-economic impacts of new methods and management measures accommodating fisheries development in overall rural development planning, and determining specific fishery quotas based on LDC nutritional needs and long range export potential for fishery products.

A total of 17 person months of faculty time will be available during the first year of project operation to provide overseas technical assistance. Special teams will be assigned to focus on specific fisheries problems for short periods of time not to exceed 30 calendar days per mission per year.

## 3. Participant Training

The ICMRD will make facilities available for the training of LDC student participants. The following is a synopsis of the types of training which will be provided and the numbers of LDC students which can be accommodated in each.

Long term degree training will be made available each year for up to 20 qualified LDC students in any of the following areas of expertise: fisheries biology, fisheries technology, fisheries economics, aquaculture management, fisheries extension, anthropology, food technology and marine policy.

Two year non-degree training will be made available for up to 20 LDC students each year. These non-degree participants may be registered in the Department of Fisheries and Marine Technology or they can elect a special course of training in allied fields.

Each year the ICMRD will provide one six-week short course at URI in marine technology or an allied field of small-scale fisheries. Up to 20 students will be accommodated. In addition, ICMRD will provide one two week short course

each year in one host country at the country's request. Additional in-country short-courses will be made available upon request at the cost of the AID mission or other requesting entity.

During the initial five year duration of this project ICMRD will provide four regional fisheries seminars or work shops, one in each of AID's four geographic regions. In addition, one five day international planning seminar is anticipated for government fisheries planners at the Ministry and Directors General level.

A total of 25 person months of faculty time will be allocated under this project for activities related to the project training component.

FIVE YEAR BUDGET

PROJECT TITLE: Fisheries Development Support Services  
 PROJECT NUMBER: 936-4024  
 COOPERATIVE AGREEMENT: To be determined

	<u>FY82</u> <u>First Year</u> <u>Funding</u> <u>(12 month</u> <u>period)</u>	<u>FY83</u> <u>Second Year</u> <u>Funding</u> <u>(12 month</u> <u>period)</u>	<u>FY84</u> <u>Third Year</u> <u>Funding</u> <u>(12 month</u> <u>period)</u>	<u>FY85</u> <u>Fourth Year</u> <u>Funding</u> <u>(12 month</u> <u>period)</u>	<u>FY86</u> <u>Fifth Year</u> <u>Funding</u> <u>(12 month</u> <u>period)</u>	<u>Total Life</u> <u>of Contract</u> <u>(12 month</u> <u>period)</u>
Salaries and Wages	\$174,100	\$191,510	\$210,661	\$231,727	\$254,899	\$1,062,897
Fringe Benefits	34,083	37,491	41,240	45,364	49,900	208,078
Overhead	23,703	26,530	28,792	31,319	34,287	144,631
Travel & Per Diem	55,410	58,345	63,821	67,186	72,120	316,882
Equipment, Material & Supplies	14,204	15,624	20,186	23,904	25,794	99,712
Training	-	12,000	16,300	21,000	23,000	72,300
Publication & Information	<u>18,500</u>	<u>18,500</u>	<u>19,000</u>	<u>19,500</u>	<u>20,000</u>	<u>95,500</u>
TOTALS from URI	\$320,000	\$360,000	400,000	440,000	480,000	2,000,000
Indepth Evaluation Reports (for S&T/AGR)	-	\$ 25,000	-	\$ 25,000	-	\$ 25,000
GRAND TOTALS	\$320,000	\$385,000	\$400,000	\$465,000	\$480,000	\$2,050,000

## FISHERY DEVELOPMENT SERVICES COOPERATIVE AGREEMENT

REVISED BUDGET FOR 12 MONTHS

1. Salaries and Wages (see attached list)		\$153,688
2. Fringe Benefits		
Unclassified Personnel \$ 141,428 @ .20 %	28,286	
Classified Personnel \$ 12,260 @ .25 %	<u>3,065</u>	31,351
3. Equipment, Materials & Supplies		
Project equipment required for training and adaptation	\$3,000	
Project supplies required for training and adaptation	3,000	
Office supplies	800	
Copying, Photography and Printing	690	
Communications: telex, telephone, postage	<u>6,000</u>	\$ 13,490
4. Publications & Information		
Materials Acquisition	\$5,160	
Translation & Language Assistance	4,100	
Publications Production & Printing	<u>8,200</u>	\$ 17,460
5. Travel & Transportation		
International Travel:		
13 trips @ \$1500	\$ 19,500	
U.S. Travel:		
10 trips @ \$200	2,000	
International Per Diem:		
13 months of 30 days @ \$65 per day	25,350	
U.S. Per Diem:		
10 trips of 3 days @ \$35 per day	<u>1,050</u>	\$ 47,900

SUMMARY

1. Personal Services		
1.1 Faculty	\$ 124,237	
1.2 ICMRD Administration	<u>29,451</u>	\$153,688
2. Fringe Benefits		31,351
3. Equipment and Supplies		13,490
4. Publications & Information		17,460
5. Travel & Transportation		<u>47,900</u>
	Total Direct Cost	\$263,889
	Indirect Cost 8% of T.D.C.	<u>31,111</u>
		\$285,000

FISHERY DEVELOPMENT SERVICES COOPERATIVE AGREEMENT

REVISED LISTING OF CORE STAFF

Specialty Area	Total Person Months	Information Services	Advisory & Consultant Services	Participant Training	Total Salary Allocation
<u>Fisheries Economics:</u>					
Dr. Sutinen and/or other senior staff	3		2	1	\$23,803
Jr. Staff (to be named)	6	1		5	
<u>Fisheries Biology:</u>					
Dr. Salla - senior staff	3		2	1	\$21,727
Jr. Staff (to be named)	5	1		4	
<u>Anthropology/Sociology:</u>					
Dr. Pollnac - senior staff	4	1	2	1	\$14,511
<u>Food Technology:</u>					
Dr. I-C Lee and Dr. C.M. Lee- senior staff	4		1.5	2.5	\$10,190
<u>Extension Education:</u>					
Dr. McCreight - senior staff	4	1	1.5	1.5	\$11,546
<u>Small Scale Fisheries Technology:</u>					
(Jr. Staff being recruited)	4		2	2	\$ 9,200
<u>Uncommitted:</u>					
Senior staff - Summer Recontracting or Additional Requests	2		1	1	\$ 5,500
<u>Information Services:</u>					
Librarian Sr. Staff	12	8	1	3	\$18,360
Librarian Technician Cataloging & Libr. Services	4	4			\$ 4,700
Information Serv. Specialist Publishing Newsletter Coordinate Publishing public.	4	4			\$ 4,700
Sub-Totals	55	20	13	22	\$124,237
<u>ICMRD ADMINISTRATIVE SUPPORT STAFF</u>					
Assoc. Dir. Oper. McCreight	3				\$ 8,657
Fiscal Coord. Cloutier	3				\$ 3,221
Fiscal Clerk Barker	3				\$ 3,365
Trainee Coordin. Donmoyer	1				\$ 1,846
Admin. Secretary Neal	3				\$ 3,467
Sr. Clerk Typist Prata	9				\$ 8,895
Sub-Totals	22				\$29,451

The revised listing of personnel and budget reduction of \$35,000 changes the person months in each of the 3 components as follows:

	<u>Information Services</u>	<u>Advisory &amp; Consultant Services</u>	<u>Participant Training</u>		<u>Total Person Months</u>
\$320,000	24	17	25	=	66
\$285,000	20	13	22	=	55

The total reduction of 11 person months would eliminate the two smallest specialty areas of Public Administration and Marine Affairs. A further reduction of person months in the uncommitted and library services account for the other reduction of personnel services. Although the Marine Affairs and Public Administration areas were eliminated, they could possibly be reinstated under the uncommitted category if a mission request includes these specific areas.

Additional reductions included a small reduction of \$700 from equipment, materials and supplies; \$1,040 from the publication and information line item and an \$8,000 reduction in travel since the number of months in response to mission requests were decreased from 17 months to 13 months. It should be further noted that the travel budgeted already assumes that some of the missions or host countries will be required to provide some of the travel expenses.