

External Evaluation of Fisheries Development
Support Services (Project 936-4024) at the
University of Rhode Island Nov. 5-7, 1986

Prepared by

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We were asked to "determine whether the project is proceeding on course, and" to make recommendations concerning extension of the project after completion of the initial five years of this agreement." In particular we were asked to address seven items:

- 1) Is the project purpose in technical assistance and training being achieved?
- 2) Has the work schedule been adhered to?
- 3) Are the research activities satisfactory?
- 4) Are training and technology transfer targets being met?
- 5) Is the staff competent and sufficient?
- 6) Are their identifiable gaps?
- 7) Is the collaboration between research and extension satisfactory?

To achieve the review the panel, along with Lamarr Trott and Richard Neal of the United States Agency for International Development (USAID) met with staff and students at the University of Rhode Island (URI) for 3 days. On day 1 we met with administrators of the university and the International Center for Marine Resource Development (ICMRD) and were presented background and results of the research groups by the researchers. On day 2 we reviewed information services and training programs, toured facilities, were briefed on other

programs at the University of Rhode Island (the Coastal Resources Management Project [CRMP], the Collaborative Research Support Program [CRSP]) and the status of fisheries development in the South Pacific Region, and interacted with the international students on the program. On day 3 we received an overview of the project from Dr. McCreight, worked on our report and gave our first impressions to the program leaders.

We enjoyed our brief visit with the staff and students and greatly appreciated the hospitality extended by all.

B. Project Background provided by AID

The "Fisheries Development Support Services" project was implemented in July, 1982 with the University of Rhode Island for a five year period. The project purpose was:

"to provide for the development and maintenance of a "Resource Center" at the recipient institution that will be a repository for skills and information in fishery development and management through the combination of applied research and practical experience; and to strengthen and expand the recipients institutional capacity to assist programs in developing countries aimed at improving the nutritional, employment and living conditions of the poor majority.

During the early years of the project, emphasis was placed primarily on three activities in accord with the program description of the Cooperative

Agreement. These three areas of activity are:

1. library and information services
2. a short-term advisory and consultant services
3. long- and short-term training.

Development and maintenance of a capacity through applied research was not given high priority during early years of the project, as the AID project managers encouraged that attention be directed initially to the three activities identified above.

In an effort to better focus the program, at a mid-point in the project period AID requested that the University redesign its work plan to be more goal oriented, with defined objectives and outputs. Work was begun in this regard the beginning of the calendar year 1985. A consultant was hired with experience in MBO and project design to assist in this process. The outcome was a division into four principle subject areas: 1. fisheries management and resource utilization, 2. socio-cultural factors, 3. use of mariculture, and 4. post-harvest fishing losses. For each area an interdisciplinary committee was formed, and each began work on a newly defined work plan. The work plans are supplemented by Gantt charts describing the timing and outputs of work by each group. The final work plan was not completed until recently (end of FY 1986). Gantt charts were developed for a four year period beginning in January of 1985. Although the startup was July of 1982, AID-instituted changes in budgeting suggested a change to calendar year reporting, as reflected in the charts.

C. Overview of Fishery Development Support Services

"Fishery Development Support Services" is a cooperative agreement between USAID and the University of Rhode Island's International Center for Marine Resource Development. This agreement provides a unique capability in fishery development in developing countries through training, applied research and technical assistance.

Many developing countries can make significant increases in food production, export of products for international trade, and economic development through fuller and more efficient use of the living marine resources. Barriers to their development can often be accomplished by transfer of existing technology and information, training and, in some cases, applied research. Fishery development is often neglected in a development plan, but can be a dramatic way to influence the economics of less developed countries. The rights of coastal states now extend 200 miles off shore and give many less developed countries significant responsibilities and access to major food resources. These countries often have new resources at their doorstep and can prevent the decline of existing resources with the aid of technical resources and information available in the United States.

The University of Rhode Island has put together with AID's help an ability to respond to the needs of less developed countries in the area of marine fisheries. Interdisciplinary programs incorporating resource economics, fishery biology, anthropology and food technology and marine science in

general provide the base for this capability. Equally important, is the structure of the Center, the Library Services, and the experience in both academic and technical training available at the Kingston and Bay campuses.

The history of USAID and URI cooperation since 1969 has led to a growing ability to meet the needs for assistance in fishery management and development in less developed countries. The building blocks of the present program: training, technical assistance and applied research (fig. 1) are interacting components including faculty, staff and facilities of the university. The training component includes both formal degree programs at the undergraduate and graduate levels and an ability to provide specialized training programs for groups such as Peace Corps volunteers, fishers, and fishery development specialists both at the University of Rhode Island and within country sites. The technical assistance portion draws on the interdisciplinary team from across the campus with a sensitivity to local conditions and situations. Assistance is provided in a range of levels from analysis of fisheries to design or repair of fishing gear. Technical assistance also includes an excellent library facility for providing information from a wide range of library sources through a microcomputer database, the products of which are made available at the request of less developed countries. The applied research capabilities are extremely broad and include fishery science, mariculture, anthropology, fishery resource economics, food technology, fishery gear design and testing and others.

The cooperative agreement provides for an umbrella organization to coordinate.

plan and conduct fishery development activities. The plan called a cost-sharing arrangement between the S&T-funded Cooperative Agreement and AID Missions, with the latter expected to cover travel and associated costs of experts supplied by the Center. Activities include publication and dissemination of information pertinent to funding development and training. The coordinating role also easily stretches to activities funded by developing countries, world banks, Peace Corps and developing agencies in other countries.

Four priority areas have been identified by the program: socio-cultural factors, fisheries management and resource utilization, mariculture and the reduction of post-harvest fishery losses. The program has a flexible structure which can incorporate new and eliminate lower priority areas as the need arises. The group is dedicated to its missions and is a ready source of expertise and capabilities for fishery development.

1. Is the project purpose in technical assistance and training being achieved?

Owing to world-wide economic recession and consequent development program funding cut-backs, AID's host countries have been unable to support enhanced fisheries program levels anticipated at the time the Cooperative Agreement was signed in 1982. U.S. Government's deficit reduction efforts, most particularly the Gramm-Rudman-Hollings legislation, also have severely curtailed AID's ability to follow through on fisheries initiatives given a

high priority.

These funding developments notwithstanding, the university has been able, with support from the Cooperative Agreement's funding, to respond effectively to calls for assistance from a good number of places around the world. It has also been able to significantly enhance the Center's response capability while maintaining and effectively using its strengths across the broad range of activities included in fishery development. These achievements have been greatly facilitated by adoption of the more focused approach to the problems of fisheries development instigated in 1984.

Sharpening the working agenda and establishment of applied research goals significantly improved the Center's ability to apply its existing skills and tools in fishery development than had been experienced earlier. The narrowing of foci also made it easier for AID Missions and host governments to identify ways to obtain help from the Center, even when funding was limited. These committees also have helped increase activity directed toward the purposes of the Cooperative Agreement. While obligations have been lower than anticipated, actual expenditures and the number of person months utilized for project activity have increased substantially and demonstrate that the objectives are being obtained. (See Appendix I), Project Expenditures and Person Months Involvement.")

The Cooperative Agreement has generated an impressive number of written products which document levels of effort in training and the provision of

technical assistance. Summary statements listing training manuals completed or in process, working papers produced, and trip reports completed are presented in Appendix II. The documents referenced in these listings appear to be generally of high quality. While the review team was unable to thoroughly examine all the documents during its three day site visit, its perusal of samples convinced the team that work undertaken was well-directed, appropriately focused and of good professional quality. Some of the training manuals are still in draft form.

We were concerned by a low level of activity in short-term, in-country training abroad. USAID Missions and governments of less developed countries are experiencing substantial problems in funding costly training in the United States. The number of "clients" reached through training within the less developed countries can be very large; thus some project objectives can be greatly enhanced at relatively low cost. Benefits accruing from enhanced activity in this area can be substantial, both in terms of reduced costs to the project and in opening up or expanding project client relationships.

In general, the review panel is most pleased with performance in training and providing technical assistance. We are very much aware of the constraints placed on this project by short-falls in anticipated funding levels, both centrally and through USAID Mission buy-in agreements. In spite of these constraints which have limited the geographic range of project activities, we conclude that the project purpose is generally being met, especially after the project was modified and focused in the 1984 amendment. The team is satisfied

that these two project components are experiencing effective management and task-oriented work. Relations between the USAID project managers and key personnel at the Center are close and productive and include most of the project-oriented personnel we met during the site visit.

2. Has the work schedule been adhered to?

The training and technical assistance work schedules agreed to by the Center and AID/S&T has been adhered to, to the extent possible under the circumstances involved.

3. Are the research activities satisfactory?

Applied research was added to the agreement in 1984. The Center staff were enthusiastic about this addition to the program and significant accomplishments have been made already.

Perhaps the most impressive are the activities in "Fisheries Management and Resource Utilization." The group has strong leadership, has a solid faculty base in several departments, and is acknowledged nationally and internationally for its strength and high quality. The efforts in combining fishery economics and fishery population models are excellent and much needed. The developments in multispecies management models are also significant and important to development of sound management strategies in tropical fisheries of the developing countries. The group is a valuable resource with many

useful insights for meeting USAID goals in fishery development and management. The group is productive, talented, and well balanced between the applied research and assistance, and contains leaders in the field. Of concern is the recent loss of a faculty member in Resource Economics who has not yet been replaced.

The activities under "Social-cultural factors" were also strong. The University of Rhode Island program is especially fortunate to have strength in this area. Assistance to less developed countries are often ineffective owing to a lack of sensitivity and understanding of the social context of development efforts. This topic area has an important agenda, a very able staff who has been productive both in applied sociological research and in making assistance more relevant and more harmonious to the ways of the fishing communities.

The "Use of mariculture" priority area is focusing on Artemia mariculture and has a good project going. The Artemia project is of value to develop predictable and nutritional supplies of food for shrimp culture. Significant progress has been made on this strongly focused program.

The priority area to reduce "Post Harvest Fishing Losses" has just changed leadership and is just beginning its new program. The mission and needs are great in this area. The program area should be reviewed after the new leadership has had an opportunity to initiate its program. It would be very easy for this group to spread its research too thinly. Applications of new

technology in less developed countries also may continue to be a bottleneck unless specific actions are taken in assistance programs.

The relation between research, assistance and training can be so close that distinguishing one from the other can be difficult. Activities related to developing new fisheries were not identified as a research area but it is clear that research activities related to developing specific new fisheries would enhance assistance and training used to develop new fisheries.

Identifying "initiation of new fisheries" as a research area would be a significant help to assistance and training relevant to stimulating the use of unexploited living resources.

4. Are training and technology transfer targets being met?

The program description calls for the Center to engage in the development and maintenance of a staff of trained, experienced professionals and the necessary facilities to make possible long term academic and short term technical training of students from developing countries, and to conduct in-country short courses and seminars on various aspects of fisheries for participants from such countries.

Training and technology transfer are essential activities at the Center. A review of the developments and accomplishments under the Cooperate Agreement as related to these purposes, is indicative of the continued efforts undertaken buy the Center to comply with its contractual obligations in this

particular component.

The build up of a highly qualified scientific and technical staff as well as the long term commitment by the University of Rhode Island to develop and maintain a capacity to address multiple aspects of fisheries development and management, constitute unique conditions that have been instrumental in the success of the component on training and technology transfer. The review of the program shows that most elements of the training component have been adequately implemented. A significant number of students have entered the long term degree programs in fisheries economics, fisheries biology, fisheries technology and food technology. Non-degree training, in the form of short term courses, has also been adequately organized and executed.

Efforts undertaken to establish effective communication with appropriate institutions in less developed countries have resulted in the formalization of memoranda of understanding with eight institutions from abroad. Such memoranda of understanding constitute an important step toward the promotion of the program in potential recipient countries and institutions concerned with marine fisheries.

A detailed review of efforts made at the Center to effectively pursue the transfer of technology indicates a series of timely accomplishments that contribute to the overall success of this element of the Cooperative Agreement. Pertinent examples of adequate actions in this respect are the initiatives undertaken in the areas of food and fisheries technology as well

as in the transfer of expertise and support in information services.

A review of the series of manuals, reports of project activities and technical publications for distribution among specialized institutions, shows that there has been continuous concern for the dissemination of information pertinent to the purpose of the agreement.

Attention has also been paid to the planning and implementation of short courses and seminars in less developed countries on subjects pertinent to marine fisheries management. There are ample possibilities to intensify efforts to effectively transfer technology and expertise to recipient institutions. A more thorough integration and coordination of ongoing activities in the Center would contribute to achieving this potential to a greater extent.

5. Are research, training, and technical assistance personnel competent, and is staffing adequate?

We observed a high level of enthusiasm among project participants during the review. Administrators, senior and junior factor staff members, all seemed to have an essential grasp of project purpose and objectives, and to understand how their roles meshed into the larger picture. They appeared to view their activities and relationships as being of importance to the accomplishment of goals, and evidenced both commitment and pleasure in their involvement. The students we met seemed to be well-informed and serious about their work and

pleased with interaction with project-related staff and activities. All of these are good signs, arguing well for project success, and the team was pleased to see them.

The overall faculty and staff represent a valuable academic and technical resource worthy to support. The Center has successfully drawn talent from several areas at the university and has organized a program to promote research, to facilitate training, and to provide technical assistance to small scale fishery development. The experience accumulated by the staff in international programs with less developed countries from several regions of the world adds greatly to the present capability of the group. As a coordinating entity within the university, the Center has access to a wide array of facilities and a working infrastructure, to complement the highly qualified scientific and technical personnel.

On closer analysis several components stand as the most balanced and mature activities within the Center. Such is the case of the programs on Fisheries Management and Resource Utilization, on Socio-Cultural Factors, on the use of Mariculture Developing Countries, and on Fisheries Training, as well as the program on Information Services.

With the diversity and high quality of scientific and technical talent, the Center has a significant potential to become a center of excellence in research, training and technical assistance, in most disciplines related to small scale fisheries. Provided continued support from URI and strong

internal leadership, the Center could develop their potential to this high level.

URI has generally exceeded expectations in making faculty available to the project, but recently has not filled two important faculty positions vacated when incumbents moved out. Of particular importance is the position previously filled by Dr. Harlan Lampe, who was especially valuable in achieving project objectives. We hope that the university views this loss as serious and takes steps to fill these positions with well-qualified, personnel who can play an important role in the Center's activities.

6. Are there identifiable gaps?

The energies of a program of this strength and such real world challenges can easily be dissipated. There is so much to be done in so many places that the potential number of gaps are endless in terms of what they could do for which less developed country. They have shown good judgement in choosing activities within their abilities on a limited number of problems. When opportunities are available they have concentrated their activities in certain countries. One could wish that future challenges and funding resources will give them opportunities to do more work in Africa and in the Pacific than have developed to date.

7. Is the collaboration between research and extension satisfactory?

The review team was impressed by the abilities and program in non-degree training. Clearly the group has unique abilities to contribute technical training to specialized groups. Training provided to Peace Corp volunteers and to Oman are excellent examples of off and on campus training. The Oman situation demonstrated that they had the ability to pick up an extremely difficult training task on short notice.

Research on food technology has not been picked up readily and transferred to new applications. However, the need to reduce post harvest losses have been identified by the program, new staff have been employed and an effort has begun to reduce post harvest losses in at least one less developed country. These new directions should be evaluated in a couple years.

SUMMARY AND RECOMMENDATIONS

The International Center for Marine Resource Development at the University of Rhode Island conducts an important program of training, assistance and applied research in marine resource development in less developed countries. The university has a unique combination of capabilities to advance this mission and is responsive to the needs and opportunities in fishery development. The components of training, technical assistance are organized into interdisciplinary programs tied to strong academic programs. The program is sensitive to human factors and the context for development within developing countries. The facilities for information services, training, and applied research at URI are good. The program focus has sharpened with the addition

of applied research and priority areas for activity under the agreement. Clearly this valuable capability should be maintained by the United States at the University of Rhode Island. We know of no group who could do it better; these unique capabilities are an important national resource for assistance in less developed countries. The need and potential benefits for marine resource management and development in less developed countries are great and the University of Rhode Island's program is the right place to do it. To let the program lapse and then start over at a later date would be an unfortunate mistake. We believe a more constructive goal is to help this program develop to a center of excellence in training, applied research and technical assistance in fishery development for less developed countries which will complement agricultural programs.

Recommendations

1. USAID should provide a stable enough base of support so that the university can carry out this program and make the long term decisions regarding faculty replacement, facility allocation, and staff development required for a continuing effective program. The university should be encouraged to maintain faculty and staff strength in areas related to this Agreement.
2. USAID and the Center should make a significant attempt to increase the opportunities to conduct overseas through AID missions. In-country training is a cost effective way to train larger numbers of people. The need is great.

the mechanisms to approve and fund such efforts seem awkward.

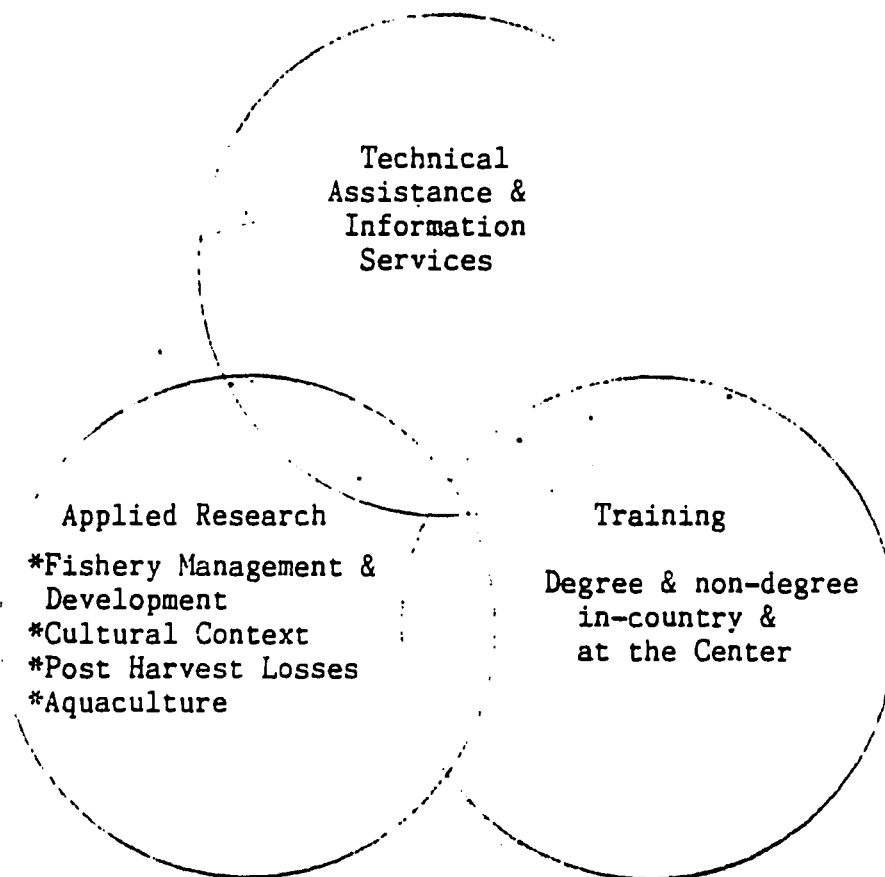
3. Do not focus more and more of the effort in fewer and fewer countries, rather consider broadening the reach of the Center so that more developing countries have access to the unique opportunities offered by the Center for technical assistance in marine fisheries.

4. Seek effective ways to promote the access of more institutions in the developing countries to the excellent information and documentation services at the Center. The scientific and technical expertise in the field of documentation and information is of the highest possible level. This expertise, together with the modern facilities and infrastructure, constitute valuable resources that should be brought to the attention of the appropriate institutions and individuals in less developed countries.

5. Undertake specific actions to ensure effective planning and coordination of all activities on technology transfer. In some instances results of technology transfer activities, as summarized by the responsible staff member, did not provide a clear indication that an effective transfer was indeed accomplished.

6. Complete draft training manuals and make them available to user groups. Development of native language documents are encouraged.

Figure 1. Functional organization of integrated program of fishery management and development at the International Center for Marine Resource Development at the University of Rhode Island.



Appendices

I. Project expenditures and staff involvement

II. Selected outputs from the program.

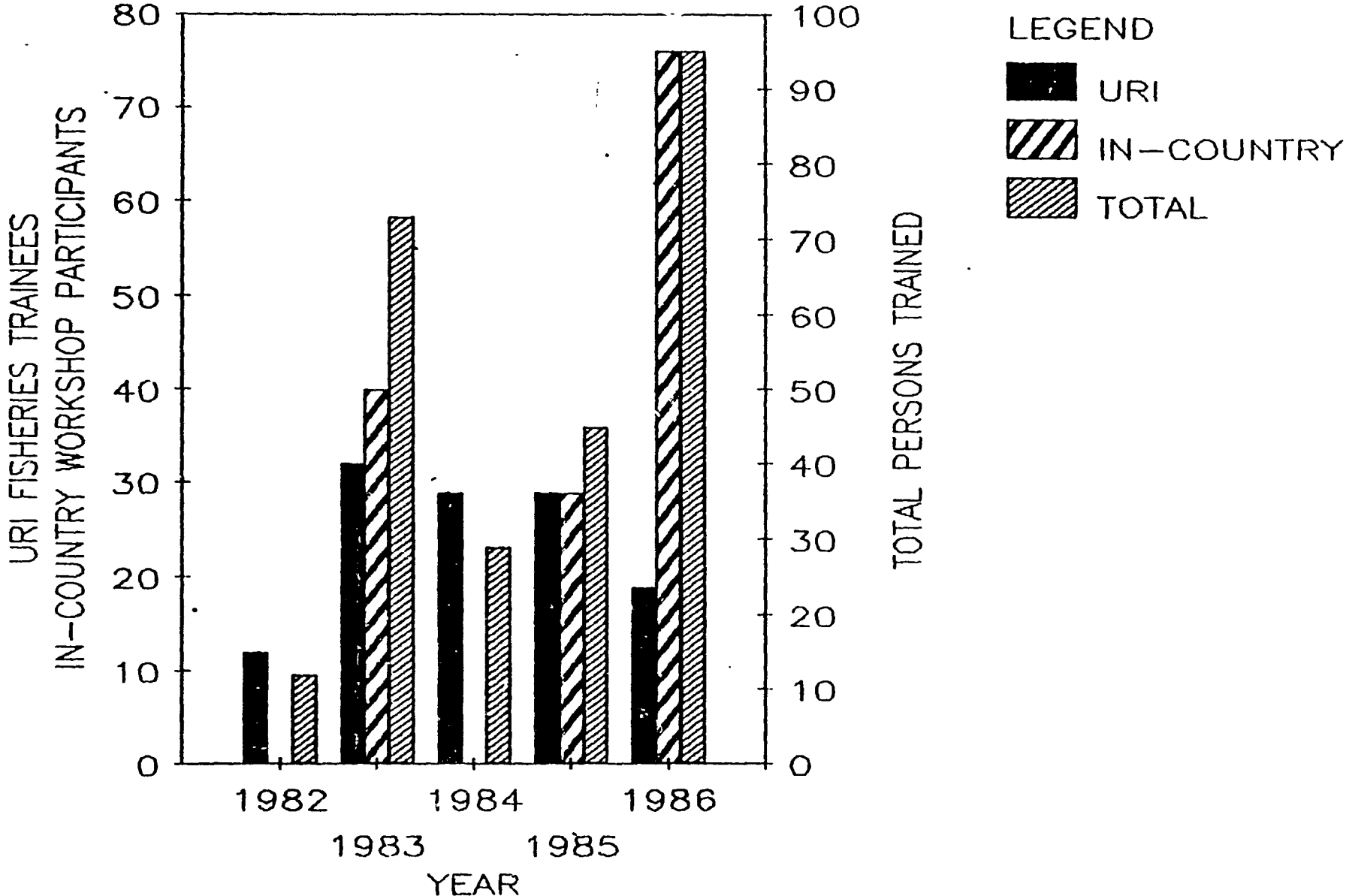
(Note - Perhaps the Center can supplement these with additional or more quantitative lists-JJM)

Appendix I

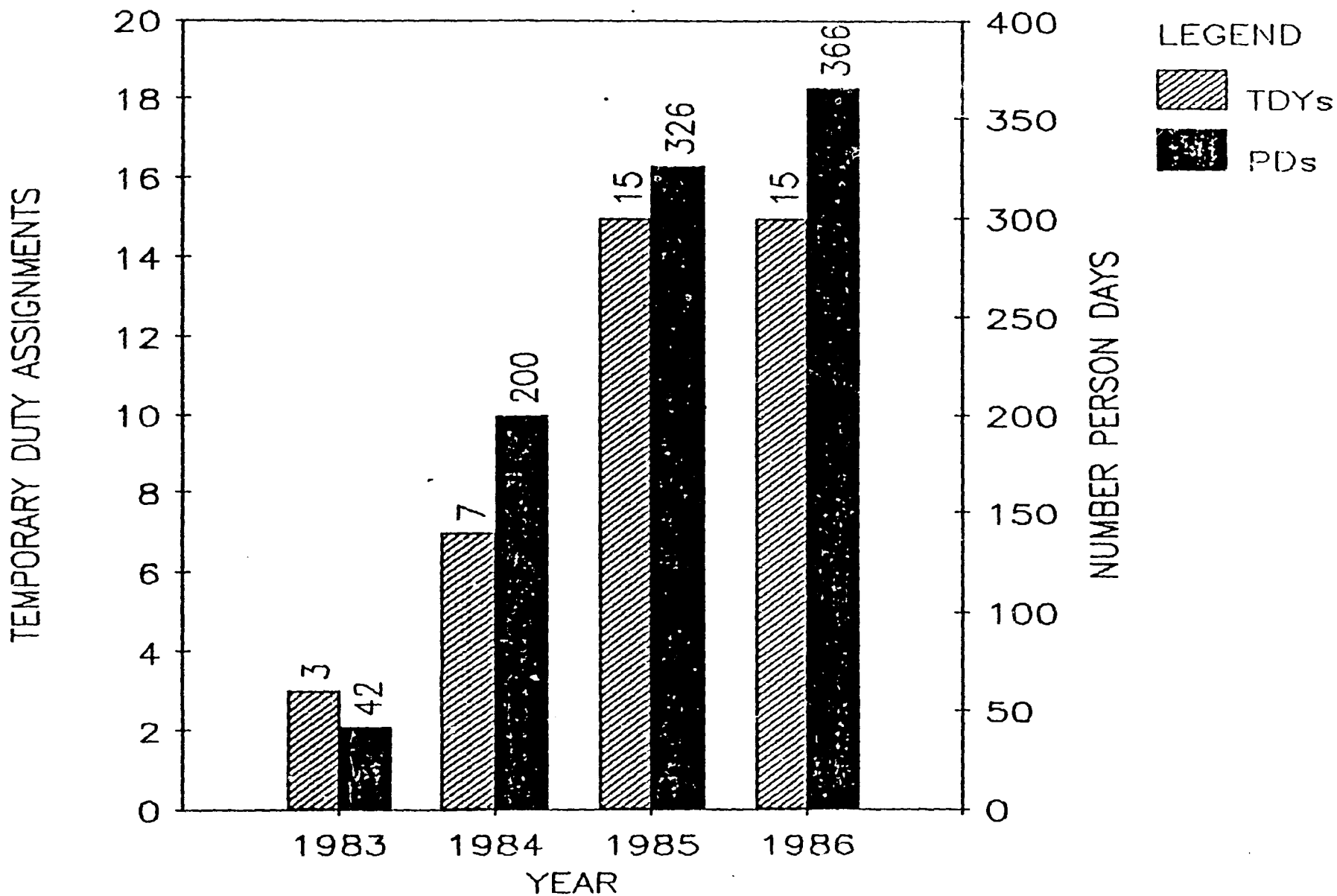
PROJECT EXPENDITURES AND PERSON MONTHS INVOLVEMENT
 USAID "FISHERIES DEVELOPMENT SUPPORT SERVICES"
 Cooperative Agreement DAN 4024 A-00-2072

<u>Yr. I</u>	<u>Actual Expenditures</u>	<u>Total Person Months</u>	<u>Technical Assistance Missions Reg. Bureaus</u>	<u>Applied Research</u>	<u>Training</u>	<u>Information Services</u>	<u>Admin. Support Services</u>
7/1/82 - 6/30/83	102,802	40.75	1.0	--	6.75	18.5	13.5
<u>Yr. II</u>							
7/1/83 - 6/30/84	251,347	76.30	7.75	--	30.25	18.00	20.30
<u>Yr. III</u>							
7/1/84 - 6/30/85	293,621	79.00	8.50	--	14.0	25.5	31.0
<u>Yr. IV</u>							
7/1/85 - 10/31/86	369,053	130.25	12.25	37.0	16.0	26.0	39.0
TOTAL PROJECT	1,016,823	326.30	.29.50	37.00	67.00	88.00	101.8

ICMRD TRAINING ACTIVITIES

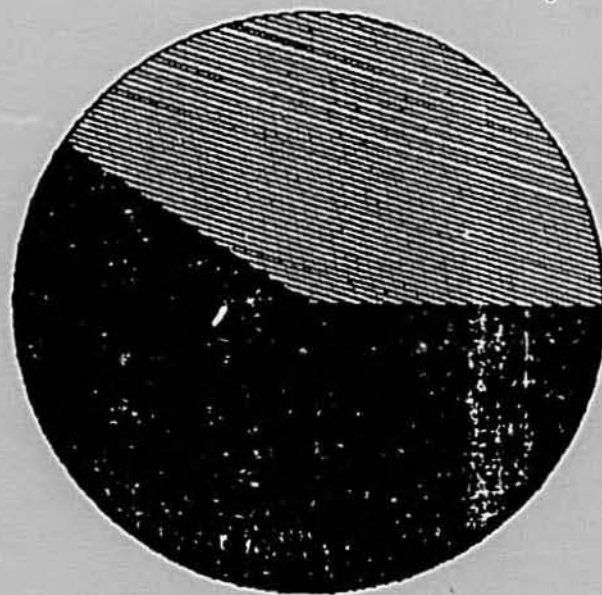


TECHNICAL ASSISTANCE ACTIVITIES



NUMBER OF PERSONS TRAINED BY ICMRD
1982-1986

URI (100) 40.8%



IN-COUNTRY (145) 59.2%

207

Appendix II

TRAINING MANUALS

<u>Title</u>	<u>Authors</u>	<u>Status</u>
A Guide for the Small Scale Fishery Administrator: Information from the Harvest Sector (Spanish and English versions)	D. Stevenson, R. Pollnac & P. Logan	English - Final Spanish - Final
Plywood Workboats for Small-Scale Fisheries	T. C. Visel & W. H. Highsmith	Final
Building the FAO 6-2 Meter V-Bottom Boat	C. Recksiek & A. Giblin	Final Draft
Business Management for Small-Scale Fishermen's Organizations: A Training Program	M. M. Drew	Final Draft
Sociocultural Information Needs for Developing Cooperatives Among Small-Scale Fishermen	R. B. Pollnac	Draft
Seafood Processing and Utilization: Preservation and Processing of Fishery Products	A. Siegel & M. Morrissey	Draft
Bioeconomic Modelling of Fisheries	H. Lampe & P. Logan	Draft
Practical Twinetwork for Fishermen and Gear Technologists	J. DeAlteris	Draft
<u>Artemia</u>	K. Simpson	Draft
Small-Scale Marine Fisheries Development and Extension	B. Crawford, K. Castro, S. Drew, et al.	Preliminary draft/concept stage
The Fishery Science Applications System (FSAS), A Compendium of Microcomputer Programs and a Manual of Operations	S. Salla, C. Recksiek & M. Prager	Final Draft

WORKING PAPERS

(1982-1986)

ICMRD Working Papers

- Brainerd, T. R. July 1986. Lessons from Fisheries Development in West Africa: Overview. ICMRD Working Paper #9.
- Lepiz, L. G. and Jon G. Sutinen. February 1985. Surveillance and Enforcement Operations in the Costa Rican Tuna Fishery. ICMRD Working Paper #14.
- Hendrix, M. E. November 1984. Technical Change and Social Relations in a West African Maritime Fishery: A Development History. ICMRD Working Paper #21.
- Brainerd, T. R. June 1984. Lessons from Fisheries Development in West Africa: Artisanal Fisheries, Senegal. ICMRD Working Paper #13.
- Brainerd, T. R. June 1984. Lessons from Fisheries Development in West Africa: Artisanal Fisheries, Guinea Bissau. ICMRD Working Paper #12.
- Brainerd, T. R. June 1984. Lessons from Fisheries Development in West Africa: Oyster Culture Project, Sierra Leone. ICMRD Working Paper #11.
- Brainerd, T. R. June 1984. Lessons from Fisheries Development in West Africa: Purse Seine/Trawler Construction, Ghana. ICMRD Working Paper #10.
- Hendrix, M. K. 1983. Technology and Tradition in West African Maritime Fisheries: Tombo, Sierra Leone. ICMRD Working Paper #8.
- Epler, B. June 1983. The Fisheries of Guinea-Bissau. ICMRD Working Paper #7.

Anthropology Working Papers

- Pollnac, R. B. December 1985. Sociocultural Issues in West African Fisheries Development. Anthropology Working Paper #45.
- Pollnac, R. B. September 1984. The Division of Labor by Sex in Fishing Societies. Anthropology Working Paper #44.
- Pollnac, R. B. January 1984. Sociocultural Aspects of Small-Scale Fisheries Development in West Africa. Anthropology Working Paper #43.

Pollnac, R. B., A. Dickson, N. Razo and A. Sualog. August 1982. The Effects of Formal Education and Government Services on Aquaculture Practices in Region II of the Philippines. Anthropology Working Paper #42.

Bibliographies

Hendrix, M., T. Brainerd and T. Omara-Alwala. June 1984. A Working Bibliography on East African Fisheries. ICMRD.

TRIP REPORTS

1986

EVALUATION OF FISHERIES DEVELOPMENT PROJECT IN DJIBOUTI

by Harlan Lampe and others

(This work was completed for PPC Division of USAID - not available for distribution by ICMRD.)

A PROPOSED PROGRAM OF RESEARCH & STAFF DEVELOPMENT FOR THE SOCIAL ECONOMIC DEPARTMENT OF FACULTY OF FISHERIES, INSTITUT PERTANIAN BOGOR

by Harlan Lampe

PRELIMINARY INVESTIGATION OF THE PORTUNIDAE CRAB RESOURCES IN COASTAL & ESTUARINE WATERS OF ECUADOR

by Joe DeAlteris, Kathleen Castro

SOCIAL SOUNDNESS FOR INDONESIAN FISHERIES PROJECT

by Richard Pollnac

RECOMMENDATIONS FOR STRENGTHENING THE EDUCATIONAL, RESEARCH & DEVELOPMENT CAPABILITIES OF DEPARTMENT OF FISHERIES PRODUCT TECH., INSTITUT PERTANIAN BOGOR, INDONESIA

by Joe McAlister

TRIP REPORT - Ecuador

by John Poggie

1985

REPORT OF U.R.I. CONSULTANCY ON POTENTIAL ROLE OF ESPOL IN ARTISANAL FISHERY DEVELOPMENT IN ECUADOR

by S. Drew and R. Pollnac, Consultants

Technical Assistance to Barbados AID Mission

"Development of RFP for Marine Resources Assessment in the Eastern Caribbean"

by Dr. John Poggie and Dr. David Stevenson

THE ROLE OF WOMEN IN FISHERIES IN SIERRA LEONE

by Alexa Albert, Marjorie Caldwell

TITLE XII PROJECT TO ASSIST IN THE DEVELOPMENT OF IN-COUNTRY PRODUCTION OF BRINE SHRIMP (ARTEMIA) FOR USE AS FOOD FOR AQUACULTURE ORGANISMS IN INDONESIA

by Dr. Paul D. Maugle

Report of URI, UPR, ESPOL Meeting

June 3-7, 1985

Cooperative Agreement DAN 4024 A-00-2072-00

"Fisheries Development Support Services"

1985 (continued)

A REVIEW OF THE FISHERIES TECHNOLOGY PROGRAM AT THE SCHOOL OF
FISHERIES - ESCUELA SUPERIOR POLITECNICA DEL LITTORAL
GUAYAQUIL, ECUADOR
by Prof. Joseph DeAlteris

REPORT ON ICMRD TECHNICAL ASSISTANCE TO THE BUREAU OF FISHERIES AND
AQUATIC RESOURCES - THE PHILIPPINES
by Richard B. Pollnac

1984

PANAMA, INITIATION OF TROPICAL BIVALVE HATCHERY CULTURE IN PANAMA.
by Dr. Melbourne Carriker

COMMERCIAL SHRIMP CULTURE, SRI LANKA
by Clarence Idyll, Harry Cook

WEST AFRICAN FISH, INITIATIVE PROJECT
by J. Sutinen, B. Epler

1982-1983

EAST AFRICA EFFORT: DJIBOUTI
by D. McCreight

HONDORAS EFFORT
by D. McCreight

PHILIPPINES GOV. BFAR, SOCIO-CULTURAL ASPECTS OF SMALL-SCALE FISHERIES
DEPARTMENT

Actual and Proposed Training Program
1979 to 1988

<u>Funding Source</u>	<u>Dates</u>	<u>Number of Trainees</u>	<u>Discipline</u>	<u>Origin of Participants</u>
U.S.A.I.D.	5/18 to 6/12/		Information From the Harvest Sector at URI	Open to all countries
U.S.A.I.D.	6/15 to 6/26/		Microcomputer Applications in Fisheries at URI	Open to all countries
U.S.A.I.D.	6/29 to 7/24/		Minimizing Post Harvest Losses at URI	Open to all countries
U.S.A.I.D./ESPOL	1986	4	Naval Engineering Technical Fish- eries./Artemia Lipidology and Pesticide Research at URI	Ecuador
U.S.A.I.D.	1986 - 1988	11	Technical Fish- eries at URI and in Puerto Rico	Oman
U.S.A.I.D.	1982 - 1983	1	Fisheries Manage- ment at URI	Nigeria
U.S.A.I.D.	1979 - 1981	16	Commercial Fish- eries at URI	Guinea Bissau
Peace Corps	1981	10	Small Scale Tech- nical Fisheries in Puerto Rico	U.S. Destination: Philippines Papua New Guinea
Peace Corps	1983	22	Small Scale Tech- nical Fisheries in Puerto Rico	U.S. Destination: Tunisia Sierra Leone
Peace Corps	1984	7	Small Scale Tech- nical Fisheries in Puerto Rico	U.S. Destination: Morocco
Peace Corps	1985	18	Small Scale Tech- nical Fisheries in Puerto Rico	U.S. Destination: Turks and Caicos Dominic Republic Jamaica Tonga Haiti Sierra Leone

<u>Funding Source</u>	<u>Dates</u>	<u>Number of Trainees</u>	<u>Discipline</u>	<u>Origin of Participants</u>
Peace Corps	1986	3	Large Scale Commercial Fisheries at URI	U.S. Destination: Tunisia
World Bank	1982-83	8	Project Monitoring and Evaluation at URI	Philippines
World Bank	1983-84	1	Commercial Fisheries at URI	Sri Lanka
World Bank	1984-85	8	Stock Assessment, Project Monitoring, and Project Development and Management at URI	Philippines
World Bank	1985	10	Preservation and Packaging at URI	Philippines
World Bank	1985	2	Electronics at URI	Philippines
World Bank	1985	1	Marine Sciences and Fisheries Information Services at URI	Philippines
World Bank	1986	1	Fishery Science and Oceanography at URI	Philippines

Fisheries Development Support Services
S&T/AGR/RNR Project No. 936-4024

Project Paper Amendment

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Project Paper Amendment
Fisheries Development Support Services
(S&T/AGR/RNR Project No. 936-4024)

I. Executive Summary

On May 27, 1982, the Agency Director for Food and Agriculture authorized a ten-year Fisheries Development Support Services project at a level \$4.0 million. The project assistance completion date (PACD) and the final year of obligation were given as June 30, 1987 and FY 1991, respectively. The project design summary (logical framework) and budget covered only the first five years of the project. In addition, no provision was made for mission, regional bureau, and other AID/W funds to be obligated through contractual delivery orders under a companion basic ordering agreement (BOA) during the life of the project.

The project is now being implemented under a five-year cooperative agreement (CA) with the International Center for Marine Resource Development, University of Rhode Island (URI/ICMRD) at a level of \$1,574,715 and covers a five-year period July 1, 1982 through June 30, 1987. To date only \$1,313,000 has been obligated leaving a balance of \$2,687,000 against the authorized level of \$4,000,000.

The Office of Agriculture, Directorate for Food and Agriculture, Bureau for Science and Technology is now ready to proceed with the last five years of implementation and recommends that the project be amended as follows:

1) the authorized PACD be extended to September 30, 1992; 2) the final fiscal year of obligation be extended to FY 1992; 2) the project design summary (logical framework), a new scope of work and budget be added for the last five years of the project, and 3) provision be made for a \$2.4 million BOA to cover special orders to be funded by missions, regional bureaus and other AID/W offices.

S&T/AGR has received a proposal from the URI/ICMRD which provides information on the impact of the first five years of the project, identifies problem areas to be addressed, and proposes a program for the next five years of the project. The proposal provides for applied and developmental research, technology transfer, training, and maintaining and establishing new networks and linkages with scientists and institutions in developed and developing countries.

The outputs contained in the proposal cover the following areas:

1. Socio-cultural factors, including the role of women in fishing societies; factors influencing success of fishermen's organizations; analysis of traditional behavior patterns in fishing communities; development of a model of interrelationships between sociocultural characteristics of fishing communities, fishing technologies and techniques, and aspects of the marine environment and coastal zone; and, response capabilities in sociocultural aspects of fishery development.

2. Fisheries management, including management policy analysis; market analysis covering research on domestic and international markets for mariculture; market analysis for the capture sector; mathematical modeling and programming; utilization of fish by-catch, especially of the trawl shrimp fishery; and, bioeconomic management models for tropical multispecies fisheries.
3. Use of mariculture in developing countries, including development of brine shrimp (*Artemia*) production and quality control; studies of brine shrimp quality and diet that they eat in their natural environments; and comparison of brine shrimp to microencapsulated fish diets that can be mass-produced in laboratory conditions; and, international brine shrimp workshops.
4. Post harvest fishery losses, including reduction of losses due to spoilage and contamination; processing methods for fishery products; products from underutilized species; and, development of human resources in post harvest fishery losses through training programs.
5. Resource development and utilization, including feasibility studies on developing swimming crab fishery industries and cultivating mangrove oysters; increased productivity of LDC fishermen; and, training fishermen through technical fisheries manuals (e.g., practical twinwork for fishermen and gear technologists).

The above areas are those which S&T/AGR has identified as important during the next five years to achieve the goal and purpose of this project. The outputs and the magnitudes of the outputs and inputs are indicated in the project design summary (logical framework), attached. The exact periods of implementation will be covered in the annual work plans as mutually agreed by S&T/AGR and URI/ICMRD. The program will be implemented by a CA between S&T/AGR and URI/ICMRD and by a companion BOA which will provide for special orders to be funded by missions, regional bureaus and other AID/W offices.

URI/ICMRD proposed a CA budget at \$3,166,000, of which S&T/AGR would be contributing \$1,750,000 or 55 percent of the total, and URI/ICMRD - \$1,416,000 or 45 percent. This represents a very large contribution for such an institution. It also provides an indication of the Center's dedication to helping AID promote its fisheries programs to: 1) increase employment and income opportunities of the poor majority; 2) obtain additional foreign exchange earnings from the sale of fishery products; 3) increase the availability of high protein foods by decreasing post harvest losses and increasing fish availability; and 4) to conserve and properly utilize natural resources available to LDCs.

Because of budgetary constraints, S&T/AGR will not have \$1,750,000 to fund a new CA over the next five years. However, we are proposing a CA level of \$2,292,000, of which S&T/AGR will be contributing \$1,273,000 or 56 percent of the total and URI/ICMRD will be contributing \$1,019,000 or 44 percent. In an informal inquiry, URI/ICMRD has indicated that this contribution will be made.

For the companion BOA, S&T/AGR is requesting a level of \$2.4 million to accommodate expected mission, regional bureau and other AID/W "buy-ins. This request is based on mission responses to S&T/AGR's query regarding the need for services to be provided by URI/ICMRD. Of the 31 missions responding, 58 percent responded positively or indicated possible need for the services in the future.

The proposed amendment of the project paper will allow for a new five-year agreement at the levels proposed above. The contributions by missions, regional bureaus and other AID/W offices will be funded by the requesters under special orders issued against a companion BOA.

II. Project Background and Detailed Project Description

A. Background

1. Importance of Fisheries in the LDCs

The fisheries sector plays an important role in the economies of the LDCs, provides a productive means of employment, and a potential source of foreign exchange for many developing countries. Much of the harvest taken by developing countries is caught by millions of small-scale fishermen and increases in the catch and reductions in post harvest losses would benefit them directly.

FAO estimates that the world fishery provides employment 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 LDCs representing the poorest groups of the countries.

It has been estimated by FAO that LDCs can 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 (\$4.0 - \$6.0 billion) are lost annually through spoilage or pest damage 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 A.I.D. target groups is significant, but the role varies from region to region. FAO estimates that on the average about 60 percent of the population in the LDCs derive more than 30 percent of their animal protein from fish. This projection underestimates the importance of fish in Asia, parts of West Africa, and many island countries where it is often an indispensable part of the diets in these areas. In addition, fish products are generally available at a lower cost than other animal products in LDCs.

Changes in the Law of the Sea related to extension of national jurisdiction to 200 miles has brought increased attention to the importance of fisheries and marine resources, particularly the role they can play in development. This emphasis is especially critical to small-scale fishermen who make up the bulk of the fisheries sector in LDCs. Small-scale fishermen can benefit from the introduction of fishery management measures designed to optimize production while protecting the resources.

2. Project Evaluation by Team of Scientists

This project was evaluated in November 1986 by a team of scientists, including representatives from a regional bureau and an LDC. The team fully supported the project and strongly recommended that it be continued with URI/IQMRD as the implementing agent.

The evaluation team reported that improved marine resource management and development techniques will increase: 1) incomes of LDC fishermen; 2) food availability, production, and security; and 3) the foreign exchange earnings of the LDC governments involved in the program. The team further stated that URI/IQMRD is the appropriate U.S. institution to implement programs in this area as it has a unique combination of highly trained marine scientists and the facilities to respond to the needs of the LDCs. In addition, the university is sensitive to: 1) human factors by virtue of its on-going research in socio-economics, and 2) the developmental methods needed for successful LDC programs by virtue of its background and years of experience working in the developing world. The facilities at the university are designed to support a program of basic and applied research, training, technology transfer, and networking. These activities are inter-disciplinary and tied to strong academic courses at the URI. In

addition, URI has agreed informally to provide \$1,019,000 from its own resources to assure the success of the program during the next five years.

3. Success stories

Many success stories can be cited. For example in the Philippines, URI/ICMRD trained scientists are leading in-country programs for extension workers who are instrumental in reducing post harvest losses and improving the quality of fishery products. In Palawan and northern Luzon, fishermen using improved fishing techniques have decreased post harvest losses of fish substantially. This has increased the availability of fish, resulted in more disposable income, and increased the nutritional level of the fishermen's families.

In Ecuador, capture technology promoted by URI scientists has resulted in the previously unutilized "blue crab" species being harvested and exported. This new activity is bringing additional earnings and employment to the small-scale fishermen. Although just beginning, the crab project is a good example of S&T/AGR, mission and host country cooperation in utilizing natural resources to develop a lucrative fish industry. Foreign exchange is being generated from export of these species.

In Thailand, Philippines, and Ecuador, URI/ICMRD scientists have trained faculty members on methods for analyzing fatty acid profiles in brine shrimp. This analysis has resulted in the use of new methods which have greatly reduced mortality and increased growth rates of fish food organisms which are essential for successful mariculture programs.

III. Project Goal, Purpose, S&T CPSS, and Project Components

- A. Project Goal - The goal statement of the project has been changed as follows to place more emphasize on the quality of life of poor LDC residents.

"To improve the quality of life of poor LDC residents, both economically and nutritionally through effective sustained use of living aquatic resources."

- B. Project Purpose: In addition, the purpose statement has been revised as follows to emphasize the new A.I.D. mandate:

"To assist LDCs improve their capabilities to develop programs designed to: 1) increase employment and income in

the fisheries sector; 2) decrease post harvest losses and increase utilization of high quality animal protein by the poor majority; 3) use rational management strategies to conserve national resources and optimize sustained yields; and 4) increase foreign exchange earnings from fisheries products.

C. S&T CPSS

Additionally, this project conforms with the S&T CPSS, which outlines the role of S&T/AGR. Specifically, this project satisfies S&T/AGR's mandate to: 1) foster food security objectives and stimulate economic growth in LDCs; 2) increase income among the poor farmers; 3) increase food production without harming the natural resource base; 4) increase the consumption of high quality animal protein - thus improving nutrition and decreasing hunger; 5) make effective use of available natural resources; and 6) strengthen national institutional capabilities through education, policy dialogue, and human resources development.

D. Project Components:

1. S&T/AGR's contribution for the next five years will total \$1,273,000 and cover: 1) applied and developmental research at a level of \$637,000 or 50 percent of the total; 2) technology transfer, including problem solving and transfer of information at a level of \$191,000 or 15 percent; 3) various training programs at a level of \$254,000 or 20 percent; and 4) networking and linkages at a level of \$191,000 or 15 percent.
2. Contributions by URI/ICMRD are expected to total \$1,019,000 for: 1) basic and adapted research at a level of \$611,000 or 60 percent of the total; 2) technology transfer at a level of \$102,000 or 10 percent; 3) training programs at a level of \$204,000 or 20 percent; and 4) networking and linkages at a level of \$102,000 or 10 percent.
3. Contributions from missions, regional bureaus and other AID/W offices are expected to total \$2,400,000 and cover: 1) applied and developmental research at a level of \$360,000 or 15 percent of the total; 2) technology transfer at a level of \$1,200,000 or 50 percent; training programs at a level of \$480,000 or 20 percent; and networking and linkages at a level of \$360,000 or 15 percent.

IV. New Cooperative Agreement between S&T/AGR and URI/ICMRD

The building blocks of the proposed CA are: applied and development research, training, technical assistance and networking which are interacting components including faculty, staff and facilities of the university. The training component will include formal degree programs at the under-graduate and graduate levels and an ability to provide specialized training programs for groups such as Peace Corps volunteers, fishermen, and fishery development specialists both at the university and within LDC country sites. The technical assistance portion will draw on the inter-disciplinary team from across the campus with a sensitivity to local LDC conditions and environment. In addition, assistance will be provided in a range of levels from analysis of fisheries to design or repair of fishing gear.

Technical assistance activities also include an excellent library facility for providing information from a wide-range of library sources available through a micro-computer data base, the products of which are made available upon request from LDCs. The applied research capabilities draws on the extremely broad basic research developed by URI covering fishery science, mariculture, anthropology, fishery resource economics, food technology, fishery gear design and testing and others.

A. Project Components

1. Applied and Development Research

- a. Improved methods for managing fisheries resources, including under utilized species in LDCs.
 - At least two methods adapted for LDCs and used in at least one LDC.
- b. Improved methods for reducing post harvest spoilage and contamination
 - At least three methods adapted for LDCs and transferred to at least one LDC.
- c. Improved methods for processing, distributing and marketing fish and fish products in LDCs.
 - At least two techniques developed and used in selected target areas of LDCs
- d. Improved methods for assisting LDC fishermen, processors and wholesalers to use innovative methods in the industry.

- At least two methods developed and successfully applied in one LDC.
- e. Determine factors which influence success or failure of fishermen's cooperatives.
 - Research will be conducted and findings applied in at least one LDC.
- f. Role of women in fishing societies as related to change in the fishery industry
 - Research will be conducted and findings applied in at least one LDC.
- g. Determine interrelationships between the sociocultural characteristics of fishing communities, technologies and techniques and the aspects of marine environment and the coastal zone.
 - Research will be conducted, and a model developed, and field tested in at least one LDC.
- h. Develop models for mariculture systems in LDCs, including Artemia.
 - Models will be applied in at least two LDCs.
- i. Improved quality control for domestic and international markets.
 - Methodology developed and demonstrated in at least one LDC.
- j. Market analysis for captured fish
 - Analysis will be completed in at least 4 LDCs.
- k. Mathematical Programming Algorithms.
 - One algorithm will be developed, distributed and demonstrated in 4 LDCs for economic analysis of fisheries development potential.

2. Technology Transfer

- a. Problem Solving activities - Although most of the technical assistance provided under this category will be provided under the companion basic ordering agreement, there will be some activities funded under this cooperative agreement. The assistance will be provided in the following areas:

- Factors influencing project success
- Fisheries marketing and policies
- Planning in fisheries development
- Fishery sector studies.
- Factors influencing success or failure of fishermen's organizations.
- Utilization of fish by-catch
- Mariculture or Artemia or other marine species
- Development of quality control methods of Artemia
- Improved handling and processing techniques.
- Assistance to private sector.

b. Transfer of Information

One library information center will be maintained at URI which will contain approximately 14,000 documents and reports in 1987 and increased by 1,000 items annually. The documents will cover the following subjects: Artisanal fishing techniques, mariculture, basic seafood processing, fisheries economics, post harvest losses, socio-economics of small-scale fisheries, marketing of fishery products, and fisheries management techniques.

- At least 1,000 publications/research findings, and reprints prepared, collected, and disseminated annually.
- Newsletters distributed quarterly to 600 LDC scientists, extension workers, and other.
- Audio-visual cassettes prepared for mariculture training

3. Training

Although most of the training will be funded under the companion basic ordering agreement, there may be some training funded under this cooperative agreement.

- a. Non-degree and short-term training at URI and in LDCs. Possible subject areas may include the following.
- Cooperative fisheries training
 - Small-scale technical fisheries training in LDCs
 - Project monitoring and evaluation
 - Project development and management
 - Instrumentation repair and maintenance

- Application of microcomputers
 - Marine science information services
 - Post harvest losses
 - Bioeconomic management model for tropical multispecies fisheries
- b. Comprehensive Training Manuals
- Three manuals developed and used in at least 20 LDCs
- c. Audio/Video Cassettes for Training
- At least one cassette will be prepared annually and demonstrated in 2 countries.
- d. Activities Related to International Visiting Scientists and Others
- Activities and programs given at URI, as required.
- e. Seminars and Workshops
- Two workshops held at URI
 - Seminars held t URI
- f. Maintaining Capability at URI to assist Peace Corps Staff in Fisheries Training
4. Networking and Linkages
- a. Existing networks and linkages will continue and new contacts will be made with international, national and regional research centers and institutions.
- URI will continue to expand its collaboration with U.S., other developed countries, national, and international scientists and institutions.
- b. Conferences and International Study Groups
- One conference or international study group meeting will be held annually.
- c. International Workshops on Fresh Fish Preservation, Minimizing Post Harvest Fishery Losses
- One workshop will be held annually

d. Publications and Scientific Journal Articles will be produced, selectively collected and disseminated to LDCs and international organizations.

- 1,000 publications and journal articles will be produced, collected and disseminated annually.

e. Formalized Memoranda of Understanding with LDC Institutions and Governments.

- Continued contacts with the eight institutions which have signed the current memoranda of understanding and negotiate five more MOUs over the next five years with other interested LDC institutions and governments.

B. Relationship of the Four Project Components

The four project components form an integrated approach for optimizing the impact of fisheries technology in the LDCs. Developing countries require assistance in all facets of fisheries development and management. Basic and applied research and technology transfer in improved methods for fishery resource management, methods for using underutilized species, and methods for determining the social and cultural soundness of projects including impacts on women in fishing communities will assist in improving the quality of life in LDC fishing communities. Improved gear and boat designs will upgrade the fishing capabilities of the small-scale fishermen and improve his income through increased catches. Better methods of post harvest utilization can help to reduce currently estimated losses of 10 million metric tons of fish and improve the final product. Finally greater attention to social and economic aspects of fisheries development can enhance the likelihood of project success.

C. Substantial Involvement Understanding

Substantial involvement of the Agency for International Development (A.I.D.) in the management of this Cooperative Agreement is anticipated. Participation and collaboration by AID is expected, in particular, as follows:

1. A.I.D. will be consulted during the development of the URI/ICMRD annual work plan and have the right of final approval of all areas of the work plan where AID resources are included.
2. A.I.D. will be consulted and will have right of approval to revisions of the annual work plan which involves the use of A.I.D. resources.

3. A.I.D. will be involved in the selection of sites, methodologies and strategies to be used in field activities funded under this Agreement.
4. A.I.D. will be involved in clearance of field visits to LDCs funded by S&T/AGR, other A.I.D./W offices, and USAID overseas field missions.
5. A.I.D. will be involved in the selection of key personnel if the following scientists leave URI/IQMRD.

<u>Scientists</u>	<u>Area of Specialization</u>
Donald McCreight	Planning and Programming, Socio-cultural Factors
George Aelion	Planning and Programming Socio-cultural Factors
Mary Jane Beardsley	Information Services
Michael Morrissey	Post Harvest Fishery Losses
Richard Pollnac	Socio-cultural Factors, Planning and Programming

6. A.I.D. will be involved in the selection of consultants hired by URI/IQMRD to be funded under this agreement.
7. A.I.D. will be involved in the selection of the trainees for the annual short courses and seminars, in-country courses, workshops and seminars, and on-the-job training courses.
8. A.I.D. will be involved in the selection of the LDC graduate students for long-term training.

The specific involvement by A.I.D. stated above is in addition to the normal program monitoring by A.I.D. project personnel of the Recipient's program and the other administrative requirements established by the standard terms and conditions of the Cooperative Agreement.

D. Annual Work Plans

URI/IQMRD will develop the annual work plan as a working document to guide the operations and achievements expected from the project. It will be forwarded to S&T/AGR for approval each year. The first plan will be submitted to S&T/AGR no later than 30 days after the cooperative agreement is signed and will cover the period July 1, 1987 to June 30, 1988. Thereafter, the annual work will be due 60 days prior to the anniversary date of the cooperative agreement.

S&T/AGR will review the contents of the proposed work plan, ask for points of clarification, if required, and grant final approval of the contents as proposed or modified by agreement between the URI/ICMRD and S&T/AGR. This process of review and approval will be completed not later than 30 days after receipt of the original work plan from URI/ICMRD.

The annual work plan shall include, but not be limited to, the following:

- A list of activities to be undertaken during the year, categorized by project components; i.e., research, technology transfer, training and networking.
- A statement of how the activities relate to the outputs and research priorities.
- A projected beginning time frame for initiating the activities.
- A projected ending time frame for completion of the activities.
- The project expenditure of person-months of input for each activity.
- The projected stage of the activities at the end of the work plan or the projected outputs at the end of the work plan.
- Specific qualifications which may be required for certain activities given that many of the activities within the project are predicated on the amount of mission funding to be obligated under the basic ordering agreement for the project activities.
- Baseline data on pricing, policy, marketing, and agricultural inputs to the extent necessary to update the economic analysis to determine the yield benefit resulting from inoculation of local trials.
- Attachments to the work plan may include, but, not be limited to, the following: critical performance indicators, specific activity reports, and time qualification conditions.
- Methods to collect economic data on the relative costs of using improved marine fishing technologies.

E. Reporting Requirements

In addition to the Annual Work Plans described above, URI/ICMRD will submit the following reports within the specified time frame. These reports will provide pertinent data for S&T/AGR to monitor project activities.

1. Quarterly Reports

Quarterly reports are required which briefly describe any program and budgetary deviation from the annual work plan, the current status and planned future activities to be undertaken during the next quarter.

2. Technical and Research Reports

Technical and research activities of the project will be summarized in reports and distributed to the appropriate missions, LDCs and international organizations to encourage use of the technology developed. Normally such reports will be completed 60 days after the specific activity has been completed. Journal articles and other external publications are encouraged. Manuscripts should be submitted to the S&T/AGR project manager prior to submission to a publisher as well as ten copies of the resulting publications.

3. Annual Activity Reports

An Annual Report of the URI/ICMRD's international marine fisheries activities will be prepared. Although principally a technical document, it nevertheless must include pertinent statistics on quantitative information regarding the project and its activities described in Section III, A., B, C, and D above. An Impact Analysis Report (as defined in Section VII, F below) will be appended to this report which will be considered an instrument for technology transfer. A minimum of five copies should be submitted to the S&T/AGR Project Manager within 90 days of the end of each project year.

4. Training Activities

Summary of training activities undertaken under and in conjunction with this project is required annually, including the number of trainees by gender, nationality, training site, type of training activities, duration, and purpose.

5. Annual Expenditure Reports

URI/ICMRD will submit annual expenditure reports by: 1) project line item; and 2) estimated distribution by project components, i.e., research, training, technology transfer and networking. The format will be collaboratively developed by S&T/AGR project manager and the Principal Investigator at URI/ICMRD.

6. Impact Analysis Reports

An annual report will be submitted as an annex to the annual activity report (Section VII, C. above) which summarized the impact of URI activities in the public and private sector in terms of increased employment and income of the poor fishermen and others working in the fishing industry; decreased post harvest losses and increase utilization of high quality animal protein by the poor majority; use of rational management strategies to conserve national resources and optimize sustained yields; and increase foreign exchange earnings from fisheries products. This will provide a feed-back system for measurement and evaluation of the impact of services and training provided.

The impact analysis is defined as a measurement of results generated by activities undertaken by URI/ICMRD in accordance with the project description in revised Logical Framework and the scope of work in the Cooperative Agreement. For the most part, the impact analysis will be qualitative in nature, and quantified only as appropriate and will cover activities funded under this project and/or the companion basic ordering agreement.

7. Trip Reports

Trip reports will be prepared for each TDY assignment or trip to an LDC. The report will contain, but not be limited to, the following information: 1) logistical information, i.e., type of activity, geographical area of activity, dates of TDY, and team composition; 2) objective of TDY, including scope of work, as appropriate; 3) activities performed while on TDY; 4) summary of any technical reports resulting from TDY; 5) summary of identifiable techniques or information which could be transferred to other LDCs; and 6) summary of future potential needs of, or opportunities for, assistance to LDCs or missions, including possible networking potential. One copy of this report will be forwarded to S&T/AGR not later than 30 days after the staff member returns to URI/ICMRD. The trip report generally will not exceed 4 pages.

F. Cooperative Agreement - Terms and Management

1. Terms

The term of the Cooperative Agreement will be from July 1, 1987 through June 30, 1992, or in accordance with the terms agreed to by the recipient and the Grants Officer, but not to exceed five years.

2. Five-Year Budget

The proposed budget for the five-year period under the Cooperative Agreement is \$2,292,000, of which \$1,273,000 is provided by S&T/AGR to strengthen the capabilities of URI/ICMRD to: a) utilize and enhance its resource base in international marine and fresh water fisheries programs developed since 1969 in cooperation with AID and other donors; b) expand the level and range of its collaboration with U.S., LDC, and regional public and private organizations, and international institutions; c) increase its applied and development research activities in the area of marine science technology; and d) provide facilities for training at the under graduate and graduate levels. The URI/ICMRD will provide \$1,019,000 or 45 percent of the budget as its contribution to achieve the purpose of this cooperative agreement.

The five-year budget covering the annual budget projections is attached as Attachment .

V. Five-Year Companion Basic Ordering Agreement

A. Purpose of the Basic Ordering Agreement

A companion instrument (basic ordering agreement) is to be negotiated with the International Center for Marine Resource Development, University of Rhode Island (ICMRD/URI) to provide AID with short, medium, and long-term technical advisory services relating to planning, designing, and evaluating programs and projects concerned with research and development of improved marine fisheries which are included, but not limited to, the following areas:

- Biological oceanography, including estuarine, coastal and reef ecology;
- Physical, chemical and geological oceanography;
- Fisheries and marine technology;
- Fisheries biology and aquaculture;
- Food science and nutrition;

- Geography, marine affairs, community planning and administration;
- Marine resource economics;
- Ocean engineering and allied engineering fields; and
- Anthropology and extension.

The practical experience gained through the basic ordering agreement will be fed directly back into the institution's design, curricula, teaching materials and the research agenda which are developed by URI/ICMRD and directly related to the cooperative agreement. It is also intended that the occasion for delivery orders under the cooperative agreement shall arise from work financed under the cooperative agreement. Delivery orders, which are identified by the recipient, must be approved and funded by USAID missions, regional bureaus, and/or other AID/W offices. Special orders identified and requested by the regional bureaus, missions and LDCs must be funded by the requesting office or mission.

Much of the field work under this basic ordering agreement will be for project design evaluation; field testing the results of research developed under the cooperative agreement; collecting environmental data; training LDC nationals in-country and demonstrating new approaches to increasing fish production and utilization; assisting LDC institutions; training at the under graduate and graduate levels at URI, and encouraging developing country entrepreneurs to establish and/or strengthen businesses in the LDCs.

B. Benefits to AID

The recipient's program will benefit the Agency directly through its guidance, demonstration and technical interventions. The Agency will benefit indirectly from the recipient's: 1) basic and developmental research on mathematical programming algorithms, reducing post harvest losses, managing fisheries resources, determining the role of women, and the interrelationships between the various socio-cultural groups of fishing communities; 2) cadre of world renowned scientists and experts in fisheries production and utilization; and 3) facilities and equipment necessary to carry out basic and applied research; and to support technology transfer, training and networking activities.

C. Relationship to Cooperative Agreement

This basic ordering agreement will be related directly to the cooperative agreement with URI/IQMRD and is intended to develop and stimulate the recipient's program in various marine fisheries technologies in the LDCs. Upon S&T/AGR and mission approval of the recipient's proposal and the necessary funding, the recipient may provide missions and/or AID/W with specified reimbursable services that directly address project and program needs related to marine fisheries.

D. Terms of the Basic Ordering Agreement

1. Basic Ordering Agreement Period

The basic ordering agreement will function concurrently with the Cooperative Agreement. Therefore, the basic ordering agreement takes effect on July 1, 1987 and terminates on June 30, 1992.

2. Operating Mode

a. Technical assistance special orders to be performed under this basic ordering agreement will be identified by: a) the grantee in the course of its work under the Cooperative Agreement; b) S&T/AGR and the Directorate for Food and Agriculture; and c) missions, LDCs, regional bureaus, and other AID/W offices. These special orders will be congruent with the program activities under the cooperative agreement, but in addition, will require Agency oversight. They usually will be funded by AID missions and/or other AID offices. However, delivery orders may also be funded by S&T/AGR and other Government agencies such as the USDA and the Peace Corps.

b. The contract will be implemented by the recipient with oversight by AID's Office of Agriculture, Bureau for Science and Technology and the mission or office requesting and funding the technical assistance, applied research, training, and networking. Each delivery order will require AID concurrence on: a) the appropriateness of the field service requested to the cooperative agreement's scope of work; b) the technical assistance proposed to meet the request; and c) criteria for satisfactory completion of the services.

c. AID will use the following additional criteria in assessing the appropriateness of the proposed work under the delivery orders:

- Potential of the field service to contribute to knowledge generation and program development by furnishing an opportunity to produce new insights, or knowledge consolidation by allowing the testing or refinement of existing concepts, methods of approaches; and
- Extent to which the field services will further expand the networking and collaboration among institutions working on common problems.

3. Cost Reimbursable

- a. The recipient shall be reimbursed the allowable cost of performance in accordance with the deliver order provisions included herein. The cooperating parties have established the following estimated budget for the technical delivery orders issued hereunder. It is agreed that the total estimates cost to the Government is \$2,400,000. The line item budget for the five-year period is attached to the PIO/T, Attachment 2.
- b. The parties agree to use their best efforts to maintain the level of resources identified for the period indicated; however, it is understood that the budget levels for each period are approximations, and acquisition of services is not obligatory hereunder.
- c. The recipient shall furnish to the Government, when and as ordered, services up to and including the level-of-effort provided in Section IV. D. below, and the Government shall order from the recipient at least one Task Order and the minimum services to be ordered hereunder will be \$25,000.

4. Statement of Work

This basic ordering agreement only provides for URI/ICMRD's performance of technical and professional services which shall be performed only as authorized by delivery orders issued in accordance with the "Ordering" provisions hereof. The level-of-effort and budgetary resources identified in this basic ordering agreement are estimates only and are not purchased hereby.

Short, medium, and long-term technical and advisory services

- a. Project design, assessment, feasibility studies and evaluations in areas of:
 - Fisheries marketing and policies.
 - Factors influencing project success.
 - Planning in fisheries development.
 - Fishery sector studies.
 - Factors influencing success or failure of fishermen's organizations.
 - Utilization of fish by-catch.
 - Aquaculture of salt water species of fish and shellfish.
 - Development of quality control methods of Artemia
 - Improved handling and processing techniques.
- b. Plan, organize, reorganize and implement marine fisheries production and supply programs or projects and their integration into the overall LDC strategy for agricultural development, including extension services, farmers and parastatal and private organizations.
- c. Conduct workshops and training programs in the LDCs and at URI based on marine fisheries technologies developed at the University.
- d. Field test the following research results:
 - Improved methods for managing fisheries resources, including under utilized species.
 - Improved methods for reducing post harvest spoilage and contamination.
 - Improved methods for assisting LDC fishermen, processors and wholesalers to use innovative methods in the industry.
 - Functional demonstrations of models for mariculture systems
 - Role of women in fishing societies.

5. Special Orders

Within ten (10) working days after receipt of the information provided by the Government in its request for proposal, the recipient will provide to the Contracting Officer a proposal for accomplishing the scope of work. The proposal shall be accompanied by such documentation as may be requested by the

Government, including, but not limited to, biographical data for individuals to be furnished under the special order, budgetary estimates, and a technical proposal to include a time-phased schedule for completing the work.

6. Completion of Orders and Reports

- a. The recipient shall complete all of the activities specified in the special order within the total obligated amount. Each order shall request the recipient to perform all of the services in the delivery order on the level-of-effort and budget established pursuant to the order and this basic ordering agreement.
- b. Within 30 days after completion of the delivery order, the recipient will submit the appropriate number of reports required to the requesting mission or office and five copies to the S&T/AGR project manager.

VI. Reviews and Evaluations

A. Management Reviews

Management reviews will be conducted annually by the S&T/AGR project manager in consultation with the recipient of the cooperative agreement; the missions, regional bureaus and other AID/W offices involved; and other interested participants of the activity, as appropriate. The reports required under Section E. above will become an integral part of the review process.

B. In Depth Evaluation

An in depth evaluation will be performed during December 1988 and June 1991 to review the progress made in achieving the established goal and purpose of the project and to determine the future direction. The evaluation will be performed by an external panel of experts in marine fisheries.

The evaluation factors will include project achievement in assisting the LDCs to develop viable fisheries industries. These evaluations will be based on monitoring reports, inspection of physical facilities, the recipient's progress reports, technical publications, and trip reports.

In addition, the evaluation team will be required to review the following:

- Validity of the assumptions in the logframe.
- Methodologies used to achieve the outputs and whether the outputs are being achieved as planned.
- Examination of alternative methods of achieving outputs with savings to the project.
- Examination of URI/IQMRD's management effectiveness.
- Review of expenditures to determine whether they correspond to the scope of work in the annual work plans.
- Review of unforeseen internal or external factors that have had specific adverse or beneficial impact on the project.
- Determine whether technology is being transferred effectively to LDC national, regional, and/or international organizations and institutions.

The evaluation team will recommend to S&T/AGR the future direction and funding of the project; and/or the appropriate changes in the project design and/or work plans to maximize the use of S&T/AGR's limited funds.

WANG:4960g:MMozynski:5/8/87

**Appendix I
Logframe**

FISHERIES DEVELOPMENT SUPPORT SERVICES

Project Paper Amendment

Project Design Summary (Logical Framework)

S&T/AGR:MMozynski:5/4/87

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PROJECT DESIGN SUMMARY
LOGICAL FRAMEWORK

Page 1 of 7 Tab 4

Life of Project:
From FY 1982 to FY 1992
Total U.S. Funding \$4,000,000
Date Prepared: April 16, 1982
Revised March 25, 1987

Project Title: Fisheries Development Support Services (936-4024)

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
<p>Program or Sector Goal: The broader objective to which this project contributes:</p> <p>To improve the quality of life of poor LDC residents, both economically and nutritionally through effective sustained use of living aquatic resources.</p>	<p>Measures of Goal Achievement:</p> <ul style="list-style-type: none"> - Increased supply of animal protein in selected target areas in LDCs. - Increased sustainable utilization of living aquatic resources. - Improved conservation techniques of living aquatic resources. - Increased employment in fisheries sector. - Increased foreign exchange earnings from fisheries sector. 	<p>Target area baseline and evaluation statistics on:</p> <ul style="list-style-type: none"> - Fish availability in the market place - Strategies for management of living aquatic resources. - House-hold budget surveys 	<p>Assumptions for achieving goal targets:</p> <ul style="list-style-type: none"> - AID and LDCs willing to fund fisheries development activities - Marine resources receive high priority in LDC development budgets and activities - URI is able to provide required services within available budget - LDC fishermen will use improved techniques recommended by URI to increase fish production and utilization.
<p>Project Purpose:</p> <p>To assist LDCs improve their capabilities to develop programs designed to:</p> <ol style="list-style-type: none"> 1) Increase employment and income in the fisheries sector; 2) Decrease post harvest losses and increase utilization of high quality animal protein by the poor majority; 3) Use rational management strategies to conserve national resources and optimize sustained yields. 4) Increase foreign exchange earnings from fisheries products. 	<p>Conditions that will indicate purpose has been achieved: End of project status.</p> <ol style="list-style-type: none"> 1) Fisheries employment and income generation have increased in LDCs 2) Availability of edible fishery products has increased by 10 percent or more in selected target LDC areas. 3) Conservation of national resources is being promoted by URI trained LDC scientists who are holding key positions in fisheries sector 4) Increased foreign exchange earnings from fisheries products in LDCs. 	<p>1), 2), 3) and 4)</p> <ul style="list-style-type: none"> - Comparison of post project evaluation with baseline statistics. - In depth and impact evaluations. - Trip reports - On-site visits and reports - LDC statistics and reports - Market reports. - FAO reports - Annual and other progress reports prepared by URI under the CA and BOA. - Training reports and degrees given - Specific project reports covering foreign exchange data 	<p>Assumptions for achieving purpose:</p> <ol style="list-style-type: none"> 1), 2), 3) and 4) - Adequate LDC personnel and scientists are available to serve the project. - LDC policies and strategies promote the use of proper methods of management and utilization of living aquatic resources. - LDCs will promote programs designed to decrease their post harvest fish losses. - LDC fishermen will use modern techniques developed by URI for fishing. - Missions and LDCs will continue to finance LDC scientists who will be attending URI for under graduate and graduate degrees and URI and LDC institutions for technical certificates.

Note: This revision covers only the period July 1, 1987 through June 30, 1992.

PROJECT DESIGN SUMMARY
LOGICAL FRAMEWORK

Page 2 of 7 Tab 4
 Life of Project:
 From FY 1982 to FY 1992
 Total U.S. Funding \$4,000,000
 Date Prepared: April 16, 1987
 Revised: May 1, 1987

Project Title & Number: Fisheries Development Support Service 936-4024

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
<p><i>Outputs:</i> Applied and Development Research</p> <ol style="list-style-type: none"> 1) Improved methods for managing fisheries resources, including under utilized species in LDCs. 2) Improved methods for reducing post harvest spoilage and contamination 3) Improved methods for processing, distributing and marketing fish and fish products in LDCs. 4) Improved methods for assisting LDC fishermen, processors and wholesalers to use innovative methods in the industry. 5) Major factors which determine success or failure of fishermen's cooperatives. 6) Definition of the role of women in fishing societies as related to changes in the fishery. 7) Description of the interrelationships between the sociocultural characteristics of fishing communities, technologies, and techniques, and the aspects of marine environment and the coastal zone. 8) New models for agriculture systems in LDCs, including brine shrimp. 9) Improvement of quality control for domestic and international markets. 10) Market analyses for capture fishery products under several sets of LDC conditions. 11) Mathematical programming models (algorithms) developed for LDC economic analyses. 	<p><i>Magnitude of Outputs:</i></p> <ol style="list-style-type: none"> 1) At least two methods adapted for LDCs and used in at least one LDC 2) At least three methods adapted for LDCs and transferred to at least one LDC. 3) At least two techniques developed and used in selected target areas of LDCs, e.g., West Africa. 4) At least two methods developed and successfully applied in one LDC. 5) Research will be conducted and findings applied in at least one LDC. 6) Research will be conducted and findings applied in at least one LDC. 7) Research will be conducted, and a model developed, and field tested in at least one LDC. 8) Models will be applied in at least two LDCs. 9) Methodology developed and demonstrated in at least one LDC. 10) Analysis will be completed in at least 4 LDCs. 11) 1 algorithm will be developed, distributed and demonstrated in 4 LDCs. 	<p>1), 2), 3), 4), 5), 6), 7), 8), 9), 10), 11)</p> <ul style="list-style-type: none"> - Research reports and publications. - ICHRD/URI's technical and research publications and reports. - Annual progress and activity reports. - Trip reports. - Site visits. - Mission and LDC reports. - In depth and impact evaluations. 	<p><i>Assumptions for achieving outputs:</i> 1), 2), 3), 4), 5), 6), 7), 8), 9), 10), 11)</p> <ul style="list-style-type: none"> - Key LDC scientists and staff will participate in the activities. - Missions will request and fund adaptive research in LDCs. - Local cost of projects and activities will be funded by missions and/or LDCs. - Small scale marine fishery sector will use the innovative and improved technologies developed by the URI under this project. - Missions and LDC have equipment and facilities to collaborate with URI on the research.

PROJECT DESIGN SUMMARY
LOGICAL FRAMEWORK

Page 3 of 7 Tab 4
Life of Project
From FY 1982 to FY 1992
Total U.S. Funding \$4,000,000
Date Prepared: April 16, 1982

Project Title & Number: Fisheries Development Support Service 936-4024

Revised: February 5, 1987

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
<p><u>Output</u> Technology Transfer</p> <p>1) <u>Problem Solving</u> Short-, Medium-, and Long-term assistance for project design, assessment, feasibility studies and evaluations in areas of:</p> <ul style="list-style-type: none"> - Factors influencing project success. - Fisheries marketing and policies. - Planning in fisheries development. - Fishery sector studies. - Factors influencing success or failure of fishermen's organizations. - Utilization of fish by-catch. - Mariculture or Artemia or other marine species. - Development of quality control methods of Artemia. - Improved handling and processing techniques. - Assistance to private sector. <p>2) <u>Transfer of Information</u></p> <ul style="list-style-type: none"> - Library/information services maintained covering Artisanal fishing techniques, mariculture, basic seafood processing, fisheries economics, post harvest losses, socioeconomics of small-scale fisheries marketing of fishery products, and fisheries management techniques. - Assistance to LDCs to maintain informational services. - ICMRD publications and research findings disseminated to LDCs and national and international institutions which cover recent research, publicized events and new technologies. - Completion of audiovisual cassette for mariculture training. 	<p><u>Magnitude of Output:</u></p> <p>1) Responds to over 100 requests (over the five-year period) for short- and medium-term assistance providing pertinent information in a timely manner.</p> <p>2) - One library information center maintained at URI containing approximately 14,000 documents and reports which will be increased by 1,000 items annually.</p> <ul style="list-style-type: none"> - Assistance and information provided upon requests - At least 1,000 publications/research findings, and reprint requests prepared and distributed annually. - Newsletter distributed quarterly to 600 LDC scientists, extension workers, and others. 	<p>1) and 2)</p> <ul style="list-style-type: none"> - Reports from ICMRD/URI - Site Visits - Mission reports - Trip reports - Impact and in depth evaluations - Expanded awareness of fishery problems and solutions. - Communications with knowledgeable fishery international and national scientists and centers. 	<p><u>Assumptions for achieving outputs</u></p> <p>1) and 2)</p> <ul style="list-style-type: none"> - Missions, LDCs and other donors will request assistance and provide the necessary funding, as required. - Technologies developed at URI can be adapted to LDC environments and LDC fishermen will use these technologies. - Expanded awareness of problems in fishery industry will result in increased production efficiencies, employment and proper utilization.

PROJECT DESIGN SUMMARY
LOGICAL FRAMEWORK

Page 4 of 7 Tab 4
Life of Project:
From FY 1982 to FY 1992
Total U.S. Funding \$4,000,000
Date Prepared: April 16, 1982

Project Title & Number: Fisheries Development Support Service 936-4024

Revised: February 5, 1987

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
<p><u>Outputs:</u> <u>Training</u></p> <ol style="list-style-type: none"> 1) Long-term training at the under graduate and graduate degree level for LDC scientists. 2) Non-degree and short-term training at URI and in LDCs. Possible subject areas are: <ul style="list-style-type: none"> - Cooperative fisheries training. - Small-scale technical fisheries training in LDCs. - Project monitoring and evaluation. - Project development and management. - Instrumentation repair & maintenance. - Application of microcomputers. - Marine science information services. - Post harvest losses. - Bioeconomic Management Model for Tropical Multispecies Fisheries. - Use of Mariculture - Practical Twinework for Fishermen and Gear Technologists 3) Comprehensive training manuals. 4) Prepare audio/video cassettes for training. 5) Seminars and workshops. 6) Maintaining capability at URI to assist Peace Corp staff in fisheries training. 	<p><u>Magnitude of Outputs:</u></p> <ol style="list-style-type: none"> 1) At least 30 LDC graduate and under-graduate scientists will study at URI annually. 2)-At least five training courses will be given at URI. -One training course will be given annually in at least one LDC LOP. 3) Three manuals developed and used in at least 20 LDCs. 4) At least one cassette will be prepared annually and demonstrated in 2 countries. 5) -Two workshops held at URI -Seminars scheduled at URI -Workshops held in 5 LDCs LOP. 6) Peace Corp volunteers trained by URI staff. 	<ol style="list-style-type: none"> 1) copies of training courses and reports from URI and copies of transcripts. 2) Copies of in-service and on-the-job training activities. 3) Copies of training manuals, and reports from missions on the use of the manuals. 4) Copies of cassettes and training reports. 5) 6) Copies of reports and attendance at seminars and workshops. 7) Copies of Peace Corp training reports. 	<p><u>Assumptions for achieving outputs:</u> 1), 2), 3), 4), and 5)</p> <ul style="list-style-type: none"> - Missions and LDCs will fund the training costs, as required. - URI will provide the training opportunities for LDC scientists. - URI will provide the proper activities for international visitors. - LDCs, IARCs and Missions will provide facilities for in country training. 7) Peace Corp volunteers will continue to be trained at URI for programs in LDCs.

PROJECT DESIGN SUMMARY
LOGICAL FRAMEWORK

Tab 4

Life of Project: Page 5 of 7
From FY 1982 to FY 1987
Total U.S. Funding \$4,000,000
Date Prepared: April 16, 1982

Project Title & Number: Fisheries Development Support Service 936-4024

Revised: February 5, 1987

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
<p><i>Notes:</i></p> <p><u>Networking and Linkages</u></p> <ol style="list-style-type: none"> 1) Existing networks and linkages will continue and new contacts will be made with international, national and regional research centers and institutions. 2) Conferences and international study groups will be held on artemia. 3) International workshops on fresh fish preservation, minimizing post harvest fishery losses. 4) Publications and scientific journal articles will be produced, selectively collected and disseminated to LDCs and international organizations. 	<p><i>Magnitudes of Outputs:</i></p> <ol style="list-style-type: none"> 1) Collaboration with U.S., national and international institutions will continue with current members and new members will be added. 2) One conference or international study group will be held annually. 3) One workshop will be held annually. 4) 1,000 publications and journal articles will be produced, collected and disseminated annually. 	<p>1), 2), 3), and 4)</p> <ul style="list-style-type: none"> - Reports from URI and national and international institutions. - Reports from institutions and governments from the developed world. - Minutes of formal meetings, conferences, and seminars. - Copies of reports generated from the formal meetings, conferences, and seminars. 	<p><i>Assumptions for achieving outputs:</i></p> <p>1), 2), 3), and 4)</p> <ul style="list-style-type: none"> - International networks and linkages can be maintained with the limited funding available. - Continued availability of funding from multilateral sources.

PROJECT DESIGN SUMMARY
LOGICAL FRAMEWORK

Tab 4
Page 6 of 7
Life of Project:
From FY 1982 to FY 1992
Total U.S. Funding \$4,000,000
Date Prepared: April 16, 1982
May 1, 1987

Project Title & Number: Fisheries Development Support Services (936-4024)

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS																																																																								
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WANG:4898g;Mozynski:3/26/87:Revised 4/30/87

PROJECT DESIGN SUMMARY
LOGICAL FRAMEWORK

Project Title & Number: Fisheries Management Support Services (936-4024)

Tab 4

Page 7 of 7

Life of Project:

From FY 1982 to FY 1992

Total U.S. Funding \$4,000,000

Date Prepared April 16, 1982

May 1, 1987

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS				MEANS OF VERIFICATION		IMPORTANT ASSUMPTIONS
INPUTS	Magnitude of INPUTS						Assumptions for achieving INPUTS
	Average Annual Person-Months						
	S&T/AGR X Months	URI/ICHRD X Months	Total X Months				
<u>Staff Support</u>					Project Management Information System		S&T/Agr's will be forthcoming
Director, PDOS	-	6.0	6.0		Project Records		Missions will buy-in the project through the BOA
Research Associate/Training	8.0	-	8.0		Mission Records		URI/ICHRD will be able to contribute the needed funds from the University's budget.
Clerical/Word Processing	7.0*	-	7.0*		Project Evaluations		Networking and technology transfer mechanisms are available
Fiscal	5.0	3.0	8.0		Project Audits.		LDC institutions will contribute staff and facilities for the successful completion of activities in LDCs.
Total Staff Support	29	20.0	35	9.0	31	29.0	
<u>Library Services</u>							
Librarian/Information Service	13.0	1.5	14.5				
Clerical/Word Processing	7.0*	1.5*	8.5*				
Publication Specialist	2.5	-	2.5				
Total Library Services	33	22.5	12	3.0	27	25.5	
<u>Socio Cultural Factors</u>							
Professor of Anthropology	4.0	2.2	6.2				
Professor of Anthropology	-	1.8	1.8				
Total Socio Cultural Factors	6	4.0	15	4.0	9	8.0	
<u>Fisheries Management</u>							
Graduate Research Assistant	4.5	-	4.5				
Asst Professor of Resource Economics	-	2.0	2.0				
Total Fisheries Management	7	4.5	8	2.0	7	6.5	
<u>Use of Mariculture</u>							
Graduate Research Assistant	4.5	-	4.5				
Professor of Food Science and Tech.	-	2.0	2.0				
Total Use of Mariculture	7	4.5	8	2.0	7	6.5	
<u>Post Harvest Fishery Losses</u>							
Research Associate	7.5	2.0	9.5				
Professor of Food Science	-	2.0	2.0				
Total Post Harvest Fishery Losses	11	7.5	15	4.0	12	11.5	
<u>Resource Development & Utilization</u>							
Graduate Research Assistant	5.0	-	5.0				
Assistant Professor of Fisheries Tech.	-	2.0	2.0				
Total Resource Develop & Utilization	7	3.0	7	2.0	7	7.0	
Total Annual Person-Months	100	68.0	100	26.0	100	94.0	

* Includes clerical/word processing support provided to the scientists shown in the following programs.

Appendix II
Five-Year Budget

FISHERIES DEVELOPMENT SUPPORT SERVICES

Project Paper Amendment

Five-Year Budget - July 1, 1987 through June 30, 1992

S&T/AGR:MMozynski:5/4/87

Fishery Development Support Services
 Proposed Budget - July 1, 1987 - June 30, 1992
 (In thousands)
 Summary

	July 1, 1987 - June 30, 1992				
	Total AID			ICMRD/	
	S&T/AGR	Missions	Total	URI	Total
<u>Salaries & Wages</u>					
Director, URI	\$	\$	\$	\$	\$
Research Assoc.					
URI/Center Assoc.					
Graduate Students					
Total URI Experts	\$ 717	\$ -	\$ 717	\$ 307	\$1,024
Support Staff	106	-	106	-	106
Total Salaries	\$ 823	\$ -	\$ 823	\$ 307	\$1,130
<u>Benefits</u>					
Non Classified-22%	\$ 151	\$ -	\$ 151	\$ 69	\$ 220
Classified-32%	26	-	26	-	26
Total Benefits	\$ 177	\$ -	\$ 177	\$ 69	\$ 246
<u>Consultants</u>	\$ -	\$1,360	\$1,360	\$ -	\$1,360
<u>Operating Expenses</u>					
Communications	\$ 14	\$ 29	\$ 43	\$ 6	\$ 49
Office Supplies	16	28	44	6	50
Equipment	16	28	44	6	50
Printing & other	16	36	52	6	58
Office Expenses					
Total Oper. Exp.	\$ 62	\$ 121	\$ 183	\$ 24	\$ 207
<u>Travel</u>					
Domestic	\$ 16	\$ -	\$ 16	\$ 6	\$ 22
International	83	702	785	10	795
Total Travel	\$ 99	\$ 702	\$ 801	\$ 16	\$ 817
<u>Indirect Costs(10%) excluding tuition & capital items over \$500.</u>	\$ 112	\$ 217	\$ 329	\$ 603	\$ 932
Total	\$1,273	\$2,400	\$3,673	\$1,019	\$4,692

WANG 4951g:MMozynski:Revised 4/29/87:Revised 5/1/87

Fishery Development Support Services
 Proposed Budget - July 1, 1987 - December 19, 1989
 (In thousands)

	FY 1987					FY 1988					FY 1989				
	July 1, 1987 - December 19, 1987					December 20, 1987 - December 19, 1988					December 20, 1988 - December 19, 1989				
	Total AID		ICMRD/			Total AID		ICMRD/			Total AID		ICMRD/		
	S&T/AGR	Missions	Total	URI	Total	S&T/AGR	Missions	Total	URI	Total	S&T/AGR	Missions	Total	URI	Total
Salaries & Wages															
Director, URI	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
Research Assoc.															
URI Center Assoc.															
Graduate Students															
Total URI Experts	\$ 60	-	\$ 60	\$ 28	\$ 88	\$ 146	\$ -	\$ 146	\$ 62	\$ 208	\$ 146	\$ -	\$ 146	\$ 62	\$ 208
Support Staff	10	-	10	-	10	21	-	21	-	21	21	-	21	-	21
Total Salaries	\$ 70	\$ -	\$ 70	\$ 28	\$ 98	\$ 167	\$ -	\$ 167	\$ 62	\$ 229	\$ 167	\$ -	\$ 167	\$ 62	\$ 229
Benefits															
Non Classified-22%	\$ 13	\$ -	\$ 13	\$ 6	19	\$ 31	\$ -	\$ 31	\$ 14	\$ 45	\$ 31	\$ -	\$ 31	\$ 14	\$ 45
Classified-32%	3	-	3	-	3	5	-	5	-	5	5	-	5	-	5
Total Benefits	\$ 16	\$ -	\$ 16	\$ 6	\$ 22	\$ 36	\$ -	\$ 36	\$ 14	\$ 50	\$ 36	\$ -	\$ 36	\$ 14	\$ 50
Consultants	\$ -	\$ 77	\$ 77	\$ -	\$ 77	\$ -	\$ 300	\$ 300	\$ -	\$ 300	\$ -	\$ 300	\$ 300	\$ -	\$ 300
Operating Expense															
Communications	\$ 1	3	\$ 4	\$ 1	\$ 5	\$ 3	\$ 6	\$ 9	\$ 1	\$ 10	\$ 3	\$ 6	\$ 9	\$ 1	\$ 10
Office Supplies	2	2	4	1	5	3	6	9	1	10	3	6	9	1	10
Equipment	2	2	4	1	5	3	6	9	1	10	3	6	9	1	10
Printing & other	3	5	8	1	9	3	7	10	1	11	3	7	10	1	11
Office Expenses															
Total Oper. Exp.	\$ 8	\$ 12	\$ 20	\$ 4	\$ 24	\$ 12	\$ 25	\$ 37	\$ 4	\$ 41	\$ 12	\$ 25	\$ 37	\$ 4	\$ 41
Travel															
Domestic	\$ 2	\$ -	\$ 2	\$ 1	\$ 3	\$ 3	\$ -	\$ 3	\$ 1	\$ 4	\$ 3	\$ -	\$ 3	\$ 1	\$ 4
International	10	70	80	-	80	15	139	154	2	156	15	139	154	2	156
Total Travel	\$ 12	\$ 70	\$ 82	\$ 1	\$ 83	\$ 18	\$ 139	\$ 157	\$ 3	\$ 160	\$ 18	\$ 139	\$ 157	\$ 3	\$ 160
Indirect Costs(10%) excluding tuition & Capital items over \$500.	\$ 11	\$ 16	\$ 27	\$ 55	\$ 82	\$ 22	\$ 46	\$ 68	\$ 121	\$ 189	\$ 22	\$ 46	\$ 68	\$ 121	\$ 189
Total	\$ 117	\$ 175	\$ 292	\$ 94	\$ 386	\$ 255	\$ 510	\$ 765	\$ 204	\$ 969	\$ 255	\$ 510	\$ 765	\$ 204	\$ 969

WANG 4951g:HHozynaki:Revised 4/29/87:Revised 5/1/87

Fishery Development Support Services
Proposed Budget - December 20, 1989 - June 30, 1992
(In thousands)

	FY 1990					FY 1991					FY 1992				
	December 20, 1989 - December 19, 1990					December 20, 1990 - December 19, 1991					December 20, 1991 - June 30, 1992				
	Total AID		ICMRD/			Total AID		ICMRD/			Total AID		ICMRD/		
	S&T/AGR	Missions	Total	URI	Total	S&T/AGR	Missions	Total	URI	Total	S&T/AGR	Missions	Total	URI	Total
<u>Salaries & Wages</u>															
Director, URI	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
Research Assoc.															
URI Center Assoc.															
Graduate Students															
Total URI Experts	\$ 146	\$ -	\$ 146	\$ 62	\$ 208	\$ 146	\$ -	\$ 146	\$ 62	\$ 208	\$ 73	\$ -	\$ 73	\$ 31	\$ 104
Support Staff	21	-	21	-	21	21	-	21	-	21	12	-	12	-	12
Total Salaries	\$ 167	\$ -	\$ 167	\$ 62	\$ 229	\$ 167	\$ -	\$ 167	\$ 62	\$ 229	\$ 85	\$ -	\$ 85	\$ 31	\$ 116
<u>Benefits</u>															
Non Classified-22%	\$ 31	-	\$ 31	\$ 14	\$ 45	\$ 31	-	\$ 31	\$ 14	\$ 45	\$ 14	-	\$ 14	\$ 7	\$ 21
Classified-32%	5	-	5	-	5	5	-	5	-	5	3	-	3	-	3
Total Benefits	\$ 36	\$ -	\$ 36	\$ 14	\$ 50	\$ 36	\$ -	\$ 36	\$ 14	\$ 50	\$ 17	\$ -	\$ 17	\$ 7	\$ 24
<u>Consultants</u>	\$ -	\$ 300	\$ 300	\$ -	\$ 300	\$ -	\$ 300	\$ 300	\$ -	\$ 300	\$ -	\$ 83	\$ 83	\$ -	\$ 83
<u>Operating Expense</u>															
Communications	\$ 3	\$ 6	\$ 9	\$ 1	\$ 10	\$ 3	\$ 6	\$ 9	\$ 1	\$ 10	\$ 1	\$ 2	\$ 3	\$ 1	\$ 4
Office Supplies	3	6	9	1	10	3	6	9	1	10	2	2	4	1	5
Equipment	3	6	9	1	10	3	6	9	1	10	2	2	4	1	5
Printing & other	3	7	10	1	11	3	7	10	1	11	1	3	4	1	5
Office Expenses															
Total Oper. Exp.	\$ 12	\$ 25	\$ 37	\$ 4	\$ 41	\$ 12	\$ 25	\$ 37	\$ 4	\$ 41	\$ 6	\$ 9	\$ 15	\$ 4	\$ 19
<u>Travel</u>															
Domestic	\$ 3	\$ -	\$ 3	\$ 1	\$ 4	\$ 3	\$ -	\$ 3	\$ 1	\$ 4	\$ 2	\$ -	\$ 2	\$ 1	\$ 3
International	15	139	154	2	156	15	139	154	2	156	13	76	89	2	91
Total Travel	\$ 18	\$ 139	\$ 157	\$ 3	\$ 160	\$ 18	\$ 139	\$ 157	\$ 3	\$ 160	\$ 15	\$ 76	\$ 91	\$ 3	\$ 94
<u>Indirect Costs(10%)</u>	\$ 22	\$ 46	\$ 68	\$ 121	\$ 189	\$ 22	\$ 46	\$ 68	\$ 121	\$ 189	\$ 13	\$ 17	\$ 30	\$ 64	\$ 94
excluding tuition & Capital items over \$500.															
Grand Total	\$ 255	\$ 510	\$ 765	\$ 204	\$ 969	\$ 255	\$ 510	\$ 765	\$ 204	\$ 969	\$ 136	\$ 185	\$ 321	\$ 109	\$ 430

WANG:495lg:MMozynski:Revised:4/29/87:Revised 5/1/87

MEMORANDUM

TO: M/SER/OP/ST, Mr. Jay Bergman

FROM: S&T/FA, Duane Acker

SUBJECT: Award of cooperative agreement -
Fishery Development Support Services (936-4024)

I request that you consider only the International Center for Marine Resource Development at the University of Rhode Island (URI/ICMRD) for the subject cooperative agreement (CA) to: 1) utilize and enhance its resource base in international marine and fresh water fisheries programs developed since 1969 in cooperation with AID and other donors; 2) expand the level and range of its collaboration with U.S., LDC, and regional public and private organizations, and international institutions; and 3) increase its applied and development research activities in the area of marine science technology.

Many people of the world have diets that lack the protein essential for proper growth and development. Without adequate protein, people can suffer serious health problems and children, in particular, are subject to impaired mental development. The situation is most critical in the developing countries whose growing populations exert increased pressure on the available food supplies. The URI/ICMRD addresses the problem of inadequate protein supplies by working to increase the availability of marine fisheries products. Fish and shellfish are known to be excellent sources of high quality protein.

In addition, fisheries programs will lead to increased employment and more income for the fishermen and other workers in the fisheries sector.

The purpose of the project is to: 1) increase employment and income in the fisheries sector; 2) decrease post harvest losses and increase utilization of high quality animal protein by the poor majority; 3) use rational management strategies to conserve national resources and optimize sustained yields; and 4) increase foreign exchange earnings from fisheries products. URI/ICMRD will achieve this purpose through a four-pronged approach to applied and development research; technology transfer, including short, medium, and long-term assistance and transfer of information; training, including long-term training at the under graduate and graduate degree levels and non-degree and short-term training at URI and in LDCs; and networking and linkages with scientists and institutions in the developed and developing world.

There is an existing CA with URI/ICMRD which was signed September 20, 1982 and covers the period July 1, 1982 through June 30, 1987. This CA was negotiated on the basis of a ten-year project authorization and the unique and outstanding qualifications of the Center. Under the existing CA, URI/ICMRD expanded its resource base and enlarged its multi-disciplinary staff to over 60 Center associate scientists, most of whom have long-term LDC experience with small-scale fisheries development, management, and application in LDC environments. The Center has strengthened and expanded its international network of scientists and institutions from developed and developing countries.

The building blocks of the proposed CA are: applied and development research, training, technical assistance and networking which are interacting components including faculty, staff and facilities of the university. The training component will include formal degree programs at the under-graduate and graduate levels and an ability to provide specialized training programs for groups such as Peace Corps volunteers, fishermen, and fishery development specialists both at the university and within LDC country sites. The technical assistance portion will draw on the inter-disciplinary team from across the campus with a sensitivity to local LDC conditions and environment. In addition, assistance will be provided in a range of levels from analysis of fisheries to design or repair of fishing gear.

Technical assistance activities also include an excellent library facility for providing information from a wide-range of library sources available through a micro-computer data base, the products of which are made available upon request from LDCs. The applied research capabilities draws on the extremely broad basic research developed by URI covering fishery science, mariculture, anthropology, fishery resource economics, food technology, fishery gear design and testing and others.

The organizational structure and qualifications of URI/ICMRD scientists are listed below:

Organizational Structure

The URI supports ICMRD by providing facilities, equipment, utilities and the salaries of several faculty members and staff involved on a full or part-time basis in the Center's program. Its research and educational programs include:

- Biological oceanography, including estuarine, coastal and reef ecology;
- Physical, chemical and geological oceanography;
- Fisheries and marine technology;
- Fisheries biology and aquaculture;
- Food science and nutrition;
- Geography, marine affairs, community planning and administration;
- Marine resource economics;
- Ocean engineering and allied engineering fields; and
- Anthropology and extension education.

The URI campus has specialized facilities for marine resources, including:

- The Department of Fisheries and Marine Technology's laboratories, classrooms, dock facilities and fishing vessels at Wickford Harbor; and
- The facilities at the Narragansett Bay Campus which serves the following; Graduate School of Oceanography, URI Marine Advisory Service, R.I. Coastal Resources Center, and the URI Ocean Engineering field station. In addition, it provides facilities for research vessels, space for the Pell Marine Science Library, the R.I. Nuclear Science Center and the Remote Sensing Center.

The ICMRD Fishery Information Service is the only library/information service in the United States devoted to the problems of artisanal fisheries development. It collects and disseminates literature on small-scale fisheries development. Its collection includes books, documents, conference proceedings, and serial publications from U.S. and international sources on the following; stock assessment, extended economic zone management, artisanal fishing techniques, fisherman's cooperatives, fisheries extension, mariculture, basic seafood processing, fisheries economics, post harvest loss, socio-economics of small-scale fishing, marketing techniques of fishery products, fisheries management issues, fishing-gear technology, processing and handling, small boat design and fishery statistics covering many countries.

Qualifications of key personnel

URI/ICMRD's staff is composed of highly skilled marine scientists, fishery biologists, economists, anthropologists, and food technologists. This staff of administrators, scientists, experts, and other senior and junior staff members all have an essential grasp of the project purpose and objectives, and understanding of how their roles mesh into the larger picture to provide assistance to the LDCs. They view their activities and relationships as being important to achieve the purpose of the project. The Center successfully draws talent from a number of university departments to construct its program of research, training, technical assistance, and its network of marine scientists and institutions in both the developing and developed world.

URI/ICMRD has developed and manages a network of scientists, policy makers, extension workers and farmers who are interested in marine and fresh water development. This network includes 25 URI/ICMRD scientists who are actively involved in the project activities on a regular basis, 60 URI/ICMRD center associates who represent an available pool of related expertise, 75 LDC and international counterparts who are working directly with URI staff, and approximately 600 LDC scientists and collaborators stationed in national and international institutions.

Memoranda of Understanding

URI/ICMRD has established effective communications with institutions in the developed and developing world, and has formalized "memoranda of understanding" with six LDC institutions (Ecuador, Morocco, Portugal, Sierra Leone, Thailand, and Philippines), the University of Puerto Rico, and the Peoples Republic of China. Such agreements constitute an important step in the promotion and development of programs in potential recipient countries and institutions concerned with marine fisheries. They have strengthened the marine fisheries network of assistance and cooperation. The basic aim of these MOUs is to foster collaborative endeavors which will permit each institution to seek joint funding, exchange staff, and strengthen the capabilities of each institution to support mutually agreed upon programs. This assistance and cooperation will lead to increased fish production, the utilization of high quality animal protein by the poor majority, and increase employment opportunities in fisheries and related industries which are among the poorest majority in the LDCs.

Identification of recipient of CA

To identify the proper source to implement the next five-year cooperative agreement under this approved ten-year project, S&T/AGR considered the following universities, which were rejected for the reasons cited: Universities of Washington and Delaware, Texas A&M University, and Oregon State University. The programs at each of these institutions, while addressing certain specific aspects of small-scale fisheries, lack broad knowledge and experience concerning the range of conditions existing in LDCs. In addition, none of these universities has a micro-computer data base for providing operational fisheries information service concentrating on small-scale fisheries nor an educational program specifically designed for training LDC students.

The most compelling reason for the selection of the University of Rhode Island over the other institutions is the fact that it has made a major and concerted effort entirely devoted to marine science applicable to conditions in LDCs. It has had a strong international focus for more than eighteen years beginning with a series of 211(d) strengthening grants from one of AID's predecessor agencies. These grants were established for the purpose of developing expertise in international marine science within the faculty of URI.

In addition, the recent Evaluation Team pointed out that URI/ICMRD is recognized world-wide for its organizational structure and ability to provide assistance to develop, implement, and manage programs of small-scale marine fisheries specifically tailored to LDC environments. It has the ability to respond quickly to LDC needs in the area of marine fisheries by drawing on an inter-disciplinary program which incorporates resource economics, fishery biology, anthropology, food and marine science, microbiology, biochemistry, and environmental concerns; and an integrated training program designed specifically to meet the needs of LDC scientists, planners, extension workers, and farmers.

Although each of the above four institutions has programs and a number of faculty members working in marine science, none has a program of comparable size, as complete, nor with the strong orientation towards the LDCs as does URI. URI's critical mass of scientists and experienced staff, strong curriculum, excellent facilities, and orientation towards small-scale fisheries development in the LDCs, all make URI uniquely qualified to be selected as the recipient of the proposed cooperative agreement.

Recommendation:

It is for the above reasons that the Office of Agriculture, the Directorate for Food and Agriculture, and the Bureau for Science and Technology recommend that the Office of Procurement award a new five-year cooperative agreement to the International Center for Marine Resource Development, University of Rhode Island without consideration of other sources.

Clearances:	S&T/AGR, Richard Neal	<u>Richard Neal</u>	date	<u>5-11-87</u>
	Tejpal Gill	<u>Tejpal Gill</u>	date	<u>5-11-87</u>
	Elizabeth Roche	_____	date	_____
	David Bathrick	_____	date	_____
	S&T/PO, Gerald Gower	_____	date	_____

MEMORANDUM

TO: M/SER/OP/ST, Mr. Jay Bergman

FROM: S&T/FA, Duane Acker

SUBJECT: Non-competitive award of Companion Basic Ordering Agreement
Fishery Development Support Service

I request that you negotiate only with the International Center for Marine Resource Development, University of Rhode Island (URI/ICMRD) for a companion basic ordering agreement (BOA) to the cooperative agreement (CA) also being processed at this time for the subject project. This request is based on Section 6.302-3 of the Federal Acquisition Regulations (FAR) for the exemption of a non-competitive agreement which states: "full and open competition need not be provided for when it is necessary to award the contract to a particular source or sources in order (i) to maintain a facility, producer, manufacturer, or other supplier available for furnishing supplies or services in case of a national emergency or to achieve industrial mobilization, or (ii) to establish or maintain an essential engineering, research, or development capability to be provided by an educational or other nonprofit institution or a federally funded research development center". This request is justified on the basis of the latter category.

Justification for other than full and open competition

This companion (BOA) will help URI/ICMRD maintain an essential research and development capability in marine fisheries to provide assistance to AID and LDCs. It has a long and well established collaboration with AID and the LDCs under its research and educational activities which include the following areas:

- Biological oceanography, including estuarine, coastal and reef ecology;
- Physical, chemical and geological oceanography;
- Fisheries and marine technology;
- Fisheries biology and aquaculture;
- Food science and nutrition;
- Geography, marine affairs, community planning and administration;
- Marine resource economics;
- Ocean engineering and allied engineering fields; and
- Anthropology and extension education.

The URI supports ICMRD by providing facilities, equipment, utilities and salaries of several faculty members and staff who are involved on a full or part-time basis in the programs implemented by the Center.

The URI campus has specialized facilities for marine resources, including:

- The Department of Fisheries and Marine Technology's laboratories, classrooms, dock facilities and fishing vessels at Wickford Harbor; and
- The facilities at the Narragansett Bay Campus which serves the following; Graduate School of Oceanography, URI Marine Advisory Service, R.I. Coastal Resources Center, and the URI Ocean Engineering field station. In addition, it provides facilities for research vessels, space for the Pell Marine Science Library, the R.I. Nuclear Science Center and the Remote Sensing Center.

The ICMRD Fishery Information Service is the only library/information service in the United States devoted to the problems of artisanal fisheries development. It collects and disseminates literature on small-scale fisheries development. Its collection includes books, documents, conference proceedings, and serial publications from U.S. and international sources on the following; stock assessment, extended economic zone management, artisanal fishing techniques, fishermen's cooperatives, fisheries extension, mariculture, basic seafood processing, fisheries economics, post harvest loss, socio-economics of small-scale fishing, marketing techniques of fishery products, fisheries management issues, fishing-gear technology, processing and handling, small boat design and fishery statistics covering many countries.

URI/ICMRD's staff is composed of highly skilled marine scientists, fishery biologists, economists, anthropologists, and food technologists. This staff of administrators, scientists, experts, and other senior and junior staff members all have an essential grasp of the project purpose and objectives, and understanding of how their roles mesh into the larger picture to provide assistance to the LDCs. They view their activities and relationships as being important to achieve the purpose of the project. The Center successfully draws talent from several areas of the university to strengthen its various programs.

URI/ICMRD has developed and manages a network of scientists, policy makers, extension workers and farmers who are interested in marine and fresh water development. This network includes 25 URI/ICMRD scientists who are actively involved in the project activities on a regular basis, 60 URI/ICMRD center associates who represent an available pool of related expertise, 75 LDC and international counterparts who are working directly with URI staff, and approximately 600 LDC scientists and collaborators stationed in national and international institutions.

URI/ICMRD has established effective communications with institutions in the developed and developing world, and has formalized "memoranda of understanding" with six LDC institutions (Ecuador, Morocco, Portugal, Sierra Leone, Thailand, and Philippines), the University of Puerto Rico, and the Peoples Republic of China. Such agreements constitute an important step in the promotion and development of programs in potential recipient countries and institutions concerned with marine fisheries. They have strengthened the

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marine fisheries network of assistance and cooperation. The basic aim of these MOUs is to foster collaborative endeavors which will permit each institution to seek joint funding, exchange staff, and strengthen the capabilities of each institution to support mutually agreed upon programs. This assistance and cooperation will lead to increased fish production, the utilization of high quality animal protein by the poor majority, and increase employment opportunities in fisheries and related industries among the poorest majority in the LDCs.

The cooperative agreement will fund a four-pronged approach to applied and development research; technology transfer, including problem solving short, medium, and long-term assistance and transfer of information; training, including long-term training at the under graduate and graduate degree levels and non-degree and short-term training at URI and in LDCs; and networking and linkages with scientists and institutions in the developed and developing world. It will provide a critical mass of multidisciplinary scientists who will be available to backstop the marine science requirements of the missions. In addition, the core funding under the CA will provide the necessary administrative support for the delivery orders under companion basic ordering agreement.

The delivery orders under the companion Basic Ordering agreement to be funded by missions, regional bureaus and other AID/W offices will provide for the following:

Short, medium, and long-term technical and advisory services

1. Project design, assessment, feasibility studies and evaluations in areas of:
 - Fisheries marketing and policies.
 - Factors influencing project success.
 - Planning in fisheries development.
 - Fishery sector studies.
 - Factors influencing success or failure of fishermen's organizations.
 - Utilization of fish by-catch.
 - Aquaculture of salt water species of fish and shellfish.
 - Development of quality control methods of Artemia.
 - Improved handling and processing techniques.
2. Plan, organize, reorganize and implement marine fisheries production and supply programs or projects and their integration into the overall LDC strategy for agricultural development, including extension services, farmers and parastatal and private organizations.
3. Conduct workshops and training programs in the LDCs and at URI based on marine fisheries technologies developed at the University.

4. Field test the following research results:

- Improved methods for managing fisheries resources, including under utilized species.
- Improved methods for reducing post harvest spoilage and contamination.
- Improved methods for assisting LDC fishermen, processors and wholesalers to use innovative methods in the industry.
- Functional demonstrations of models for mariculture systems
- Role of women in fishing societies.

The experience gained from the activities funded under delivery orders against the companion BOA will be fed directly back into the activities funded under the cooperative agreement; i.e., URI's research agenda, training curricula, research network linkages, and technical transfer and informational services. It is also intended that the occasion for mission funded activities shall arise from work financed under the cooperative agreement. Mission funded delivery orders may be identified by the cooperator and approved by missions and the Office of Agriculture, Bureau for Science and Technology in the course of the cooperator's engagement in institutional strengthening activities. Alternatively, URI may receive requests for assistance directly from the Office of Agriculture, regional bureaus, missions and LDC public and private organizations.

Recommendation:

It is for the above reasons and in accordance with Section 6.302-3 of the FAR that the Directorate for Food and Agriculture, Bureau for Science and Technology recommends that the companion basic ordering agreement be awarded to the University of Rhode Island, International Center for Marine Resource Development without consideration of other sources, and that the resultant delivery orders need not be competed.

Clearances:	S&T/AGR, Richard Neal	<u>Richard Neal</u>	date	<u>5-11-87</u>
	Tejpal Gill	<u>Tejpal Gill</u>	date	<u>5-11-87</u>
	David Bathrich	_____	date	_____
	Elizabeth Roche	_____	date	_____
	S&T/PO, Gerald Gower	_____	date	_____

WANG:4736g:MMozynski:1/21/87:Revised 4/1/87