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GOVERNMENT
Memorandum

(PES) 9310113 (8)
PO-ADL-670-01

TO

DATE: September 26, 1974

FROM : TA/AGR, Leon F. Hesser

L.F.H.

9310113001501

(32p)

SUBJECT: Team Report on Comprehensive Review of 211(d) Grant to University of Rhode Island, Development and Utilization of Marine Resource, AID/csd 2455

Attached report covers the team report on the comprehensive review of subject project. Your special attention is called to Accomplishments, pages 4, 5 and 6; Fishery Policy and Grant Focus, pages 14, 15 and 16; Network Enlargement, pages 18, 19 and 20; and Recommendations, pages 23 and 24, and the actions suggested under Aid Fisheries Policy.

Mr. Raymond Kitchell is to be highly commended for an excellent report and guidance given the team in conducting a very objective and most comprehensive review.

Enclosure
a/s

Distribution:

- AA/TA, ELong
- AA/TA, TBrown
- TA/RIG, KMcDermott
- TA/PM, GFritz
- TA/AGR, LFletcher
- SA/TD, JHoldcroft
- TA/AGR, MNGalli
- TA/AGR, GKParman
- TA/AGR, SCLitzenberger
- TA/AGR, DLPlucknett
- TA/AGR, RHolmes
- TA/RIG, DTMyren ✓
- ASIA/TECH, JYoung
- AFR/NARA, WWLeake
- LA/DR, CVanHaeften
- Auburn University, Dr. D. Moss



5010-110

9-10-74


Buy U.S. Savings Bonds Regularly on the Payroll Savings Plan

UNITED STATES GOVERNMENT

Memorandum

TO : TA/AGR, Dr. Leon Hesser
Acting Director

DATE: September 10, 1974

FROM : AA/TA, Raymond E. Kitchell 

SUBJECT: Comprehensive Review of 211(d) to University of Rhode
Island (Marine Resources)

Attached is the Team Report on the subject grant. Copies have also been sent to Mr. Urano, the Grant Project Officer. Distribution, in addition to that shown below, and follow-up action should be taken by TA/AGR in accordance with the instructions and guidelines provided in TAB Manual Order 1026.3, Revised on July 25, 1974. Also copies of this report may be of interest to TA/OST, TA/N and TA/DA. Your attention is specifically invited to the recommendations concerning an "AID Fisheries Policy."

Attachment
a/s

cc: Review Team Members

TA/N, SKahn
AA/TA, RKitchell, Chairman
ASIA/TECH, RMorrow
NOAA, JStorer
GToenniessen, Rockefeller Foundation
TA/AGR, JUrano, Executive Secretary

AA/TA, ELong
AA/TA, TBrown
TA/RIG, KMcDermott
TA/PM, CFritz
TA/AGR, LFletcher
SA/TD, LHoldcroft (for Auburn preparation)



September 10, 1974

MEMORANDUM FOR: TA/AGR, Dr. Leon Hesser
Acting Director

FROM: AA/TA, Raymond E. Kitchell *PER*
Chairman, URI Comprehensive Review Team

SUBJECT: 211(d) Grant for Establishment of an International
Center for Development of Marine Resources at the
University of Rhode Island

I. INTRODUCTION

A. Purpose

On May 30 and 31 an intra-agency review team met with officials and faculty of the University of Rhode Island to conduct a comprehensive review of the subject grant. Team members included Samuel G. Kahn, Office of Nutrition, TAB; Raymond E. Kitchell, Office of the Assistant Administrator for Technical Assistance and Chairman; Robert B. Morrow Office of Technical Support, ASIA Bureau; James A. Storer, Special Assistant for International Fisheries, Office of Marine Resources, National Oceanographic and Atmospheric Agency, Gary Toenniessen, Associate Director for Natural and Environmental Science, Rockefeller Foundation; and James A. Urano, Office of Agriculture, TAB, Grant Project Officer and Team Executive Secretary. Officials of the University of Rhode Island who participated in the two-day sessions included John A. Knauss, Provost for Marine Affairs and Dean of the Graduate School of Oceanography; Nelson Marshall, Director of the International Center for Marine Resources Development (ICMRD); James J. Griffin, Executive Assistant, ICMRD; Louis M. Alexander, Director, Law of the Sea Institute and Executive Committee Member; Clinton I. Chichester, Chairman, Consortium for Development of Technology and Executive Committee Member; Professor of Resource Economics and Executive Committee Member; and an appreciable number of the faculty who serve as Center Associates. The visit was preceded by considerable preparation on the part of the Grant Project Officer and the discussions, based on a number of issues developed by TA/AGR and aided by the outside expertise available on the team, was frank, penetrating and provided the basis for a useful exchange of views and suggestions for the future. The following report has been prepared by the Chairman, in accordance with the guidelines provided and in consultation with fellow team members, to assist the Agency (in general, and TA/AGR in particular)

in arriving at conclusions and actions relative to the University of Rhode Island's request for an extension of their 211(d) grant.

B. Background

A five-year grant in the amount of \$750,000 was awarded to the University of Rhode Island by AID in May of 1969. The purpose and objectives of the grant were described as follows:

"The University of Rhode Island proposes to strengthen its research, teaching, consultation, and service capabilities in marine resources especially fisheries, to expand current university marine resources capability to an international dimension. To accomplish this, an international center for development of marine resources will be established.

The Center will allow the University to direct to the problems of the less developed nations its existing planned and proposed integrated strength in development economics, marine resource economics, marine biology, oceanography, ocean engineering, fisherman training, fishing gear research, food technology, marine resource extension work and supporting social science interest exemplified by the Law of the Sea Institute administered by the University.

Funds requested in this proposal will be used to engage present faculty to enlarge on their interest in international studies, to hire new faculty with these interests, to support domestic and foreign graduate and special students while they pursue their education or training in programs relevant to the purposes of this grant, to improve library holdings, to help finance visiting lecturers for seminars, courses, symposia and to provide for necessary supplies and travel related to this program.

The result will be an integrated multidiscipline Center with capabilities for identification of and consultation on the solution of economic, biological, technological, social and institutional problems and constraints and the development and attainment of opportunities related to the role of

marine resources in less developed countries. The work of the Center will be coordinated and integrated with and supported by the existing and expanding university activities in these subject areas on the state and national level."

The grant also listed a number of activities, called objectives, to be undertaken which included: (1) conducting a series of multidiscipline studies dealing with role of marine resources in less developed countries; (2) organizing courses of studies and seminars in degree programs; (3) increasing the capacity to provide advanced, general and specialized education for LDC administrators and researchers; (4) provide training for U.S. professional staff; and (5) to provide URI involvement in technical consultation and assistance in research on marine matters.

In 1960, the University of Rhode Island pioneered in establishing a broad comprehensive and integrated approach to the study of marine resource problems. The grant permitted the university to establish the ICMRD in 1969 "to focus an international outreach and an integrated approach through services to other countries facing problems in developing their marine resources." The ICMRD uses four basic approaches:

- . Degree programs, short courses and other specialized offerings suited to the needs of foreign students interested in marine resources and marine affairs and offered at the university.
- . Research, education and technical assistance programs carried out in foreign countries.
- . Research on problems of concern to foreign countries, sponsored by the university.
- . Advising and consulting services for interest in foreign countries.

Shortly after the grant was awarded, AID in effect placed a "hold" on itself regarding fisheries activities. Undoubtedly, this was affected to some extent by the political problem which arose following the actions of several coastal nations in extending their territorial waters and claiming exclusive rights. Some believed that assistance to LDCs and fisheries should be assigned exclusively to FAO. There was also disagreement on whether fish should be looked on as "competitive" or as "complementary" to crop and livestock production. For these and other reasons, some AID officials

thought there was little likelihood of significant utilization of URI capacities. The fact is, particularly insofar as the grantee was concerned, AID's direction was at times vacillating, confusing, and outright negative.

The grantee was also experiencing some internal problems not unrelated to the above events and, with the advent of a new grant director, an internal reassessment was undertaken during 1971-72. As a result, the grant and Center Director now reports directly to the Provost for Marine Affairs and chairs an executive committee of rotating personnel. Initially, except as specific positions and grants were funded, there was no university faculty recognition or participation and interest in ICMRD. After July 1, 1972, there was a body of associates committed to the program. Deliberate attempts were also made to broaden the support base which is discussed in more detail below.

By the middle of 1973, URI was requesting AID guidance on an extension. In October, a formal request was submitted for a three-year extension amounting to \$416,017. In February of this year, a research proposal was submitted on artisan fisheries at a cost of \$616,255 which was shelved pending an agency fisheries policy review. The grant was not acceptable to TAB, but in order to prevent a premature rupture in AID relationships with URI and to permit time for both a comprehensive evaluation of the grantee and an internal policy review on fisheries, a non-funded three-month extension to August, 1974 was processed. At the same time, the new Administrator, Daniel F. Parker, was expressing an interest in fisheries potential, especially, aquaculture.

II. DISCUSSION

A. Accomplishments

The latest annual report available to the team covering the period July 1, 1972 to June 30, 1973, refers to a number of significant accomplishments including new leadership, revised organization of the ICMRD and the re-establishment of some interest on the part of AID. While the 211(d) grant continues to be the largest element of support, funds have now been procured for projects sponsored by the National Science Foundation, Resources for the Future and by certain developing countries. URI, in addition to its broad backing and cooperation of faculty members and the space and facilities provided, has assured the center funds up to \$25,000 annually. While these contributions to the ICMRD are noteworthy, because of the form of reporting used by the center it is difficult at times to attribute projects and

activities to actual grant funding.

Two research projects are reported, (1) An Evaluation of the Implications of Alternative Ocean Management Schemes for Tuna, was completed and a Research and Development Mariculture-Fisheries Project in Puerto Rico, was launched. The tuna study provides the countries participating in the Law of the Sea Conference with background data for deliberations relative to the major high sea stock. The Puerto Rican project, financed by the National Science Foundation and in cooperation with the Puerto Rico Nuclear Center of the University of Puerto Rico, is being aimed at formulating a substantive fisheries development program. Several documents were prepared including An Assessment of the Marine Fisheries Development Needs of the Latin American Countries and the Organization of the American States.

In 1970, a workshop was held on Socio-economic Research Issues in Fisheries Development which among other things recommended a "full systems approach" to be taken in considering coastal and in-land capture fishery development problems. In particular, the workshop was concerned with market development and modernization, a systems management approach to river and coastal lagoon development, and the integration of fisheries with agriculture enterprises. Fisheries development was proposed as a help to solve employment and income equity problems in many nations of the world requiring more concentrated attention and research on the economic aspects of fisheries development. Early this year, another extremely important document was produced by the Center entitled Prospects for Fisheries Development Assistance. This publication, which contributed to the TA/AGR "white paper", spells out the justification for extending substantial assistance to developing countries for support of fisheries development projects with emphasis on artisan fisheries and aquaculture. These two documents are essential background data for any Agency official concerned with understanding the problems and potentialities of fisheries development in the LDCs.

The Consortium on the Development of Technology (CODOT) which brings together the food technology and related capabilities of five universities (University of California at Davis, Michigan State University, University of Rhode Island, University of Washington and the University of Wisconsin at Madison) is actively operating on several fronts. Formed as a direct result of the URI 211(d) grant, CODOT is working with the Institute for Technological and Industrial Research in Central America (ICAITI) to develop food technology expertise. It is also working with Kasetsart University of Thailand and has recently contracted for a loan-funded R&D food

technology project in Brazil with the Instituto du Tecnologia de Alimentos.

Of major importance was the holding of an international conference on marine resources development in Eastern Africa at the University of Dar es Salaam in April of this year. Discussions covered the application of the experience and expertise of URI to evaluation of Tanzania's resources and problems, both natural and human, and recommendations for a national Center for Marine Resource Study with hope that it might eventually develop into a regional organization. A similar approach, in cooperation with several other U.S. institutions, planned for the Universidad Catolica de Valpariso of Chile was postponed indefinitely as a result of the military take over. Examples are also given of the work of the center associates which indicate a heavy and significant involvement but leaves some questions as to the relevance of their work-- at least in terms of AID's probable priorities.

In the latest annual report, close to 50 foreign students were working at URI in marine-oriented programs, most of them from LDCs. By subject area, they included:

- food technology and other food science categories - 17
- oceanographic - 12
- ocean engineering and other engineering areas - 4
- resource economics and business administration - 9
- fisherman training - 1

A fisheries bibliography search was completed for OAS and work began on techniques for upgrading the Azores fisheries. Advisory services were provided to the Escuela Superior Politecnica de Litoral on curriculum for fisherman's training schools in Ecuador. A workshop on coastal artisan fisheries is also planned for Central America this fall.

Finally, in terms of accomplishments, reference is made to recent publication by ICMRD entitled Marine Resource Programs at the University of Rhode Island, prepared for the Dar es Salaam workshop mentioned above. This gives a good summary of the marine resources programs available at URI, which include: fisherman training, fisheries biology and aquaculture; ocean and environmental engineering; the structure of fisheries economics; marine food science and technology; marine affairs programs--coastal management, coastal resources center, marine affairs curriculum, and the Laws of the Sea Institute; Marine resources economics; and sociology and anthropology

applied to coastal communities.

B. Problems

1. Uncertain AID Direction

In a comment to the intra-agency review team on the 211(d) grant program last year, the director said he had the "distinct impressions that AID vascillated on short notice, with the whims of international politics, rather than pursuing more fundamental lines of reasoning. In a sense, this is understandable, but the lack of a continuing pattern detracts from sound planning." In attempting to work out a linkage with Tanzania where the potential for increased fish catch is ten-fold, URI "...was told in essence that AID was restricting its support to assistance project directly 'putting proteins in hungry people's bellies'". There is considerable debate on the question of whether fisheries development is complementary or competitive to other types of production concerned with protein content. In addition, questions exist regarding the potential of aquaculture versus capture fishing both in terms of magnitude, capital and labor intensity, income distribution, etc. Within the area of capture fishing there is further controversy between the deep sea areas and costal estuaries and river development which may also involve artisan fishing. Project activities have not, unfortunately, done much to resolve these issues.

With this history of vascillation, indecision and confusion about Agency policy in the fisheries area--compounded by a grant agreement which is both broad and vague in scope--and considering the lack of continuity and fisheries expertise at the AID working level, it is not surprising that these circumstance has resulted in a serious problem of direction and focus.

2. Lack of Institutional Focus and Uncertain Commitment

Given the problem discussed above, it is also not surprising that ICMRD conveys the impression of diffusion and responding only to ad hoc opportunities. The review team was also concerned about the commitment of the university to the overall marine program and particularly to the ICMRD. It is recognized that the university is supporting various segments of the program, most notably the School of Oceanography. It was, however, in terms of the documentation provided and subsequent discussion, difficult to obtain a complete picture of the entire financial support structure of the ICMRD and the role the university plays within it.

The Provost for Marine Affairs spoke of URI's commitment and while commenting on the general financial constraints operating on all universities today, stated that the university would continue to support the Center even if all outside support ceased, but obviously in a limited "holding-pattern" basis. While his comments and attendance at the introductory session were appreciated, including the presence of the Coordinator of Research for the university, it would have been helpful both to the team to have had representation from the academic program side and access to their development plans.

It is, of course, obvious that the health and vitality of the Center or any other component of the marine program is dependent upon its interaction with and intellectual support from the rest of the university. In this regard, for instance, the review team would have benefitted from some discussion with the representatives of the overall academic program of the university concerning the Ph.D. program in marine resource economics. The economics program has been at the core of many of the activities of the Center and the importance of increasing the economic research capability and the availability of trained marine economists is paramount. In the face of this need, the team is concerned that there is to be no recruitment for new students in the Ph.D. economics program. The team was not certain just why recruitment is being stopped. It would, nonetheless, seem to jeopardize the momentum which has been established. It may be that not enough or sufficiently good students have yet been attracted to the program. This would seem to be a short run and not a long term problem which, in any event, would be aggravated by a halt in recruitment. It may also be that the course load for the full Ph.D. program is to great a burden for the limited staff comprised within the marine resource economics development and it may need greater assistance from the university economics department itself in offering some of the basic economics graduate courses that have no special character for marine programs but would be of general use within the graduate curriculum of the university. Demand for graduates from this Ph.D. program has been high and those graduates already placed have proven themselves to be exceptionally well trained and qualified. The qualitative advantage of this and of the other marine programs at the university should certainly not be underestimated for they give to the university an academic distinction-as well as a broad service role for the national and international communities-which is perhaps unmatched elsewhere within the university.

URI annual reports and other reporting tend to indicate a scatterization and/or a shotgun approach for activities being conducted or considered. This may be partially attributed to the past and/or current leadership of the Center itself and

its ability to identify areas of strength within URI for better focus of direction and programming and selectivity of specific activities of interest adaptable to the LDCs. It was apparent in discussion on how policy is determined within the Center and the relationship of the Center with other departments of the university (including their strength and weaknesses) that no identifiable system has been developed for creating a quality response capability in the functions and disciplines of most concern to AID, other donors and LDCs. Another area of major concern to the team was the lack of an identifiable technology which can be transferred to LDCs. Technological change-broadly defined-is a critical factor in most problem situations and very few examples of technical or other types of change were brought forth in the discussions.

The determination of policy and priorities for activities within the Center seem to be a bit unclear. The mechanisms for utilizing the talent within the Center and bringing it to bear effectively upon the decision making process does not seem to be very satisfactory. Rather one gets the feeling that individual interest and demands are catered to without any real understanding of their contributions to a central role for the Center. Also in some cases, it would appear that the food technology group (in the activities of CODOT) is a case of the tail wagging the dog. It may have been necessary in the beginning to establish a sort of overall review to have allowed the individual members interested in the Center to "do their own thing." Now, however, there is a real need to sort out priorities and concentrate on those areas of activities that will have pay offs in terms of the long term interest of the Center.

These comments are not meant to obscure the considerable progress already made under rather adverse conditions. For example, when the grant was given there was only three out of sixteen in the Department of Resources Economics with experience and commitment in the LDC area and now there are eight. Whereas the University of Rhode Island previously had experience with only three LDC countries, now they have had significant involvement with over 22. The 211(d) grant finances 4-3/4 full-time equivalents of the 31 center associates of whom 26 actively participate in the program. Nevertheless, the grant program director agreed that the direction has been affected by opportunities and some staff members felt that the Center has been too susceptible to pressure from AID. Marshall agreed that ICMRD had not really developed a strategy but Chichester disagreed. After some discussion there was general agreement that the Center was interested in the "artisan" fishermen, with ICMRD research and staff involved in an interlocking thrust at the better utilization of aquaculture and marine resources for food production.

While the Center director is tenured, the institutional mechanisms for involvement with the university seemed weak and there

apparently is some struggle between the traditional economics department and the resource economists. Promotion policies and other recognitions for work in the international dimension also appear informal or weak at best.

3. Lack of Purposeful Linkages

Given the problems already discussed, URI has not had much success in this area. Perhaps most serious and frustrating is the obviously earnest attempt by URI to develop an effective working relationship with the International Center for Aquaculture at Auburn University. URI believes its strongest thrust is in the sociological and economic capacity it has developed to work on fisheries and feel they could work effectively with the technological capacities developed by Auburn but the latter institution appears reluctant to activate such a relationship. As an example, Marshall indicated that when Auburn needed to perform an economic appraisal in Brazil, URI was not even contacted. While there are exchanges between the institutions, there are no cases of joint collaboration. AID helped to set up a basis for such collaboration in the proposed Philippines demonstration project but this fell through for other reasons. Apparently, some people make a distinction between salt and fresh water as the reason or excuse for non-cooperation.

URI's knowledge of what is going on in the international scene is fragmented with serious gaps. By their own admission they are not tied in closely enough with FAO and were truly not aware that AID gave significance or priority to such efforts. The NOAA representative on the team pointed out that since they are the only multidisciplinary fisheries institution in the world, FAO and even UNESCO could not avoid being interested in utilizing their capacities. The Grant Project Officer points out, however, that during 1973 considerable contact has been made with OAS, FAO and UNDP.

If the project in Chile develops, URI believes it could be best handled by a consortium which might consist of Oregon State University, the University of Washington and Auburn in addition to Rhode Island and perhaps the University of Hawaii. Other potential linkage institutions included the University of Miami, Iowa State, Scripts, the EDC in Boston and SEAFDEC (South East Asia Fisheries Development Center), as well as ICLARM.

4. Spotty Utilization Record

The fact the utilization record of URI is not better may be largely the fault of AID, not only because of its inability

to adapt a coherent, focussed and consistent policy and communicate it to its field missions but its reluctance and/or delay in facilitating utilization. For example, in May 1973 the university formally requested that a basic ordering agreement be negotiated to enable missions to draw upon URI capabilities. As of the time of the onsite review, the agreement still had not been executed. Until recently, efforts to communicate the capacities of URI to field missions and other donors, have been limited. URI must help share responsibility, however, since it has made very little effort to do a focussed state-of-the-art survey or develop training programs at URI specifically focussed on operational problems. Research priorities have been discussed only in the most general terms with most research to date being of the non-specific or ad hoc variety. Efforts to identify institutions and talent working in the areas of fisheries development have also been spasmodic and limited.

A change in this approach is evident in the proposal of URI, recently approved, to hold a workshop on coastal artisan fisheries in Central America and Panama. The primary purpose of the proposed workshop is a joint initial assessment of critical areas of interest in artisan fisheries--to determine need, demand, research parameters, etc., all leading to guidance for the development and refinement of URI's capacities in priority areas and, of course, to subsequent utilization. In addition to this assessment, the workshop will also be used as a basis for extending knowledge developed under the 211(d) grant both on-campus and in activities involved in Puerto Rico, Brazil and other LDCs as well as to provide the basis for exchange of information.

Beside the focussing of training capacity there is the problem of utilization of this capacity. While clearly authorized in the grant agreement, an undue amount of grant funds seems to have been expended on the actual support of LDC graduate students. If this were not done, URI explains, they would have few or no students since mission-sponsored participants are a rare occurrence.

5. Lack of Minority Involvement

The concern of the Agency for the involvement of minorities and women in grant activities was discussed. Despite the considerable efforts reported by URI, there is no minority involvement in ICMRD or the graduate students being supported by the 211(d) grant. Several suggestions were discussed including the desirability of contacting minority 211(d) institutions involved in the agricultural area as possible sources of graduate students.

6. Justification and/or Rationale for Grant Extension

On October 15, 1973, URI submitted a formal proposal to AID for a three-year extension of its 211(d) grant at a total amount of \$416,017 "to assist the University of Rhode Island in further augmenting its competence related to the development and utilization of marine resources, especially fisheries in less developed countries." The proposal is long on rhetoric and short on substance. It proposes sustaining of 5-3/4 full-time equivalents of faculty time for the continued support of curriculum and students in the fields of food technology, food science, ocean engineering, resource economics, business administration, fisherman training and marine affairs. Emphasis, undefined, is given to outreach capability. While the purpose statement of the original grant was apparently to remain unchanged, the request did suggest that the renewal be coupled with a research proposal to AID for support of a worldwide artisan fisheries development program. While attempts to narrow the focus to an evolving AID policy are readily apparent in these proposals, just what the University of Rhode Island is expected to do under an extended or revised 211(d) grant or any other instrument is not clear, although new emphasis is given to domestic and international network collaboration, information exchange, and the development of specific but undescribed response capabilities.

In February, 1974, in response to a request from TA/RIG for funding requirements for the remainder of FY 1974, TA/AGR presented a hurried-up proposal to RIGC which is symptomatic of the problems of fisheries in the Agency. The purpose of the meeting was to seek agreement on interim extensions for those grants about to expire. It took the repeated intervention of the TAB Evaluation Officer to get TA/AGR and TA/RIG together (each was waiting for the other to act) in making at least the intent of things to come known to AA/TA and RIGC. In order to permit the grant from lapsing in May, a three month non-funded extension was processed.

With the Center rapidly running out of financing, at the completion of this review the team chairman--with the support of the team members--and grant project officer worked with the URI grant program director to develop an acceptable proposal for a one-year extension to June 30, 1975, to provide time for (a) AID to review its policy in the area of fisheries and (b) within this framework, for Rhode Island to develop a new proposal responsive both to AID's program needs and the newly established criteria for "utilization" grants.

The proposal was to be developed within the "focussed" purpose of artisan fisheries and aquaculture and include \$25,000 earmarked for the planned workshop in Central America, already mentioned. The \$150,000 provided for operational support, plus \$30,000 in unobligated grant funds still available, amounted to a reduction of \$60,000 in the current level of salary and graduate assistance support. This was done because (a) an interim extension for the purpose of comprehensive review did not seem the appropriate time to raise the amount of support and (b) it was felt desirable to put pressure on Rhode Island to allocate its grant funds more carefully in terms of a focussed grant purpose and institutional strategy.*

The October 1973 extension proposal provided the team did not attempt to define the base necessary for an adequate response capability in the areas of AID concern and to the functions most usually involved, i.e., problem identification and analysis, project design, project operations and evaluation. At the same time, URI reports that unless some type of an extension or revision is approved, response to any AID requests for faculty support would have to be evaluated in the light of other priority demands and interests, national as well as international. Far more serious, in the opinion of Marshall, is what this would do in terms of destroying the momentum of the Center. The Center Director speculated that damage to program development would be so great that they might be forced to go to the extreme of withdrawing from AID-related activities regarding it as to unstable for university programs. Subsequent discussions indicated that URI--or at least the ICMRD--was quite willing to discuss the development of a response capability specifically related to a refocussed purpose and specific functional needs.

III. FINDINGS AND CONCLUSIONS

At the present time, no university or other organization in the United States has the breadth of field or scope concerning marine affairs as the University of Rhode Island. In the opinion of the team, this fact gives the university an academic distinction as well as a broad service role for the national and international community which is perhaps unmatched in the university itself and elsewhere. The ICMRD is an established and functioning organization. This is true despite the vague focus of the original grant, the vacillation of AID as to its interest in fisheries programs, and the relatively small amount of grant money involved. The conclusions and recommendations which are developed below, are not to be construed as a condemnation or lack of appreciation

*The grant was amended at the end of June for the amount and purpose described. See Attachment.

of the efforts made and the achievements accomplished by URI. Rather, in recognition of the unusual circumstances concerning AID and its interest in the subject area, they are meant to be constructive, devoted primarily to more effective actions which can be taken in the future and involve the joint cooperation of both URI, AID and other donors involved in assistance to developing nations in the area of fisheries.

Fisheries Policy and Grant Focus

The events already described and the interest of Administrator Daniel Parker in fisheries have already set into sequence a series of events which will result, in effect, in a comprehensive review of the Agency's fisheries policy. This review of the URI grant and the forthcoming review of the Auburn 211(d) grant will be essential inputs into this analysis. In January of this year, the Assistant Administrator for Technical Assistance initiated a series of actions to determine a policy of program direction for the Agency. A "white paper" was developed by TA/AGR concerned with the technological aspects of fisheries in aquaculture as applied to the developing countries. Shortly thereafter, a \$65,000 contract was entered into with NOAA to collect and document comparative analysis data of aquaculture products, vis-a-vis beef, pork, poultry, cereals, sorghums, etc. The University of Florida and Florida State University were subcontracted for by NOAA to assess the economic potential for aquaculture in the LDCs and to help identify program and research priorities for AID.

The results of the workshop held on July 8th and 9th, and observed by all members of the URI review team except Messrs. Morrow and Toenniessen, were somewhat disappointing, not universally accepted, and based on inadequate data. In fact, the principal conclusion in the first draft report was that an institutional grant was needed to establish a center of expertise in the economics of aquaculture. On the technological and biological issues, little new information was added and more useful recommendations affecting AID program directions and research priorities are found in the TAC Working Groups' Report. On the economic side, FSU concluded "that aquaculture has a strong role to play in augmenting world food production and helping solve the population/food dilemma." However, they also wrote:

"...we were extremely pessimistic...on the potential for rural employment and production expansion through aquaculture. However, countries with extensive coastal areas should have substantial net additions to employment and production as well as foreign exchange in the culturing of milkfish...and possible Rainbow trout given that food production is the highest economic use for the coastal zone..."

A useful analytical matrix for simulation and decision-making--given adequate data--was developed. Suggested research priorities on the economic side included: (1) demand analysis of consumer acceptance; (2) economic studies which investigate the elasticity of technical substitution between factor inputs and the economies of scale; and (3) research on regional variations of factor prices within countries. The investigators stressed their conclusion that aquaculture was not a panacea, "but only one of the many ways the population/food dilemma can be mitigated."

The team assumes that the results of these policy reviews will justify a continuing effort in the area of aquaculture. However, in a memorandum of January 16th to the files, the former Director of TA/AGR, Omer J. Kelley, stated "as a preliminary guideline, AID will exclude "capture" fish and marine and deep sea fishing from its definition of aquaculture. We should, however, include everything within the estuary and fresh water ponds." It is not clear, at least to the team, whether this definition excludes capture fish for in-land rivers and estuaries. It should not, in our opinion.

The concern of the ICMRD, and certainly for AID as well, with assistance to the millions of artisanal fisherman in under-developed countries is understandable and defensible. Economic development cannot take place successfully if it concentrates only on large capital intensive ways of increasing food production and neglects the plight or potential of the small entrepreneurs, who in the case of the fisheries, are numerically the most important and who still contribute the largest part of the total supply of fish protein. While the team certainly endorses the concentration on artisanal fisheries, with emphasis on aquaculture, a sufficiently broad scope of concern should be manifested by AID.

In addition to aquaculture in terms of increased food and protein production objectives, development programs with rapid success potentials are those that will increase capture fish yields in coastal waters. These areas are generally under-fished in the LDCs and have more controllable conditions than the open sea. To maximize employment and income opportunities, programs for the small entrepreneur, cooperatives, and other groups will need to be encouraged. (See memorandum attached on the subject of Aquaculture Meeting February 14, 1974 by William E. Shaefer, TA/AGR/ESP).

Apart from some of the more purely development programs, adequate attention must be paid to the management problems associated with the artisanal fisherman's exploitation of natural resources.

The concentration upon aquaculture is also very understandable. However, it is dangerous to think of the artisanal and aquaculture sector as synonymous; they are not. Most artisanal fishermen are coastal. They are and will continue to be dependent upon the natural sources of fish protein in the oceans and lakes. Also aquaculture, even under the most optimistic projections, will in the future account for only a fraction of the total fish production. This in concert with the prospective responsibility of many LDCs for conservation measures in large areas of coastal waters indicate that this area of fishery should not be totally eclipsed.

Directly related to this AID policy review are the results of the seventh meeting of the Technical Advisory Committee of the Consultative Group on International Agriculture Research held in Rome in February this year on aquaculture. This group cited the future potential for an increased attention by and the development of improved techniques through scientific research. Specifically, the group recommended the development of one or more regional centers to serve as lead institutions in a network of selected national laboratories in association with existing national research centers of excellence. In addition to research, it called for specific actions in the area of training and extension programs and information dissemination. Given all the events briefly described above, the Agency should be shortly in a position to re-evaluate its policy and priorities in the area of fisheries and communicate its specific attentions to its grantees and potential contractors, to other donors and, most importantly, to its field missions. It is imperative, in fact almost axiomatic, that any decisions on the extension and/or revision of the URI and Auburn grants be determined by the results of these reviews.

URI Focus and Commitment

In response to a team question, the grant project officer described AID policy, insofar as the URI grant is concerned, as involving working within the constraints of limiting activities to the following areas: aquaculture and other in-shore and estuarian resources; mariculture and brackish water aquaculture; handling, processing and marketing; socio-economic aspects; nutrition; training and guidance in marine programs; and building LDC technical and administrative competence and worldwide artisanal fisheries development.

Any extension of the URI (and Auburn) grant should obviously be in terms of a revised focus reflecting the policies and priorities developed as suggested above. It also should contain

conditions for joint cooperative efforts at (a) inventorying current individuals and institutions interested and competent in the "focussed" area of fisheries, (b) development of a state-of-the-art survey within the new focus of each grant, and (c) development of research priorities, training needs, and particular areas of staff competence. While all this has to be done within the context of an articulated AID policy, URI itself must reassess its interest in the field of marine resources. Obviously AID is interested in a more focussed approach to the problems of LDCs and the small farmer whereas, at least to this point, the ICMRD has displayed a more general concern with international marine resources. As a condition of future support, AID must insist on a refocussed effort but, at the same time, it must recognize the need for URI to take a more global interest. On the other hand, in Agency recognition of this university objective which may be over and beyond its own interest, the university must in turn underscore its own commitment to the international dimension through more decisive efforts, both in terms of closer integration of the Center with its own academic interest and by more tangible means of support.

In dealing with the ICMRD, which does not have its own faculty yet needs multidisciplinary expertise, there needs to be someone or some group within the upper echelons of the university administration who will support the Center and its participating faculty in traditional administrative activity such as promotions, assignment of graduate assistance, and funding matters. This can often take the form of an advisory panel or executive board. Such a group would not only bring the Center function within the university bureaucracy but also brings broader university involvement to the Center. The group should provide direction to the Center and help it to have greater impact on traditional programs at the university. Such a Center depends upon cooperation, and people who are formally involved in the Center are more apt to cooperate. At present, the administration of the ICMRD program would seem to be fundamentally a one-man operation without much help in formulating direction from above or below. The university should be urged to consider changes in these directions.

Finally, the team went to great length to point out the type of response capability in which AID is interested. In addition to the area of emphasis now being determined, e.g., aquaculture, artisan, coastal and estuary, etc., there are the specific foundations which AID, other donors and the LDCs themselves will call upon and for which the grant should be used to develop capacities. Essentially these involve: (1) problem identification and analysis (sub-sector analysis); (2) program and project design; (3) project operations, which in the case of a university, usually involves (a) education and training, (b) research, and (c) technical advisory services; and (4) evaluation.

C. Network Enlargement

NOAA, including its fisheries services MMFS, is concerned with a need for establishment of research capability and the training of staff in the area of marine resources and their utilization. A need for research and staff both in the United States and the developing countries is already very great and will become much greater as the demands for protein increase and the pressure upon marine resources become more acute. Not only will the natural potential of the oceans have to be managed with the utmost care and rationale if their product is to be preserved for the future, but also maximum use will have to be made of all the varied and viable aquaculture possibilities. To accomplish this requires research and development of talent of a multidisciplinary sort. NOAA, therefore, is desirous that the potential for research and training at URI be strengthened and that the particular role of the Center be focussed as sharply as possible upon building up a basic research competency and a staff that will insure its own future momentum and self-sustaining recognition and support. There is a distinct possibility that the sea grant program administered by NOAA may be expanded to include an international dimension which would provide AID with the opportunity to piggy-back on these investments much in the same manner as it has been doing with the land grant colleges.

Under the "Conquest of Hunger Program," the Rockefeller Foundation is now planning to focus a previous undefined interest in fisheries development and has proposed the creation of an International Center for Living Aquatic Resources Management (ICLARM). The proposed center would concentrate on the needs of the less developed nations of the Pacific basin. Its objective would be to create a measurable and significant increase in the productivity levels of subsistence fisheries and aquaculture farming. It is not intended for ICLARM to undertake substantial in-house research but rather for it to develop as a center for coordinating and focussing the efforts of independent but cooperating institutions, aimed at the solution of problems impeding the development of enlarged and more efficient fisheries production systems. The proposed activities of its staff include: (1) identifying major impedance to increase fisheries yield; (2) establishing in conjunction with local institutions one or more fishery training centers able to instruct selective village level fishery leaders; (3) assisting local developmental programs designed to encourage use of improved aquaculture and fishing techniques; (4) identifying research priorities and encouraging pursuit of such research; (5) assisting and devising comprehensive plans and policies

for fisheries development at the national or regional level; (6) assuring an adequate level of professional training of outstanding specific base and scientists concerned with fisheries; (7) arranging through cooperative efforts the collection of data relevant to aquatic resources management; and developing means for providing broad access to that information; and (8) conducting conferences and seminars and encouraging the publication of reports and other material in order to foster exchanges and cooperation among scientists, technologists and related disciplines. It is obvious that there are numerous areas in which the proposed activities of ICLARM and the ICMRD program of URI should and can be complementary. In focussing on the Pacific basin, ICLARM probably will be more involved in artisan fisheries and aquaculture thus matching a particular interest of ICMRD. The ICMRD experience with fisheries training programs should be of direct value to ICLARM and it is anticipated that individuals identified by ICLARM would receive training at URI. In dealing with artisan fisheries, economic, cultural and other social factors are very important. URI's research strength in these areas should be drawn on by ICLARM. In short, the ICMRD program should be a very valuable resource to ICLARM.

If, as a result of the forthcoming workshop, it appears that URI will have a particular focus in Central America, it may be useful to foster an even closer linkage with the University of Puerto Rico if it is not overburdened with its already heavily involvement with AID in the area of tropical soils and soybeans. As a systems approach is developed, apparently there are also prospects of mutually advantageous associations with some of the CUSUSWASH water grant institutions, e.g., a joint proposal is now being prepared by Auburn and the University of Arizona. Last but not, least, it is imperative that the Agency use every resource at its command to foster a more collaborative and productive association between the University of Rhode Island's ICMRD and Auburn's University International Center for Aquaculture.

The ICMRD has already made a considerable effort and has displayed initiative in developing institutional linkages abroad. These, however, must be strengthened if the program is to achieve its full usefulness. It is to be hoped that there will be closer liaison with FAO in the future which, after all, does and will continue to play a major role in the world's fishery development. The potential for greater cooperation would seem to be particularly good with respect to artisanal fisheries which is occupying more attention on the part of FAO than in the recent past. Also, the possibility of working closely with other fishery centers abroad should be pursued, such as the Southeast Asian Fisheries Development Center. SEAFDC has a varied training and development program applicable

to the needs of Southeast Asia and has physical facilities in Thailand, Malaysia and the Philippines. As already indicated by URI's role in Chile and Tanzania, they can also play a critical role in helping fostering and initiating the development of national and regional centers of excellence as recommended by the TAC working group.

In terms of AID's programs and interests the potential seems greatest in Central America and the West Coast of South American, Southeast Asia-including Vietnam and Thailand-and East Africa. In other words, the fisheries program in general and the development of linkages for research and outreach programs should appeal to all the regional bureaus of AID.

Utilization

Research and development programs for marketing development and consumer acceptance of a wider range of feed species and/or their processed product needs to be given high priority. Technology available to improve aquaculture practices are (a) genetic improvements, (b) hatcheries development including extension systems, (c) double cropping by simulating more than one breeding cycle per season, (d) disease, predator, weed and pollution control, (e) fish feed improvement (f) fish and fish product preservation, and (g) marketing and distribution techniques. Economic data are scarce, scattered and largely underdeveloped with respect to supply and demand, cost and production, processing and marketing systems, pricing and trade. Criteria need to be developed for determining priorities and alternatives in the allocation of resources of aquaculture.

The report of the TAC working group on aquaculture listed research areas common to most practices and included: seed production; genetic improvement; natural food and artificial feed supply; water quality control; stock composition and space polyculture; disease control; and predator and competitor control. The group recommended that the most effective way to reinforce present research efforts is to concentrate strongly on limited scientific problems of importance and urgency for developing countries, to be applied to the culture of a small number of species groups judged to hold the greatest expansion potential. These are carps, catfish, tilapia, milkfish, mullets and shrimps. The group concluded that the highest priority for the most fruitful new research efforts lies in the field of reproductive physiology and selected breeding. It also noted that a high priority exists in the realm of food and feeding but that this research is less amenable to centralization.

High priority research is also required on diseases and the broad spectrum of water quality problems related to the cultured animal and its aquatic environment.

The working group was thinking principally in terms of the research to be performed by regional and national centers in the developing countries, but certainly the parameters involved in this report combined with the focus and conclusions reached as a result of the on-going review of fisheries development and aquaculture should provide a basis for focussing URI's use of 211(d) funds for basic research and in strengthening a relative research capacity and also, in the process, to identify knowledge gaps and research hypotheses which might justify major efforts in terms of potential impact in the LDCs which would be financed outside of the grant.

Within the same overall focus, and more country specific in application, there is need for a closer determination of the training needs of LDCs in non-academic and short-term training as well as graduate training at URI. Greater collaborative effort between AID and URI is necessary in this area including alternate means of financing such training. The team believes it would be very useful, in selected cases, to provide additional grant funds for the long and short-term training at URI of essential LDC fonctionnaires and researchers. Similarly, grant or other funds should be made available for short term and on-site training, preferably on a regional or multi-country basis.

Linkages and networks are but a different focus for utilization. The potential for closer collaboration with such U.S. institutions as Auburn, University of Arizona and the University of Puerto Rico has already been commented upon. As the systems or problem-oriented approach is developed, the potential for more cooperative mission-oriented efforts appears greater and should be encouraged. While still somewhere in the future, the prospects for useful arrangements with such potential regional centers as now exist in Brazil and the Philippines should not be lost sight of. Obviously, if the Agency believes the subject is important, greater efforts must be made to encourage, at the minimum, positive support on the part of USAIDs and, hopefully, more active involvement with AID intermediaries where the potential is highest. Notwithstanding this hoped for turnabout in the Agency's previous standoffish attitude, URI should not take its eye off the other donors most interested in aquaculture and artisan fisheries, namely, the Food and Agriculture Organization of the United Nations.

Basis for Utilization Grant

While no final decision can or should be made on whether and on what basis to extend and/or revise the 211(d) grant to URI until the general policy review is completed, including the comprehensive review of the Auburn University grant, the general outline for an acceptable proposal is readily apparent. The team believes that the focus of any future grant should be in the area of artisan fisheries, including but not limited to aquaculture. Any agreement for continued grant support should be the instrument for assuring that an adequate response capability is strengthened and/or developed within this focus. The new focus, i.e., grant purpose, should first be applied to the Center associates in the terms of additions needed, replacements and/or reductions. The kind of functional and disciplinary skills required to maintain an adequate response base needs to be determined. Given a specific focus, this should not be a difficult exercise although it may require some difficult decisions for the Center. While a core group may well have to be sustained from grant funds, given some specific assumptions regarding demand for services, research and training funds should also be used for the involvement of other faculty in grant activities. As more support from the Center comes from actual utilization of its capacities, grant funds can be reduced and used increasingly, if needed at all, to provide stop-gap assistance and as a basis for improving the knowledge base. In addition, a 211(d) utilization grant or complementary instruments may be used to support certain activities not directly related to the university's domestic objectives such as data collection and information dissemination, talent banking, fostering and sustaining overseas linkages, and, as mentioned above, providing LDC scholarships.

As a condition of such a grant, URI should be prepared to specify the capabilities they can offer. They should also be able to demonstrate a Center strategy which is at least consistent with AID's policy in the sense that they overlap and the university needs to demonstrate a closer concern for the activities of the Center. On the other hand, AID must realize that state and most private universities cannot be expected to bear much more than token support if any significant overseas activity is contemplated. Therefore, it is important for the Agency to determine what it (and other donors) want and need, what the university can supply, and how it is to be financed.

In summary, the team believes URI is a unique institution working in an area which may shortly be of high priority to the Agency. While the internal arrangements, i.e., the ICMRD or some similar administrative structure is the business of the university, the team believes that URI and AID can and should

work closely together in a collaborative effort with other U.S. institutions and donors in extending assistance to developing countries in support of fisheries development projects. URI has the competence and it has demonstrated its willingness (and patience) to work with AID. The negotiation process for the requested grant extension will provide an excellent platform for working out the jointly agreed details of such a relationship. These negotiations should commence as soon as possible and notification of the Agency decision given to URI no later than the end of this calendar year and hopefully by early fall.

IV. RECOMMENDATIONS

The following suggestions for TA/AGR management should be considered in conjunction with the conclusions developed above.

A. AID Fisheries Policy

1. TA/AGR, acting as the staff unit for the Agency, should complete a comprehensive review of fisheries potential and prepare appropriate recommendations and/or actions for Agency endorsement. Major inputs should include (a) the original TA/AGR "White Paper," (b) the Florida State final report, (c) this report and a similar report on the Auburn 211(d) grant,* (d) the Working Group Report to the TAC, and (e) other relevant reports and findings such as URI's report on "Prospects for Fisheries Development Assistance".

2. In developing policy and operational alternatives, a small group of outside experts should be formed to advise AID in this process. Suggested representation includes NMFS/NOAA, Rockefeller Foundation, FAO, and USDA.

3. Serious consideration should be given to a policy which includes a comprehensive approach to fisheries and, while focussed and emphasizing inland, river, estuary and coastal artisanal fisherman, does not exclude capture fisheries in the artisanal concept. To the extent feasible and looking to the perhaps not too distant future, some attention should also be given to developing knowledge and skills in coastal (enlarged definition) conservation management practices.

4. The results of this review should be presented to AA/TA by the end of October and, to the extent necessary, Agency positions established by the end of the calendar year.

*On-site review scheduled September 18th and 19th.

B. Basis for URI Grant Extension/Revision

1. Depending upon the results of the various reviews mentioned above, URI and AID must come to an understanding on an appropriate long-range focus for the ICMRD. The evolving focus on artisanal fisheries, with emphasis on aquaculture, low-coast technologies, and socio-economic aspects, is sound. Consideration should also be given to providing some support at some future point (through AID, NOAA, or some other donors--or combinations thereof) to coastal conservation practices--but such support should be additive to the above recommended focus.

2. URI, at the same time, must decide on its own institutional and academic commitment, including a strategy for the ICMRD. While tangible support, including success in attracting outside funds, is important, the commitment deemed critical here is a recognition by top officials of the unique strength of its marine resources program--particularly as it relates to developing countries, both within the University of Rhode Island and worldwide, and a desire to exploit this strength in cooperation with AID, NOAA and other interested parties. This should be reflected in a broader university involvement both in traditional administrative activity and in the direction of the Center.

C. Conditions for Grant Revision

1. Within the "focussed purpose" as developed above and preferable as part of the grant revision, first priority must be given to a state-of-the-art exercise which will provide the framework for joint decision and collaboration on research and training needs and operational priorities--with emphasis on the socio-economic aspects.

2. URI must decide on what type of a quality response capability it is willing to develop and maintain for AID and other donor use, particularly in terms of its unique multi-disciplinary tradition. For its part, AID must be prepared to specify and describe the type, quantity and quality of a response capability it is willing to help sustain thru a "utilization" grant extension if necessary.

3. A special effort should be made by AID to encourage URI to continue its Ph.D. program in marine resources economics in particular and its overall support, in general, of the economic aspects of artisanal fisheries and aquaculture including marketing and distribution.

4. Support for CODOT, under this grant, should be rapidly phased out. TA/N should be consulted regarding any future support for the food technology consortium.

5. URI should prepare some specific plans for the involvement of minority Americans and women in grant-funded and/or grant related activities.

D. Network Enlargement

1. AID and the Department of State should support current efforts underway to include an international dimension in the sea grant program administered by NOAA.

2. AID should encourage the Rockefeller Foundation to offer and fund the services of the ICMRD to the proposed International Center for Living Aquatic Resources Management (ICLARM). In addition, an AID research or training contract with ICLARM should consider the use of URI's capacities.

3. AID should consider whether the University of Puerto Rico could be more actively and usefully involved in an AID-supported domestic network on fisheries--not dissimilar from the current consortium approach in tropical soils and soybeans. Any expansion of a domestic "consortium" beyond this should await tangible evidence of significant LDC demand.

4. The problem of URI/Auburn collaboration, especially on the economic and social aspects of aquaculture, should be a major issue in the upcoming Auburn 211(d) comprehensive review, including willingness to collaborate on state-of-the-art assessment, and providing joint response capabilities on problem analysis, etc.

5. The further development of international and LDC linkages should be done in close concern with the FAO and the actions taken on the recommendations of the TAC Working Group on aquaculture.

E. Utilization

1. Within the parameters of the TAC and Florida State reports and reflecting any new policy focus, state-of-the-art analyses, etc., TA/AGR should develop the parameters of technological and socio-economic research needs and priorities appropriate for centralized research.

2. In cooperation with URI, AID field missions and other donors, TA/AGR should determine priority training needs, including mission-oriented problems and target groups. On-site workshops, seminars, demonstrations, etc., should be encouraged.

3. A small amount of a "utilization" grant funds should be provided URI to support academic and non-academic training at the ICMRD and directly related to new grant focus/purpose.

4. A small amount of "utilization" grant funds should also be available for ad hoc advisory services to Aid missions when (a) related to the grant purpose and (b) involving less than 30 days.

3 June 1974

MEMORANDUM FOR: TA/AGR, Omer Kelley

FROM: AA/TA, Raymond E. Kitchell *REK*

SUBJECT: URI 211(d) Grant Extension

Last Thursday and Friday I chaired a team which conducted a comprehensive review of the University of Rhode Island 211(d) grant in Marine Fisheries. The usual report will be forwarded to you, hopefully, within a few weeks. However, due to the peculiar circumstances in this case and in prior consultation with Drs. Long and McDermott and with the concurrence of team members, I requested Nelson Marshall, the Grant Director, to send a letter in immediately to you requesting the following:

(1) A one year extension to June 30, 1975,* to provide time for (a) AID to review its policy in the area of fisheries and (b) within this framework, for Rhode Island to develop a new proposal responsive both to AID's program needs and the newly established criteria for "maintenance" grants;

(2) that the one year extension will be requested within the "focussed" purpose of artisan fisheries and aquaculture; and

(3) the proposal would request \$150,000 for minimum operations (one-fifth of the original grant) plus \$25,000 earmarked for the planned workshop in Central America.

The \$150,000 amounts to a reduction of \$60,000 in the current level of salary and graduate assistance support. I did not go higher because I felt (a) this would not be crickets in terms of our understandings with RIGC on such interim extensions, and (b) that it was appropriate to put the pressure on Rhode Island to allocate its grant funds more carefully in terms of the grant purpose.

When the request is received, I recommend that a letter amendment and PIO/T be drafted and a grant amendment processed utilizing FY '74 funds.

*This will place the two fisheries grants on the same programming and review cycle.

In my opinion and in view of the above, this proposal does not need to be referred to RIGC. It follows the same path previously agreed to (last February) on the water grants and LTC and is only an interim arrangement.

cc: AA/TA, CFarrar
AA/TA, EJLong
TA/RIG, JKMcDermott
TA/AGR, JUrano
TA/PM, MMozyński

UNITED STATES GOVERNMENT

Memorandum

Attachment

TO : SEE DISTRIBUTION

DATE: February 22, 1974

FROM : TA/AGR/ESP - William E. Schaefer

SUBJECT: Aquaculture meeting - February 14, 1974

PURPOSE: To review the state of the art of aquaculture, with particular focus on economic aspects and to determine sources of assistance to AID in formulating aquaculture policies and programs for development in the LDCs.

GENERAL CONCLUSIONS:

1. NOAA (National Oceanic and Atmospheric Administration), the US agency responsible for domestic aquaculture development defines aquaculture as: the culture and husbandry of aquatic organisms; the control and management of aquatic plants and animal reared in large numbers in controlled or selected environments for economic or social benefits.

The definition excludes capture fishing and is suitable for AID assistance efforts which to date and probably for some time in the future will be directed at near shore and inland areas for programs that impact on nutrition, employment and income. LDC aquaculture objectives that AID fosters are (a) increased domestic food production and protein consumption, (b) increased domestic employment and improved income distribution and, (c) expanded exports.

2. Production of deep sea capture fish for both domestic consumption and international trade are reaching maximum levels. Opportunities are limited for expanding food production from this source.

With increased food and protein production as objectives, development programs with rapid success potentials are those that will increase capture fish yields in coastal waters. These areas are generally underfished in the LDCs and have more controllable conditions than the open sea. To maximize employment and income opportunities, programs for the small entrepreneur, cooperatives, and other groups will need to be encouraged.

3. Aquaculture to date has focused almost exclusively on the production of high value species for developed markets. Undervalued and trash fish are either wasted or are processed into fish products of low economic return. Utilization of FPC (fish protein concentrate), a tasteless, odorless fish protein food additive has been poor due mainly to limitations imposed by the Food and Drug Administration and lack of an acceptable means for incorporating the concentrate with other food products.



Research and development programs for market development and consumer acceptance of a wider range of fish species and/or their processed products needs to be given high priority.

Technologies available to improve aquaculture practices are (a) genetic improvement, (b) hatcheries development including extension systems, (c) double cropping by stimulating more than one breeding cycle per season, (d) disease, predator, weed and pollution control, (e) fish feed improvement, (f) fish and fish product preservation, (g) marketing and distribution techniques.

Economic data are scarce, scattered, and largely undeveloped with respect to supply and demand, costs in the production, processing and marketing systems, pricing, and trade. Criteria need to be developed for determining priorities and alternatives in the allocation of resources to aquaculture.

4. NOAA indicated its readiness to assist AID in gathering and developing economic data and in recommending policy formulations, programs, and projects. The TA/AGR/ESP office has prepared a draft scope of work for a PASA with NOAA to develop data and recommendations.

DISTRIBUTION:

Benson Drucker - National Marine Fisheries Service
✓Lehman Fletcher - TA/AGR
Harold Goodwin - National Oceanic and Atmospheric Admin.
John Greenfeld - National Marine Fisheries Service
Irwin Hornstein - TA/N
William Littlewood - TA/OST
Lyle Schertz - USDA
James Urano - TA/AGR