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A.I.D. PROJECT NO.497-0352

PROJECT
GRANT AGREEMENT

BETWEEN

THE REPUBLIC OF INDONESIA

AND THE

UNITED STATES OF AMERICA

FOR

FISHERIES RESEARCH AND DEVELOPMENT

Loan and Grant Agreements

FM, LMD (if Loan)

FM, PAFD

FM, CAD

GC/ANE

ANE/Desk

ANE/FR Officer

✓ ANE/FR Officer: S. Nilo

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DATED: August 28, 1986

PROJECT GRANT AGREEMENT

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PROJECT GRANT AGREEMENT

Dated: August 28, 1986

Between the REPUBLIC OF INDONESIA ("Grantee") and the UNITED STATES OF AMERICA, acting through the AGENCY FOR INTERNATIONAL DEVELOPMENT ("A.I.D.").

Article 1. The Agreement

The purpose of this Agreement is to set out the understandings of the parties named above ("Parties") with respect to the undertaking by the Grantee of the Project described below, and with respect to the financing of the Project by the Parties.

Article 2. The Project.

SECTION 2.1. Definition of Project. The Project will assist the Grantee to install viable fisheries research programs at the Agency for Agriculture Research and Development (AARD) fisheries research institutes and key universities to address significant regional fisheries production and capture constraints. The project will focus on the establishment of a National Fisheries Research Agenda to coordinate the fisheries planning, training and research activities of the Ministry of Agriculture and Ministry of Education and Culture. It will also provide for special studies involving assessment of fisheries policy and marketing opportunities, and strategies for establishing national research and marketing

policies. A.I.D. assistance in this Grant and accompanying Loan Agreement will finance design and construction research facilities, imported and local equipment, training, technical assistance, research and policy studies, and monitoring and evaluation. Annex I, attached, amplifies the above definition of the Project.

Within the limits of the above definition of the Project, elements of the amplified description stated in Annex I may be changed by written agreement of the authorized representatives of the Parties named in Section 8.2, without formal amendment of this Agreement.

Article 3. Financing.

SECTION 3.1. The Grant. To assist the Grantee to meet the costs of carrying out the Project, A.I.D., pursuant to the Foreign Assistance Act of 1961, as amended, agrees to grant to the Grantee under the terms of this Agreement not to exceed Three Million Three Hundred and Twenty Thousand United States ("U.S.") Dollars (\$3,320,000) ("Grant").

The Grant may be used to finance foreign exchange costs, as defined in Section 7.1. and local currency costs, as defined in Section 7.2., of goods and services required for the Project.

SECTION 3.2. Grantee Resources for the Project.

(a) The Grantee agrees to provide or cause to be provided for the Project all funds, in addition to the Grant, and all other resources required to carry out the Project effectively and in a timely manner.

(b) The resources provided by the Grantee for the Project will be not less than the equivalent of U.S. \$4,207,000, including costs borne on an "in-kind" basis.

SECTION 3.3. Project Assistance Completion Date.

(a) The "Project Assistance Completion Date" (PACD), which is September 30, 1992, or such other date as the Parties may agree to in writing, is the date by which the Parties estimate that all services financed under the Grant will have been performed and all goods financed under the Grant will have been furnished for the Project as contemplated in this Agreement.

(b) Except as A.I.D. may otherwise agree in writing, A.I.D. will not issue or approve documentation which would authorize disbursement of the Grant for services performed subsequent to the PACD or for goods furnished for the Project, as contemplated in this Agreement, subsequent to the PACD.

(c) Requests for disbursement, accompanied by necessary supporting documentation prescribed in Project Implementation Letters, are to be received by A.I.D. or any bank described in Section 7.1 no later than nine (9) months following the PACD, or such other period as A.I.D. agrees to in writing. After such period, A.I.D., giving notice in writing to the Grantee, may at any time or times reduce the amount of the Grant by all or any part thereof for which requests for disbursement, accompanied by necessary supporting documentation prescribed in Project Implementation Letters, were not received before the expiration of said period.

Article 4. Conditions Precedent to Disbursement.

SECTION 4.1. First Disbursement. Prior to the first disbursement under the Grant, or to the issuance by A.I.D. of documentation pursuant to which disbursement will be made, the Grantee will, except as the Parties may otherwise agree in writing, furnish to A.I.D. in form and substance satisfactory to A.I.D., a statement of the name of the person holding or acting in the office of the Grantee specified in Section 8.2, and of any additional representatives, together with a specimen signature of each person specified in such statement.

SECTION 4.2. Notification. When A.I.D. has determined that the conditions precedent specified in Section 4.1 has been met, it will promptly notify the Grantee in writing.

SECTION 4.3. Terminal Dates for Conditions Precedent. If all of the conditions specified in Section 4.1 have not been met within 90 days from the date of this Agreement, or such later date as A.I.D. may agree to in writing, A.I.D., at its option, may terminate this Agreement by written notice to Grantee.

Article 5. Special Covenants.

SECTION 5.1. Project Evaluation. The Parties agree to establish an evaluation program as part of the Project. Except as the Parties otherwise agree in writing, the program will include, during the implementation of the Project and at one or more points thereafter: (a) evaluation of progress toward attainment of the objectives of the Project; (b) identification and evaluation of problem areas or constraints which may inhibit such attainment; (c) assessment of how such information may be used to help overcome such

problems; and (d) evaluation, to the degree feasible, of the overall development impact of the Project.

SECTION 5.2. Additional Special Covenants.

Except as A.I.D. may otherwise agree in writing, the Parties agree to the following additional special covenants:

(a) Within three months from the signing of the Agreement, the Grantee will appoint the Director of the Project and the project committee member from each of the project universities.

(b) The Grantee will ensure that adequate budget allocations for project implementation, including funds for the procurement of commodities, research studies, research facility and vehicle operation and maintenance, and support for the operation of the AARD/DGHE (Directorate General of Higher Education) Communication Forum will be provided in a timely manner consistent with implementation schedules developed by the Project Committee.

(c) The Grantee will furnish to A.I.D., in form and substance satisfactory to A.I.D., time-phased implementation schedules for the project years commencing on September 1, 1987, 1988, 1989, 1990, and 1991, each based upon the results of an evaluation of the Project during the previous twelve month period.

Article 6: Procurement Source.

SECTION 6.1. Foreign Exchange Costs. Disbursements pursuant to Section 7.1 will be used exclusively to finance the costs of goods and services required for the Project having, with respect to goods, their source and origin, and with respect to services their nationality in the United States (Code 000 of the A.I.D. Geographic Code Book as in effect at the time orders are placed or contracts

entered into for such goods and services) ("Foreign Exchange Costs"), except as A.I.D. may otherwise agree in writing, and except as provided in the Project Grant Standard Provisions Annex, Section C.1 (b) with respect to marine insurance. Ocean transportation costs will be financed under the Grant only on vessels under the flag registry of the United States, except as A.I.D. may otherwise agree in writing.

SECTION 6.2 Local Currency Costs. Disbursements pursuant to Section 7.2 will be used exclusively to finance the costs of goods and services required for the Project having their source and, except as A.I.D. may otherwise agree in writing, their origin in the Republic of Indonesia ("Local Currency Costs"). To the extent provided for under this Agreement, "Local Currency Costs" may also include the provision of local currency resources required for the Project.

Article 7. Disbursements.

SECTION 7.1. Disbursement for Foreign Exchange Costs.

(a) After satisfaction of Conditions Precedent, the Grantee may obtain disbursements of funds under the Grant for the Foreign Exchange Costs of goods or services required for the Project in accordance with the terms of this Agreement, by such of the following methods as may be mutually agreed upon:

(1) by submitting to A.I.D. with necessary supporting documentation as prescribed in Project Implementation Letters, (A) requests for reimbursement for such goods or services, or (B) requests for A.I.D. to procure commodities or services on the Grantee's behalf for the Project; or

(2) by requesting A.I.D. to issue Letters of Commitment for specified amounts (A) to one or more U.S. banks, satisfactory to A.I.D., committing A.I.D. to reimburse such bank or banks for payments made by them to contractors or suppliers, under Letters of Credit or otherwise, for such goods or services, or (B) directly to one or more contractors or suppliers, committing A.I.D. to pay such contractors or suppliers for such goods and services.

(b) Banking charges incurred by Grantee in connection with Letters of Commitment and Letters of Credit will be financed under the Grant unless the Grantee instructs A.I.D. to the contrary. Such other charges as the Parties may agree to may also be financed under the Grant.

SECTION 7.2. Disbursement for Local Currency Costs

(a) After satisfaction of Conditions Precedent, the Grantee may obtain disbursements of funds under the Grant for Local Currency Costs required for the Project in accordance with the terms of this Agreement by submitting to A.I.D., with necessary supporting documentation as prescribed in Project Implementation Letters, requests to finance such costs.

(b) The local currency needed for such disbursement may be obtained: (1) by acquisition by A.I.D. with U.S. Dollars by purchase or from local currency already owned by the U.S. Government, or (2) by A.I.D. requesting the Grantee to make available the local currency for such costs, and thereafter reimbursing an amount of U.S. Dollars equal to the amount of local currency made available by the Grantee.

The U.S. dollar equivalent of the local currency made available hereunder will be the amount of U.S. dollars required by A.I.D. to obtain the local currency.

SECTION 7.3. Other Forms of Disbursement. Disbursements of the Grant may also be made through such other means as the Parties may agree to in writing.

SECTION 7.4. Rate of Exchange. Except as may more specifically be provided under Section 7.2, if funds provided under the Grant are introduced into Indonesia by A.I.D. or any public or private agency for purposes of carrying out obligations of A.I.D. hereunder, the Grantee will make such arrangements as may be necessary so that such funds may be converted into currency of the Republic of Indonesia at the highest rate of exchange which, at the time the conversion is made, is not unlawful in Indonesia.

Article 8. Miscellaneous

SECTION 8.1. Communications. Any notice, request, document, or other communication submitted by either Party to the other under this Agreement will be in writing or by telegram or cable, and will be deemed duly given or sent when delivered to such party at the following addresses:

To the Grantee:

Mail Address: Head,
Agency for Agricultural Research
and Development
Jalan Ragunan 29
Pasar Minggu
Jakarta Selatan, Indonesia

To A.I.D.:

Mail Address: U.S. Agency for International Development
American Embassy
Jl. Medan Merdeka Selatan 5
Jakarta, Indonesia

Alternate address for telegrams: USAID AMEMB JAKARTA


All such communications will be in English, unless the Parties otherwise agree in writing. Other addresses may be substituted for the above upon the giving of notice.

SECTION 8.2. Representatives. For all purposes relevant to this Agreement, the Grantee will be represented by the individual holding or acting in the office of the Head, Agency for Agricultural Research and Development and A.I.D. will be represented by the individual holding or acting in the office of Mission Director, A.I.D. Mission to Indonesia, each of whom, by written notice, may designate additional representatives for all purposes other than exercising the power under Section 2.1 to revise elements of the amplified description in Annex I. The names of the representatives of the Grantee, with specimen signatures, will be provided to A.I.D., which may accept as duly authorized any instrument signed by such representatives in implementation of this Agreement, until receipt of written notice of revocation of their authority.

SECTION 8.3. Standard Provisions Annex. A "Project Grant Standard Provisions Annex" (Annex II) is attached to and forms part of this Agreement.

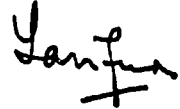
IN WITNESS WHEREOF, the Republic of Indonesia and the United States of America, each acting through its duly authorized representative, have caused this Agreement to be signed in their names and delivered as of the day and year first above written.

UNITED STATES OF AMERICA



Paul Wolfowitz
Ambassador
Embassy of The United States
of America

REPUBLIC OF INDONESIA



Dr. Sjarifudin Baharsjah
Secretary General
Department of Agriculture

AMPLIFIED PROJECT DESCRIPTION
Fisheries Research and Development Project (497-0352)

I. Project Description

A. Project Goal and Purpose

The goal of the Fisheries Research and Development Project is to improve the technological and management resources available to public and private entities involved in Indonesia's fisheries sector. In order to achieve this goal the project will establish a national coordinated fisheries research agenda, support research programs at the Agency for Agricultural Research and Development's (AARD) fisheries research institutes and at key universities to address priority production constraints and to improve academic training at selected universities with mandated responsibilities for fisheries training. The cumulative purpose of these activities is the installation of viable fisheries research programs in the various fisheries areas at the AARD that will address significant regional fisheries production and capture constraints.

B. Project Strategy, Activities and Components

1. Strategy

The lack of human resources and institutional capacity to plan and implement aquaculture and fisheries research and production programs is seen as a fundamental constraint to further development of aquaculture and fisheries resources in Indonesia. Over the short-term the project will focus on human resources and facilities development at key research institutes and universities in each of the three fisheries areas for expanding research studies on the priority constraints to fisheries production. Over the longer term, beginning in Year Four of the project, the program will be expanded and intensified by bringing together the components initiated in the early life of the project; i.e. returning post-graduate participants, rehabilitated and expanded research facilities, and the development of a national research agenda managed by the AARD-DGHE (Directorate General of Higher Education) Communication Forum composed of representatives from the Ministry of Agriculture and the Ministry of Education and Culture and the private sector. The upgraded and expanded university system will provide the "hands-on" trained fisheries scientists and scholars needed to develop the fisheries sector. The special studies component will assist in developing policies to support sector development.

The solution to the problems facing Indonesia will not be found in the short term but will require concentrated effort for at least a decade to establish the organizational, physical, and human resources needed to manage research and production in the fisheries sector. This project represents a short phase in the long-term development of the human capital required to sustain growth in Indonesia's fisheries sector.

2. Activities and Components

The project will focus on the identification and testing of production constraints associated with freshwater aquaculture and fry production in Bogor (Java) and Palembang (South Sumatra); brackishwater aquaculture production in Maros (South Sulawesi); Eastern Indonesian (Ambon) pelagic fisheries production and processing; and the development of a national research agenda with special emphasis on common problems of fisheries production and marketing. The project will include research related to fry production constraints in other freshwater fry production facilities mutually agreed by AARD and AID. The post-graduate training of 20 participants will significantly affect the development of "hands-on" research and training programs.

Working through the established structure of the Agency for Agricultural Research and Development (AARD) and the Directorate General of Fisheries (DGF), research findings will be transferred to fish farmers and fishermen through subject matter specialists (PPS) in cooperation with the existing agricultural extension units and information centers.

a. Freshwater Fisheries Development: This component will develop technologies appropriate for improving freshwater fish culture. It will seek to mitigate declines in production of important freshwater fish species by developing and testing new production technologies related to fish nutrition, broodstock quality, and fry production. Relatively strong academic staff at the Institute of Pertanian Bogor (IPB) and the University of Riau (UNRI) will be utilized to strengthen the Agency for Agricultural Research and Development (AARD) fisheries research program at the Bogor and Palembang facilities.

b. Brackishwater Research: Component activities are focussed in South Sulawesi, one of Indonesia's major milkfish-shrimp production areas. Strengthening the fisheries program at the AARD Research Institute for Coastal Aquaculture (RICA) at Maros, through collaboration with University of Hasanuddin (UNHAS) will provide a good foundation for sustained growth in these fisheries industries. Priority is assigned to solving constraints limiting milkfish-shrimp production: specifically, issues of production management, water quality and bacterial contamination of fish products.

c. Eastern Indonesia Fisheries Development: This component will improve technologies and facilities needed to decrease the costs of processing and marketing of domestically consumed fish products. The project will test economic techniques for developing the data base required to articulate sustained yield management policies for Eastern Indonesian marine fishery resources. A staff development program at the University of Pattimura (UNPATTI) will allow the new Fisheries Faculty to strengthen collaboration with AARD in the area of marine fisheries and strengthen capacity for the academic and/or speciality training of DGF provincial staff in Maluku and Irian Jaya.

d. Fishery Research Management and Fishery Policy and Planning: Activities within this project component address staff, data and management constraints faced by the MOA in establishing national fishery policies. Two major foci are planned: (1) development of a comprehensive national fisheries research agenda and policies to address key fisheries production and marketing issues; and (2) improved planning, implementation and management of fisheries research.

Critical policy questions will be addressed. These include priority issues such as the identification of factors affecting high ocean freight rates, the role of public vs. private investment in fisheries development, fish market structure and its effects on consumption and welfare, the impact of foreign investment on export fish production, and the effects of improved management and conservation of coral reef on fish production.

II. Project Implementation and Management

The project will be implemented over a six year period. Project implementation and coordination responsibilities will rest with the Agency for Agricultural Research and Development (AARD), Ministry of Agriculture (MOA), in collaboration with the Directorate General of Higher Education (DGHE) in the Ministry of Education and Culture (MOE) using the already established AARD-DGHE Communication Forum and procedures for joint research/educational activities. Budget requests and financial management for the project will be the overall responsibility of AARD. There are three existing levels of AARD-DGHE coordinating units in implementation and management of the project.

A. AARD-DGHE Communication Forum

The Communication Forum headed by the Director General of AARD will have the responsibility for overall coordination of policy and program activities. The Communication Forum includes representatives of the Indonesian Institutes of Sciences (LIPI), Ministry of State for Research and Technology, BAPPENAS, Planning Bureau of MOA, DGHE, AARD, and Department of Finance. Various donor agencies representatives may be commissioned as ad-hoc members. Development of a National Fisheries Research Agenda and reviews of project activities and issues will be the responsibility of the Communication Forum. Annual meetings will be held in conjunction with the annual Fisheries Research and Development Project meeting.

B. Project Implementation Unit (PIU)

The Project Implementation Unit (PIU) headed by the Director of the Research Coordinating Center for Fisheries (RCCF), will be established within the AARD, for conducting day-to-day operations of the project. The PIU will coordinate the activities of the three Working Groups in terms of technical and financial reporting, monitoring, and evaluation.

C. Working Groups

Three Working Groups will be established to address the three project areas of freshwater aquaculture, brackishwater aquaculture, and marine fisheries. Activities will be located at the respective project sites of Bogor, Palembang, Maros and Ambon. The respective Working Groups will have the following representation:

- Working Group on Freshwater Aquaculture Research
 - Bogor Agriculture University (IPB)
 - RCCF Institute in Bogor
 - University of Riau
 - RCCF Station in Palembang
 - Provincial Fisheries Service (West Java, South Sumatra and Riau)
 - Private Sector

- Working Group on Brackishwater Aquaculture Research
 - University of Hassanuddin
 - RCCF Institute at Maros
 - Provincial Fisheries Service (South Sulawesi)
 - Private Sector

- Working Group on Marine Fisheries Research
 - University of Pattimura
 - RCCF Station in Ambon
 - Provincial Fisheries Service (Maluku)
 - Private Sector

The Working Groups will be responsible for implementation of project activities related to their respective area, including monitoring all activities and submission of all technical and financial reports to the PIU. In addition, the Working Groups will submit research proposals through the PIU for consideration by the Communication Forum.

III. Project Inputs

A. Technical Assistance

1. Long-Term

Long-term technical assistance will be provided for a total period of 6.0 years. Technical assistance will include pond design and activities related to freshwater aquaculture, brackishwater aquaculture and marine fisheries. The team leader will have his office at the RCCF headquarters in Jakarta and will assist the Director of RCCF in the implementation and management of the project.

2. Short-Term

Sixty-eight person months of short-term technical assistance will be provided at the project universities, the AARD fisheries research institutes, and for special studies and project evaluations. Assignments will include specialists in the areas of fry production, genetics, water quality, nutrition and management. Short-term consultants will play a key role in the planning and implementation of research programs for each of the project components and provide backstopping to participants returning from training and for the expansion of research activities.

3. Special Studies

In order to address critical policy questions related to the continued development of Indonesia's fishery resources, several special studies are planned. Examples of such studies may include the evaluation of priority issues, such as the identification of factors affecting high ocean freight rates, the role of public vs. private investment in fisheries development, fish market structure and its effects on consumption and welfare, the impact of foreign investment on export fish production, and the effects of improved management and conservation of coral reef on fish production. In addition, assistance may be provided to develop a market data system to enhance policy analysis and to improve information flows between fishermen, processors and major retailers of fish products.

B. Training

1. Long-Term Training Abroad

The project will provide post-graduate training for a total of 20 participants, 10 at key fisheries research institutes and 10 at universities. It is anticipated that this will include 15 MSc and 5 PhD staff members from RCCF, IPB, UNHAS and UNPATTI, with emphasis on developing a critical mass of research scientists at RCCF institutes in Bogor, Palembang, Maros and Ambon, and on upgrading and expanding of post-graduate training and research programs in aquaculture at IPB and UNHAS. In addition, staff in the newly formed fisheries faculty at UNPATTI will be trained to the MSc level in various marine fisheries disciplines to support fisheries development production in the under-exploited ecosystem of Eastern Indonesia. Every effort will be made to maximize the participation of female staff from both the institutes and universities components for post-graduate training. In addition, both the AARD and the DGHE plan to select trainees who are associated with assignments upon their return in appropriate geographic areas, e.g., trainees for the activities in Ambon would be current residents of that area and would return there after training to apply their newly-acquired skills in research activities.

2. Long-Term Training In-Country

As the upgraded university and research institute programs will establish a base for providing "hands-on" fisheries training by Year Five of the project, it is expected that some of the contingency funds may be used to initiate in-country MSc and PhD training for RCCF staff in upgraded programs at IPB and UNHAS.

3. Short-term Training In-Country

Two types of short-term training will be utilized to assist in the development of project objectives: a) two to three week training courses that will be provided under the specialities of the various short-term technical advisors assigned to the research institutes and universities and b) a four to six week management training course that will be provided in Years Four and Six of the project by a short-term management specialist.

C. Renovation/Expansion of Facilities

The Fisheries Research and Development Project will provide loan funds to renovate and expand research facilities at RIFF-Palembang, IPB and UNHAS. The upgraded research facilities will provide the basic infrastructure for the universities to conduct research and training, and for RCCF to conduct integrated research and demonstration activities. The anticipated shift of the RIFF-Palembang research activities from a 2 ha site in the city of Palembang to a 50 ha site located on the large MOA Patra Tani Experiment Station will provide a potential opportunity to commercialize the important freshwater fish in Sumatra and to develop speciality training programs in applied research/management for university and MOA extension staff.

The main inputs into the development of the new RIFF site will include the renovation of the existing ponds, office, and staff buildings and the development of an additional 10 ha of research ponds and a wet laboratory. Pond construction costs are expected to be moderate as the project will use GOI construction equipment assigned to the Patra Tani Experiment Station to carry out the pond renovation, and construction of new ponds.

Upgrading the research facility at IPB by adding ponds will provide IPB with the capacity to expand its capability to conduct thesis and training research on feeding and stocking rates, polyculture and reproduction, and to improve its aquaculture training program. Providing project funds are adequate, other fry production facilities may be considered for upgrading.

The development of a small research facility at UNHAS will provide facilities for hands-on aquaculture management training for BSc students and limited opportunities for some post-graduate participants and faculty research. The development of the RCCF research facilities at Maros and Ambon is in progress under the World Bank - GOI National Agriculture Research Project II. The majority of the post-graduate participants and faculty research studies planned for the brackishwater fisheries component will be conducted in the RICA-Maros research facility.

D. Commodities

The procurement of commodities will be grant and loan financed. The GOI will finance the costs of some of the commodities to be purchased in Indonesia. The proposed list of commodities will complement those commodities already purchased under other projects and includes fish farming-research equipment, feed mills, computers, photocopiers, vehicles, fisheries textbooks/journals, and fish production supplies. All commodities will be competitively bid.

E. Other

Upon mutual agreement of the Communication Forum and AID, some of the grant contingency funds may be used for in-country research studies. In addition to the universities mentioned in Section I.B.2. above and after further analysis of their institutional capacities, research activities may also involve other universities, including the University of Padjadjaran.

IV. Monitoring and Evaluation

Project monitoring and evaluation will focus on three distinct but related project outputs: the volume and relevance of research developed under the national aquaculture research program, the degree to which institutional capabilities to plan and carry-out research within collaborating institutions have been strengthened and the impact of project related changes on fisheries production. The project monitoring plan has identified key indicators of increased institutional and research capacity which will be tracked over the life of the project. Mid-term and final evaluations (conducted in Years Four and Six) will examine project impact, particularly the capability of AARD and the universities to plan and carry out aquaculture research in the three sub-sectors supported under the project.

A. Project Monitoring

The principal mechanism for monitoring the coordination of research activities will be an annual review sponsored by the Research Coordinating Center for Fisheries. The purpose of the review will be to bring together scientists from AARD fisheries programs and university researchers to discuss national research priorities in the three subsectors supported through the project. Research undertaken to date will be discussed and plans formulated for overall sectoral research activities in the coming year. Included in these reviews will be discussions of such issues as whether or not the current research programs are addressing the priority needs of the country and allocation of budget based on identification of these priorities. The extent to which research findings are being successfully disseminated and the role of the private sector in research and extension will be included in these discussions.

On the basis of these annual meetings, recommendations will be made regarding changes in the national research agenda and resources required to carry out the revised program. To assist with the annual reviews, the project will provide a special studies fund for visits by eminent fisheries researchers to assist AARD and the universities in analyzing the direction and performance of the research program.

B. Institutional Development

The monitoring of institutional development will be accomplished through the preparation of annual workplans for each institution involved in the project. These plans will be expected to conform to the priorities outlined at the annual reviews of the national research agenda and specify areas of activity for the coming year, staff assigned to the activities, technical assistance requirements, budget, and a description of the specific outputs of the project. A principal function of the technical assistance team will be to assist with the preparation of these plans.

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Institutional development monitoring will also track progress in the development of improved linkages among the participating institutions. The focus of this component of the monitoring system will be the degree to which the participating institutions share facilities, information and integrate and complement their related programs to the extent possible.

Finally, monitoring of institutional development will involve tracking improvements in research capacity. Areas of monitoring focus will be primarily related to the management system developed to support research. Specific issues include the establishment of procedures for preparing and submitting proposals, the review of proposals, and tracking the progress of research in process.

C. Project Evaluation

Two evaluations involving non-project personnel are planned. The first evaluation will occur in year four of the project and focus on overall progress towards meeting project objectives of increased capability within AARD and participating institutions to plan and carry out aquaculture research.

The following questions will be addressed as part of the mid-term evaluation:

- Has the project resulted in improving the quality and quantity of research proposed and conducted at the involved institutions; have adequate financial and human resources been provided; is the research directed as outlined in the project and is it applicable to the needs of Indonesia?

- Has the manpower development program been effectively implemented as evidenced by attention to national fisheries research requirements and the specific project training needs of each institution?

- Are mechanisms being developed to improve the quality and quantity of interaction between involved institutions?

- If problems have developed in the process of project implementation, has management learned lessons from these problems and taken steps to apply these lessons to improve the implementation process?

The team for this evaluation should include expertise in the areas of freshwater aquaculture, brackishwater aquaculture, and marine fisheries. At least one of the team members should have extensive experience in the management of institution-building projects.

The final evaluation will focus on achievement of the specific objectives of the project. Questions will include the following:

- Has institutional capability improved to the extent that involved institutions are able to produce capable researchers and to plan and conduct high quality research?

- Is there evidence that involved institutions are working together to solve problems in aquatic research and development?

- Has the project resulted in an increase in the quality and quantity of appropriate aquatic research which can be applied in a socially sound manner to the solutions of fishery development problems in Indonesia as outlined in the project paper?

The team for the final evaluation should consist of experts in the areas of freshwater and brackishwater aquaculture, marine fisheries, fisheries economics, fisheries anthropology/rural sociology, and management of institution-building projects. In addition to these outside consultants, Indonesians with expertise in similar areas will participate in the evaluation.

V. Cost Estimates and Financial Plan

A. AID Contribution

The AID contribution will support technical assistance, training, and minor facilities development and equipment purchases. Loan funds totalling \$3.8 million will support the cost of in-country English language training, U.S. training for 20 degree candidates (5 PhDs and 15 MScs), and the design and construction of anticipated AARD facilities at Palembang and university research facilities at IPB and UNHAS. In addition, loan funds will support the major portion of the costs of technical and training equipment planned under the project. A \$3.3 million grant will provide 6.0 person years of long-term technical assistance in fisheries research planning and policy, and 68 person months of short-term technical assistance in fisheries research, production and management, a portion of the equipment including vehicles, and special studies to support research in areas such as national fisheries policy formulation and implementation, research management, fisheries curriculum development and training, and fish processing marketing issues.

Loan funded procurement of goods and services under the project will be solicited from firms or individuals in Code 941 countries, Indonesia and the United States. Grant funded procurement of goods and services will be solicited from firms or individuals in Indonesia and the United States. Goods and services funded by the project budget will be procured on a competitive basis, and will be advertised both in Indonesia and the United States.

B. GOI Funds

GOI funds will support in-country training for 200 participants, administration costs of the project and one-fourth of the commodity costs. The GOI's contribution totalling \$4.2 million, constitutes 49% of total project costs; \$1.5 million in Rupiah contributions and \$2.7 in in-kind contributions. The GOI will also finance any identifiable taxes associated with the project including any taxes on the procurement of goods and services.

C. Illustrative Financial Plan

The attached financial plan is illustrative and changes may be made to it by representatives of the parties named in the Loan and Grant Agreements without formal amendment to the Agreement if such changes do not cause (1) AID's contribution to exceed the amount specified in the text of the Agreement, or (2) the Cooperating Country's contribution to be less than the amount specified in the Agreement.

FISHERIES RESEARCH AND DEVELOPMENT PROJECT
SUMMARY COST ESTIMATES
(US\$000)

	A. I. D.				G.O.I.*	Project Total
	FY 86 Obligation		Life of Project			
	Grant	Loan	Grant	Loan		
Technical Assistance	2,567	-	2,567	-	-	2,567
Construction	-	460	-	500	-	500
Equipment	240**	972	240**	1,270	482	1,992
Training	-	872	-	1,671	140	1,811
Special Studies	220	-	220	-	100	320
Administrative & Research Support	-	-	-	-	648	648
Contingency/Inflation	293	-	293	344	137	774
T O T A L	3,320	2,304	3,320	3,785	1,507	8,612

* GOI will provide an additional in-kind contribution of \$2.7 million that includes staff salaries and land and buildings contributions.

** Vehicles, boats and pumps