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A.I.D. LOAN NO.497-T-092
A.I.D. PROJECT NO. 497-0347

LOAN & L/G
AGREEMENT
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PROJECT

LOAN AGREEMENT

BETWEEN

THE REPUBLIC OF INDONESIA

AND THE

UNITED STATES OF AMERICA

FOR

SMALL SCALE IRRIGATION MANAGEMENT

DATED: August 28, 1985

PROJECT LOAN AGREEMENT

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A.I.D. LOAN NO.497-T-092
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PROJECT LOAN AGREEMENT

Dated: August 28, 1985

Between

The Republic of Indonesia ("Borrower")

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 Borrower 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, which is further described in Annex I, is designed to assist the Borrower to design and apply irrigation technologies and management systems in support of diversified cropping patterns in selected eastern islands of Indonesia. 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 9.2, without formal amendment of this Agreement.

Article 3. Financing.

SECTION 3.1. The Loan. To assist the Borrower to meet the costs of carrying out the Project, A.I.D. pursuant to the Foreign Assistance Act of 1961, as amended, agrees to lend the Borrower under the terms of this Agreement not to exceed Fifteen Million One Hundred and Fifteen Thousand United States ("U.S.") Dollars ($15,115,000) to support the Project. The aggregate amount of disbursements under the Loan is referred to as "Principal".

The Loan 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. Borrower Resources for the Project.

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

(b) The resources provided by the Borrower for the Project will be not less than the equivalent of U.S. $13,890,000, 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, 1993, 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 Loan will have been performed and all goods financed under the Loan 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 Loan 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 8.1 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 Borrower, may at any time or times reduce the amount of the Loan 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. Loan Terms.

SECTION 4.1. Interest. The borrower will pay to A.I.D. interest which will accrue at the rate of two percent (2%) per annum

for ten (10) years following the date of the first disbursement hereunder and at the rate of three percent (3%) per annum thereafter on the outstanding balance of Principal and on any due and unpaid interest. Interest on the outstanding balance will accrue from the date (as defined in Section 8.5.) of each respective disbursement, and will be payable semiannually. The first payment of interest will be payable no later than six (6) months after the first disbursement hereunder, on a date to be specified by A.I.D.

SECTION 4.2. Repayment. The Borrower will repay to A.I.D. the Principal within forty (40) years from the date of the first disbursement of the Loan in sixty-one (61) approximately equal semiannual installments of Principal and interest. The first installment of Principal will be payable nine and one-half (9-1/2) years after the date on which the first interest payment is due in accordance with Section 4.1. A.I.D. will provide the Borrower with an amortization schedule in accordance with this Section after the final disbursement under the Loan.

SECTION 4.3. Application, Currency, and Place of Payment. All payments of interest and Principal hereunder will be made in U.S. Dollars and will be applied first to the payment of interest due and then to the repayment of Principal. Except as A.I.D. may otherwise specify in writing, payments will be made to the Controller, Office of Financial Management, Agency for International Development, Washington, D.C. 20523, U.S.A., and will be deemed made when received by the Office of Financial Management.

SECTION 4.4. Prepayment. Upon payment of all interest and any

refunds then due, the Borrower may prepay, without penalty, all or any part of the Principal. Unless A.I.D. otherwise agrees in writing, any such prepayment will be applied to the installments of Principal in the inverse order of their maturity.

SECTION 4.5. Renegotiation of Terms. (a) The Borrower and A.I.D. agree to negotiate, at such time or times as either may request, an acceleration of the repayment of the Loan in the event that there is any significant and continuing improvement in the internal and external economic and financial position and prospects of the Republic of Indonesia, which enable the Borrower to repay the Loan on a shorter schedule.

(b) Any request by either Party to the other to so negotiate will be made pursuant to Section 9.2, and will give the name and address of the person or persons who will represent the requesting Party in such negotiations.

(c) Within thirty (30) days after delivery of a request to negotiate, the requested Party will communicate to the other, pursuant to Section 9.2, the name and address of the person or persons who will represent the requested Party in such negotiations.

(d) The representatives of the Parties will meet to carry on negotiations no later than thirty (30) days after delivery of the requested Party's communication under subsection (c). The negotiations will take place at a location mutually agreed upon by the representatives of the Parties, provided that, in the absence of mutual agreement, the negotiations will take place at the office of the Borrower's Minister of Finance in the Republic of Indonesia.

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SECTION 4.6. Termination on Full Payment. Upon payment in full of the Principal and any accrued interest, this Agreement and all obligations of the Borrower and A.I.D. under it will cease.

Article 5. Conditions Precedent to Disbursement.

SECTION 5.1. First Disbursement. Prior to the first disbursement under the Loan, or to the issuance by A.I.D. of documentation pursuant to which disbursement will be made, the Borrower 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) An opinion of the Minister of Justice of the Borrower that this Agreement has been duly authorized and/or ratified by, and executed on behalf of, the Borrower, and that it constitutes a valid and legally binding obligation of the Borrower in accordance with all of its terms; and

(b) A statement of the name of the person holding or acting in the Office of the Borrower specified in Section 9.2; and of any additional representatives, together with a specimen signature of each person specified in such statement.

SECTION 5.2. Condition Precedent to Disbursement for Certain Project Activities in South Sulawesi. Prior to disbursement under the Loan, or to issuance by A.I.D. of documentation pursuant to which disbursement will be made for the groundwater component in South Sulawesi province the Borrower shall, except as A.I.D. may otherwise agree in writing, furnish in form and substance

satisfactory to A.I.D., evidence that arrangements have been made to establish and staff a groundwater development unit (P2AT) in the province.

SECTION 5.3. Condition Precedent to Disbursement or Construction of Surface Irrigation Systems. Prior to the disbursement of funds under the Loan, or to issuance by A.I.D. of documentation pursuant to which disbursement will be made for construction of each surface irrigation system, the Borrower shall, except as A.I.D. may otherwise agree in writing, furnish in form and substance satisfactory to A.I.D., engineering designs and cost estimates, socio-economic data relevant to the proposed command area, agronomic data relevant to the proposed command area, and a basic economic and environmental analysis.

SECTION 5.4. Notification. When A.I.D. has determined that the conditions precedent specified in Section 5.1, 5.2, and 5.3 have been met, it will promptly notify the Borrower.

SECTION 5.5. Terminal Date for Conditions Precedent. If all of the conditions specified in Section 5.1 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 Borrower.

Article 6. Special Covenants.

SECTION 6.1. 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 6.2. Other Special Covenants.

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

(a) the involvement of private companies in groundwater expansion activities will be maximized to the extent practicable;

(b) to the maximum extent feasible, responsibility for the operation and maintenance of surface irrigation systems will be transferred to the water users;

(c) without diminishing the effort to transfer responsibility as noted in (b), above, irrigation systems constructed under the Project will be included, upon certified completion, in the provincial list of irrigation projects eligible for operations and maintenance financing from provincial Government resources; and

(d) the Borrower agrees that loan funds may be used to finance the costs of in-country and off-shore short term training, or training of less than 90 days duration.

Article 7: Procurement Source.

SECTION 7.1. Foreign Exchange Costs. Disbursements pursuant to Section 8.1 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 countries included in Code 941 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 Loan Standard Provisions Annex, Section C.1 (b) with respect to marine insurance. Ocean transportation costs will be financed under the Loan only on vessels under flag registry of the United States, or Indonesia, or Code 941 countries as long as chartered or operated by Indonesian shipping companies, except as A.I.D. may otherwise agree in writing.

SECTION 7.2 Local Currency Costs. Disbursements pursuant to Section 8.2 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 8. Disbursements.

SECTION 8.1. Disbursement for Foreign Exchange Costs.

(a) After satisfaction of Conditions Precedent, the Borrower may obtain disbursements of funds under the Loan 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 in Borrower'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 the Borrower in connection with Letters of Commitment and Letters of Credit will be financed under the Loan unless the Borrower instructs A.I.D. to the contrary. Such other charges as the Parties may agree to may also be financed under the Loan.

SECTION 8.2. Disbursement for Local Currency Costs

(a) After satisfaction of Conditions Precedent, the Borrower may obtain disbursements of funds under the Loan 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) Local currency disbursements may be made by A.I.D.: (1) in local currency acquired by A.I.D. by purchase or from local currency already owned by the U.S. Government or (2) by A.I.D. requesting the Borrower 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 Borrower. 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 8.3. Other Forms of Disbursement. Disbursements of the Loan may also be made through such other means as the Parties may agree to in writing.

SECTION 8.4. Rate of Exchange. Except as may more specifically be provided under Section 8.2, if funds provided under the Loan 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 Borrower 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.

SECTION 8.5. Date of Disbursement. Disbursements by A.I.D. will be deemed to occur (a) on the date on which A.I.D. makes a disbursement to the Borrower or its designee, or to a bank, contractor or supplier pursuant to a Letter of Commitment, contract,

or purchase order; (b) on the date on which A.I.D. disburses to the Borrower or its designee local currency acquired in accordance with Section 8.2.

Article 9. Miscellaneous

SECTION 9.1. 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 Borrower:

Mail Address: Departemen Luar Negeri
Jalan Pejambon No. 6
Jakarta Pusat
Indonesia

Alternate address for telegrams: DEPLU JAKARTA

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 9.2. Representatives. For all purposes relevant to this Agreement, the Borrower will be represented by the individual

holding or acting in the office of the Chairman or Vice Chairman, National Development Planning Agency (BAPPENAS) and A.I.D. will be represented by the individual holding or acting in the office of Mission Director, USAID 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 Borrower, 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 9.3. Standard Provisions Annex. A "Project Loan 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

William P. Fuller
Director
USAID/Indonesia

REPUBLIC OF INDONESIA

Atmono Suryo
Director General
for Foreign Economic Relations
Department of Foreign Affairs

Annex 1

Amplified Project Description
Small Scale Irrigation Management Project (497-0347)

I. Project Description

A. Project Goal and Purpose

The goal of the Small Scale Irrigation Management Project (SSIMP) is to expand agricultural production by diversifying production, increasing cropping intensity and improving water reliability. Progress in achieving this goal will be measured by increases in cropping intensity, seasonal crop productivity, secondary crop production, and economic returns.

The purpose of the SSIMP is to design and apply irrigation technologies and management systems that support diversified cropping patterns in selected eastern islands of Indonesia. Irrigation systems financed under the project will be designed and managed to the maximum extent feasible for diversified cropping. This measure is especially appropriate in the three project provinces where water scarcity may significantly limit the command areas if only rice production is encouraged.

The SSIMP will:

- support the construction of surface irrigation systems in South Sulawesi and Nusa Tenggara Barat provinces to service an estimated 19,500 hectares of rice and secondary crops.
- support the further exploration, development, and expansion of small scale groundwater projects in South Sulawesi, Nusa Tenggara Barat and Nusa Tenggara Timur to service an estimated 5,200 hectares of rice and secondary crops.
- strengthen the capacity of the Provincial Public Works staff within the three provinces to utilize new or improved irrigation technologies and management systems appropriate to the needs of the farmers in that agro-climatic zone.
- assist in the examination of relevant program issues, and the testing of innovative technologies through collaborative studies and research efforts with the Directorate General of Water Resources Development (DGWRD) of the Ministry of Public Works (PU).

The life of project for SSIMP is eight years, 1985 through 1993 based on the amount of time required to complete pre-construction surveys and designs, construction of surface systems, expansion of groundwater systems, and post-construction management and monitoring requirements for all of the systems. It is expected that the project will have two general phases of activities: preparation and planning (first 12 months) and implementation (7 years).

B. Project Components

Component 1: Improved Irrigation Technologies

(a). Design and construction. The project will support the development and construction of irrigation systems to provide a reliable water supply to an estimated 25,000 hectares of rice and secondary crops in the three provinces of South Sulawesi, Nusa Tengara Barat (NTB), and Nusa Tenggara Timur (NTT). Four irrigation technologies will be utilized: surface diversion and surface lift systems servicing an estimated 7,200 hectares; reservoir systems servicing an estimated 12,300 hectares; and groundwater systems servicing an estimated 5,200 hectares. All four technologies will be applied in the provinces of South Sulawesi and NTB. Investments in NTT will concentrate on groundwater.

At certain sites, designs or detailed engineering designs have already been prepared by Provincial PU. These designs will be subject to intensive review prior to approval of construction for financing under the project. Should any of the proposed systems not meet mutually agreeable standards of technical, economic, social, environmental and agronomic feasibility, alternative technologies may be explored for the command area or alternative sites may be proposed.

- Surface diversion. It is expected that the project will support the development of five surface irrigation projects of 1600-1700 ha per system. In addition to constructing diversions, the project will improve downstream utilization and management of the water to make more efficient use of the irrigation systems. Such improvements include design of smaller, more flexible tertiary blocks to facilitate varied crops and cropping patterns over the irrigated area and the intensive use of water user association organizers to assist in generating greater farmer participation in system operation and maintenance.
- Lift irrigation. The project will expand the use of surface lift pumps in two of the surface diversion systems through two subprojects. In NTB lift irrigation will probably involve use of large lift stations discharging water into a main distribution system.

In South Sulawesi, the project will expand the use of small-scale lift irrigation to an area which is already somewhat familiar with the technology but which lacks commercial infrastructure to support the expansion of pump use. The project will help to overcome this obstacle by supporting commercial involvement. Project support will include dissemination of appropriate product information; technical assistance for the training of service people; and identification of alternative credit mechanisms to assist farmers with the purchase of pumps.

- Reservoirs. In a significant portion of the three project provinces, surface diversion is not an adequate or reliable source

of irrigation water. It is anticipated that the project will construct two reservoirs on the island of Sumbawa (NTB province) and three reservoirs in South Sulawesi. The project will contribute to improved design of such structures, following the U.S. Bureau of Reclamation or comparable design criteria, and to the management of the water to permit varied cropping patterns throughout the command areas.

- Groundwater. The project will help test alternative technologies and management systems for the efficient use of groundwater under different agro-climatic conditions in the three provinces. The project's primary focus of development and expansion of groundwater for irrigation is low-cost technology for farmer-owned and operated shallow wells. The GOI and USAID will determine on a site-by-site basis the proportion of expansion funds to be used for direct PU construction of wells as opposed to provision of credit to enable groups of farmers to undertake expansion on their own. The project will support the establishment of a Public Works groundwater unit in South Sulawesi and will provide plans for groundwater development and expansion for the four target areas in the three provinces.

In NTT the focus will be on development and efficient use of relatively well-defined aquifers. Geohydrologic studies undertaken by the GOI with Canadian assistance have laid the groundwork. Beyond further design and survey work, and prior to expansion, the project will establish demonstration plots with different organizational and operational patterns.

In NTB, preliminary groundwater exploration studies indicate the presence of groundwater aquifers over a broad area of eastern and western Sumbawa island. The project will more explicitly define the location and production potential of these aquifers and then proceed with development for irrigation expansion in those locations. Groundwater will be used for irrigation in those areas where surface sources are extremely limited.

In South Sulawesi the groundwater program will be primarily exploratory, and will assist the Public Works groundwater unit to establish a base of operations. It is planned that groundwater will be used both as a primary and supplementary source of irrigation water in dryland areas and rainfed areas.

(b). Management of irrigation systems. "Management" in this section is defined as the control and rational distribution of limited water supplies in an irrigation command area in order to maximize hectares under cultivation. It refers to both the technical and organizational requirements and to the process linking them together.

- Technical requirements. It is expected that some 60-70% of the sites will irrigate secondary crops. The first season crop in all ten surface systems is likely to be rice. The design of the systems, including the size of the target command area and the carrying capacity of the distribution network, will service a first season rice crop.

In addition, the systems will be designed and constructed for a secondary crop for both the second season and, in two systems in NTB where water supplies are judged adequate for triple cropping, for the third season. This planned mixed cropping pattern imposes two additional technical requirements on the system. First the traditional field to field irrigation system, applicable to Indonesian paddy cultivation, will need to be minimized because of the variable water requirements of farmers at different times. Second, additional water control structures will need to be installed at both the secondary and tertiary levels. The third design and construction element that will be adjusted in the project sites is the size of the area serviced by any given tertiary system. In order to maximize the cropping options of the water users, the tertiary command area will be as small as economically and technically feasible -- 50 ha is the target.

- Management requirements. The project will support training for Provincial Public Works staff in the new information and skills required for the transition to design and management of irrigation systems for secondary crops.

Stricter regulation of the supply of irrigation water will be necessary for secondary crops to be grown successfully. Various management models will be reviewed by Public Works and the technical assistance team and specific recommendations and standards for technology-specific irrigation management systems will be developed.

Component 2: Strengthening Provincial Public Works Management

Substantial deconcentration of planning and design of irrigation systems to the Public Works Provincial levels is expected to occur.

To enhance the performance of Public Works (PU) units within the three provinces and the six districts in which activities will be implemented, the project will support the following activities.

(a). Introduction of new or improved management tools for both provincial and section offices.

- Site Selection. Under the project, existing site selection criteria will be reviewed in line with the expanded focus of this project and, if necessary, additional selection criteria will be developed for subsequent irrigation investments by the project provinces related to the four water supply technologies and for both rice and mixed cropping systems.
- Site Profiles. System design will include both the collection of technical design information and a command area profile which addresses: social, cultural and environmental factors; soil, cropping patterns, agricultural practices and water user groupings; and availability of inputs and marketing channels. This information will be combined to develop (a) the system technical

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design, (b) an assessment of needs for supporting services such as agricultural extension, and (c) a system management (O&M) plan.

- Performance Monitoring System. At present, the Public Works monitoring system at the provincial level is limited to physical (output) level monitoring of construction progress. With the assistance of the World Bank, the central Public Works Monitoring Unit has just completed the design of a full impact-monitoring system. The project will assist the project provinces to selectively apply the monitoring system including non-physical indicators.
- Section Office Management and Maintenance Schemes. The fourth management tool that will be developed is an integrated section office management and maintenance plan not only for new systems to be constructed under project auspices but also for existing O&M responsibilities of the selected section offices in the three provinces.

(b) Improved provincial PU capacity for management of design and construction contractors.

The capabilities of the Provincial Public Works for contractor management will be upgraded, especially in four areas: application of technical criteria for acceptance of contractor survey and design work; field inspection of construction work in progress; application of standards for acceptance of completed irrigation construction; and introduction of a system for review and negotiation between contractors and water users in the command areas.

(c) Training and Professional Development

The project will support the development of skills in four areas:

- technical engineering for design and construction of surface diversion and reservoir systems and for groundwater development;
- social, economic and environmental analysis required for planning and site selection, and monitoring and evaluation;
- physical management and maintenance of irrigation systems, with special attention to options for water rotation, maintenance of reservoir systems, and on-farm water management;
- management of contractors for survey, design, construction, and farmer liaison.

The main target for professional development is the Public Works provincial and section level staff in the three provinces. Training for social and economic analysis will also be provided to the provincial BAPPEDA staff (Ministry of Home Affairs). Specific selection criteria for candidates for overseas training programs will be agreed upon by the GOI and AID.

The following training is anticipated, subject to further assessment, review and planning:

- 11 Masters degrees in the U.S. in technical engineering (9) and social science fields (2);
- 7 Masters degrees at institutions within the region in technical engineering (3) and social science fields (4);
- Short-term, overseas training programs for 15 individuals in technical and engineering (12) and social science fields (3);
- Short-term, in-country workshops, particularly focused on irrigation system design, management and maintenance for PU section and system level staff.

Component 3: Increased Beneficiary Participation

The target beneficiaries of this project, the farmers within the command areas, will participate in four stages of system development under the project:

- Site selection process. Criteria which ensure farmer participation will be developed for post-project irrigation investments in the three provinces.
- Site profile and review of technical design. The pre-construction activities under the project will include the preparation of a site profile to define agronomic and socio-economic factors. Due to the command area size and the technical nature of the systems, farmers need not be directly involved in the detailed review of the primary and secondary distribution systems, although they will be consulted. Their primary role will be in review and adjustment to the tertiary network design.
- Construction. Farmer participation in the construction stage can take several forms including contract labor, farmer managed construction, or farmer oversight of contractor work. The extent and character of farmer participation will be decided during the development of site profiles and the review of the tertiary system design.
- Management and Maintenance. Farmers will be responsible for the management of the tertiary systems. Division of specific responsibilities between the Public Works and water user groups, including an expansion of farmer responsibility, will be defined at the design review and construction stage.

The project will utilize water user association organizers (WUAO) as the principal means of encouraging farmer participation. The role of the WUAO is to help facilitate dialogue between farmers and developers by helping farmers identify problems, interpret designs and negotiate with Public Works and contractors on system design, construction and operation and maintenance responsibilities. This is a function distinct from that of an extension agent who instructs farmers in agricultural methods and planning.

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The general functions of the WUAOs for the proposed surface and reservoir systems will include: participate in the preparation of pre-construction profiles to ensure farmers' contributions at the initial stage; identify and help strengthen farmer groups in proposed secondary/tertiary levels of the system; encourage farmer cooperation with Public Works or the contractor at the physical survey and tertiary design stage; assist in defining the role for farmers' groups at the construction stage and ensure their role is carried out; assist PU Section Office in defining appropriate management responsibilities for farmers.

It is anticipated that the WUAO cadres will be under the management of the Provincial Public Works, perhaps under the guidance of Kabupaten Irrigation Committees. The mechanism for recruiting, training and monitoring WUAOs as contract employees will probably be through an Indonesian foundation. During the first few months of project implementation detailed analysis will be conducted to define the WUAO system based on site-specific needs and to define the administrative arrangements.

At the five groundwater development sites located in the three provinces, the extent of farmer participation and, consequently, the specific role of a water user association organizer, or the equivalent, is not yet clearly defined. Definition will occur during the initial years of implementation of the groundwater component.

Component 4: Special Studies and Pilot Activities

In order to provide sound technical and management plans and recommendations dealing with specific irrigation issues, the project will support a series of special studies and pilot activities to be agreed upon during project implementation. It is anticipated that issues to be addressed may include assessment of private sector role in groundwater, baseline environmental assessments, and policy and management studies especially related to system operation and maintenance.

II. Project Responsibilities

A. Directorate General of Water Resources Development

At the central level in Jakarta, project implementation and coordination responsibilities rest with the Directorate General of Water Resources Development (DGWRD) in the Ministry of Public Works. The Assistant Director General for Irrigation will be the primary individual responsible for national level coordination of project activities including: liaison with the National Development Planning Agency (BAPPENAS) and Ministry of Finance regarding budgeting and project planning; liaison with Ministry of Mining and Energy for groundwater exploration and development activities; periodic and special reviews of project activities and issues;

direction and management of the Special Studies component of the project; review and approval of scopes of work for the technical assistance teams; preparation of consolidated overseas long-term and short-term training proposals.

The DGWRD, Ministry of Public Works, is responsible for obtaining any approvals from the Ministry of Mining and Energy or the Governors of the respective provinces for groundwater exploration, development, and expansion.

It is envisioned that the responsibility for the implementation of project components will be delegated to the four Directorates within DGWRD as follows:

- Site selection: Directorate of Irrigation I.
- Project monitoring: Directorate of Planning and Programming.
- Surface system design reviews: Directorate of Irrigation I (Sub-Directorate of Technical Planning).
- Construction of surface systems: Directorate of Irrigation I: South Sulawesi (Sub-directorate of Construction Management for Western Area)
  NTB (Sub-Directorate of Construction Management for Eastern Area).
- Operations and maintenance budgeting: Directorate of Irrigation I: (Sub-Directorate of O&M Management).
- Groundwater development: Directorate of Irrigation II: (Sub-Directorate of Groundwater Development).
- Procurement of technical assistance and equipment: Directorate of Logistics.

B. Provincial Public Works

Consistent with efforts to deconcentrate the responsibility for site selection, design, construction and management of irrigation systems, project managers (pimpinan proyek) for the irrigation systems will be based at the provincial level.

In South Sulawesi and NTB, it is anticipated that the Chief of the Provincial Water Resources Development Division or his authorized representative will be the project manager, the individual charged with overall project coordination and implementation in the province. Under the direction of this person, sub-project managers may be responsible for individual irrigation activities. Certain project responsibilities that require policy decisions and flexible resource allocation may be retained by the Chief of Provincial Water Resources Development. These may include: management of the community organizer contract, management of site profiles, liaison with Provincial and District Planning Boards (BAPPEDA Tingkat I and Tingkat II) and Dinas Pertanian, routine management of the technical assistance team, and submission of long- and short-term training proposals.

The responsibility for project management for most activities will be redelegated to subproject managers at the provincial level. While the pattern may differ somewhat among the provinces,

there will normally be one subproject manager for each of the substantive areas: groundwater development (P2AT office), reservoir construction, small scale irrigation, special projects and operation and maintenance. It is anticipated that the subproject managers will be responsible for: management of survey, design, and construction contractors; submission of technical documentation and budgets for submission to USAID and central Public Works for approval; performance monitoring and reporting on system development; planning and delegation of authority for operation and maintenance of irrigation systems.

Delegation of project responsibility to the staff of the five Provincial Public Works Sections in which surface systems will be developed will depend upon the stage of irrigation system development and the staff capabilities. Section office staff will be responsible for: management of the community organizers and supervisors within the section; budgeting and planning for operation and maintenance; and management and maintenance of the completed irrigation systems.

Within the first three years of project implementation, a joint review will be undertaken to determine what additional responsibilities can be vested in the project provinces. The purpose of the review is to determine appropriate staff increases, staff training requirements, operating budgets, and management responsibilities related to the existing and new O&M responsibilities.

C. Groundwater Units (P2AT).

Groundwater development in the three project provinces is still in the exploration and development stage. Policy and major decision making will be retained by DGWRD at the central level, although routine management decisions will be made at the P2AT unit in the provinces under the supervision of the Chief of the Provincial Water Resources Development Division.

In NTB and NTT the existing P2AT units will implement project activities. In South Sulawesi a parallel P2AT unit will be established under project auspices. Under the project, the Provincial P2AT units will be responsible for: planning and implementation of site drilling; equipment operation and maintenance; management of the equivalent of a community organizer system for groundwater sites; planning and implementation of demonstration sites; planning and proposals for expansion of production wells.

III. Monitoring and Evaluation

The monitoring and evaluation system for SSIMP will be structured to address three distinct but related information needs. To meet each of these needs, a different set of indicators and a different mechanism are proposed.

A. Implementation Monitoring

The first is the need to monitor the implementation of irrigation development programs. This includes site selection, environmental assessment, survey and design work, physical construction, and system performance upon completion. In general, four types of information will be monitored: social, economic, environmental and technical. The collection of technical information will follow the present Public Works system with appropriate modifications for the project provinces and sites.

The collection of social and economic data for site profiles will build upon the existing Public Works systems and experience. It is anticipated that external resources, such as private foundations, a state university or private commercial survey and research firm will be used to provide this information. Public Works will act as the manager of this process, rather than as the primary investigator. The Public Works provincial office will be the key GOI agency in contracting for these services and managing the work done under contracts.

B. Institutional Development

The second information need concerns the institutional development of various Public Works agencies and their increased capacity to undertake irrigation development. During the course of project implementation, an information system is expected to provide frequent feedback on key indicators of progress in areas such as the development and use of improved management tools, improved groundwater development units, and increased authority at the provincial level.

The primary opportunity to report systematically on institutional development will be annual reports. These will be based on site visits, discussions with provincial officials, and assessments about the quality of planning and documentation received at the national level from each of the three provinces. The reviews will be jointly conducted by the staff of DGWRD and USAID with participation by technical assistance team members.

C. Evaluation of Project Management and Impact

Additional information will be required to assess overall project management and implementation. The need will be met through a mid-term and a final evaluation, rather than an on-going monitoring system. Required external and Indonesian technical assistance and associated costs will be funded through the Special Studies component.

The mid-term evaluation is expected to occur no later than year four of project implementation and will focus on project management mechanisms including effective project management at

national, provincial, section and project site levels; irrigation development plans, survey and design work of an appropriate standard; increased quantity and quality of socio-economic data in project design and development; effective farmer participation, and the application of cost-effective improved irrigation technologies.

The project will also support a final evaluation that will focus on the broader impact of the project. Technical assistance will be required at two stages: early in project implementation to assist with the collection of baseline data, and again at the close of the project to collect end-of-project data and analyze the data collected. The final evaluation will examine project impacts in terms of cropping patterns, cropping intensity, yields, costs of agricultural inputs, farm wages and demand for agricultural labor (including sexual differentials), and farm household incomes. These will be related to the introduction of new irrigation technologies, as well as the impact of more conventional systems supported under the project.

IV. Cost Estimates and Financial Plan

A. USAID Contribution

The USAID financed inputs to support the project components described above consist of construction, technical assistance including support to the water user association organizer system, special studies, training, and specialized equipment.

International 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. International 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, advertised in Indonesia as well as abroad for international procurement. Indonesian firms will be eligible to bid for all local and international procurement.

Construction

The eligible costs of the construction component of surface and reservoir systems will be shared equally by AID loan funds and by the GOI based on cost estimates of AID-approved detailed engineering designs. Eligible costs include: survey, design (or redesign where review indicates it is required); construction of major diversion structures or water impoundments; control works; primary, secondary and tertiary canals and distribution systems, drainage channels; short-spur access roads required for construction; and other physical works as required for effective water impoundment and efficient conveyance of water to fields.

The eligible costs of the groundwater component including exploration, demonstration, and expansion, will be shared equally by AID loan funds and by the GOI. The costs will be based on AID approved work plans. Eligible costs include data gathering,

exploration, demonstration plots and expansion programs. It is anticipated that drilling associated with exploration and demonstration will be managed by "force account" and that expansion will be implemented by a private contractor.

Technical Assistance

Three external technical assistance arrangements and one host country contract with a private Indonesian foundation are anticipated. Additional short-term contracts may be financed from the Special Studies component, as required, for specialized services.

First, Engineering consultants are expected to have responsibility for monitoring and guidance of system design, construction, and management; site selection, performance monitoring, and contractor management; design and monitoring of province-specific groundwater development programs; organization of all technical in-country and overseas training; and inspection of construction for purposes of AID reimbursement procedures. It is planned to locate the team members in the provincial capitals of the three project provinces: Ujung Pandang (South Sulawesi), Mataram (NTB) and Kupang (NTT). The team leader will be located in either Mataram or Ujung Pandang.

Secondly, an estimated 100 months of long and short-term services will be procured to support various institutional aspects of the project. Long term consultants will be fielded early in 1986 to initiate work on the design and establishment of new management systems including the WUAO cadre system, site profiles, technical design review process, environmental assessments, and professional development. These consultants will be located in Jakarta and assigned to DGWRD, with extensive field work in the project provinces.

Third, short-term services for institutional support to the project will be spread throughout the life of the project for such purposes as monitoring and evaluation of technical and institutional components; review of innovations such as sprinkler or small reservoir systems; design and review of WUAO cadre system components; introduction of management systems for secondary crops; and PU Section Office level training programs. The short term services may be procured through a direct AID arrangement with U.S. universities.

The fourth technical assistance element anticipated is a loan-financed host country arrangement with an Indonesian foundation to support the water user association organizer (WUAO) system.

Training

The eligible costs of training and professional development whether long or short term, in-country or overseas, will be loan funded.

Equipment

The procurement of all specialized imported equipment will be financed by loan funds. The proposed list of equipment includes

groundwater drilling rigs and parts; survey and hydrometeorological equipment; specialized office furnishings and equipment; computers; miscellaneous groundwater supplies and commodities.

Locally procured commodities and equipment will be 50% loan financed, with the remainder from the GOI. Vehicles procured under the project will be assigned to technical assistance contractors when required.

B. Government of Indonesia Contribution

It is anticipated that the GOI will finance 50% of the design and construction costs of the surface and groundwater systems and 50% of local commodity costs. The GOI will finance all land compensation costs, all staff and salary costs including any increased costs for Section Office staff, operating costs of the South Sulawesi groundwater unit and O&M costs for primary and secondary systems during and after the period of construction of the irrigation systems. The GOI will also finance any identifiable taxes associated with the project, including any taxes on the procurement of goods and services.

With regard to training, the GOI will finance pre-departure costs for overseas training including in-country per diem, domestic airfare, and English language training; international airfare, exit tax, and salary of participants while in training.

C. Illustrative Financial Plan

The attached financial plan is illustrative and changes may be made to it by representatives of the parties named in Section 9.2 of the Project Loan Agreement or Section 8.2 of the Project Grant Agreement without formal amendment to the Agreement. Adjustments of up to 15% in any line may be agreed to by authorized representatives of the Parties. However, any such changes may not cause (1) A.I.D.'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 Section 3.2 of the Agreement.

SMALL SCALE IRRIGATION MANAGEMENT
SUMMARY COST ESTIMATES
(US$000)

CATEGORY	A I D						GOI TOTAL	PROJECT TOTAL
	Obligations This Agreement		Future Years Obligations Anticipated*		AID TOTAL			
	Grant	Loan	Grant	Loan	Grant	Loan		
I. Construction, Surface Water	-	9,000	-	13,865	-	22,865	28,536**	51,401
IA. Construction, Groundwater	-	2,000	-	3,550	-	5,550	10,650**	16,200
II. Equipment and Commodities	-	2,000	-	1,333	-	3,333	228	3,561
III. Training	-	400	-	1,000	-	1,400	272	1,672
IV. Special Studies/ Pilot Activities	400	200	555	1,300	955	1,500	-	2,455
V. Technical Assistance	3,100	800	2,945	3,600	6,045	4,400	-	10,445
VI. Contingency	-	715	-	3,237	-	3,952	-	3,952
TOTAL	3,500	15,115	3,500	27,885	7,000	43,000	39,686	89,686

*Future obligations are subject to the availability of funds and the mutual agreement of the parties to proceed.
**GOI Total includes land compensation costs, staff salaries, O&M costs and pre-project design fees which go beyond the 50% GOI-USAID sharing of conventional design-construction costs.