UNCLASSIFIED

DEPARTMENT OF STATE
AGENCY FOR INTERNATIONAL DEVELOPMENT
Washington, D.C. 20523

PROJECT PAPER

Proposal and Recommendations
For the Review of the
Development Loan Committee

INDONESIA - Citanduy Basin Development Project Paper

AID-DLC/P-2139

Joe Hamm

A.I.D. Loan No. 497-H-039

LOAN AGREEMENT

(Indonesia: Citanduy River Basin Development)

between the

GOVERNMENT OF THE REPULIC OF INDONESIA

and the

GOVERNMENT OF THE UNITED STATES OF AMERICA

Dated: October 28, 1976

LOAN AGREEMENT dated October 28, 1976 between the REPUBLIC OF INDONESIA ("Borrower") and the UNITED STATES OF AMERICA, acting through the AGENCY FOR INTERNATIONAL DEVELOPMENT ("A.I.D.").

ARTICLE I

The Loan

SECTION 1.01. The Loan. A.I.D. agrees to lend to the Borrower pursuant to the Foreign Assistance Act of 1961, as amended, an amount not to exceed twelve million five hundred thousand United States Dollars ($12,500,000) ("Loan") to assist the Borrower in carrying out the Project referred to in Section 1.02 ("Project"). The Loan shall be used exclusively to finance the United States dollar costs ("Dollar Costs") of goods and services to be listed in Implementation Letters referred to in Section 8.03 ("Implementation Letters"), and part of the local currency costs of goods and services required for the Project ("Local Currency Costs"). The aggregate amount of disbursements under the Loan is hereinafter referred to as "Principal."

SECTION 1.02. The Project. The Project shall consist of assistance to the Ministry of Public Works and Electric Power in carrying out a program of development in the Citanduy Basin. The first stage is the elimination of annual flooding by the Citanduy and Ciseel Rivers to increase production of rice and other crops. The Project shall consist of (1) construction of levees on the Citanduy and Ciseel Rivers and their tributaries, including a cutoff of the Ciseel River into the Citanduy River, (2) rehabilitation of seven existing irrigation systems, (3) construction of one new irrigation

system, (4) rehabilitation and construction of primary and secondary drains, (5) design of the terminal portion of the eight irrigation systems to be rehabilitated or constructed and construction of the difficult structures of these terminal portions, (6) consulting engineering services for the supervision of construction, operations and maintenance of the flood control and irrigation systems, (7) equipment for construction and operations, (8) feasibility studies and designs for additional projects in the Citanduy Basin, and (9) in country and overseas training.

ARTICLE II

Loan Terms

SECTION 2.01. Interest. The Borrower shall pay to A.I.D. interest which shall accrue at the rate of two percent (2%) per annum for ten 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 shall accrue from the date of each respective disbursement (as such date is defined in Section 6.04), and shall be computed on the basis of a 365-day year. Interest shall be payable semi-annually. The first payment of interest shall be due and payable no later than six (6) months after the first disbursement for Dollar Costs or reimbursement for Local Costs hereunder, on a date to be specified by A.I.D.

SECTION 2.02. Repayment. The Borrower shall repay to A.I.D. the Principal within forty (40) years from the date of the first

disbursement or reimbursement hereunder in sixty-one (61) approximately equal semi-annual installments of Principal and interest. The first installment of Principal shall be payable nine and one-half ($9\frac{1}{2}$) years after the date on which the first interest payment is due in accordance with Section 2.01. A.I.D. shall provide the Borrower with an amortization schedule in accordance with this Section after the final disbursement or reimbursement under the Loan.

SECTION 2.03. Application, Currency and Place of Payment. All payments of interest and Principal hereunder shall be made in United States dollars and shall 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, all such payments shall be made to the Controller, Agency for International Development, Washington, D.C., U.S.A., and shall be deemed made when received by the Office of the Controller.

SECTION 2.04. Prepayment. Upon payment of all interest and refunds then due, the Borrower may prepay, without penalty, all or any part of the Principal. Any such prepayment shall be applied to the installments of Principal in the inverse order of their maturity.

SECTION 2.05. Renegotiation of the Terms of the Loan. The Borrower agrees to negotiate with A.I.D., at such time or times as A.I.D. may request, an acceleration of the repayment of the Loan in the event that there is any significant improvement in the internal and external economic and financial position and prospects of the Republic of Indonesia.

ARTICLE III

Conditions Precedent to Disbursement or Reimbursement

SECTION 3.01. Conditions Precedent to Initial Disbursement or Reimbursement. Prior to the first disbursement or reimbursement or to the issuance of the first Letter of Commitment under the Loan, the Borrower shall, except as A.I.D. 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;

(b) A statement of the names of the persons holding or acting in the office of the Borrower specified in Section 8.02, and a specimen signature of each person specified in such statement;

(c) A list of construction equipment, including specifications and estimated costs, approved by A.I.D., needed for the Project and to be financed under the Loan;

(d) (1) A budgetary allocation for the Project for the Indonesian Fiscal Year 1976-77, and (2) an approved payment authorization for payment of Indonesian currency in the amount required for the first three months of Project operations; and

(e) A fully negotiated draft contract for engineering or other type of consulting services financed under the Loan for the Project with the terms of such contract and the selection of such consultant acceptable to A.I.D.

SECTION 3.02. Conditions Precedent to Disbursement or Reimbursement for Purposes Other than Procurement for Equipment and Services. Prior to the first disbursement or reimbursement or to the issuance of the first Letter of Commitment under the Loan for any purpose other than the procurement of equipment or consulting services, the Borrower shall, except as A.I.D. may otherwise agree in writing, furnish to A.I.D. in form and substance satisfactory to A.I.D.:

(a) An operations and maintenance plan for the flood control system;

(b) An operations and maintenance plan for the irrigation systems consisting of major works, including primary and secondary canals;

(c) A plan and cost estimates for each irrigation system to be rehabilitated or constructed by the Project including: (i) the construction of terminal irrigation systems, and (ii) the provision of agricultural support services (establishment of water users associations, assistance for on-farm water management, and operations and maintenance of the terminal irrigation systems); and

(d) Evidence of adequate budgetary support and a commitment by the Borrower to carry out the plans described in Section 3.02 (c).

SECTION 3.03. Terminal Dates for Meeting Conditions Precedent to Initial Disbursement or Reimbursement. If all of the conditions specified in Section 3.01 have not been met within 120 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

giving written notice to the Borrower. Upon the giving of such notice, this Agreement and all obligations of the parties hereunder shall terminate.

SECTION 3.04. Notification of Meeting of Conditions Precedent to Initial Disbursement or Reimbursement. A.I.D. shall notify the Borrower upon determination by A.I.D. that the conditions specified in Sections 3.01 and 3.02 have been met.

ARTICLE IV

General Covenants and Warranties

SECTION 4.01. General Execution Covenants.

(a) The Borrower shall cause the MPWEP to carry out the Project with due diligence and efficiency, and in conformity with acceptable engineering, construction, environmental, financial, administrative, technical and management practices.

(b) The Borrower shall cause the MPWEP to carry out the Project in conformity with all of the plans, specifications, contracts, schedules, and other arrangements, and with all modifications thereto.

(c) Except as A.I.D. may otherwise agree, the Borrower shall ensure that at all times during the execution of the Project appropriate contracts, acceptable to A.I.D., with consulting firms acceptable to A.I.D., are in force and effect for the provision of technical advisory services, including construction supervision, needed for the Project.

SECTION 4.02. Funds and Other Resources to be Provided by Borrower.

(a) The Borrower shall ensure that the annually estimated expenditures (other than United States dollar costs to be financed under the Loan) for each year during which the Project is being conducted will be made available to permit the work of the Project to proceed on a timely basis.

(b) The Borrower shall provide promptly as needed all funds, in addition to the Loan, and all other resources required for the punctual and effective carrying out, completion, maintenance, repair, and operation of the Project.

(c) Notwithstanding any other provision of this Loan Agreement, Borrower shall provide not less than 25% of the total cost of goods and services to be used in the Project which shall not be disbursed or reimbursed by A.I.D. in any form.

(d) In addition to the funds and resources of Borrower referred to in Sections 4.02 (a), (b) and (c), the Borrower shall cause to be carried out the construction of terminal irrigation systems and the establishment of the agricultural support service elements contained in the plans submitted under Sections 3.02 (c) and (d).

SECTION 4.03. Commencement of Construction for Reimbursable Units of Work. Prior to the commencement of construction for any unit of work, including both flood control and irrigation, for which reimbursement will be sought by the Borrower under the Loan, the Borrower shall provide to A.I.D., and A.I.D. shall review and approve in writing, the final plans, specifications and cost estimate for the unit of work, and names of the contractors and the provisions of the standard

contracts and any modifications thereof under which the work is to be performed. A.I.D. shall determine that the cost estimate is reasonable. When approved by A.I.D., the cost estimate shall become the predetermined cost for the unit of work to which it applies and on which reimbursement may be made pursuant to Section 6.02.

SECTION 4.04. Commencement of Training Programs. Prior to the commencement of any training activity, including in country training for which disbursement will be sought by the Borrower under the Loan, the Borrower shall provide to A.I.D., and A.I.D. shall review and approve in writing, the plan for the training activity. Such plan shall include a brief course description, names of personnel to receive training and cost estimates. A.I.D. shall determine that the cost estimates are reasonable. One hundred percent of the costs of the training referred to in this section shall be paid from Loan funds. The Borrower may cause the training program to be carried out pursuant to the terms of the contract referred to in Section 3.01, Paragraph (e).

SECTION 4.05. Continuing Consultation. The Borrower, MPWEP and A.I.D. shall cooperate fully to assure that the purposes of the Loan will be accomplished. To this end, the Borrower, MPWEP, the consultants and A.I.D. shall from time to time, at the request of any party, exchange views through their representatives with regard to the progress of the Project and its effectiveness, the performance by the Borrower and MPWEP, of their obligations under this Agreement, the performance of the consultants, contractors, and suppliers engaged in the Project, and other matters relating to the Project.

SECTION 4.06. Operation and Maintenance. The Borrower and MPWEP shall cause the Project when completed to be operated, maintained, and repaired in conformity with acceptable engineering, financial and administrative practices, in such manner as to insure the continuing and successful achievement of the purposes of the Project, and in accordance with the approved operations and maintenance plans.

SECTION 4.07. Taxation. This Agreement, the Loan, and any evidence of indebtedness issued in connection herewith shall be free from, and the Principal and interest shall be paid without deduction for and free from, any taxation or fees imposed under the laws in effect within Indonesia. To the extent that (a) any expatriate contractor, including any expatriate consulting firm, any expatriate personnel of such expatriate contractor financed hereunder, and any property or transactions relating to such contracts and (b) any foreign commodity procurement transaction financed hereunder, are not exempt from identifiable taxes, tariffs, duties, and other levies imposed under laws in effect in Indonesia, the Borrower shall pay or reimburse the same under Section 4.02 (b) of this Agreement with funds other than those provided under the Loan. Taxes, tariffs, duties, and other levies imposed under laws in effect in Indonesia on Indonesian contractors, consultants and commodity procurement transactions shall not be financed with funds provided under the Loan.

SECTION 4.08. Utilization of Goods and Services.

(a) Goods and services financed under the Loan shall be used exclusively for the Project, except as A.I.D. may otherwise agree

in writing. Upon completion of the Project, or at such other time as goods financed under the Loan can no longer be usefully employed for the Project, the Borrower may use such goods in such manner as to further development objectives.

(b) Except as A.I.D. may otherwise agree in writing, no goods or services financed under the Loan shall be used to promote or assist any foreign aid project or activity associated with or financed by any country not included in Code 935 of the A.I.D. Geographic Code Book as in effect at the time of such use.

SECTION 4.09. Disclosure of Material Facts and Circumstances. The Borrower represents and warrants that all facts and circumstances that it has disclosed or caused to be disclosed to A.I.D. in the course of obtaining the Loan are accurate and complete, and that it has disclosed to A.I.D., accurately and completely, all facts and circumstances that might materially affect the Project and the discharge of its obligations under this Agreement. The Borrower shall promptly inform A.I.D. of any facts and circumstances that may hereafter arise and might materially affect, or that it is reasonable to believe might materially affect, the Project or the discharge of the Borrower's obligations under this Agreement.

SECTION 4.10. Commissions, Fees and Other Payments.

(a) Borrower warrants and covenants that in connection with obtaining the Loan, or taking any action under or with respect to this Agreement, it has not paid, and will not pay or agree to pay, nor to the best of its knowledge has there been paid nor will there be paid

or agreed to be paid by any other person or entity, commissions, fees, or other payments of any kind, except as regular compensation to the Borrower's full time officers and employees or as compensation for bona fide professional, technical, or comparable services. The Borrower shall promptly report to A.I.D. any payment or agreement to pay for such bona fide professional, technical, or comparable services to which it is a party or of which it has knowledge (indicating whether such payment has been made or is to be made on a contingent basis), and if the amount of any such payment is deemed unreasonable by A.I.D., the same shall be adjusted in a manner satisfactory to A.I.D.

(b) The Borrower warrants and covenants that no payments have been or will be received by the Borrower or any official of the Borrower, in connection with the procurement of goods and services financed hereunder, except fees, taxes, or similar payments legally established in Indonesia.

SECTION 4.11. Maintenance and Audit of Records. The Borrower and MWEP shall maintain, or cause to be maintained, in accordance with sound accounting principles and practices consistently applied, books and records relating both to the Project and to this Agreement. Such books and records shall, without limitation, be adequate to show:

(a) The receipt and use made of goods and services acquired with funds disbursed or reimbursed pursuant to this Agreement;

(b) The nature and extent of solicitations of prospective suppliers of goods and services acquired;

(c) The basis of the award of contracts and orders to successful bidders; and

(d) The progress of the Project.

Such books and records shall be regularly audited, in accordance with sound auditing standards, for such period and at such intervals as Borrower and A.I.D. may agree in Implementation Letters, and shall be maintained for five years after the date of the last disbursement or reimbursement by A.I.D. or until all sums due A.I.D. under this Agreement have been paid, whichever date shall first occur.

SECTION 4.12. Reports. The Borrower shall furnish to A.I.D. such information and reports relating to the Loan and to the Project as A.I.D. may reasonably request.

SECTION 4.13. Inspections. The authorized representatives of the Borrower and A.I.D. shall have the right at all reasonable times to inspect the Project, the utilization of all goods and services financed under the Loan, and the Borrower's and MPWEP's books, records and other documents relating to the Project and the Loan. The Borrower and A.I.D. shall cooperate to facilitate inspections and travel of their authorized representatives and the Borrower shall permit representatives of A.I.D. to visit the Project area or any part of Indonesia for any purpose relating to the Loan.

ARTICLE V

Procurement

SECTION 5.01. Procurement with Loan Funds. Except as

A.I.D. may otherwise agree in writing, disbursements made pursuant to Section 6.01 shall be used exclusively to finance the procurement for the Project of goods and services having both their source and origin in countries included in Code 941 of the A.I.D. Geographic Code Book as in effect at the time orders are placed for such goods.

SECTION 5.02. Eligibility Date. Except as A.I.D. may otherwise agree in writing, no disbursements for goods or services may be made under the Loan, and no reimbursements made for units of training completed, pursuant to orders or contracts firmly placed or entered into prior to the date of this Agreement. Provided, however, that reimbursement may be made for units of work completed where (a) such units of work are completed pursuant to orders or contracts firmly placed or entered into after December 31, 1975, and (b) the requirements of Section 4.03 have been satisfied in advance of commencement of construction and the requirements of Section 6.02 satisfied in advance of reimbursement.

SECTION 5.03. Implementation of Procurement and Reimbursement Requirements. The definitions applicable to the eligibility requirements of Section 5.01 will be set forth in detail in Implementation Letters.

SECTION 5.04. Plans, Specifications, and Contracts. In order for there to be mutual agreement on the following matters, and except as the Parties may otherwise agree in writing:

(a) The Borrower will furnish to A.I.D. upon preparation:

(1) Any plans, specifications, procurement or construction

schedules, standard construction contracts, or other contracts and documentation relating to goods or services to be financed by A.I.D., including documentation relating to the prequalification and selection of contractors and to the solicitation of bids and proposals. Material modifications in such documentation will likewise be furnished A.I.D. on preparation;

(2) Such documentation will also be furnished to A.I.D., upon preparation, relating to any goods or services which, though not financed by A.I.D., are deemed by it to be of major importance to the Project. Aspects of the Project involving matters under this subsection (a) (2) will be identified in Implementation Letters;

(b) Bid documents related to the prequalification of contractors, and documents related to the solicitation of proposals for goods and services financed under the Loan will be duly approved by A.I.D. in writing prior to their issuance;

(c) The following contracts, including material modifications thereof, and contractors financed by A.I.D. and utilized for procurement of the goods and services referred to below will be approved by A.I.D. in writing prior to execution of the contracts.

(i) Contracts and contractors for engineering and other professional services;

(ii) Standard contracts and contractors for construction services under fixed amount reimbursement (FAR) procedures;

(iii) Contracts and contractors for construction services when FAR procedures are not utilized; and

(iv) Contracts and contractors for commodities.

(d) Consulting firms used by the Borrower for the Project but not financed under the Loan, the scope of their services and such of their personnel assigned to the Project as A.I.D. may specify, shall be provided to A.I.D.

SECTION 5.05. Reasonable Price. No more than reasonable prices shall be paid for any goods or services financed in whole or in part, under the Loan, as more fully described in Implementation Letters. Such items shall be procured on a fair and on a competitive basis in accordance with procedures therefore prescribed in Implementation Letters.

SECTION 5.06. Shipping and Insurance.

(a) Goods procured from the United States and financed under the Loan pursuant to Section 6.01 shall be transported to Indonesia on flag carriers of any country included in Code 935 of the A.I.D. Geographic Code Book as in effect at the time of shipment.

(b) (1) Gross Tonnage. At least fifty percent (50%) of the gross tonnage of all commodities (computed separately for dry bulk carriers, dry cargo liners and tankers) financed hereunder pursuant to Section 6.01 which may be transported on ocean vessels shall be transported on privately-owned United States flag commercial vessels. (2) Revenue. Additionally, at least fifty percent (50%) of the gross freight revenue generated by all shipments financed

hereunder pursuant to Section 6.01 and transported to Indonesia on dry cargo liners shall be paid to or for the benefit of privately, owned United States flag commercial vessels unless A.I.D. shall determine that such vessels are not available at fair and reasonable rates for U.S. flag commercial vessels. (3) Compliance. Compliance with the requirements of (1) and (2) above must be achieved with respect to cargo transported from U.S. ports and also to cargo transported from non-U.S. ports, computed separately. (4) Reporting. Within ninety (90) days following the end of each calendar quarter, or such other period as A.I.D. may specify in writing, Borrower shall furnish A.I.D. with a statement, in form and substance satisfactory to A.I.D., reporting on compliance with the requirements of this Section.

(c) No such goods may be transported on any ocean vessel (or aircraft): (1) which A.I.D., in a notice to the Borrower, has designated as ineligible to carry A.I.D.-financed goods, or (2) which has been chartered for the carriage of A.I.D.-financed goods unless such charter has been approved by A.I.D.

(d) Marine insurance on goods financed under the Loan may also be financed under the Loan with disbursements made pursuant to Section 6.01, provided (i) such insurance is placed at the lowest available competitive rate in Indonesia or in a country included in Code 941 of the A.I.D. Geographic Code Book as in effect at the time of placement, and (ii) claims thereunder are payable in the currency in which such goods were financed. If the government of the Borrower, by statute, decree, rule, regulation, or practice discriminates with

respect to A.I.D.-financed procurement against any marine insurance company authorized to do business in any State of the United States, then all goods shipped to the country of the Borrower financed under the Loan shall be insured against marine risks and such insurance shall be placed in the United States with a company or companies authorized to do a marine insurance business in a State of the United States.

(e) Except as the Borrower and A.I.D. shall otherwise agree in writing, the Borrower shall insure, or cause to be insured, all goods financed under the Loan against risks incident to their transit to the point of their use in the Project. Such insurance shall be issued upon terms and conditions consistent with sound commercial practice, shall insure the full value of the goods, and shall be payable in the currency in which such goods were financed. Any indemnification received by the Borrower under such insurance shall be used to replace or repair any material damage or any loss of the goods insured or shall be used to reimburse the Borrower for the replacement or repair of such goods. Any such replacements shall have both their source and origin in countries included in Code 941 of the A.I.D. Geographic Code Book and shall be otherwise subject to the provisions of this Agreement.

SECTION 5.07. Port Charges. With respect to ocean freight costs which qualify as eligible for financing under the Loan, and except as A.I.D. may otherwise agree in writing, A.I.D. will finance ninety percent (90%) of all ocean freight costs of each shipment, and ninety-eight percent (98%) of such costs on any shipment

under free-out terms. The remaining ten percent (10%), or two percent (2%) of free-out shipments, represent port charges in Indonesia and Borrower covenants that it shall make available foreign exchange to finance said port charges in accordance with procedures which may be prescribed by A.I.D. in Implementation Letters.

SECTION 5.08. Notification to Potential Suppliers. In order that all United States firms shall have the opportunity to participate in furnishing goods and services to be financed under the Loan as Dollar Costs as defined in Section 6.01, the Borrower shall furnish to A.I.D. such information with regard thereto, and at such times, as A.I.D. may request in Implementation Letters.

SECTION 5.09. Information and Marking. Borrower shall give publicity to the Loan and the Project as being assisted by United States aid, identify the work sites, and mark goods financed under the Loan, as prescribed in Implementation Letters.

ARTICLE VI

Disbursement and Reimbursement

SECTION 6.01. Disbursement for United States Dollar Costs - Letters of Commitment to United States Banks. Upon satisfaction of conditions precedent pursuant to Sections 3.01 and 3.02, the Borrower may, from time to time, request A.I.D. to issue Letters of Commitment for specified amounts to one or more United States banks, satisfactory to A.I.D., committing A.I.D. to reimburse such bank or banks for payments made by them to consultants or suppliers, through the use of

Letters of Credit or otherwise, for Dollar Costs of goods and services procured for the Project in accordance with the terms and conditions of this Agreement. Payment by a bank to a consultant or supplier will be made by the bank upon presentation of such supporting documentation as A.I.D. may prescribe in Letters of Commitment and Implementation Letters. Banking charges incurred in connection with Letters of Commitment and Letters of Credit shall be for the account of the Borrower and may be financed under the Loan.

SECTION 6.02. Reimbursement for Predetermined Costs for Units of Work Completed.

(a) Upon satisfaction by the Borrower of the conditions precedent contained in Sections 3.01 and 3.02, and 4.03 as appropriate, the Borrower may, from time to time, submit a request to A.I.D. for reimbursement of an agreed upon portion of the predetermined Local Currency Costs for units of work completed, pursuant to Section 4.03. Such reimbursement shall be made in United States dollars.

(b) Each request for reimbursement shall contain certifications that (i) the units of work have been completed according to approved plans, specifications and contracts pursuant to Section 4.03 and (ii) that reimbursement has not and will not be obtained from any other source.

(c) All certifications submitted with such requests are subject to verification by A.I.D. If any units of work are found not satisfactorily completed in accordance with previously approved plans and specifications pursuant to Section 4.03 or have been reimbursed

from another source, A.I.D. will deduct the requested amount for that unit of work from the reimbursement request before approving the request.

SECTION 6.03. Other Forms of Disbursement. Disbursements of the Loan may be made through such other means as the Borrower and A.I.D. may agree to in writing.

SECTION 6.04. Date of Disbursement. Disbursements by A.I.D. shall be deemed to occur (a) on the date on which A.I.D. makes disbursement pursuant to Section 6.01 to the Borrower, to its designee, or to a banking institution pursuant to a Letter of Commitment; (b) in the case of disbursements made pursuant to Section 6.02 (a), on the date on which A.I.D. disburses the local currency to the Borrower or its designee; (c) on the date on which A.I.D. opens or amends the Special Letter of Credit pursuant to Section 6.02 (a) or (d) in the case of disbursements made pursuant to Section 6.03, on the date on which A.I.D. makes disbursement pursuant to the terms of such other disbursement documents.

SECTION 6.05. Terminal Date for Disbursement. Except as A.I.D. may otherwise agree in writing, no Letter of Commitment or other document making a commitment for payment will be issued or amended pursuant to requests received by A.I.D. after four years and nine months next succeeding the date of execution of this Agreement and no disbursements or reimbursements will be made against documentation received by A.I.D. or any bank making payments hereunder after five years next succeeding the date of execution of this

Agreement. After the latter date, A.I.D. may at any time or times reduce the amount of the Loan by all or any part thereof for which documentation was not received by such date.

ARTICLE VII

Cancellation and Suspension

SECTION 7.01. Cancellation by the Borrower. The Borrower may, with the prior written consent of A.I.D., by written notice to A.I.D., cancel any part of the Loan (i) which, prior to the giving of such notice, A.I.D. has not disbursed or committed itself to disburse, or (ii) which has not been utilized through reimbursement or through payments made through other procedures.

SECTION 7.02. Events of Default; Acceleration. If any one or more of the following events ("Events of Default") shall occur:

(a) The Borrower shall have failed to pay when due any interest or installment of Principal required under this Agreement;

(b) The Borrower or MPWEP shall have failed to comply with any other provision of this Agreement, including, but without limitation, the obligation to carry out the Project with due diligence and efficiency; or

(c) The Borrower shall have failed to pay when due any interest or any installment of Principal or any other payment required under any other loan

agreement, any guaranty agreement, or any other agreement between the Borrower or any of its agencies and the Government of the United States, or any of its agencies,

then A.I.D. may, at its option, give to the Borrower notice that all or any part of the unrepaid Principal shall be due and payable sixty (60) days thereafter, and, unless the Event of Default is cured within such sixty (60) days:

(i) such unrepaid Principal and any accrued interest hereunder shall be due and payable immediately; and

(ii) the amount of any further disbursements made under then outstanding Letters of Credit or any reimbursement or otherwise shall become due and payable as soon as made.

SECTION 7.03. Suspension of Disbursement or Reimbursement. In the event that at any time:

(a) An Event of Default has occurred;

(b) An event occurs that A.I.D. determines to be an extraordinary situation that makes it improbable either that the purpose of the Loan will be attained or that the Borrower or MPWEP will be able to perform their obligations under this Agreement;

(c) A.I.D. determines that the overall Project is not being carried out satisfactorily in accordance with agreed upon standards and criteria; or

(d) Any disbursement or reimbursement by A.I.D. would be

in violation of the legislation governing A.I.D.; then A.I.D. may, at its option:

(i) suspend or cancel outstanding commitment documents to the extent that they have not been utilized through the issuance of irrevocable Letters of Credit or through bank payments made other than under irrevocable Letters of Credit, in which event A.I.D. shall give notice to the Borrower promptly thereafter;

(ii) decline to make disbursements other than under outstanding commitment documents;

(iii) decline to issue additional commitment documents or make additional reimbursements; and

(iv) at A.I.D.'s expense, direct that title to goods financed under the Loan shall be transferred to A.I.D. if the goods are from a source outside Indonesia, are in a deliverable state and have not been offloaded in ports of entry of Indonesia. Any disbursements or reimbursements made or to be made under the Loan with respect to such transferred goods shall be deducted from Principal.

SECTION 7.04. Cancellation by A.I.D. Following any suspension of disbursements or reimbursements pursuant to Section 7.03, if the cause or causes for such suspension of disbursements or reimbursements shall not have been eliminated or corrected within sixty (60) days from the date of such suspension, A.I.D. may, at its option, at any time or times thereafter, cancel all or any part of the Loan

that is not then either disbursed or subject to irrevocable Letters of Credit.

SECTION 7.05. Continued Effectiveness of Agreement. Notwithstanding any cancellation, suspension of disbursement or reimbursement, or acceleration of repayment, the provisions of this Agreement shall continue in full force and effect until the payment in full of all Principal and any accrued interest hereunder.

SECTION 7.06. Refunds.

(a) In the case of any disbursement or reimbursement not supported by valid documentation in accordance with the terms of this Agreement, or of any disbursements or reimbursements not made or used in accordance with the terms of this Agreement, A.I.D., notwithstanding the availability or exercise of any of the other remedies provided for under this Agreement, may require the Borrower to refund such amount in United States dollars to A.I.D. within sixty (60) days after receipt of a request therefor. Such amount shall be made available first for the cost of goods and services procured and reimbursement for acceptably completed units of work or training for the Project hereunder, to the extent justified, the remainder, if any, shall be applied to the installments of Principal in the inverse order of their maturity and the amount of the Loan shall be reduced by the amount of such remainder. Notwithstanding any other provision in this Agreement, A.I.D.'s right to require a refund with respect to any disbursement or reimbursement under the Loan shall continue for five years following the date of such disbursement or

reimbursement.

(b) In the event that A.I.D. receives a refund from any contractor, supplier, or banking institution, or from any other third party connected with the Loan, with respect to goods or services financed under the Loan, and such refund relates to an unreasonable price for goods or services, or to goods that did not conform to specifications, or to services that were inadequate, A.I.D. shall first make such refund available for the cost of goods and services procured and reimbursement for acceptably completed units of work or training for the Project hereunder, to the extent justified, the remainder to be applied to the installments of Principal in the inverse order of their maturity and the amount of the Loan shall be reduced by the amount of such remainder.

SECTION 7.07. Expenses of Collection. All reasonable costs incurred by A.I.D., other than salaries of its staff, in connection with the collection of any refund or in connection with amounts due A.I.D. by reason of the occurrence of any of the events specified in Section 7.02 may be charged to the Borrower and reimbursed to A.I.D. in such manner as A.I.D. may specify.

SECTION 7.08. Nonwaiver of Remedies. No delay in exercising or omission to exercise any right, power, or remedy accruing to A.I.D. under this Agreement shall be construed as a waiver of any of such rights, powers, or remedies.

ARTICLE VIII

Miscellaneous

SECTION 8.01. Communications. Any notice, request, document, or other communication given, made, or sent by the Borrower, MPWEP or A.I.D. pursuant to this Agreement shall be in writing or by telegram, cable or radiogram and shall be deemed to have been duly given, made, or sent to the party to which it is addressed when it shall be delivered to such party by hand or by mail, telegram, cable, or radiogram at the following address:

TO BORROWER:

Mail Address: Departemen Luar Negeri
Taman Pejambon 6
Jakarta Pusat,
Indonesia

Cable Address: DEPLU Jakarta

TO A.I.D.:

Mail Address: United States Agency for
International Development
American Embassy
Jakarta, Indonesia

Cable Address: USAID AMEMB Jakarta

Other addresses may be substituted for the above upon the giving of notice. All notices, requests, communications, and documents submitted to A.I.D. hereunder shall be in English, except as A.I.D. may otherwise agree in writing.

SECTION 8.02. Representatives. For all purposes relative to this Agreement, the Borrower shall be represented by the individuals holding or acting in the offices of 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. Such individuals shall have the authority to designate additional representatives by written notice. In the event of any replacement or other designation of a representative hereunder, Borrower shall submit a statement of the representative's name and specimen signature in form and substance satisfactory to A.I.D. Until receipt by A.I.D. of written notice of revocation of the authority of any of the duly authorized representatives of the Borrower designated pursuant to this Section, it may accept the signature of any such representative or representatives on any instrument as conclusive evidence that any action affected by such instrument is duly authorized.

SECTION 8.03. Implementation Letters. A.I.D. shall from time to time issue Implementation Letters that will prescribe the procedures applicable hereunder in connection with the implementation of this Agreement.

SECTION 8.04. Promissory Notes. At such time or times as A.I.D. may request, the Borrower shall issue promissory notes or such other evidence of indebtedness with respect to this Loan, in such form, containing such terms and supported by such legal opinions as A.I.D. may reasonably request.

SECTION 8.05. Termination Upon Full Payment. Upon payment in full of the Principal and of any accrued interest, this Agreement and all obligations of the Borrower, MPWEP and A.I.D. under this Loan Agreement shall terminate.

IN WITNESS WHEREOF, the Borrower and the United States of America, each acting through its respective duly authorized representatives, 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

By: /s/
David D. Newsom
Ambassador to Indonesia

REPUBLIC OF INDONESIA

By: /s/
Adam Malik
Minister for Foreign Affairs of the Republic of Indonesia

DEPARTMENT OF STATE
AGENCY FOR INTERNATIONAL DEVELOPMENT
WASHINGTON, D.C. 20523

UNCLASSIFIED

AID-DLC/P-2139

MEMORANDUM FOR THE DEVELOPMENT LOAN COMMITTEE

SUBJECT: Indonesia - Citanduy Basin Development Project Paper

Attached for your review are the recommendations for authorization of a loan to the Government of the Republic of Indonesia ("Borrower") of not to exceed twelve million, five hundred thousand United States dollars ($12,500,000) to assist in financing the United States dollar and local currency costs of the Citanduy Basin development project for Indonesia.

The loan is scheduled for consideration by the Development Loan Staff Committee on December 24, 1975 at 9:30 a.m. in Room 3524 NS; please note your concurrence is requested by close of business on December 29, 1975. If you are a voting member a poll sheet has been enclosed for your response.

Development Loan Committee
Office of Development Program Review

Attachments:
Summary & Recommendations
Project Analysis
Annexes A-K

CITANDUY BASIN DEVELOPMENT

- INDONESIA -

Table of Contents

CITANDUY BASIN DEVELOPMENT PROJECT
- Indonesia -

Capital Assistance Committees

USAID/Indonesia

Chairman/Loan Officer	Ralph M. Singleton
Engineer	Walter H. McAleer
Agriculture Advisor	David R. Brooks
Economist	James A.Norris
Controller	Alan M. Gordon
Legal Advisor	Rodney W. Johnson

AID/Washington

AGENCY FOR INTERNATIONAL DEVELOPMENT

PROJECT PAPER FACESHEET

TO BE COMPLETED BY ORIGINATING OFFICE

1. TRANSACTION CODE ("X" appropriate box)
[X] Original [ ] Change [ ] Add [ ] Delete

PP

DOCUMENT CODE 3

2. COUNTRY/ENTITY: Indonesia

3. DOCUMENT REVISION NUMBER:

4. PROJECT NUMBER: 497-0245

5. BUREAU: a. Symbol: Asia; b. Code: 2

6. ESTIMATED FY OF PROJECT COMPLETION: FY 81

7. PROJECT TITLE - SHORT (stay within brackets): Citanduy Basin Development

8. ESTIMATED FY OF AUTHORIZATION/OBLIGATION: a. INITIAL mo. 12 yr. 75; b. FINAL FY 76

9. ESTIMATED TOTAL COST ($000 or equivalent, $1 = 415)

a. FUNDING SOURCE	FIRST YEAR FY 76			ALL YEARS		
	b. FX	c. L/C	d. Total	e. FX	f. L/C	g. Total
AID APPROPRIATED TOTAL	5,495	7,005	12,500	5,495	7,005	12,500
(Grant)	( )	( )	( )	( )	( )	( )
(Loan)	(5,495)	(7,005)	(12,500)	(5,495)	(7,005)	(12,500)
Other 1.						
U.S. 2.						
HOST GOVERNMENT					12,874	12,874
OTHER DONOR(S)						
TOTALS				5,495	19,879	25,374

10. ESTIMATED COSTS/AID APPROPRIATED FUNDS ($000)

a. Appropriation (Alpha Code)	b. Primary Purpose Code	c. Primary Tech. Code	FY 76		FY 77		FY 78		ALL YEARS	
			d. Grant	e. Loan	f. Grant	g. Loan	h. Grant	i. Loan	j. Grant	k. Loan
FN	101	069		12,550						12,500
TOTALS				12,550						12,500
11. ESTIMATED EXPENDITURES				0		3,660		3,033		

12. PROJECT PURPOSE(S) (stay within brackets) [ ] Check if different from PID/PRP

The purpose of this project is to reduce or eliminate losses of crops and property from annual floods in the Citanduy Basin; to increase production of rice and other crops by rehabilitating irrigation systems; and to prepare studies for future projects needed to complete the integrated development of the Citanduy Basin.

13. WERE CHANGES MADE IN BLOCKS 12, 13, 14, or 15 OF THE PID FACESHEET? IF YES, ATTACH CHANGED PID FACESHEET.
[ ] Yes [ ] No

14. ORIGINATING OFFICE CLEARANCE

Signature: Kenneth M. Kaufman

Title: Acting Director
USAID Indonesia

Date Signed: mo. 12 day 03 yr. 75

15. Date Received in AID/W, or For AID/W Documents, Date of Distribution: mo. 12 day 05 yr. 75

AID 1330-4 (7-75)

CITANDUY BASIN DEVELOPMENT LOAN

I. SUMMARY AND RECOMMENDATIONS

A. Project Paper Facesheet

B. Recommendations

1. Loan and Terms

A loan is requested to finance the foreign exchange and local currency costs of the Citanduy Basin Development Project as described below. The proposed terms for the loan are:

Amount	$12,500,000
Maturity	Forty (40) years including a ten (10) year grace period
Interest	Two percent per annum during the grace period and three percent per annum thereafter
Currency	Interest and principal repayable in U.S. dollars

2. Borrower and Executing Agency

The borrower is the Government Of Indonesia. The executing agencies are the Directorate General of Water Resources Development (DGWRD) within the Ministry of Public Works and Electric Power and the Agency for Agriculture Education, Training and Extension (AAETE) within the Ministry of Agriculture. Responsibility for overall coordination rests with the Directorate General for Water Resources Development through its Citanduy Project Office.

3. GOI Contribution

The total GOI contribution is estimated at $12,874,000 in local currency to finance 51% of total project costs. In addition, the GOI will continue its financing of the continuing operations and maintenance of the flood control and irrigation systems, the operations of the Project Office and the operations of agriculture extension services. These latter costs are not included as project costs in this PP as they are of a recurring nature.

C. Description of the Project

1. Why

The three major areas of activity of this project are flood mitigation, improvement and expansion of irrigation facilities, and preparation of studies and designs for continuing the integrated area development of the Citanduy Basin.

The Citanduy Basin on the southern coast of central Java covers some 446,000 ha. and is the home of about 2.5 million people. The Citanduy River, as the main river draining the basin, along with the Ciseel River, frequently floods the lower basin area. In 1973, for example, some 50,000 people were made temporarily homeless as a major flood of a 10-year return frequency covered about 25,000 ha. Small floods occur almost annually. There was a medium-size flood in October 1975, that made about 15,000 people temporarily homeless. Due mostly to the floods, the area is one of the poorest in Java with an annual per capita income of only $40 as compared to about $100 for all of Indonesia (1972 data of the feasibility study). Numerous studies have confirmed that the development of the area cannot take place until the annual damage from flooding is brought under control. The latest study, completed by Engineering Consultants, Inc. (ECI) in 1975, under AID financing, is the basis for this project.

After the floods are brought under control, existing and new irrigation systems will not be damaged by the annual flooding. Therefore, a companion part of the project is the rehabilitation of seven existing irrigation systems (12,447 ha.) and construction of one new irrigation system (600 ha.) located in the lower Citanduy River Basin.

Since the GOI placed a high priority on the development of the entire Citanduy Basin, the ECI's Master Plan identified several projects outside the lower Citanduy area. These projects, however, should not be started until the flood control activities are well underway. In support of the GOI's policy of fully developing the Citanduy Basin and to demonstrate how a fully integrated long-term approach to area development can work, this loan includes financing for feasibility studies and design of additional projects which might be financed by a Citanduy II loan in FY 1978.

2. What

This project includes the following activities to take place in the lower Citanduy Basin (except for the one new irrigation system and the studies for future projects which are just outside the lower basin):

	Estimated Total Cost (US$000)
a. Flood control - construction of about 182 km. of levees on the Citanduy River (130 km.), the Ciseel River (34 km.), Cilolang River (10 km.), and the Cikawung River (8 km.), including the diversion of the Ciseel River into the Citanduy.....	$13,276
b. Irrigation - rehabilitation of seven existing irrigation systems covering 12,447 ha.	2,758

c. Irrigation - construction of one new irrigation system covering 600 ha. 320

d. Drains - rehabilitating and constructing major and secondary drains, constructing new secondary drainage system and rehabilitating the desilting basin at Pataruman diversion 1,710

e. Supervision - supervision of construction and technical assistance for construction/ O&M activities..... 2,100

f. Equipment - imported equipment for construction..... 1,800

g. Training - for personnel in O&M for flood control and irrigation, incountry and overseas..... 360

h. Technical assistance - to Ministry of Agriculture 420

i. Terminal Irrigation Systems-Establishment of water users associations and construction of farm service ditches for all irrigation areas..... 1,020

j. Additional studies and designs*

(i) Design of Sideraja irrigation systems
(ii) Design of Banjar Plains new irrigation systems
(iii) Feasibility study and design for rehabilitation of existing irrigation systems in Central Java (5,647 ha.)

*There might be changes to this list of studies and design work depending on availability of funds, changes in priorities and timing of development activities to be included in Citanduy II loan. Some other activities that might be studied include farm-to-market roads, rural electrification, municipal water systems.

(iv) Feasibility study and design for rehabilitation of existing irrigation systems in Upper Citanduy Basin (5,926 ha.)

(v) Study of upper watershed water management and cropping practices....1,610

Total $ 25,374

3. How

The GOI several years ago established the Citanduy Project Steering Committee composed of senior representatives from the concerned GOI ministries and directorates (Ministries of Public Works, Agriculture, Interior, and the Planning Board). This provides coordination at the top level. All construction aspects other than the quaternary canals and farm service ditches will be administered by the Project Office in Banjar, which is under the DGWRD. The Project Office, which is GOI's special arrangement to administer projects of this type, has been functioning, since its establishment in 1969, in a limited way in repairing and constructing the flood control system. Construction will be done by Indonesian private contractors through competitive bidding. The equipment to be financed by the loan will be owned by DGWRD and provided to the contractors on a rental, lease or other appropriate basis.

The construction of the terminal irrigation systems (quaternary canals and farm service ditches), the establishment of water users associations, and the operations/maintenance (O&M) of the terminal systems will be administered by the Agency for Agriculture Education, Training and Extension (AAETE) within the Ministry of Agriculture. The staff of the Subdirectorate for Land and Water Conservation (SLWC), a separate part of the Ministry of Agriculture, would provide technical help to AAETE in the design and construction of the terminal systems.

The Project Office, with a total staff of 200 people, including 22 engineers, probably has sufficient personnel to administer its portion with the assistance of the consulting engineer. Since the O&M of the flood control system and the irrigation systems will need

more trained people and funds, a condition to the loan will be a plan to enlarge and adequately finance O&M. Training for O&M will be provided under the loan.

AAETE has a total staff of 170 in the Ciamis district where 96% of the project irrigation land is located. This should be sufficient to administer its part of the project. It has one Rural Extension Center in the project area and expects to establish two more in the near future under an IBRD program.

4. End of Project Status

At the end of the project (i.e., end of the five-year construction and disbursement period), the following conditions should be achieved, indicating the purposes have been obtained:

a. flood control: the 620,000 people in the project area are no longer exposed to damage from floods with a frequency of 25 years or less. This stopping of the annual damages to crops, irrigation and drainage systems, livestock, personal property and homes, exposures to diseases and the elements, interruption of travel and commerce would greatly benefit all the people, directly or indirectly, in the project area, but the greatest benefit would be to the small farmers who live in the areas frequently flooded (i.e., the poorest in the area).

b. irrigation: farmers on 13,047 ha. in eight irrigation systems are able to grow two crops per year of rice (or other crops) averaging at least 3,800 kilos of rice per crop. The present yield is about 2,200 kilos per year, and many of these farmers are able to grow only one crop per year due to lack of water and annual flood damages. When the poor farmer is able to increase his crop production and sells the surplus over his family needs, his economic status should improve considerably. Complementing the physical completion of construction will be functioning water users associations (water management, operations and maintenance of the terminal systems), trained agriculture extension personnel, and functioning O&M of the major works of the irrigation systems (weirs, primary canals, secondary canals, etc.).

c. future development: completed feasibility studies and design work for irrigation systems in other parts of the Citanduy Basin should attract foreign donor financing (AID or other donors) to continue the development of the basin.

D. Summary Findings

This project is based on ECI's feasibility study for this project and its detailed Master Plan for the long-range development of the Citanduy Basin, complete with 12 appendices. These cover all technical, economic, and environmental aspects of the highest priority project: the flood control/irrigation/drainage of the lower Citanduy Basin (this loan project). The Master Plan and feasibility studies have been accepted by the GOI and AID as the basis of this loan and the beginning of a long-range integrated development of the area.

ECI began in early 1975 to prepare the criteria and final designs for this loan project. Their work is on schedule. Sufficient design work will be completed to begin some construction about June 1976, and the remaining design work should be completed by the scheduled contract completion date November 30, 1976.

The Mission concludes that the analysis as presented in this Project Paper is complete, reasonable and valid, that this project has high economic (IRR of 18%) and social benefits, and is ready for implementation on the schedule contained herein. The project meets all applicable statutory criteria. The Mission Director's 611(e) certification concerning the country's capability to maintain and effectively use the project is found in Annex H.

E. Project Issues

1. Should this loan be made with the expectation that AID will make a second Citanduy Basin loan, perhaps in FY 1978, to continue the work of fully developing the potential of the basin (including, perhaps, the Segara Anakan)?

Discussion: USAID is definitely interested in a Citanduy II loan in FY 78 if the first loan proceeds well. There are several potentially feasible projects in the basin which are essential to fully develop the area. These include construction of a new irrigation system in South Lakbok (3,800 ha.), rehabilitation of the ten existing irrigation systems (6,000 ha.) in Upper Citanduy and the eight irrigation systems (5,600 ha.) of Central Java; construction of new irrigation systems in the Sideraja and Banjar Plains; upper watershed land and water management and cropping improvements; as well as projects for supporting infrastructure such as farm-to-market roads, schools, potable water, rural electrification, etc. Whether the Segara Anakan project is included in future AID loans depends on the resolution of a number of technical and environmental issues. In the interim, however, USAID has agreed to provide financing from Loan 027 for the design of the project, assuming these issues are resolved. USAID is moving towards concentrating its efforts and resources in a few areas which are worthwhile and which can be done well. Therefore, a second loan in FY 78 and perhaps a third loan in FY 80 for the further development of the Citanduy Basin (assuming the first project is well executed) would be a good investment of AID's efforts and resources. Therefore, this loan includes feasibility studies and designs of future activities.

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II. Project Description

A. Background

1. Previous Interest

Interest in controlling floods in the Citanduy River basin dates back at least as far as 1938 when the West Java Public Works office proposed a scheme for harnessing the Citanduy River based on the construction of a levee system supplemented by a series of river channels shortening and straightening measures and flood diversion structures. Some of these measures have since been put into effect.

With World War II beginning shortly thereafter, interest in undertaking any improvement measures on the Citanduy River languished until late in the 1940s when a plan was proposed for the control of the lower Citanduy system as well as the reclamation of the Segara Anakan area.

Following the issuance of the GOI's first five year plan in 1969, the Ministry of Public Works and Electric Power issued decrees indicating those rivers, including the Citanduy River, in which the government had an interest in immediate development. The Citanduy River was one of only six rivers classified as a Class A river indicating its control was in the national interest. The Citanduy River Project organization was then established by decree on April 1, 1969 with authority to oversee the development of the basin. Its annual budget has increased from Rp 200 million in IFY 1969/70 to Rp 1,575 million in 1975/76.

In early 1969, P.T. Indah Karya, an Indonesian consulting firm, was commissioned to draw up a comprehensive development program for the Citanduy River basin. Its report stated as one of its main conclusions "It is obvious that nothing can be done to develop the river basin if no measures are first taken to tackle the problem of floods, since all development projects in the river basin would otherwise carry too many risks."

In 1970, AID contracted with the Bovay Engineers, Inc. to make a short reconnaissance survey of the Citanduy River and to draw up a detailed outline of the additional work needed in proposed feasibility studies. The Bovay Report concluded that an integrated program involving flood control, irrigation hydroelectric power, reclamation and water supply would be the proper approach for developing the Citanduy basin and that the basin had excellent possibilities for successful economic development.

This survey, together with numerous other reports, studies, and meetings between the Indonesian and AID officials led the GOI in March, 1972 to request financing from AID Loan 497-H-027 for a comprehensive study of the Citanduy basin. A contract with Engineering Consultants, Inc. (ECI) to make this study was signed in July, 1973.

2. Citanduy River Basin Master Plan and Feasibility Reports

The ECI's Master Plan was completed and published in May, 1975. It consists of the executive summary; the Master Plan; 12 appendices covering all the technical, socio-economic, and environmental aspects associated with the development of the land, water and human resources of the basin. ECI also prepared feasibility reports for a "Comprehensive Water Management Scheme for the Lower Citanduy/Ciseel River System" and the "Reclamation of the Segara Anakan and its Environs."

The first priority in the Master Plan is the development of a comprehensive water management scheme for the lower Citanduy/Ciseel River system as the most urgent problem to be solved is that of mitigation of damages and human suffering wrought annually by the flooding of the lower Citanudy/Ciseel River system. Once flooding is under control, investments can be made to improve the present economic and social conditions of this and other parts of the Citanduy River basin. This first priority, which is the basis for this proposed A.I.D. loan, consists of constructing some 182 kilometers of levees on the two rivers, rehabilitating seven existing irrigation systems (12,447 ha.) and constructing two new irrigation systems (3,800 ha.). (Note: only one of 600 ha is to be constructed in this project.)

The second priority in the Master Plan is the reclamation of the Segara Anakan and its environs, a 25,000 ha. area consisting of a shallow, brackish water lagoon and the surrounding mangrove tidal swamp - tidal marsh land area. The estimated cost of this project is over $26 million with a construction time of five years. Due to the extensive environmental, social and economic impact that this project would have, ECI is making additional extensive research and analysis needed before the GOI can make a decision about proceeding with this subproject.

The third priority is a comprehensive upper water-shed management scheme, including the rehabilitation of ten existing irrigation systems (5,926 ha.) in the upper Citanduy/Ciseel River system. This subproject is needed both to increase food production and to tackle the pressing problem of rapid run-off and the associated problems of erosion in the upper watersheds and sedimentation in the lowlands.

The fourth priority is the rehabilitation of eight existing irrigation systems (5,647 ha.) in the Central Java area and construction of a new irrigation system in the Cihaur area (2,100 ha.). These subprojects cannot be optimized until after the drainage and salinity problems associated with the Segara Anakan are resolved.

The Master Plan also [illegible] the construction of the Matenggeng Dam costing about $[illegible] million in the 1980s primarily for hydro-electric power, with some secondary flood control and water management benefits.

The Master Plan mentioned new irrigation systems for the Sidareja Plains (7,119 ha.) and the Banjar Plain (3,000 ha.), but made no analysis or recommendations as the GOI was already financing studies by Indonesian consultants for the Sidareja while the West Java Public Works Office was preparing preliminary plans for the Banjar Plains. Full irrigation of these two areas are given high priority by the GOI. Since the amount of actual design and construction work is very small, the GOI recently requested AID financing for feasibility studies of these two areas. ECI will begin work on these studies in early 1976 under an amendment to its present contract if loan 497-H-027 is extended.

3. Lower Citanduy/Ciseel River Design Work

After completion of the Master Plan, the ECI contract was amended (April, 1975) so ECI could prepare the final design and bid documents for the lower Citanduy/Ciseel River project (flood control and irrigation), including "studies" on-farm water management as well as final design work for the Segara Anakan subproject, and further investigation of the Upper Citanduy water management problems. The final design and bid documents for the Lower Citanduy are scheduled for completion by November 30, 1976.

B. Citanduy River Basin Description

Although this development loan involves only the lower Citanduy/Ciseel River system, it is considered as the first phase in the development of the entire Citanduy River basin and must be viewed in that context although the economic and social benefits from this loan are sufficient to justify it even if the rest of the development program does not take place. This section describes briefly the entire Citanduy River basin; the next section describes the loan project area only. The following description and the loan project are based mostly on the ECI studies.

1. Geographic: The Citanduy/Ciseel River system lies on the south side of Java about 130 miles southeast of Jakarta. The lower Citanduy River is the political boundry between the provinces of Central Java and West Java. The total area is about 446,000 ha. with about 415,000 being agricultural land and the remaining in water area, towns, etc.

The entire Citanduy Basin area as described in the ECI Master Plan has two easily identifiable geographic segments:

a.	The Citanduy/Ciseel River system	350,000 ha.
b.	The Segara Anakan and its tributaries other than Citanduy river system	96,000 ha.
	Total Citanduy Basin Area	446,000 ha.

a. The topography of the Citanduy/Ciseel River system lends itself to further subdivision. The dividing lines are the two points where the two rivers emerge from the uplands into the flood plain.

Citanduy/Ciseel Upper Watershed System	290,000 ha.
Citanduy/Ciseel Lower System	60,000 ha.
Total Citanduy/Ciseel River System	350,000 ha.

b. The topography and the physiographic characteristics of the Segara Anakan also lead to two subdivisions:

The Segara Anakan and its environs	32,500 ha.
The Sidareja East and North area	63,500 ha.
The total Segara Anakan area	96,000 ha.

Each of these four areas, while they constitute separate and apparently independent units, are actually quite interdependent. Project areas, however, may not always follow the above topographic divisions, but may involve some overlapping, and bear different

titles; i.e. Central Java irrigation system identifies a political subdivision area and not one of topographic division above.

The ECI Master Plan and Feasibility Report showed 93,000 ha. in the lower Citanduy/Ciseel River system project (this loan) which included the lower system (the 60,000 ha. above) plus the Matenggeng Dam/ reservoir area and some 20,500 ha. along the upper side of the Segara Anakan area which are common to both the loan project area and the Sidareja East and North area. The dam, however, is not a part of this project. Since it is not worth the considerable expense and time required to redraw maps and revise the statistical data necessary to describe in this PP only the actual project area under consideration, this PP will use data (land size, land usage, population, etc.) for the 93,000 ha. as described by ECI although the actual area might be 10-25,000 ha. less.

2. Population: The population of the Basin is about 2.5 million people with some 52% of them being under age 15. The density is an average 600 people per square kilometer, which is about the average for all of Java.

3. Land Use: Of the agricultural land, some 24% is in lowland rice, 27% in upland crops, 10% in home gardens, including homes and yards, 19% in forests, 17% in plantations and 3% in other uses. The term plantation here refers to plantation-type crops (mainly coconut and rubber) and not the type of activity usually associated with the word plantation. Some 77% of the "plantation" land is owned by small-holders and the average size of these plantations is only .166 ha.

4. Economy and Employment: Subsidence farming dominates the area. Most farms are small, averaging about one-half hectare or less. About 80% of the work force is engaged in agriculture. The largest city in the basin is Tasikmalaya, (128,000), a center of small handicraft industries. The relative decline in demand for these home industry products (batik, woven products) has affected business conditions and is reflected in a slowing of growth in the population of the city. The second largest city is Cilacap (88,000), the port city, which is experiencing rapid growth due to expansion of the port facilities, construction of an oil refinery, a cement plant and other industries. Banjar, the third city (40,000) is described in the next section as it is the only town of any size in the project area. The fourth city, Ciamis (26,000) the district capital is virtually stable at the present time. The stability is due to sizeable government employment sector.

5. Electric Power: Electric Power in the Citanduy basin is provided mainly by the government-owned power company, Perusahaan Listrik Negara (PLN). The West Java part of the Citanduy basin is served by a 5 MW hydro plant at Plengan, about 125 km to the west. The 30 KVA highline connection from Plengan services Tasikmalaya, Ciamis, Banjar and terminates at Banjarsari south of Banjar. There are no branch lines off the trunk line. Few of the smaller towns have electric service. Within the service area reached by the electrical systems an estimated five percent of the homes are connected into the system. In 1973 electrical service was provided to 17,971 customers. Outages and voltage fluctuations are frequent.

Central Java Province is served from a different power source. Cilacap will be connected to large generation plants erected or to be erected on the northern coast by a 150 KV line being financed by AID Loan 497-H-025 (Ketenger T&D).

There is no interconnection between the West Java and Central Java systems. Additional electric power could be provided by the Mateнggeng dam project recommended in the ECI master plan for the early 1980s or by transmission lines from one or more of the generation plants being build in Central and West Java.

6. Public Health: The government-sponsored public health clinics provide health care at low cost. However, access to these clinics is difficult for rural people because of the poor road system. There are 41 medical doctors practicing in the Citanduy basin area assisted by 483 midwives and assistants. In addition to the six hospitals in the principal cities, there are 309 public health clinics, 52 maternity clinics and 35 private clinics.

One of the most serious health hazards is malaria which is most prevalent in the lowlands near the Segara Anakan. Generally speaking, the greatest hazard to health is poor sanitation. Improvements in domestic water supplies, proper sewage disposal and insect and rat control are all badly needed. To a large degree the heavy incidence of dysentery, diarrhea and cholera which characterize these rural areas could be controlled by greater attention to sanitation.

7. Transportation: In the Citanduy basin, there are 198 km of railroad line, 252 km of primary roads, 408 km of secondary roads and 1,148 km of village roads. (0.405 km of roads per sq. km).

The transportation systems follow confined corridors between the principal towns. The main railroad crosses Java in an east-west direction and passed through Tasikmalaya, Ciamis and Banjar. A branch line extends southeastward from Banjar down to the coast. The rolling stock is quite old and difficult to maintain. The one primary road in the basin generally follows the railroad line in connecting the major towns. Away from the hard-surfaced primary roads, the secondary roads are of variable quality and condition. They are usually passable in the dry season but travel is slow and rough. In the rainy season the condition of these roads is not dependable. Village roads are not usually passable except by jeeps and trucks.

The existing road system is inadequate for efficient movement of goods to and from market. The primary roads need to be improved with stronger and wider road base, blind curves eliminated, and upgraded bridges and extended to all subdistrict towns. Secondary roads are needed to connect all of villages. Maintenance of roads is poor and little progress can be seen toward upgrading the road standards in this region.

The vast areas that remain almost completely isolated from motorized transport are at a severe disadvantage in communications and marketing. Farmers cannot freely transport their products and in-shipments of goods are impeded. Services to the communities cannot be efficiently provided under the present transportation handicaps. For example, agricultural extension services and public health-family planning services are difficult to extend to the remote areas.

Flood control and irrigation development would complement any improvement of transport services through the protection to the transport system which flood control would afford and through the increased commerce which follows irrigation development.

Commercial inland water transportation is limited to a ferry between Cilacap through the Segara Anakan to Kalipucang on the Citanduy River which carries very few people and little freight. Cilacap is the only ocean port in the basin or on the southern coast of Java. It is being rehabilitated under the Colombo Plan so as to become a major port.

There are no commercial or private aircraft landing facilities in the basin except for a landing strip in Cilacap.

8. Education: Educational achievement in the region is far below desirable levels due to a long-standing lack of cultural penetration in the isolated communities, a lack of adequate schools and sufficient teachers, and insufficient capital resources at the government and family levels. However the Basin is on about the same level as the rest of the country.

Only 44 percent of the children of school age in Ciamis District are attending school which is slightly higher than nation-wide average of 40%. The drop-out rate beyond primary school is very great as indicated by the fact that only four percent of the adult population has completed senior high school. Complete high school ecucation is not available to the majority of the eligible age students because only 8 out of the 39 sub-districts have a senior high school within their boundaries. The Basin has one teacher for each 26 students as compared to one per 31 students for the country, and one teacher per 196 people as compared to one per 219 people for the entire country.

C. Lower Citanduy/Ciseel River Basin (Project Area)

This loan involves only that portion of the Citanduy Basin known as the Lower Citanduy/Ciseel River System (93,000 ha.). It begins at the points where the two rivers emerge from the hilly watershed areas onto the flood plain while the lower limit is the point where the Citanduy River discharges into the Indian Ocean. In this area, the rivers gradient is very flat and flooding often occurs.

1. Floods: Some flooding occurs in the lower Citanduy River basin each year, causing varying degrees of flood damage. Direct damages are experienced in terms of less of human life which is usually low, losses of farm and business incomes and property values, hazards to personal and public health, personal inconvenience, damages to transportation systems and disruption of all types of activities. There are numerous other indirect costs of flood damage in both the area directly flooded and the adjacent areas. The areas flooded are not always the same locations.

Date for Historic Floods

Date	Area Inundated in Ha.	Return Period in years
July, 1968	20,700	10
Nov., 1969	8,970	1.8
July, 1970	5,900	1.3
Oct., 1971	5,099	1.2
July, 1973	6,024	2.3
Sept.,1973	18,400	9

An estimated 48,000 people were evacuated from their homes during the 1968 flood. In the July, 1973 flood, 23,000 persons were flooded out of their houses and again in the September, 1973 flood, more than 50,000 people were temporarily displaced. Some people could not return to their areas for three weeks. Four lives were reported lost as a direct result of floods in 1973. The areas flooded are not always the same as breakage in the levees occur at different locations.

The existing system of levees provides such a low level of protection because of the insufficient cross section, the improper alignment, and the incorrect construction techniques especially with regard to compaction which cause failure at lower than design discharge. In addition there is an inconsistency in levee crown elevations on the same side of the river, an ineffective maintenance system, and inadequate mobilization of the maintenance and relief crews during the emergency periods.

2. Population: The population of the project area is about 620,000 people with a density of some 666 persons per square kilometer, thus this area is slightly more populous than the rest of the Citanduy basin. Most of the people live in villages and are engaged in some form of agriculture. Almost one half of the population is under 17 years of age. This large proportion reflects the general trend toward reduced infant mortality and the increasing proportion of women in the reproductive age group. These upward pressures on population growth do not appear likely to be offseted in the near future by the two programs which could have some ameliorating effect: family planning and transmigration.

It is assumed that the implied life expectancy at birth of Java (48 years) applies also to the project area. The present growth rate of 2.24 percent per year in the project area is 18% higher than Java's growth rate of 1.9%.

3. Land Use: The slight difference in the land use pattern of the project area from that of the Citanduy basin as a whole reflects the difference in terrain. Since the project area is mostly the flat flood plain, it has more land in lowland rice and corresponding less land in upland crops. The main upland crops are cassava, corn and sweet potatoes. Of lesser importance are peanuts, soybeans and table beans.

About 17,596 ha. of cultivated land have irrigation systems. Three technical systems supply 9.767 ha, four semi-technical systems cover 2,680 ha, while 33 rural or simple systems cover 5,149 ha. This loan includes the rehabilitation of the seven technical and semi-technical systems.

4. Economy and Employment: The statistical data for the project area are very skimply and of questionable reliability. Generally the comments about the Citanduy basin apply equally to the project area with perhaps even more than 80% of the working force engaged in agriculture. The only town of any size in the area is Banjar with a population approaching 40,000. There is no industry as such in the area nor is there a large government center for Ciamis is the district capital, while Banjar is only a sub-district center. The population of Banjar is reported to be increasing perhaps due to the Citanduy Project headquarters being there. This has stimulated both construction related activities and trade in consumption goods. The average income for the Citanduy Basin ($40 per year for agricultural people and $107 per year for others) probably also applies to the project area and perhaps might even be slightly lower due to the annual disruptions to farming and the damages caused by flooding.

5. Electric Power: The only electric power in the project area is that provided by the 30 KVA line that runs from Ciamis through Banjar and down to Banjarsari, a distance of about 16 km. Thus very few people in the project area receive electricity.

6. Public Health: There are only 12 doctors in the Ciamis District which covers most of this project area. Since about ½ of Ciamis District is outside the project area, there actually are fewer than 12 doctors in the project area itself. Banjar has only two doctors and the only hospital in the project area. There are a few clinics, staffed by paramedics and midwives. Incomplete statistics indicate that malaria, diarrhea, cholera, typhoid and dysentery are health problems although the incident rate is not as high as in the Cilacap District.

7. Transportation: The general comments on the Citanduy basin apply to transportation systems in the project area. The 50 km of one primary road is the only road between Banjar (and West Java) and Central Java. Most of the 80 km of secondary roads is the road between Banjar and Kalipucang near mouth of the Citanduy River. Both the primary and secondary roads pass through areas subject to periodic flooding. For example, during the September, 1973 flood, these main roads were cut off for periods up to nine days before being made passable again. There are about 320 km of village roads in the project area.

The two rail lines are from Banjar eastward toward Central Java and Cilacap and from Banjar southeast through Kalipucang to Cijolang on the southern coast. The former is the only line through the southern part of Java. During the September, 1973 flood, the Banjar-Cijolang line was cut for nine days and the Banjar-Cilacap line for several days.

Since the primary and secondary roads and the railroad lines are the only east-west routes for surface travel in this part of Java, the interruption of traffic in the project area due to flooding conditions affects not only the local traffic, but also the through traffic in the West Java and Central Java Provinces.

8. Education: The educational facilities (percentage of students enrolled, etc.) in the project area are about the same as for the Citanduy basin and the country as a whole. It should be noted, however, that only one sub-district in the project area has a senior high school (Banjar). The illiteracy rate for the rural parts of West Java (42%) probably is applicable for the project area.

D. Logical Framework Narrative

1. Program or Sector Goal

The goal of this loan is two fold: (1) improve the well-being of the poor majority who live in the Citanduy Basin and (2) contribute towards decreasing Indonesia's dependence on food imports, particularly rice, needed to feed its growing population.

Discussion: The ECI study indicated that in 1972, the per capita income of the people in the project area was about $40 per year for the rural area and $107 for the urban area, with nearly all the people living in the rural area. This is much lower than even Indonesia's average in 1972 of about $100. In 1974, 90% of the population in rural Java had a per capita consumption level equivalent to less than $156 annually ($75 in 1969 prices). Thus, the population of the entire area can be considered to be the poor majority, not only by AID's worldwide benchmark but also by Indonesia's standards. The limited statistical data indicate that the top 10% of the people in the project area earned 24% of the income in 1972, but this averaged only $109 that year. Many of the poorest people live along the rivers in the areas frequently flooded. The people in the upper income levels live in towns or on higher ground and thus are not directly bothered by the annual floods that cause considerable loss to the victims.

The life expectancy in Indonesia is 48 years old. While no statistics are available on the life expectancy in the project area, it is probably a bit lower than the country's average. Thus, the beneficiaries of this loan fall within AID's "poor majority" category of life expectancy of less than 55 years.

Indonesia's overall birth rate of 40-44 per 1,000 is well above AID's benchmark of 25 per 1,000. Since the population growth rate in the project area is 18% higher than the country's average, the people in the project area again qualify by definition as "poor majority" in this category also.

There are not sufficient statistical data to determine how many people in the project area have access to adequate medical services. Due to the inadequate roads in the area and serious shortage of medical facilities and personnel, however, it can be assumed that most people probably do not have access to medical services. For example, the ratio of doctors per 10,000 population is .31 for all of Java, but only .16 for the entire Citanduy Basin and about .01 for the project area.

In summary, by almost any standard, nearly all the people in the project area fall within AID's definition of the "poor majority."

Indonesia expects to import about 543,000 tons of rice in 1975/76, down from 1.1 million tons in 1974/75. The irrigation activities of this project, together with the protection from floods in the farming area, should result in an increased production of 26,000 tons of milled rice per year within five years after the project is completed. This would contribute to reducing Indonesia's imports of rice and other foods.

2. Project Purpose

Although for purposes of simplicity, the title of this project does not include the word "integrated," it is in effect an integrated area development project. The first of the three interrelated purposes is so essential to any effort to develop the Citanduy Basin that most of the money in this first stage must go for flood control before anything else can be successfully done. Therefore, this project has three interrelated purposes: (1) reducing or eliminating the annual destruction by floods in the project area; (2) increasing production of rice and other food crops; and (3) developing feasibility studies and final designs for additional projects essential for the long-range integrated development of the Citanduy Basin.

End of Project Status: At the end of the construction/disbursement period (five years after loan signing), the following conditions should exist:

a) The 620,000 people in the project area protected from floods of a 25-year frequency. (Note: although all are not directly effected by each flood, nearly all the people in the project area suffer directly or indirectly from the floods.)

b) Farmers on 13,000 ha. in eight irrigation systems growing two crops per year of rice and other crops. Within five years after each system is completed, the production should average 3,800 kilos of rice per ha. per crop. However, it is unlikely that any of the systems will be completed early enough to obtain this level of production by the end of the project.

c) Water user associations functioning in all the irrigation areas rehabilitated and constructed under the loan.

d) Operations and maintenance (O&M) systems functioning satisfactorily for both the flood control and irrigation systems.

e) The project manager's office staffed with an adequate number of well-trained people and capable of continuing the development of the Citanduy Basin.

f) Feasibility studies and final designs available for improvement/construction of additional irrigation systems and other projects essential for the integrated development of the Citanduy Basin area.

Assumptions: (1) There are no major changes in rainfall intensity or runoff flows; (2) BIMAS production input packages are provided to the farmers on a timely basis and the farmers use them; (3) Rice and input prices are kept at a level adequate to maintain farmer incentives; (4) the farmers will practice doublecropping in the irrigated areas; (5) funds are available from other sources to finance studies in addition to those to be financed by this loan which would be needed for a fully integrated approach to development of the Citanduy Basin.

Linkage to Project Goal: The well-being of many of the poor majority in the project area will certainly be greatly improved when they are protected from the annual flood damages. If the farmers grow two crops instead of one on the irrigated areas, they will have a surplus to sell, thus increasing their income regardless of whether they are tenants or owner-farmers.

Although quantitative predictions cannot be made as to the number of new jobs that might be created as a result of increased crop production (other than those jobs for O&M), some new jobs in the area should result from the handling, processing, marketing, and movement of surplus crops.

This surplus food available for use in other parts of Indonesia also would contribute towards Indonesia's ability to reduce its import of food products.

Therefore, the project purposes will contribute directly to achieving project goals.

3. Outputs

Flood control system: About 182 kilometres of levees on the Citanduy River (130 km.), the Ciseel River (34 km.), the Cilolang River (10 km.), and the Cikawung River (8 km.), including the diversion of the Ciseel River into the Citanduy, will be constructed. An operations and maintenance system (O&M) will be established with five district maintenance offices, about a 50-man staff including trained management, and an adequate supply of equipment, transportation, and communications facilities.

Irrigation and Drainage: (a) the seven existing technical and semi-technical systems covering 12,447 ha. will be rehabilitated. The rehabilitation includes major works (weir, primary and secondary canals, secondary drains, etc.), tertiary canals, and terminal irrigation networks; (b) one new irrigation system covering 600 ha. including major works, tertiary canals, farm service ditches, and secondary drainage will be constructed; (c) the existing major drains will be improved; (d) the desilting basin at Pataruman diversion will be rehabilitated; (e) adequate O&M for the irrigation systems will be established; (f) viable water users associations for all irrigation systems will be established; (g) an adequate number of trained people will be serving on the staff of the agriculture extension service in the project area.

Studies: Feasibility studies will be completed for the upper watershed soil conservation, water management, and cropping program; the rehabilitation of the ten irrigation systems in Upper Citanduy area and the eight systems in Central Java. Final designs will be completed for these 18 irrigation systems and for new irrigation systems for Sidareja and Banjar Plains areas.

Assumptions: The major assumptions for achieving the outputs include (a) adequate GOI financing for O&M; (b) adequate construction capability in the area; (c) willingness of farmers to form viable water users associations; and (d) all inputs are provided on schedule.

Linkage of outputs to project purposes: Flood control: the ECI feasibility study concluded that the construction/rehabilitation of the levee system alone would be the most economical way of providing protection to the project area against 25-year floods. No dams or other physical structures would be needed for the protection.

Increased rice production: With the improved and new irrigation systems, the farmers should be able to increase their production of rice and other crops at a rate greater than the population growth rate. This surplus food could be sold throughout Indonesia, thereby contributing toward the project purpose.

Continued development of Citanduy Basin:With the package of feasibility studies and final designs, the GOI could apply to AID and/or other foreign donors for financing for additional projects needed to complete the long-range integrated development program described in the Master Plan for the Citanduy Basin.

4. Inputs (detailed financial plan in Section III.B.)

AID: The AID $12.5 million loan will directly finance the foreign exchange cost of (a) imported equipment for construction, operations and maintenance; (b) supervision of construction; (c) consultant services for feasibility studies, design work, and technical assistance; and (d) overseas training. AID will reimburse the GOI through FAR procedures for a portion of the local currency costs of (a) construction work on the flood control, levees, irrigation systems including terminal networks, and drainage (new and existing); (b) incountry training costs; (c) construction of terminal irrigation networks.

GOI: The GOI will finance the following local currency costs: (a) part of construction costs; (b) local currency costs of contracts for supervision of construction, feasibility studies and design work, and technical assistance; (c) part of incountry training costs, and (d) part of costs of construction of terminal irrigation networks. The GOI portion is estimated to be about $12.8 million.

The GOI will also provide the rupiahs to finance initially those local currency costs for which AID will reimburse under the FAR procedures. The GOI will provide adequate funding for O&M operations, extension services, and operation of the Project Manager Office. Agreement on the exact amounts to be provided will be a condition precedent for disbursement.

The GOI will provide adequate manpower for the Project Manager's Office, O&M, extension service activities, and counterparts as needed for consultants' technical assistance activities, studies and design work.

Linkage of inputs to outputs: The funds to be provided by AID and GOI should be sufficient to obtain the stated outputs. A 20% inflation factor was included in the estimates in addition to a 15% contingency factor.

PART III. PROJECT ANALYSES

A. Technical Analyses

1. Flood Control

a. General. Engineering Consultants, Inc. (ECI) have analyzed the problem of flood mitigation in the lower Citanduy Basin. Their methology and conclusions are contained in the following reports:

1. "A Comprehensive Water Management Scheme For The Lower Citanduy/Ciseel River System", March 1975.

2. "The Citanduy River Basin Development Project, Master Plan", May 1975 with:
"Appendix B - Hydrology", November 1974.
"Appendix J - Dams and Levees", November 1974.

ECI determined that the present levees provide protection against floods with a return period of 1.5 years. This low level of protection is not due to the height of the levees, but to the alignment, cross section and construction techniques. The result is that there is little real flood protection in the lower Citanduy at this time.

Flood mitigation in the Lower Citanduy/Ciseel River Basin requires answers to two basic problems. The first is to carry the water from the upper watershed, where the gradient of the rivers are steep and their carrying capacities large, through the lower basin where the gradients of the rivers are flat and their carrying capacities are greatly reduced. The second is to dispose of the water falling on the lower basin by draining the local rainfall from the area before it causes damage. This drainage from behind and between the dikes is complicated by the flatness and low elevation of the land below Banjar. Drainage of this area can be accomplished by conducting the local runoff to a point where the water level of the river at flood stage is low enough to allow the local drainage to enter the river, or by conducting the local drainage into retention basins where it can be held until the water level in the main rivers recedes and the flood water can be drained into the rivers by gravity flow. The alternative of pumping was ruled out by ECI in the early stages of their study

due to the lack of electric power in the area and the high cost and maintenance problems associated with diesel power. Pumping will be required for the lower portion of the basin below the South Lakbok Area if this area is reclaimed at some later date.

b. Dams vs. Levees. ECI investigated several proposed dam sites in their studies. They found four sites which controlled sufficient runoff to warrant consideration in a flood protection.

1. Banjar Dam.

2. Alternate Banjar Dam.

3. Matenggeng Dam.

4. Binangun No. 2 Dam.

The cost of flood protection against a 25-year flood was calculated for systems incorporating various combinations of dam and levees and for levees only. It was determined that the least cost alternative for protection against a 25-year flood was a system consisting only of levees. The cost for such a levee system was estimated at approximately $9,4 million*) when diversion into the Segara Anakan at the Nusawaluh weir was considered and $11.0 million without the diversion. The next least expensive alternative consisted of levees and a single purpose flood control dam at the Matenggeng site with an estimated cost of $19.0 million with diversion at Nusawaluh and $20.2 million without diversion. ECI made various other checks, but the result remained that levees were the most economical system for flood protection.

*) Note: These are the cost estimates in the feasibility study. See financial analysis for explanation of the $13.3 million estimate used in this PP.

c. Design Period. The period of twenty five year protection was chosen by the Indonesians after considerable discussion at the November 15, 1974 meeting of the Citanduy Steering Committee. The discussion brought out that the Indonesian have been proposing and providing flood protection of twenty or more years on the main rivers (Class A rivers) in Indonesia. Protection against floods with a return period of twenty five years has become an unwritten policy of the Government of Indonesia.

In discussion with the consultant and with the Directorate of Rivers, the general feeling was developed that in their reports ECI probably overstated the losses due to flooding for the ten year flood while understating the cost for upgrading the existing dikes to provide ten year protection. Whereas the existing levees may be able to be incorporated in part on the land side of the twenty-five year flood levees, they would most likely have to be torn completely down and reconstructed for levees providing ten year protection. Flood damages were assumed to have an inverse relationship to the return period of the flood. As in most other places, houses, transportation facilities, etc., are to a great extent located out of the areas of frequent flooding. The assumed relationship therefore tends to overstate damages from floods of low return periods. There is doubt that ten year flood protection will provide the level of security necessary to stimulate general development in the area. Considering the above factors, twenty-five year flood protection is the appropriate level of protection for the Lower Citanduy/Ciseel River Basin, and is recommended as the level of flood protection to be financed by this loan.

d. Diversion of Ciseel River. To handle the problem of local drainage ECI proposes to divert the Ciseel at km 17.5 directly into the Citanduy at km 36. The last 18 km of the Ciseel parallel the Citanduy at a distance of from two to four kilometers to the west. By diverting the Ciseel into the Citanduy, the lower reaches of the Ciseel can be used to collect the local or internal drainage and conduct it to the low areas near the existing junction of the Ciseel and Citanduy. This low lying area below South Lakbok would continue to be used as a flood retension basin. The levee for the Citanduy would be continued across the Ciseel channel and an outlet structure with flap gates would be constructed to provide for drainage from the holding area. A structure would also have to be provided at the Ciseel cut off to provide water in the dry season to the people presently living along the lower Ciseel.

ECI's economical analysis shows that the cost of diverting the Ciseel as described above, including the cost of the siphon for the Cilisung Drain under the Ciseel diversion channel, is about $1.3 million less than

the cost of providing levees for the lower Ciseel. The proposed system also simplifies the provision of adequate internal drainage without the use of pumps. The area proposed for continuation as a flood basin could be reclaimed when adequate, economical electrical power is available.

e. Hydrology. The hydrological data available to ECI was inadequate to allow direct determination of flood levels and quantity of flood waters from past floods. From rainfall records kept in the basin since 1879, it was possible to assemble twenty one years of reliable rainfall data from twenty five gaging stations in the basin. With this data the consultant has derived rainfall frequencies and in turn design storms. Where there was a question on data, the consultant has consistently chosen the conservative or safe option. His design storms are therefore reasonable estimates which most likely overstates the flood flows rather than underestimates them. This overstatement, if any, appears to be minimal when the calculated floods flows are cross checked with other available data.

In his routing of the flood flows, the consultant again had to make assumptions. Need for further field checks on the velocity of the flood flow was identified by the consultant in his feasibility study. The consultant had an opportunity to do this in the October 1975 flood. Designs are presently being revised to adjust assumption of flow velocity to that verified in the field. This has slightly raised the elevation of the levees from those originally projected. The revised costs used in this analysis include the costs for raising the levees.

f. Sedimentation. Although there is considerable sediment carried by the Citanduy and Ciseel Rivers, the consultant has concluded, "No sedimentation problems are anticipated for the proposed first phase of flood control development in the Lower Citanduy Basin". The majority of the sediment will continue to be carried through the basin. The land between the river banks and the levees will continue to aggrade. As the area between the river bank and levee has been considered as channel storage only in the hydraulic calculations, the slow aggradation in this area will have an insignificant effect upon the hydraulics of the system over the economic life of the system.

g. Design. ECI and the GOI signed an amendment to their contract on April 9, 1975 (financed by A.I.D. Loan 497-H-027) for the design of the irrigation and flood control works proposed by ECI to be constructed in their first priority project for the Citanduy Basin. Details of this program are given in "Feasibility Report for a Comprehensive Water Management Scheme for the Lower Citanduy/Ciseel River System". To date the majority of their efforts has been devoted to establishing design criteria for flood control and irrigation/drainage works. The flood control design criteria is being completed by ECI and is expected to be presented to GOI and USAID by early December, for their review and approval.

These will be reviewed by the DGWRD and USAID before final design begins. The final design of all flood control works will be based upon the approved criteria. All plans and specification prepared by ECI will be presented to and approve by both the DGWRD and USAID before construction is commenced. Designs for the flood control works to be constructed during the GOI fiscal year 1976/77 will be completed not later than June 1, 1976 to assure that the construction for the first year is not delayed. Design of the remaining flood control works will be completed before December 31, 1976, the present termination date for ECI's contract amendment for design.

Major revisions in design from that recommended in the Feasibility Report are:

a. Inclusion of 25 year flood protection for the Wanareja area,

b. Change in the typical levee section for the Ciseel and,

c. Inclusion of a control structure to allow maintenance of a minimum flow in the lower Ciseel downstream of the proposed cutoff.

The conclusion of twenty five year flood protection for the Wanareja has been added at the direction of the Indonesians. This has come about as the result of discussions among affected and interested governmental agencies. Consideration had been given to providing

protection of less than twenty five years for the Wanareja but this has been ruled out for social and political reasons. Technically, it has been determined that the effects of attenuating the floods peaks below Wanareja when that area is used as flood storage is minor rather than major. ECI had expected that the importance of Wanareja as a flood storage area had been overstated and had advised that additional studies be conducted to better determine Wanareja's affect on major flood peaks. ECI is presently completing the design of flood stages along the Citanduy without storage in the Wanareja area. The flood stages will be slightly increased (0.35 to 0.5 m) causing a minor increase in levee elevation below Railroad Bridge No. 1452 (Station 52+300).

ECI has found that much of the soil has poorer engineering properties than originally used in their preliminary design of typical levee sections. This has caused a minor modification to the Citanduy type section and the addition of a berm on the land side of the levee to provide additional protection against seepage. The slopes of the Ciseel typical section had to be flattened for protection against slides or sloughing of the banks especially under saturated conditions and rapid draw down of the water level. The revised "typical sections" are only design guides. Levees will be designed for the "typical sections" due to materials or foundation conditions.

h. Recommended Flood Mitigation System. The proposed flood mitigation system for the lower Citanduy/Ciseel River Basin consisting of levees and the diversion of the Ciseel River at km 17.5 into the Citanduy at km 36 has been shown by ECI to be technically sound and to be the least cost solution.

The system will consist of about 182 km of levees on the banks of the Citanduy and Ciseel Rivers and two tributaries:

Citanduy River	130 km
Ciseel River	34
Cilolang River	10
Cikawung River	8
	182 km

The existing levees along these rivers will be incorporated into the new works as much as possible. Therefore, the work to be financed by this loan is construction rather than rehabilitation. The feasibility report included a one-lane surface road on the top of the levees on the Citanduy for use by levee maintenance personnel. The use of the top of the levees for maintenance and perhaps local traffic will be examined more fully in the final design stage. (see Annex B and ECI Feasibility Report, especially appendix J for details).

i. Construction. Construction is to be carried out by intermediate technology. The main problem foreseen in construction is obtaining proper compaction. The integrity of the system depends on obtaining proper compaction. This is not obtainable by use of manpower only. Equipment and testing will be required to insure that the levees are properly compacted. Failure to control compaction will weaken the levees and make them susceptible to sloughing and seepage. Either could cause failure of the levees and loss of benefits from the proposed works, both flood and irrigation. Proper design and compaction are absolute essentials.

The levees are expected to be constructed from nearby borrow material excavated from the river side of the levees. Selection of the borrow sites will have to be done during design. As far as possible soils with low angles of internal friction are to be avoided. Where their use is dictated by economic necessity, control of compaction will be even more critical than normal and the design of the levee will have to be checked to insure that the levee will be stable.

Construction will consist of digging and placing the soil by hand. This will facilitate selection of the available, better material for the dikes. Compaction will be by equipment as it is not feasible to compact by hand efforts. By the use of equipment, more consistent compaction will be obtained. Indonesian technicians will be assigned to the project by the Directorate General of Water Resources to inspect and insure that compaction requirements are met. These Indonesian technicians will be overseen and instructed by no less than two qualified, expatriate soils engineers.

Past contracting experience of the Project Office indicates that most contractors in the area will not be able to construct more than 10 km of levee per year. The total length of levee construction is approximately 182 kilometers and it is planned for the levees to be completed within five years. Thus about 35 kilometers of levee would be constructed per year under four contracts each year. There should be no problem in awarding these contracts. The consultant will be available to assist in the evaluation of contractors and their bids.

Construction of the levees will begin from upstream and proceed downstream. At present the Project Office is engaged in heavy maintenance in the downstream area of the Citanduy. Where possible, these reinforced levees will be incorporated into the final design. As soon as construction plans and specifications have been prepared and approved for the first year's construction program the Project Office will proceed with awarding construction contracts. If the construction capability in the area is found to be greater than anticipated, construction of the levees will be accelerated. The local, provincial, and central governments all desire to see the lower basin relieved from what recently has been annual flooding and they are expected to encourage rapid completion of the flood project.

j. Maintenance. The maintenance of the levee system traditionally is the responsibility of the provincial public works organization. The levees on the east side of the Citanduy River from the Cijolang River to the mouth of the Citanduy are the responsibility of the Majenang Public Works (Central Java). The levees on the west bank of the Citanduy River and those on the Ciseel River are maintained by the Ciamis Public Works (West Java).

ECI recommended establishing five levee maintenance districts, three in Central Java and two in West Java, with the central or coordinating office in Banjar. It is expected that this plan will be followed but the maintenance districts in Central Java will come under the Majenang Public Works and those in West Java will be under the Ciamis Public Works.

Prior to reimbursement for the first completed section of levee, the Project Office in conjunction with the Central and West Java provincial governments shall submit an operation and maintenance (O and M) plan for the levee system. This plan shall be mutually agreed upon by the three parties and shall delineate the responsibilities and authority of each as to manpower; financial support; equipment operation, maintenance and replacement; and the relationship of the parties.

The Project Office will contract for the construction of warehouse, office, and support buildings needed for the levee maintenance districts as the levees for the district are being constructed. Since these facilities will be financed from GOI funds as part of their contribution to the project, the costs (ECI estimate $590,000) are not shown in the budget tables in this PP.

To assist in improving the O and M of flood control works, one technical advisor will be provided under the loan for a period of approximately two years. Initially, this advisor would spend approximately one year in Indonesia reviewing current O&M practices, proposing improvements, and instructing personnel. For the remaining life of the project he would make two visits to the project each year, one during the dry season and another during the heavy rain months. During these visits he would review O&M operations and conduct additional training. Up to six Indonesian technicians will be sent to the United States under the loan to observe operation and maintenance practices of flood control instruction conducted by a levee operating agency.

It is expected that some of the construction equipment being financed under the loan will be used for O&M after completion of construction.

2. Irrigation and Drainage

a. General. It is proposed to rehabilitate and construct irrigation works to serve a total of 13,047 ha. Seven semi-technical and technical systems in West Java, having a combined area of 12,447 ha., will be rehabilitated. One new system, totaling 600 ha., will be constructed: Panulisan in Central Java. ECI under its present contract is preparing design criteria and final design for all the irrigation and drainage works to be financed by this project:

Systems to be rehabilitated	Areas		
	Technical (ha.)	Semi-Technical (ha.)	
1. North Lakbok	7,033	-	
2. Rawa Onom	1,028	-	
3. Gunung Putri I	-	750	
4. Gunung Putri II	-	750	
5. Ciputrahaji	1,706	-	
6. Citalahab	-	630	
7. Cikaso	-	550	
Sub-Totals	9,767	+ 2,680	= 12,447
New System			
1. Panulisan	600		600
		Grand Total	13,047

(See Appendix C for description of existing systems).

b. Rehabilitation of Existing Systems. All seven systems will be upgraded to fully functioning technical systems; that is, all structures will be of permanent construction and water measuring devices will be installed to facilitate good water management practices.

Silting has affected all seven systems, shallowing the canals and decreasing their capacity. The canals will be restored to needed capacity by removal of sediment deposits, reshaping, and regrading. Most of the turnouts and many of the siphons and culverts have deteriorated. Gates are usually non existant or unoperable. All structures and gates will be replaced or rehabilitated to an as new condition. The diversion structure for the

Cikaso system is badly deteriorated and will be rehabilitated. In the North Lakbok System, irrigation will be extended and drainage improved to bring under irrigation as much as practical of the 1,333 ha. not presently served.

The Gunung Putri I and II systems have never been completed. The diversion for Gunung Putri II will be abandoned and the two systems will be incorporated and served from the Gunung Putri I diversion on the Ciseel River. The systems will be redesigned and expanded to serve the sections of the service area not previously served.

c. New Irrigation System. The Panulisan irrigation system is a new system in Central Java which will take its water from the existing diversion on the Cijolang River (Bantarheulang Diversion) for the Rawa Onom Irrigation System. A new inlet would be constructed on the left side to supply water to the system. The lower reaches of the system will require improved drainage to relieve local ponding. ECI has prepared a preliminary layout of the system during the preparation of their feasibility report (See Drawing Annex C).

d. Drainage. The major canals in the Lakbok system were found to be undersized. The Cilisung, Kalen Kendal, and Kelapa Sawit drains will be cleaned and enlarged to provide drainage from a ten year storm Drainage from the swamp area in North Lakbok will also be improved and will enable more of this area to be brought under cultivation.

The new Panulisan system will require additional drains which are shown on the proposed layout for the system. Most of the main drains in the other systems will need to be cleaned and enlarged.

ECI, during their design work, found that many of the secondary drains also have insufficient capacity. ECI is reviewing local drainage as they design the irrigation improvements and, where found necessary, are including improvements in the secondary irrigation system in their designs.

e. Tertiary Canals and Turnouts. Complete new tertiary systems will be designed for the new system. In those systems being rehabilitated ECI will review the existing tertiary systems and design any modifications, improvements, or extension necessary to insure adequate irrigation for the whole service area. Construction assistance and supervision for the tertiaries will be provided by the Project.

Tertiaries will be designed to serve a maximum area of about 150 ha. Turnouts will be provided for roughly every 25 ha. The on-farm ditches beyond the tertiaries will be constructed by the local farmers.

f. Design of Canals and Drains. At present ECI is finalizing the design criteria for irrigation and drainage. This is expected to be submitted to DGWRD and USAID for their approval in mid December. Plans will be prepared in accordance with the criteria approved by DGWRD and USAID. Construction will not commence on any system until the consultant (ECI), DGWRD, and USAID have all agreed to the plans and specifications.

g. Water Quality. Water samples were analyzed by the Hydraulic Laboratory of the Directorate of Water Resources in Bandung at various times during the period from September, 1922 through January, 1974. The quality of the water was found to be excellent for irrigation and suitable for domestic use with normal treatment (ECI's statement in their "Feasibility Report for a Comprehensive Water Management Scheme for the Lower Citanduy/ Ciseel River System", page IV-34, stating water "could be used as a domestic supply with minor treatment including chlorination" is in error. Full treatment is required).

h. Sedimentation. ECI has estimated the total sediment load for the Citanduy and Ciseel Rivers at 15,300,000 metric tons per year. This is an average of 34.30 metric tons per hectare for the basin (15,300,000 MT ÷ 446.000 ha.). Assuming an average density of sediment of 1.2 to 1.5 this is 22.870 to 28.59 cubic meters per hectare approximately 2.6 mm. over the basin. The consultant has recognized sedimentation as a major problem in the basin. In his revised cost estimate the consultant has included modification of the sediment removal facilities at the headwork of the Lakbok system. This system will protect 54% of the irrigation areas (7,033 ha.) from decrease of canal capacity by siltation. It is concluded that the increased maintenance costs anticipated from siltation do not justify sediment removal facilities for the smaller systems. Erosion and sedimentation remain problems throughout Java. It is recognized that consorted effort by many parties must be taken before this twin evil can be effectively arrested. However, the complicated social, agricultural, economical, engineering, and political questions have not yet been defined and resolved. To attempt any major program in the upper watershed without further investigation and consultation would invite disaster. It is therefore proposed under the section on agriculture to provide the project area with a special technical team to analyze and conduct experiments in the problems of the watershed.

i. Adequacy of Water Supply. On page F-7 of Appendix F of the Master Plan, ECI states:

> With Project - There should be enough water available to support the growth of 2 or 2.5 crops per year in North and South Lakbok, Rawa Onom, and Panulisan, and the Sidareja Plains. For 2.5 crops per year, there could be a chance of a short term deficiency in the dry season for the areas served by the Citanduy River. Rehabilitation of the irrigation system in the Ciseel River complex should permit the growing of two crops per year, although there is a possibility of short term deficiencies in the dry season. There is not enough water available in the Ciseel River system to support the growth of 2.5 crops per year.

Upon rehabilitation of Gunung Putri I and II, both systems will take their water from the Ciseel River. If Gunung Putri II continued to take its water from the Citalahab River there would be insufficient water for both the Citalahab (630 ha.) and the Gunung Putri II (750 ha.) systems. By utilizing the Ciseel for both Gunung Putri I and II there will be adequate water for two crops for all three systems. Even with this arrangement there will have to be proper scheduling of planting to assure two crops per year from the Citalahab system.

The other two systems on the Ciseel tributaries, Cikaso, and Ciputrahaji, also run into the possibility of insufficient water in dry years. Again this can be mitigated by proper scheduling of planting.

With proper water management and scheduling of crops, it will be possible to raise two rice crops per year throughout the project area.

j. Construction Method. Much of the construction work will consist of excavation in existing and new canals and drains. This work is capable of being done completely by hand labor. ECI proposes that much of this work be done with equipment, particularly the desilting and improvement of existing drains and canals. Two reasons are given for use of equipment in this work; (1) lower cost by equipment, and (2) difficulty of hand excavation of saturated material particularly when it is submerged. It is possible to shut off the flow of water in existing canals during rehabilitation. This would interfere with cultivation. It would not be possible to divert water in the drains during rehabilitation or improvement work. It is felt that use of machinery on this work is justified and planning and scheduling has been done on the assumption that excavation equipment would be provided for this work.

Many small structures will have to be rehabilitated, constructed, or replaced. To facilitate this work, small portable cement mixers are to be provided from loan funds.

Most rehabilitation and all new construction will be done by contracts awarded by the Project Office (See Section IV-A and B). Equipment furnished the Project under the proposed loan will be maintained by the Project with rental and the cost of maintenance being billed back to the contractor.

The Consultant in its construction supervision contract will be required to provide one master mechanic experienced in heavy equipment maintenance to advise and assist the Project Office in maintaining its equipment.

k. Operation and Maintenance. Until 1974 O&M of the irrigation systems were handled and financed completely by the provincial public works offices through local irrigation offices called "seksi". Starting with the Indonesian fiscal year 1974/75, funds have been allotted from the central budget for O&M of irrigation systems.

Construction, operation and maintenance will be carried out in the same way as for the flood control system; i.e. the Project Office is responsible for both construction and O&M during construction. Upon completion of construction, the major works are turned over to the local seksi for O&M.

The existing staffs of the Ciamis and Majenang "seksis" will need about ten percent more technical personnel. Training will be provided to upgrade the existing staffs and to train the new employees. This will be primarily in-country training with selected supervisory personnel being sent to Taiwan, Thailand, Philippines or Malaysia for short-term observation type training.

Irrigation Section "Seksi"	Area under Technical, semi-technical irrigation	Size of Staff for O&M	O&M Budget 1975/76 (Rp. millions)
Ciamis	14,706 ha.	241	19
Majenang	5,547	70	13

Although the seksi will also provide technical advice and assistance in the maintenance of the tertiary canals, the O&M of

the tertiary canals and the terminal irrigation networks (quaternary canals and on-farm service ditches) will be the responsibility of the water users associations assisted by the local AAETE office.

The loan provides financing for one O&M advisor for three years for the irrigation systems. In addition to this advisor who would be assigned to the Project Office, the loan would provide financing for one agriculture advisor for three years who would advise and assist the agriculture offices in the project area in such activities as O&M of the terminal irrigation networks, on-farm water management and organization of water users associations. Loan-financed equipment for construction will be used afterwards for O&M.

3. Agriculture Analyses and Farm Level Development

a. General. The densely populated project area is one of the poorest agricultural areas in Indonesia. The irrigation subprojects will provide a dependable water supply for a two-crop system; will provide an improved diet; will increase employment opportunities; will provide crop surpluses; and, generally, will create an improved opportunity situation in the project area that presently is at the bare subsistence level.

Most beneficiaries of the project are farmers with small land holdings that have a median of only .5 of one hectare per farm family. Farms encompassing more than two hectares of paddy land are rare. The limitation of paddy holdings to five hectares, by law, and the difficulties involved in alienating agricultural land in Indonesia make substantial increases in the average size of paddy holdings in the project area unlikely. Land is usually obtained by inheritance and there is little opportunity for subsistence farmers to accumulate enough capital to buy land. With the project, the overall cropping intensity will increase from the present 174% to a minimum of 200%, which, when combined with anticipated production increases, will provide the project's beneficiaries with sufficient surplus capital to sustain the existing farm size. The project will mitigate land fragmentation caused by land sales due to poverty conditions.

Rice production in the Citanduy Basin presently averages 2,200 kilograms per hectare per season. Potentially, with this project, it could increase to between 4,000 and 5,000 kilograms, although 3,800 kilos is assumed in the economic analysis and 3,600 kilos in the evaluation plan.

Agriculturally, the project has two basic areas of interest: the upper watershed and the irrigated lower basin (loan project area).

(i). Upper Watershed. The upper watershed comprises approximately 350,000 hectares of moderate-to-steep, sloped forest and upland cropland. The cropland has a low productivity due to poor conservation practices and insufficient or improper use of fertilizers and insecticides. Excessive erosion conditions exist on 78,000 hectares of critical slop-land. In addition,

social customs and land ownership patterns will require change or readjustment to implement an adequate and acceptable soil conservation program. The upper watershed area will require additional investigation by a multidisciplinary team composed of experts in watershed management, agricultural economics, conservation and soils, and rural sociology technology transfer. Under the terms of this loan, the additional investigation on the upper watershed will be performed concurrently with the construction of the irrigation and flood control systems in the lower basin, and the mutually acceptable solutions will be implemented by a subsequent Citanduy II loan. The planned management of the upper watershed will decrease soil erosion which is causing large sediment loads in the rivers of the lower basin. The upper and lower Citanduy basins have interrelated problems, requiring an integrated team approach.

(ii) Irrigated Lower Basin (Loan Project Area). The lower basin comprises approximately 93,000 hectares of land that varies from flat marsh/swampland to slightly sloping farmland. The land use is almost totally devoted to agricultural crops.

Lowland Rice	36%	33,480 ha
Upland Crops	15%	13,950 ha
Home Gardens	12%	11,160 ha
Forest	11%	10,230 ha
Plantation	24%	22,320 ha
Other	2%	1,860 ha
Total	100%	93,000 ha

Over 50% of the lowland rice area is irrigated by three technical, four semi-technical, and thirty-three simple irrigation systems, covering 17,336 hectares. The seven technical and semi-technical systems (total of 12,447 ha) require rehabilitation and/or upgrading which is being financed by this loan. The project also includes the construction of one new irrigation systems (600 ha.)

The Citanduy/Ciseel River Basin is included in the Java Island soil map, 1:250,000, and approximately 11,000 ha on the left bank of the Citanduy River are also included in a 1:50,000 semi-intensive soil survey. The right bank contains similar soils and was not surveyed. ECI has completed intensive soil surveys and investigations in the Segara Anakan and its environs and in the Lakbok area. The lower basin soils, with the exception of Segara Anakan, are almost 100% in agriculture usage and no major soil problem exists that would greatly affect the feasibility of the project. It is anticipated that the GOI will continue upgrading existing soil maps and continue its program of providing high intensity soil surveys on major irrigation areas, such as the Citanduy project.

b. On-Farm Developments. In addition to construction, the project provides for farmland developments, such as (i) terminal irrigation networks (quaternary canals and on-farm ditches), (ii) water management programs, (iii) soil conservation education programs, (iv) establishment and support to irrigation water-users associations, and (v) improved irrigation operation and maintenance programs for the terminal irrigation networks. In addition, the Ministry of Agriculture will receive technical assistance, training (in-country and overseas), and equipment for the project area.

(i) Terminal Irrigation Networks. Since construction of on-farm ditches for water delivery to the farmland is considered an important compnent of the project, the GOI will be reimbursed 50% of the costs after completion of ditches serving at least 60% of the area for rehabilitated systems and 40% for new systems and establishment of water-user associations. It is anticipated that the acceptable level of construction will be similar to the nearby Tajum Irrigation Project (ADB loan) of forty linear meters of ditch per ha of project service area. Farm-ditch construction will vary according to topography, agronomic practices, and land usage. The SubDirectorate for Conservation of Land and Water (SCLW) is responsible for farm irrigation systems.

(ii) Water Management Programs. Good water management is essential to guarantee adequate and timely distribution of water to all water users. The application of the correct amount of water at the farm level is essential for good crop production. The water users on the project will receive water management training through the use of visual aids, on-farm training programs and technical assistance from the project management. The loan's sharing the cost of this activity is included in the reimbursement mentioned in (i) above. The Agency for Agriculture Education, Training and Extension (AAETE) is responsible for water management.

(iii) Education Programs. Education activities in the project area will be intensified. The extension agents will assist upland farmers on soil conservation practices, proper land-use treatments, proper use of BIMAS, and agronomic and erosion control practices, such as terraces, small gully dams (plugs), and cross-slope farming. These activities will not receive A.I.D. loan financing.

In the irrigated lower basin, the agents will assist the farmers on water management, BIMAS, water-user association development, on-farm ditch construction, improved agronomic practices, and improved rice harvesting, storage, and marketing practices. The AAETE is responsible for extension.

(iv) Irrigation Water-User Associations. The project area includes portions of the provinces of West Java and Central Java. Both provinces have an active program in developing irrigation water-user associations. In West Java, they are called P3A; and, in Central Java, Dharma Tirta. The project will support these provincial programs. The provinces, singly or together, will submit a plan for the formation, development, and support of viable irrigation water-user associations. The AAETE is responsible for water-user associations development.

(v) O and M for Terminal Irrigation Networks. Water-user charges are the best way to insure adequate financing of the operation and maintenance of irrigation systems. GOI policy is to eventually impose such a charge on irrigation system beneficiaries. In West and Central Java, the provincial and kabupaten governments levy, through the P3A and Dharma Tirta, 25 kg of dried rice (gabah) per crop per hectare water charge of O&M of quaternary and on-farm ditch systems. This charge equates to Rp. 1,700 or $4.09 per crop per hectare at the prevailing selling price of Rp. 68 per kg of dried paddy rice. Collection rates are very high (over 90%); however, in some cases, the funds are inadequate. The provincial and kabupaten governments will provide an O&M plan and budget for providing adequate operation and maintenance of the ditch systems. The irrigation water-user associations are vested with responsibility for O&M on ditch systems, assisted by the AAETE.

As part of the Citanduy Project the AAETE will be provided with basic hand-tool sets, to be used by the water-user associations for O&M. In addition, the light equipment required for quaternary ditch construction (one bag cement mixers and two-inch pumps) will be used for O&M purposes after construction is completed.

c. Water-User Association. The most important element in successful farm level implementation is the development of viable water-user associations. Pilot programs for the development of water-user associations in Central Java (Dharma Tirta) and West Java (P3A) have resulted in dramatic increases in rice yields.

These Dharma Tirtas normally include all farmers tilling land in single terminal (tertiary)network. A terminal network normally covers between 150 and 400 hectares.

Full meeting of the membership are normally held at least twice a year, and sometimes more often. Members have the right to (1) select officers, (2) hold office, (3) make proposals, (4) determine rules, (5) determine water-user charges and fines, (6) allocate funds collected, and (7) protest unfair treatment in the division of water. Corresponding obligations of members include (1) obeying rules, (2) paying water-user charges and fines, and (3) contributing labor for O and M and minor improvements of the terminal network. Members are generally required to contribute labor to group works at least once a month and sometimes more often. Water-user associations will be formed as part of the project. Considering the success of the Dharma Tirtas and P3As, these associations have an excellent chance of becoming well developed, self sustaining, and socially and economically viable organizations.

d. The Bimas Program. The farmer is presented with a credit package of HYV seed, fertilizer, and pesticides, at a subsidized price, plus a low interest rate bank loan which includes a living expense allowance. The INMAS program is essentially the same except the farmer has to obtain his own financing. These programs covered about 45% of the total rice area of West Java previous to 1973. In 1973, the area jumped to 63% of the total.

The GOI plans to expand the BIMAS Rice Intensification Program rapidly. Plans call for an increase in the area covered by the BIMAS rice intensification programs from 4.3 million hectares in 1974 to 6.1 million in 1978, a compound annual growth rate of almost 9%. The project areas presently irrigated have access to the BIMAS and INMAS programs and the new irrigation subprojects will receive BIMAS support upon completion of construction in accordance with standard GOI procedures for newly completed irrigation projects. The BIMAS program is administered by an integrated committee of the Ministry of Agriculture. Under these circumstances, the availability of the BIMAS production input package in the project area at the levels assumed in the base economic analysis is likely.

d. Credit. The GOI is currently in process of developing a program to provide medium term credit to individual farmers for land clearing, leveling, and paddy forming. Bank Rakyat Indonesia (BRI) is administering this program. Because the program is relatively new, an adjustment period will be required for credit requirements to be quantified, funds for medium term credit to be increased, and collateral procedures simplified. The BIMAS organization actually provides required production inputs to the farmers.

BRI is the major rural financial institution of the GOI and has a network of operations throughout the country that extends down to the village level. BRI operates 13 regional offices, 220 branch offices, 2,121 village units and 501 mobile units. In addition, it supervises 4,774 village banks and 3,125 paddy banks. Kabupaten Ciamis and Cilacap each have a branch bank and each Kecamatan has two village unit banks.

BRI loan disbursements increased almost 200% between 1971 and 1973, as shown in Table 8, below:

Bank Rakyat Indonesia (BRI) Loan Disbursements
1971 to 1973 ($ million)

	1971	1972	1973
Short term	302.9	371.6	920.0
Medium term	13.0	6.2	10.4
	315.9	377.8	930.4

Note: Table from ADB, Appraisal of East Java Agriculture Credit Project in Indonesia, October, 1974.

Almost 99% of BRI's loan disbursements in 1973 were short term, mostly BIMAS, credits. BRI is capable of administering the medium term credit needed by the farmers to support the Citanduy Project.

4. Environmental Assessment

ECI's detailed Master Plan for the development of the Citanduy Basin included a 97-page appendix on "Environmental Impact." It concluded that the developmental measures for the Citanduy Basin will make a significant contribution to the economic welfare of the people of the area and will be socially and politically acceptable. Planned use of the land and water resources of the basin will greatly enhance the quality of the environment for both the present and future generations. There will be some environmental changes, but the beneficial impacts on the human welfare at both the local and national levels will more than compensate for the loss or irreversible change of some ecological systems.

The sections of the ECI report on "Environmental Impact" that deal specifically with the project area are attached as Annex D. This material consists of a discussion of environmental considerations and an environmental impact analysis of the Lower Citanduy/Ciseel Water management scheme. Admittedly the Analysis is of a general survey nature. However, because the study was made by an interdisciplinary team including an ecologist/environmentalist and no significant adverse impact on the environment was uncovered, we conclude that there are no serious environmental issues associated with the project.

As part of a continuing emphasis on environmental assessment of water-related projects, AID/W plans to send a team of environmental experts to several Asian countries in early 1976. In Indonesia the team will give priority attention to the Citanduy project. Any pertinent team findings that differ from the conclusions of the ECI environmental team can be incorporated into the final design work which is not scheduled for completion until November 1976.

5. Summary Conclusion and 611 (a)(b) Finding

Engineering Consultants, Inc. (ECI), a U.S. engineering firm prepared the "Feasibility Report for A Comprehensive Water Management Scheme for the Lower Citanduy/Ciseel River System", March 1975, which is the basis for the project to be financed by this proposed loan. The Feasibility Report included an estimate of costs for the proposed work which was updated in October 1975, to reflect needed design changes. AID has reviewed these revised estimates and considers them as being reasonably firm estimates of the cost of the project and of the cost to the U.S. Government, after 20 percent allowance for inflation was added. The maximum cost of the project to the U.S. Government is set at the amount of the proposed loan with any overruns being the sole responsibility of the Government of Indonesia.

ECI prepared preliminary plans for the project in the feasibility study. ECI is presently preparing final construction plans, specifications and bidding documents which will be approved by both the GOI and AID prior to commencement of construcworks to be funded under the proposed loan.

The internal rate of return, based on cost estimates used in this PP, is estimated as 18%.

AID concludes that the project is technically sound as presented herein, that sufficient engineering, financial, and other plans have been made to carry out this project, that a reasonably firm estimate of the cost of the U.S. Government has been made and that a computation of benefits and costs has been made. Therefore, Section 611 (a) and (b) have been met.

B. Financial Analysis

1. Budget Explanation. The Summary Cost Estimate and Financial Plan shows the AID loan of $12,500,000 financing 49% and the GOI contribution of $12,874,000 financing 51% of total project costs of $25,374,000. Some 44% of the AID loan would be used for foreign exchange costs and 56% for local costs. Three categories of costs were not included in these estimates at the request of the GOI because AID financing is not involved. However, these represent additional self-help contributions:

a. Buildings (warehouses, offices, houses) for O&M personnel and equipment, estimated in the ECI study at $590,000. A covenant will be included in the loan agreement about these buildings.

b. Small tools of local origin. While the loan funds may be used to finance large construction equipment, small equipment such as hand tools, etc. will be provided by the contractors or (in the case of construction of terminal irrigation networks) by SCIW. No estimate has been made of the amount needed.

c. Labor for terminal irrigation systems. A portion of the construction of the quaternary canals and on-farm service ditches will be performed by the farmers as their contribution to the project. The value of the donated labor is estimated as Rp. 3,000 per ha. or a total of $94,000 equivalent for the project. This is in addition to the costs shown on the tables for terminal irrigation systems.

Some 22% of project costs is foreign exchange costs and 78% local costs. In addition to these direct foreign exchange costs, ECI estimated that the contractors would buy on the local market about $1.1 million of materials that might be imported (cement, steel). These are not being shown as foreign exchange costs as they will not be directly financed by the loan. It would be administratively unworkable to directly finance such a relatively small amount of imported materials over a five year period for perhaps ten or more contractors.

An allowance for inflation and contingency is built into each of the major cost items as a separate calculation for each item would be more appropriate than having one overall allowance.

a. Construction: A 20% allowance for inflation was included, then 15% for contingency. The details are shown in Annex B. ECI found that over a period of about 1½ years (spring of 1974 - fall of 1975), construction costs in the project area increased

only about 10%. Since this rate of inflation was much lower than the rate for Indonesia as a whole, a single 20% allowance for inflation for construction is considered sufficient.

b. Consulting services: Since the cost estimate for supervising engineering was based on 6% of construction costs, it has a built in allowance for inflation and contingency. The estimate for technical assistance to DGWRD is based on 144 man-months at $7,000 total cost per man-month. A recent contract for engineering design services (Jragung Dam - ECI) was for $6,185 per month total cost. Thus a $7,000 cost figure includes a 13% allowance for inflation. The costs of several recent contracts were divided 90% foreign exchange and 10% local costs, so this 90-10 division is used in this analysis, with the loan financing foreign exchange costs only.

c. Equipment: Since the Mission did not have current prices for U.S. construction equipment, it used U.S. 1974 f.o.b. prices with a 50% allowance for shipping and inflation.

d. Training (DGWRD): This is for training both in Indonesia and overseas: (a) four people for 1½ years each in the United States to obtain master degrees in such fields as watershed management, river engineering, irrigation and river basin development. The Mission's present cost guideline is $650 per man-month plus international travel. This PP assumes $800 per man-month plus one round trip each at $2,000 (present cost about $1,800). (b) nine people for observation-type training in irrigation and O&M in other Asian countries such as Taiwan, Malaysia or Korea for a total of $36,000; (c) various seminars and training courses in Indonesia of short-term nature for about 160 people ($100,000). The loan would finance all foreign exchange costs and 50% of local costs.

e. Training (agriculture): This also is for training project people both in Indonesia and overseas: (a) three people for 1½ years each in the United States for academic training in such areas as irrigation science and watershed management ($49,000); (b) overseas short-term training for about six people for one month each in water management in Hawaii and six for one month each in watershed treatment in Taiwan ($21,000); and (c) in-country training for about 200 man-months at various seminars and courses ($90,000). The loan would finance all foreign exchange costs and 50% of in-country training costs.

f. Technical Assistance (agriculture): This would be one advisor for three years to advise and assist the agriculture offices in the project area in such activities as O&M of the terminal irrigation networks, on-farm water management, organization of water users associations, etc. He would be assisted by up to 24 man-months of short-term advisors in special subjects. The 60 man-months at $7,000 per month would cost $420,000 with 90% being foreign exchange costs. The GOI would finance all local currency costs.

g. Terminal Irrigation Systems: This is the construction of quaternary canals and on-farm service ditches and establishing water users associations. It is based on the Ministry of Agriculture's plan "The Use of Water in Farming Efforts in the Region of Simple Irrigation/Reclamation," November 25, 1974, with an allowance of 20% for inflation and 15% for contingency added.

h. Studies and Designs: These cost estimates were based on 3% of expected construction costs for studies and 5% for design. Since the construction costs were based on ECI's estimates for similar work in this project plus 50% for inflation, the estimates for studies and designs have a built-in allowance for inflation and contingency.

2. Recurring O&M Costs (GOI)

There are three different types of physical infrastructure requiring O&M attention, which involve responsibilities of several different GOI organizations. The Project Office is responsible for O&M only during the construction period.

a. Flood Control System (levees, etc.). After construction, the Central Java Public Works Office through its several district offices will be responsible for the levees on the left bank of the Citanduy River and the West Java Public Works Office for the levees on the right bank of the Citanduy River and all the levees on the Ciseel River.

b. Irrigation Systems (Major works). The Majenang Irrigation Region (Central Java) will be responsible for O&M of the one new irrigation system to be constructed in this project (Panulisan, 600 ha.) while the Ciamis Irrigation Region (West Java) will be responsible for the seven systems to be rehabilitated. However, these offices are responsible for O&M only down through the secondary canals.

c. Terminal Irrigation Systems. Responsibility for the terminal irrigation systems (quaternary canals and on-farm service ditches) and tertiary canals rests with the two provincial AAETE offices working through the water users associations. Financing for O&M comes from both farmer contributions and central budget funds.

It has not been possible to obtain reliable data about the budget allocations for O&M specifically for the project area. Although the allocated budget for the Citanduy Project Office has increased from Rp. 200 million in 1969/70 to Rp. 2,130 million for 1975/76, these funds are used for heavy maintenance, construction, and emergency flood measures in addition to routine O&M.

The ECI feasibility report included recommendations for budget and staffing for O&M programs. However, it was based upon the O&M requirements for the systems in their present condition and not O&M requirements after the systems are completely rehabilitated.

O&M requirements (financial, manpower and equipment) will increase rapidly as construction moves into the advanced stage. A condition precedent in the loan agreement will be a comprehensive plan for O&M for all three types of systems, together with a commitment by GOI to provide the funds, personnel and materials needed to make its O&M plan function effectively. Technical assistance, training, and equipment for O&M are being provided in the project.

3. Other Costs Financed by AID.

As explained elsewhere in the PP, the master plan and feasibility study were financed by AID loan 497-H-027 ($700,000). Also from that loan, $1,200,000 is being provided to finance the final design of this project (and perhaps final design of the Segara Anakan project). The feasibility studies of the Sideraja and Banjar new irrigation systems (no cost estimate yet available) will be financed from loan 497-H-027 also if the loan terminal dates are extended. Feasibility studies for far-to-market roads, portable water and other potential projects may be financed from a follow-on loan to 027 if one is authorized in FY 76.

4. Summary Opinion.

Based on the analyses in this section, it is concluded that the cost estimates are reasonable, that the AID loan and GOI contribution will be adequate to finance the project as described herein and the overall financial plan is sound.

Summary Cost Estimate and Financial Plan
(Thousands US$)

	Cost Estimate by Currency			Source of Funds		
	Foreign Exchange	Local Currency	Total	AID Loan	GOI	Total
1. Construction	-	(18064)	(18064)	(6355)	(11709)	(18064)
a. Flood Control - Levees	-	11829	11829	4161	7668	11829
b. " " - Siphon	-	481	481	169	312	481
c. " " - Diversion	-	966	966	340	626	966
d. Irrigation - Rehabilitation	-	2758	2758	970	1788	2758
e. " - New	-	320	320	113	207	320
f. Major Drains	-	897	897	316	581	897
g. Secondary Drains	-	564	564	198	366	564
h. Desilting Basin	-	249	249	88	161	249
2. Consulting Services	(1890)	(210)	(2100)	(1890)	(210)	(2100)
a. Supervising Engineer	990	110	1100	990	110	1100
b. Technical Assistance - DGWRD	900	100	1000	900	100	1000
3. Equipment for Construction	1800	-	1800	1800	-	1800
4. Training	170	190	360	265	95	360
5. Technical Assistance - Agriculture	380	40	420	380	40	420
6. Terminal Irrigation Systems	-	1020	1020	510	510	1020
7. Studies & Designs	(1255)	(355)	(1610)	(1300)	(310)	(1610)
a. Upper Watershed Cropping	605	285	890	650	240	890
b. Sideraja Irrigation Design	280	30	310	280	30	310
c. Banjar Irrigation Design	72	8	80	72	8	80
d. C. Java Irrigation-Feas. Study	54	6	60	54	6	60
e. " " " -Design	90	10	100	90	10	100
f. Upper Citanduy " -Feas. Study	59	6	65	59	6	65
g. " " " -Design	95	10	105	95	10	105
Total	5495	19879	25374	12500	12874	25374

Disbursement Schedule Total Project
(Thousands US$)

	FY 77	FY 78	FY 79	FY 80	FY 81	Total
1. Construction	(2317)	(4272)	(3940)	(5466)	(2079)	(18064)
a. Flood Control - Levees	1950	2600	2600	2600	2079	11829
b. " " - Siphon	-	-	-	481	-	481
c. " " - Diversion	-	-	-	966	-	966
d. Irrigation - Rehabilitation	367	455	776	1260	-	2758
e. " - New	-	320	-	-	-	320
f. Major Drains	-	897	-	-	-	897
g. Secondary Drains	-	-	564	-	-	564
h. Desilting Basin	-	-	-	249	-	249
2. Consulting Services	(454)	(614)	(507)	(358)	(167	(2100)
a. Supervising Engineer	105	250	220	358	167	1100
b. Technical Assistance	349	364	287	-	-	1000
3. Equipment for Construction	1800	-	-	-	-	1800
4. Training	100	175	85	-	-	-
5. Technical Assistance - Agriculture	66	155	155	44	-	-
6. Terminal Irrigation Systems	-	126	250	440	204	1020
7. Studies & Designs	(580)	(790)	(240)	-	-	(1610)
a. Upper Watershed Cropping	200	450	240	-	-	890
b. Sideraja Irrigation - Design	200	110	-	-	-	310
c. Banjar " "	55	25	-	-	-	80
d. C. Java " Feas. Study	60	-	-	-	-	60
e. " " " - Design	-	100	-	-	-	100
f. Upper Citanduy " Feas. Study	65	-	-	-	-	65
g. " " " - Design	-	105	-	-	-	105
Total	5317	6132	5177	6298	2450	25374

Disbursement Schedule AID Loan
Total Foreign Exchange and Local Currency
(Thousands US$)

	FY 77	FY 78	FY 79	FY 80	FY 81	Totals
1. Construction	(814)	(1504)	(1386)	(1920)	(731)	(6355)
a. Flood Control - Levees	685	915	915	915	731	4161
b. " " - Siphon	-	-	-	169	-	169
c. " " - Diversion	-	-	-	340	-	340
d. Irrigation - Rehabilitation	129	160	273	408	-	970
e. Irrigation - New	-	113	-	-	-	113
f. Major Drains	-	316	-	-	-	316
g. Secondary Drains	-	-	198	-	-	198
h. Desilting Basin	-	-	-	88	-	88
2. Consulting Services	(408)	(554)	(457)	(322)	(149)	(1890)
a. Supervising Engineer	90	229	200	322	149	990
b. Technical Assistance - DGWRD	318	325	257	-	-	900
3. Equipment for Construction	1800	-	-	-	-	1800
4. Training	85	135	45	-	-	265
5. Technical Assistance - Agriculture	60	140	140	40	-	380
6. Terminal Irrigation Systems	-	63	125	220	102	510
7. Studies & Designs	(493)	(637)	(170)	-	-	(1300)
a. Upper Watershed Cropping	150	330	170	-	-	650
b. Sideraja Irrigation - Design	180	100	-	-	-	280
c. Banjar " "	50	22	-	-	-	72
d. C. Java " Feas. Study	54	-	-	-	-	54
e. " " " - Design	-	90	-	-	-	90
f. Upper Citanduy " Feas. Study	59	-	-	-	-	59
g. " " " - Design	-	95	-	-	-	95
Total	3660	3033	2323	2502	982	12500

Disbursement Schedule AID Loan
Foreign Exchange Portion
(Thousands US$)

	FY 77	FY 78	FY 79	FY 80	FY 81	Total
1. Construction	-	-	-	-	-	-
a. Flood Control - Levees	-	-	-	-	-	-
b. " " - Siphon	-	-	-	-	-	-
c. " " - Diversion	-	-	-	-	-	-
d. Irrigation - Rehabilitation	-	-	-	-	-	-
e. Irrigation - New	-	-	-	-	-	-
f. Major Drains	-	-	-	-	-	-
g. Secondary Drains	-	-	-	-	-	-
h. Desilting Basin	-	-	-	-	-	-
2. Consulting Services	(408)	(554)	(457)	(322)	(149)	(1890)
a. Supervising Engineer	90	229	200	322	149	990
b. Technical Assistance - DGWRD	318	325	257	-	-	900
3. Equipment for Construction	1800	-	-	-	-	1800
4. Training	85	85	-	-	-	170
5. Technical Assistance - Agriculture	60	140	140	40	-	380
6. Terminal Irrigation Systems	-	-	-	-	-	-
7. Studies and Designs	(493)	(607)	(155)	-	-	(1255)
a. Upper Watershed Cropping	150	300	155	-	-	605
b. Sideraja Irrigation - Design	180	100	-	-	-	280
c. Banjar " - "	50	22	-	-	-	72
d. C. Java " Feas. Study	54	-	-	-	-	54
e. " " " - Design	-	90	-	-	-	90
f. Upper Citanduy " Feas. Study	59	-	-	-	-	59
g. " " " - Design	-	95	-	-	-	95
Total	2846	1386	752	362	149	5495

Disbursement Schedule AID Loan
Local Currency Portion
(Thousands US$ equivalent)

	FY 77	FY 78	FY 79	FY 80	FY 81	Total
1. Construction	(814)	(1504)	(1386)	(1920)	(731)	(6355)
a. Flood Control - Levees	685	915	915	915	731	4161
b. " " - Siphon	-	-	-	169	-	169
c. " " - Diversion	-	-	-	340	-	340
d. Irrigation - Rehabilitation	129	160	273	408	-	970
e. Irrigation - New	-	113	-	-	-	113
f. Major Drains	-	316	-	-	-	316
g. Secondary Drains	-	-	198	-	-	198
h. Desilting Basin	-	-	-	88	-	88
2. Consulting Services	-	-	-	-	-	-
a. Supervising Engineer	-	-	-	-	-	-
b. Technical Assistance - DGWRD	-	-	-	-	-	-
3. Equipment for Construction	-	-	-	-	-	-
4. Training	-	50	45	-	-	95
5. Technical Assistance - Agriculture	-	-	-	-	-	-
6. Terminal Irrigation Systems	-	63	125	220	102	510
7. Studies & Designs	-	(30)	(15)	-	-	(45)
a. Upper Watershed Cropping	-	30	15	-	-	45
b. Sideraja Irrigation - Design	-	-	-	-	-	-
c. Banjar " - "	-	-	-	-	-	-
d. C. Java " Feas. Study	-	-	-	-	-	-
e. " " " - Design	-	-	-	-	-	-
f. Upper Citanduy " Feas. Study	-	-	-	-	-	-
g. " " " - Design	-	-	-	-	-	-
Total	814	1647	1571	2140	833	7005

Costing and Disbursements
by Outputs/Inputs
(Thousands US.$)

	Totals	FY 77	FY 78	FY 79	FY 80	FY 81
A. Flood Control						
Construction	(13,276)	(1,950)	(2,600)	(2,600)	(4,047)	(2,079)
AID	4,670	685	915	915	1,424	731
GOI	8,606	1,265	1,685	1,685	2,623	1,348
Consulting Services	(1,500)	(284)	(429)	(322)	(298)	(167)
AID	1,350	256	386	290	268	150
GOI	150	28	43	32	30	17
Equipment	(865)	(865)	-	-	-	-
AID	865	865	-	-	-	-
GOI	-	-	-	-	-	-
Training	(100)	(25)	(50)	(25)	-	-
AID	75	20	35	20	-	-
GOI	25	5	15	5	-	-
Totals	(15,741)	(3,124)	3,079	2,947	4,345	2,246
AID	6,960	1,826	1,336	1,225	1,692	881
GOI	8,781	1,298	1,743	1,722	2,653	1,365
B. Irrigation/ Drainage						
Construction	(4,788)	(367)	(1,672)	(1,340)	(1,409	-
AID	1,685	129	589	471	496	-
GOI	3,103	238	1,083	869	913	-
Consulting Services	(600)	(170)	(185)	(185)	(60)	-
AID	540	153	167	166	54	-
GOI	60	17	18	19	6	-
Technical Assistance	(420)	(66)	(155)	(155)	(44)	-
AID	380	60	140	140	40	-
GOI	40	6	15	15	4	-
Equipment	(935)	(935)	-	-	-	-
AID	935	935	-	-	-	-
GOI	-	-	-	-	-	-
Training	(260)	(75)	(125	(60)	-	-
AID	190	65	100	25	-	-
GOI	70	10	25	35	-	-
Terminal Irrigation System	(1,020)	(-	(126)	(250)	(4,440)	(204)
AID	510	-	63	125	220	102
GOI	510	-	63	125	220	102
Totals	(8,023)	(1,613)	(2,263)	(1,990)	(1,953)	(204)
AID	4,240	1,342	1,059	927	810	102
GOI	3,783	271	1,204	1,063	1,143	102
C. Studies/Designs						
Totals	(1,610)	(580)	(790)	(240)	-	-
AID	1,300	493	637	175	-	-
GOI	310	87	153	70	-	-
Grand Totals	(25,374)	(5,317)	(6,122)	(5,177)	(6,298)	(2,450)
AID	12,500	3,661	3,032	2,322	2,502	983
GOI	12,874	1,656	3,100	2,855	3,796	1,467

C. Economic Analysis

1. Introduction and Summary

The proposed project consists of two components. These are irrigation and drainage investments that will increase rice production on about 13,000 hectares of land and investments in flood control structures that will protect about 60,000 hectares in the lower Citanduy Basin from frequent flooding. In the following assessment, the two components are evaluated separately and in combination. Various alternative approaches to flood control are considered and an examination is made of the sensitivity of the economic assessment to changes in construction costs, rice prices and yields, and the price of unskilled labor.

The combined project is found to have a probable internal rate of return of 18% even with construction and maintenance costs increased by 15% over current estimates. If unskilled labor is shadow priced at half its nominal cost, so as to more accurately reflect its true economic cost, the internal rate of return becomes 21%. On the basis of the analysis, the project is considered to be fully justified economically.

2. Flood Control Benefits

The monetary losses from flooding consist of damages to crops, livestock, residences and personal property, transportation facilities, utilities, commercial property and activities, and government institutions including public works and schools.

a. Crop Damages. Seventy five percent of the area subject to flooding is utilized for rice. The lands most subject to flooding are largely irrigated. In the economic analysis, the increased net income associated with improved rice production has been used in analyzing the proposed irrigation and drainage investments. To avoid double counting, only the level of rice production (2.5 MT/Ha) projected without the project has been used in evaluating flood prevention benefits.

The other 25 percent of the flood plain area is in villages, roads, garden crops, etc. Sixty percent of this is in garden crops, which makes it 15 percent of the total area. The other 10 percent of the area is in non-crop usage.

During the large 1968 flood, local government reports placed the proportion of cropland damaged as 53 percent of the rice area and 90 percent of the garden crops area. The degree of damage on these proportions of the flooded area is estimated by considering: (1) the intra-seasonal chances of damage and (2) the stage of crop growth.

b. Residential and Personal Property Damage. Records show that large numbers of persons are forced from their homes during floods. The density of the population is 666 persons per square kilometer. Assuming 5 persons per family, this is 133 families per square kilometer, or an average of 1.33 households per hectare. Because only 7 percent of housing is of permanent type construction, the remainder being semi-permanent and temporary, the proportion of the damage to structure and contents can be relatively high. The damage and clean-up costs are estimated to be 10 percent of the value of the homes and belongings which are flooded.

c. Transportation Facilities. The September 1973 flood inundated about 18,400 ha of the flood plain outside the retention basins and provides some recent data on flood effects on the transportation sector. Interviews with local railroad officials and provincial highway authorities gave some guidance in estimating losses in the transportation sector.

The railroads and the highways leading out of Banjar were out of service for several days, resulting in loss of passenger and freight traffic (plus delays) and costs for restoration of the road beds, bridges, and culverts.

d. Damage to Flood Control Facilities. The cost of emergency operations and levee repair following the 1973 flood was Rp. 131,000,000. At current prices, this would equal Rp. 10,000/ha.

e. Other Losses. Utilities, commercial and government sector activities, and public health losses could not be estimated from field data. These activities correlate closely to the general activities of the region and are therefore estimated to be 5 percent of all the losses and damages described in the paragraphs above.

f. Total Flood Losses. The foregoing estimates are discussed in detail in the feasibility report and are tabulated below on a per hectare flooded basis.

Crops	Rp.	44,200
Livestock	"	1,100
Residential	"	162,500
Transportation Sector	"	2,300
Repair of Levees, etc.	"	10,000
Other	"	12,200
Total	Rp.	232,300 ($560)

The following table shows the results of the flood protection that could be provided by various levels of flood control investments. These values are utilized in the analysis of project benefits, and represent average annual equivalent values figured from a basis of Rp. 232,300 ($560) per hectare per year in which it was flooded.

FLOODING AND DAMAGES PREVENTED
BY 10, 25, and 50 YEAR PROTECTION LEVELS*
(Expressed as average annual equivalent)

Protection	Flooding Prevented ha	Damage Prevented Rp. (millions)	$ (Thousand)
10 Year	5,236	1,215	2,935
25 Year	5,923	1,375	3,320
50 Year	6,139	1,425	3,441

* Incremental to present system.

The above figures are based on the Feasibility Report prepared for this project. Although used in the economic analysis, it is considered possible that the damage prevention figure for the 10 year level of protection is too high.

3. Alternative Flood Control Measures

In determining the optimum approach to flood control in the Citanduy basin various combinations of levees and dams were evaluated.

In the feasibility analysis contained in the 1974 ECI Report combinations of four different dams were considered in detail. Other dams examined during the course of the study were eliminated because of their relatively small control of the flood producing area of the basins in which they were located.

The dams selected and their construction cost were:

1. Banjar Dam - US$20,800,000
2. Alternate Banjar Dam - US$17,200,000
3. Matenggeng Dam - US$11,000,000
4. Binangun No. 2 Dam - US$12,000,000

Twelve different control conditions varying from protection levees alone to combinations of three dams plus levees were evaluated.

The cost factors for these twelve alternatives are shown in Annex B. The data summarized in this table show that for protection against the 25-year frequency flood, the most economical measure, with or without the Nusawuluh diversion in operation, is the system of the protection levees alone. The next most economical system is the combination of the Matenggeng Dam and river levees, and the cost of this combination is twice the cost of the levees alone.

This comparison is based on the estimates contained in the 1974 Feasibility Study. Although ECI in October 1975 submitted a revised cost estimate for levees that was 30% higher (due to increased quantities of work), this increase is not sufficient to alter the conclusion that the most economic approach to flood control is a system of levees only.

Current construction costs (unescalated for inflation but including a 15% contingency factor) and increased O&M costs for varying degrees of protection are shown in the following table ($ thousands).

Degree of Protection	Construction	Increased O&M
10 Year	$ 6,257	$263
25 Year	12,833	319
50 Year	16,256	378

Given (1) the anticipated construction schedule of 25% in each of the first two years and 17% in each of the next three years, (2) the above total cost estimates, and (3) the previously estimated benefits, the internal rates of return for flood protection are:

10 Year Protection 29%
25 Year Protection 18%
50 Year Protection 15%

Although both the 10-year and 25-year levels of protection are economically justified, the smaller 10-year protection plan maximizes quantified net economic benefits. However, the GOI has concluded that intangible values and social and political considerations must also be given appreciable weight in deciding which plan to select. Furthermore, when action is taken to provide a certain level of protection; later enlargements would be vastly more expensive than providing the greater capacity initially. Given these considerations, the GOI has decided that a 25-year level of protection should be installed. The USAID concurs in this assessment.

4. Projected Rice Production and Benefits

The areas with fully developed flood control measures coupled with improved irrigation-drainage systems will enjoy the opportunity to fully exploit their potential of maximum crop production. The Citanduy Basin, like most tropical areas, can grow rice the year around providing there is sufficient water available from rainfall or irrigation. In the sub-districts of Banjar and Lakbok, the annual cropping intensity at the present time is nearly 200 percent or an average of two rice crops per year. Both of these areas have a high percentage of technical irrigation for the rice-fields. The other sub-districts have mostly rainfed ricefields.

For the area as a whole, there was a significant increase of cropping intensity to 174 percent during the five year period 1968 to 1972. The addition of irrigation and the introduction of new short duration varieties account for much of this increase. Field observations made by the ECI consultants show that many farmers with good water supplies are growing more than two crops per year. If there is ample irrigation water available, three crops could be produced each year. As an average and reasonable projection, five crops in two years or 2.5 crops per year can be expected with good water supply and farm management. For the purposes of the economic analysis, a conservative estimate of 2.0 crops per year has been made in projecting probable production both with and without the project.

YIELD OF LOWLAND RICE IN LOWER CITANDUY BASIN

District: Sub-District	Average Yield of Rough Rice (Kilograms/Hectare)					Average
	1968	1969	1970	1971	1972	
Ciamis:						
Banjar	2,419	2,065	2,065	2,242	2,492	2,257
Banjarsari	2,183	2,124	2,006	2,242	2,226	2,156
Lakbok	2,183	2,174	2,065	2,217	2,437	2,215
Padaherang	2,183	1,935	2,006	2,183	2,019	2,065
Cilacap:						
Sidareja	2,156	2,333	2,081	1,850	2,318	2,148
Kedungreja	2,156	2,333	2,650	2,390	2,102	2,326

In the economic analysis of the project, the difference between the future situation "without" and "with" the project were evaluated. For this analysis, it is estimated that five years will be involved in design studies, loan authorization and construction. This time requirement plus a five year development period results in an estimated ten years to reach full production.

Research trials in Indonesia show yields for HYV Pelita ranged from 3,800 kilograms of rough rice to over 10,500 kilograms and averaged about 7,000 kilograms per hectare in tests of 14 locations. With flood control, rehabilitation of existing irrigation systems and establishment of irrigation and drainage in other areas, the average yield of rice should rise markedly. An average yield of between 4,000 and 5,000 kilograms of rough rice per hectare per crop could be expected. There will be some variation among areas because of soils and general management skills. If intensive technical service to the farmers is made available, average yields could reach the upper end of the projected range. If no special project other than existing programs (BIMAS) for increasing rice production is undertaken, average yields would fall in the middle of the range. With only normal technical assistance from research and extension staff, average yields of about 4,000 kilograms per hectare per crop could be reached.

Each irrigation system has its own specific characteristics with regard to water supply, drainage deficiencies and system needs. As a result of these differing situations, each area

may differ from the others in regard to productivity. These factors were taken into account in determining the projected rice crop yield levels for the economic analysis of the future situations without and with the project. The projected rice yields with the project are shown in the following table to vary between 3.45 MT/ha. and 4.0 MT/ha. Projected yields average 3.9 MT/ha. with the project and 2.7 MT/ha. without the project. Is is to be noted that these yield levels represent the situation about ten years into the future.

INCREASED PRODUCTION FROM IRRIGATION & DRAINAGE

System	Hectares	Yield kg/ha
North Lakbok		
with project	7,033	4,000
without project	7,033	2,778
Rawa Onom		
with	1,028	4,000
without	1,028	2,900
Gunung Putri		
with	1,500	3,900
without	1,500	2,595
Ciputrahaji		
with	1,706	3,600
without	1,706	2,750
Citalahab		
with	630	
without	630	3,550
		2,550
Cikaso		
with	550	3,450
without	550	2,355
Panulisan		
with	600	3,900
without	600	1,500
Totals with project	13,047	3,887
Totals without project	13,047	2,675
		1,212

For analysis of the irrigation and drainage programs only the benefits from increased rice production are counted since there are no other crops of great significance grown under irrigation.

Farm family labor is not included as an expense as such in the economic analysis. The opportunity cost of the agricultural work force corresponds to its present overall income. The with-without approach attributes increased farm family labor income to project benefits.

Prices for production inputs are current local market with the exception of fertilizer and pest control prices which are set somewhat above current world market prices. The price of rice is based on historical world market prices projected into the future. As of October 1975, the rice price of Bangkok for five percent broken grade was Rp. 148,570 ($358) per metric ton of milled rice. The projection of historical rice prices would indicate that over the long run the price of rice is not likely to go much below this level. To a large extent the prices of fertilizer, oil and grain are tied together. These higher prices over the past two years have influenced the general price level, which is not likely to decline to an appreciable degree.

This study assumes a world price of Rp. 99,600 ($240) per metric ton of 25-35 percent broken kernel grade milled rice, which is the average grade expected to be produced from the project. Adjustment to local area farm price basis brings this price back to Rp. 62,700 ($151) per metric ton of rough rice. Since this is less than the current Bangkok FOB price for an equivalent grade of milled rice (about $300), the economic analysis is somewhat conservative.

Although the government program of buying and selling rice to stabilize the price held the price at an artificially low level during the previous three years, this situation has been corrected as the international price has declined and the domestic price has increased. The domestic floor price for rough rice is now Rp. 68,500/MT. This price is higher than the price used in this analysis, but lower than the current Bangkok price.

A rice crop budget is shown in the following table, Similar budgets, with production inputs adjusted according to output level, were prepared and utilized in the analysis of increased income from the irrigation and drainage improvement plans. The farm budget shown is based on a one hectare farm. Actual farm sizes in the project area range from small fractions of a hectare to several hectares - with the average equal to about 0.5 hectare.

RICE CROP BUDGET
PROJECTED SITUATION FOR A 4 MT/HA. CROP

	Rupiahs (000)		US $ Equivalent
Gross Receipts			
Rice, 4 metric tons (rough rice)	250.8		604.30
Expenses			
hired labor (harvest), 26 days	7.7	18.55	
seed, 30 kg	2.7	6.50	
fertilizer: TSP, 75 kg	10.6	25.55	
Urea, 200 kg	24.0	57.80	
insecticide	2.1	5.05	
rodenticide	.2	.50	
custom plowing, buffalo, 25 hrs.	24.8	59.75	
equipment costs	14.9	35.90	
rice storage facility	9.0	21.65	
Total expenses	96.0	231.30	
Plus 10% contingency	9.6	23.10	
	105.6		254.40
Net Income	Rp. 145.4		$349.90

Based on the project yields with and without the project and the associated net income, it is projected that the total increase in annual net farmer income from rice production will equal Rp. 1,096 million ($2.64 million) ten years after project initiation.

5. Economic Assessment of Irrigation and Drainage Investment

The construction cost for irrigation and drainage is $5.0 million. (This includes a 15% contingency factor, but no escalation for inflation.) Annual operation and maintenance costs are estimated at $112 thousand. Annual benefits for the tenth and subsequent years are $2.64 million as discussed above. During the first five years when construction will be in process, the benefits commence to accrue under each system as soon as the systems construction program is complete. When an irrigation system is under construction and out of service, a negative benefit representing a yield reduction and equal to full yield value during the period of construction is counted for that period. It is also

assumed that five years will be required after the completion of construction for full projected yields to be attained. On this basis, the internal rate of return for the irrigation and drainage portion of the project is calculated as follows ($ thousands):

Year	Costs	Benefits	Net Benefits	Present Discounted Value at 18%	Present Discounted Value at 20%
1	$1,164	- 634	-1,798	-1,523	-1,498
2	998	- 569	-1,567	-1,125	-1,087
3	1,773	-2,520	-4,293	-2,614	-2,486
4	394	+ 809	+ 415	+ 214	+ 200
5	1,000	+1,419	+ 419	+ 183	+ 168
6	112	+1,559	+1,447	+ 535	+ 485
7	112	+2,039	+1,927	+ 605	+ 538
8	112	+2,425	+2,313	+ 615	+ 539
9	112	+2,581	+2,469	+ 555	+ 479
10-50	112	+2,640	+2,528	+2,679	+2,046
				+ 124	- 616

IRR = 18.2%

This IRR is based on an estimated price for rough rice of Rp. 62.7/kg (milled equivalent equal to $240/MT), an average crop yield with the project of 3,800 kg/ha.(rough rice), full costing of unskilled construction labor, and the inclusion of a 15% contingency factor in construction costs.

With regard to the sensitivity of the internal rate of return for irrigation and drainage investment to changes in the assumptions made:

IRR = 18.8% - Rice price equal to Rp.68.5/kg (current Indonesian floor price)
IRR = 18.9% - Average crop yield of additional 10% as a result of the project
IRR = 19.3% - Contingency factor of 15% deducted from construction costs
IRR = 17.2% - Average crop yield reduced by 10% below expected level.

6. Combined Assessment for Flood Control, Irrigation, and Drainage

The internal rate of return for the total project is 18%. If unskilled labor is shadow priced at half cost, the internal rate of return becomes 21%

The following comparisons can be made with other recent projects that have major agricultural production components. As noted in the footnotes to the table, the comparisons for rice produced and investment cost per hectare must be treated with caution

Project	Cost ($ million)	Farmer income per $ invested 1/	Kg. of Rice per $ invested 2/	Investment per ha. 3/	Project IRR
Citanduy	17.9	0.31	1.10	$1,377	18%
Luwu I	28.8	.42	1.28	1,500	19%
Sederhana	49.2	.87	4.29	620	31%
Rice Estate	150.0	.01	.53	10,000	NA

1/ The figures shown are based on total investment costs and the incremental annual income increases due to the projects. For Citanduy, income increase includes the benefits of flood protection to individuals as well as farmer income from irrigation investments. For Luwu, the figure includes increased income that will result from road construction as well as from irrigation. For the rice estate, workers' wages are included.

2/ The comparison here must be treated with caution since half of the benefits from the Citanduy project are from flood protection and a significant portion of the benefits of the Luwu project are from non-rice production.

3/ The ratio of all project investment costs to additional hectares irrigated. Since the major portion of the investment costs for Citanduy are for flood control and for Luwu for road construction, the comparison must be treated with caution.

7. Employment and Income Effects

About one-sixth of the population in the project area will benefit directly from the irrigation portion of the project. As a result of the project, annual rough rice production in the 13,000 ha. affected by the irrigation investments will increase 2.4 MT/ha.,and annual per farm net income from rice will increase by Rp.42,000 (for a 0.5 ha. farm). On the average, about 8,000 families (40,000 individuals, or about 10% in the flood plain) will benefit annually from the flood control investments. Taking into account only those flood damages the avoidance of which directly benefit individuals (e.g., crop and personal property damages), each family in the project area has

benefits which average Rp.21,000 annually. (As previously calculated, per hectare damage on area flooded equalled Rp.210,000.) With an amount average of 10% of the flood plan (6,000 ha. out of 60,000 ha.) being protected from flooding, the per family annual benefits are Rp.21,000. These benefits should be compared with the estimated median annual per capita income of Rp. 30,000 ($75) in rural Java in 1974. (Assuming five people per family, annual family income averages Rp.150,000 ($275).)

When full production is reached, the equivalent of 2,500 permanent additional man-years of productive on-farm employment will be created by the irrigation investments. During the five-year construction period, a total of about 40,000 man-years of unskilled temporary employment will be created.

D. Social Soundness Analysis

1. Description of Target Group

The primary beneficiaries of the project will be the thousands of rural poor who are presently most affected by floods in the project area and the approximately 30,000 farmers and landowners who farm, own land or both in the areas designated for improved irrigation. The population of the project area is 620,000, or 666 person/km.^{2}, a higher density rate than for the island of Java as a whole. Over 80 percent of the work force are farmers. Rice is the overwhelmingly dominant crop, accounting for approximately 75 percent of the agricultural production. Other food crops are principally cassava with corn, beans and other vegetables following far behind. In addition, almost every small rice farmer also grows coconuts, and scattered papaya and pineapple plants are common. These are primarily grown as cash crops as a significant percentage of the farmers do not produce enough rice beyond their own requirements for food to sell.

These farmers are "dirt" poor. Available information would indicate that in 1974 90 percent of the rural population had per capita incomes of less than $150 per year, and about 60 percent had incomes insufficient to permit a minimally sufficient level of nutrition. Due to population pressures, farms have been divided and subdivided to the point where the average farmer can no longer support his family and must seek alternative forms of employment much of the year to supplement his meager income. Local government figures show that 83 percent of under 0.5 ha. and 63 percent are under 0.25 ha. No reliable statistics exist about the percentage of farmers who own their land. Very preliminary findings of the social analysis study now under way seem to indicate that perhaps the majority of the farmers are not land owners and that the absentee owner class is composed of many people who only own a few hectares each (note: by law a person can own only five ha.). As discussed in 6 below, very little of the benefits will go to the absentee landowners.

Mechanized equipment with the exception of small rice mills is practically non-existent in the basin and draft animals are very scarce. The vast majority of farmers plow their fields by hand with hoes. While this land preparation is considered men's work, the rest of the backbreaking process of planting, weeding, transplanting, harvesting (with small hand-held aniani knives instead of sickles) and threshing predominantly falls on the women.

2. Perception of the Problem and Benefits

The principal impediment to agricultural development in the basin is the lack of adequate flood control. Very damaging

floods occur annually inundating different areas of the lower Citanduy basin. Major floods occur on an approximately 10-year return frequency, bringing destruction of crops, homes, property, livestock and sometimes deaths.

Most studies conclude that nothing significant could be done to develop the basin, including irrigation and drainage, until measures are first taken to protect the land from these ravaging floods. The people are psychologically affected by the floods and readily perceive the problem. While they attempt to double crop, they are not often successful and repeated failures lead to discouragement. A recent survey shows that a large number of farmers both large and small continue to plant some of their fields in traditional varieties and are reluctant to use more than the traditional amounts of fertilizer because the risks are simply too great. Since it is the poorer people who primarily inhabit and farm the lower areas most susceptible to floods, they will benefit most from the flood control portion of the project.

3. Local Support

Preliminary findings of a recent sociological study conducted under contract for USAID indicated no evidence of any social, political or religious impediments to the project. On the contrary, it was felt that people at all social levels in the basin would welcome the project and enthusiastically support it. When asked if they would be willing to allow diversionary canals to cross their lands, everyone interviewed responded immediately and unhesitatingly that they would. The levees, irrigation structures and all other major works are to be constructed by local contractors using labor intensive methods and employing an indigenous work force. It is estimated that the project will use 45,000 man years of labor during the construction period and create permanent employment thereafter equivalent to 3,000 jobs.

4. Previous Project Experience

The farmers of the Citanduy River basin have attempted on their own to protect themselves from flood, to effect means of drainage and to control the flow of rain water from one level to another across their rice paddys. One of the early known attempts at public flood control began in 1938, when the Public Works Office of West Java proposed an extensive dike system along the banks of the Citanduy River. Recent aerial photos show remains of some construction that resulted, including channel

improvements to facilitate runoff. The Japanese during World War II also made some attempts at flood control. They started construction of the Pataruman weir which was completed by local labor subsequent to the termination of the war.

Since the war nothing of much consequence has been done. Dikes that were constructed have not been given adequate maintenance and have been further damaged by the recurring floods, so that now countless breaks have to be repaired.

Observations in the project area indicate that public built works and canals show little maintenance, whereas privately built projects, even in the so-called technically irrigated area, show much maintenance. Apparently this upkeep is done with voluntary labor.

5. Spread Effect

It is anticipated that the GOI institutions, by working together on the design and implementation of what in effect is an integrated area development program, will become more appreciative of each other's roles and will develop a cooperative work style that will prove beneficial to future activities in this and other areas.

Moreover, the establishment of effective flood control measures should lower the farmer's risks of crop failure and thus his willingness to use high yielding varieties, invest in fertilizer, pesticides, etc., and experiment with other technical innovations.

6. Distribution of Benefits

The benefits from this project are of two types: (a) elimination of the losses ($3.3 million per year) from annual floods and (b) increased production of rice ($2.6 million per year) made possible by improved irrigation systems. Each must be considered separately although in many cases the same people receive both benefits, as major portions of the flooded areas frequently are major portions of the irrigation system.

a. Flood Control. The area flooded annually ranges from a few thousand ha. up to 20,000 ha., with up to 50,000 people made temporarily homeless by a single flood (September 1973). Thus avoidance of all the losses and damages from floods may directly benefit up to 50,000 people in any one year who might be forced to flee their homes and thousands of others who suffer damages to their crops. The damages per hectare flooded is estimated at rp. 230,000 ($560). On an economic basis, adjusted for frequency and area that might be flooded per year, the annual benefit per family per year in the flood plain is rp. 21,000 ($50).

It is the poorest farmer who tends to live in the low-lying areas and thus is affected by the floods, for flood damages are to the occupant regardless of whether he owns the land or is a sharecropper. These poorest farmers have less resources to repair flood damages so they tend to recover more slowly than others. Often they have to abandon farming altogether and look for work elsewhere so as to feed their families and finance repairs. Many are so discouraged from flooding problems that they don't even try to grow a second crop, even when irrigation facilities so permit, because of the frequency with which the second crop is destroyed by floods or poor drainage.

b. Irrigation. A distinction should be made between the benefits that accrue to a land owner/operator and to a sharecropper or renter. The potential net income per year per farm of 0.5 ha. size in an irrigation system permitting two crops per year of 3.8 tons (rough) rice) is rp. 132,000, an increase of rp. 84,000 ($202) over current net income per 0.5 ha. of about rp. 48,000 ($115) from the same land presently not fully irrigated. Since the owner/operator would receive all this increase, his net income from the land would increase by 175% when he is able to receive the full potential from his land. The sharecropper or renter under the more common arrangement (owner provides all seeds, fertilizer, etc., deducts all costs from the harvest and divides the net income 50-50), would receive one half of the benefits of the increased production. Thus his net income from his labor would be rp. 66,000 (160), an increase of 175% over his possible net income without the project of rp. 24,000 ($60).

One of the expenses is labor at harvest time which is provided by the rural women who do the harvesting in exchange for a portion of the rice. Increased production from both two crops per year and increased yields per crop mean more income to these women laborers. This income goes directly to the workers regardless of whether they are land owners.

In summary, the preponderance of the flood control benefits go directly to the poorest group. Probably about 3/4 of the irrigation benefits also go directly to the poorest group, which in many cases will also be the ones who benefit directly from the flood control measures. The absentee land owners may directly receive about 1/4 of the irrigation benefits and negligible flood control benefits.

7. Role of Women

The project area is predominantly Muslim and women there, as in most Muslim societies, tend to play a submissive, supportive role. There are a few women agricultural extension agents and even fewer home demonstration agents in the basin. While they are expected to travel as extensively and work as hard as the men, they do not step into leadership roles. It is also assumed that widows who are heads of farm households will join and support water user associations but only as members.

Women do much of the physical, on-farm labor. Besides being a wife and mother, the woman also serves as a field hand who plants, weeds, transplants, harvests, and threshes the rice. When they hire out as laborers, they generally receive less pay than men for the same work. Unlike other areas in Asia the women do not hoe, shovel, or work on construction or road gangs. Consequently, the women of the basin will benefit from the project primarily as members of poor farm families. They will enjoy the benefits of increase, more certain income, and the assurances that their material possessions will be safe from floods. They are not foreseen as being a significant part of the construction work force nor recipients of other special benefits. Neither are there any indications that they will be adversely affected by the project.

Special consideration will be given to women in the training programs and technical assistance activities. The World Bank will also be working in expanding the role of women in the rural areas through a loan for an agriculture project (in Washington for approval) to expand and improve extension activities in Indonesia (including this project area). The AID-financed project, however, should avoid duplication or conflicts with the IBRD-financed extension activities.

IV. IMPLEMENTATION ARRANGEMENT

A. Analysis of the GOI and AID Administrative Arrangements

1. GOI - Ministry of Public Works

a. Organization. The Directorate General for Water Resources Development (DGWRD) within the Ministry of Public Works and Electric Power is the primary executing agency for the project. The Citanduy Project Office, which was established by the Minister of Public Works decree No. 133/KPTS/1969, April 1, 1969, will be directly responsible for overseeing the studies, designs, and construction called for in the loan. The project office is a special administrative arrangement used by the GOI for large construction projects. Since it is a temporary organization it is responsible for O and M during construction only and turns over O and M responsibility to the appropriate local offices after completion of construction.

The Project Office is headed by a Project Manager who reports to the Director for Rivers within DGWRD who has been delegated the authority to oversee the conduct of the Citanduy Project. To assist the Director for Rivers in monitoring the water resources development in the Citanduy Basin, DGWRD established the Citanduy Steering Committee. This committee is composed of members from the Ministries of Public Works, Interior, and Agriculture; from BAPPENAS (GOI planning agency); and from USAID. The purpose of this committee is to assure coordination of all phases of the water resources development among the interested parties and to provide guidance to the Director of Rivers in overseeing development of the Citanduy Basin.

ECI in their Master Plan and Feasibility Study proposed that a permanent agency, which they called an authority, be established, which would be completely responsible for both construction and the operation and maintenance of all flood control and irrigation works. However, the GOI plans to handle the flood control and irrigation work the same as other major construction projects, i.e. through the Project Office which will be responsible for the construction stage. Upon completion of construction the levee system and the major irrigation works will be turned over to the provincial public works for operation and maintenance. The Project Office will be responsible for maintenance during the construction period. The local agriculture extension officers, working with the water users associations, will be responsible for O and M of the terminal irrigation networks.

b. Project Office Staff. The staff of the Project Office includes 18 five year college graduates (Ir. and Drs.) and 21 three year graduates (B.S.). This professional staff worked with the consultant during the preparation of the feasibility plan and master plan. In addition it has been supervising the heavy maintenance on the levees which has been performed by force account and under contracts with private construction companies. It is anticipated the staff of the Project Office will have to be slightly increased to oversee the proposed construction. This increase will be predominately in three year civil engineering graduates and field technicians for inspecting construction. The majority of construction inspectors would come from existing staff presently performing similar work on the levee maintenance program. DGWRD will assign to the Project Office any additional personnel that might be needed. The consultant, who has prepared the studies and who is currently doing the final design (ECI), will be retained to both provide regular supervising engineer services for the project and assist the Project Office during construction. The advisory services probably will be provided by one management advisor to the Project Office for three years, one O&M advisor for flood control for two years, one O&M advisor for irrigation for three years, plus 24 man-months of short term specialists. In-country training will be conducted for the construction inspectors. Particular emphasis will be placed on proper compaction techniques and control.

c. Contracting Experience. The Project Office has been engaged in construction since 1969. The rupiah value of their construction budget has increased fourteen fold over the last eight years. During the last four years the construction budget for the Project Office has averaged Rp. 952,985,000 ($2,296,349). Most of this has been for heavy levee maintenance work and for the construction of the Magnenty Weir on the Citanduy River downstream from Banjar. Since the Project Office is familiar with contracting both for construction and technical assistance they should be able to award the construction contracts with a minimum of difficulty.

2. GOI-Ministry of Agriculture.

a. Organization. To facilitate its direct involvement in the project, the Ministry of Agriculture will assign a three-man team to work directly under the Citanduy Project Office. The team will consist of a leader and one specialist, each in the extension and technical aspects of farm level implementation. This team will (1) plan and monitor farm

level activities for the Project Office, (2) act as a liaison between the Project Office and the Ministry of Agriculture and the West and Central Java Provincial Agriculture Services, and (3) advise and assist the Project Office on agricultural aspects of the project, generally.

Within the Ministry of Agriculture, the Agency for Agriculture Education, Training and Extension (AAETE) is responsible for extension aspects of farm level implementation including the establishment and operation of water users associations as well as the construction and O&M of the terminal irrigation networks. The Sub-directorate for Conservation of Land and Water (SCLW) will provide technical help (design and construction supervision) to AAETE in the construction stage.

The West and Central Java Provincial Agriculture Services, operating through field extension workers headquartered at the kecamatan level, are the primary implementing organizations for assistance to the farmers in farm level implementation including (1) formation of water-user associations, (2) on-farm water management, (3) O&M of terminal irrigation networks, and (4) soil conservation.

b. Personnel. AAETE has a total of 18,731 employees (Food Crops) in the provinces, of which 550 are university graduate technicians, 14,619 are non-university graduate technicians, and 3,562 are administrative personnel. Out of the total of 684 employees in SCLW in the provinces, 56 are university graduate technicians, 614 are non-university graduate technicians, and 14 are administrative personnel. In other words, these two agencies have a combined total of 606 university graduate technicians and 15,233 non-university graduate technicians. These technicians are stationed primarily at the kabupaten and kecamatan levels. It is expected that this staffing level will prove adequate for farm level implementation activities connected with the Citanduy Project. SCLW will have to transfer additional technicians to kabupaten Ciamis in the province of West Java to assist AAETE in the construction stage.

Provincial and Kabupaten AAETE and SCLW Staffs

		West Java Province	Ciamis Kabupaten	Central Java Province	Cilacap Kabupaten
University graduates	AAETE	105	7	*	6
	SCLW	6	-	2	-
Non-university graduates	AAETE	726	88	*	29
	SCLW	53	1	75	2
Other	AAETE	598	75	*	47
	SCLW	1	-	1	-
		1,489	171	5,514**	84

* No breakdown of Central Java's AAETE provincial staff available. Employees total 5,436.

** Total includes 5,436 employees of AAETE.

The AAETE staff in kabupaten Ciamis is directed from three Rural Extension Centers (REC). Five additional RECs are to be constructed in kabupaten Ciamis under the terms of an IBRD loan.

c. Technical Advisors. One advisor for three years will be financed under the proposed loan to provide technical assistance in (1) training, (2) irrigation extension, and (3) terminal irrigation network development. He will advise and assist AAETE, SCLW and the West and Central Java Provincial Agricultural Services in training and farm level implementation activities. The advisor will be assigned office space and a counterpart by both of these Provincial Agriculture Services. The GOI (project) will provide all local currency costs.

d. Training. The advisor will advise and assist in developing staff and farmer training programs. Staff members will receive on-the-job, in-country, and overseas training in such areas as (1) wet ricefield planning and layout, (2) survey, design, and construction of on-farm service ditches, (3) on-farm water management, (4) O&M of quaternary canals and farm service ditches, and (5) soil conservation and watershed management. Farmer training will include such subjects as (1) wet ricefield planning and layout, (2) on-farm management, (3) rice production, (4) soil conservation practices, (5) marketing, and (6) processing. Farmers will be trained through

their water user associations. AID approval of a project training plan will be a condition to commencing the first incountry training course for which reimbursement will be sought under the loan.

e. Equipment. Vehicles (from the U.S.), light equipment, and hand tools needed for project training, farm level implementation activities, and O&M, which can be procured from the U.S. or other A.I.D. Geographic Code 941 countries at competitive prices, will be directly procured under the loan. Other vehicles, light equipment, and hand tools will constitute a GOI contribution to the project (not shown in financial tables).

3. AID Administrative Arrangements

Implementation of this loan will require the full-time services of two AID direct hire staff members and half-time services of one officer for at least two years: an engineer, a capital development officer, and an agriculture advisor. Depending on Mission ceiling levels and logistical arrangements, USAID may assign two officers full time to Banjar for the implementation of this project. One would be an engineer experienced in water projects; the other, either an agriculture advisor or a generalist (rural development advisor, project officer, or a capital development officer) to assist in the many aspects of implementation. After two years, one officer full time would be needed until the project is completed.

If two officers are stationed in Banjar, backstop work in the USAID/Jakarta office would require the part-time services of one capital development officer. Additional support would be provided as needed from other staff offices in USAID; i.e., legal assistance in negotiations of the loan agreement by the regional legal advisor; disbursement and contracting assistance by the Comptroller staff, etc.

B. Implementation Plan

1. General

Construction contractors in Indonesia register with the Ministry of Public Works and Electric Power and are classified A, B, C, or D contractors depending on their capabilities. For this project DGWRD would invite bids from about ten qualified Class A contractors. The units of work are too small to attract foreign contractors. The usual GOI contracting practice is to award a contract for about one year's work or less with the contract being awarded and work beginning about May or June of each year. This is determined by the GOI fiscal year cycle (April 1-March 30), with funds not becoming available until about late May or June and contract awards must await availability of funds. The construction (dry) season in the Citanduy Basin is May-October although some work can be performed during the rainy season.

USAID will approve the criteria for contractor eligibility, the list of eligible contractors, the standard contract form to be used, the final design and specifications, and the award of contracts.

All payments to contractors for construction work will be in local currency, although the contractors may buy some imported materials on the local market (cement, steel, etc.). ECI estimates that the cost of imported materials used in construction will be about $1.1 million. As a condition precedent to the loan, the GOI and USAID will agree on the percentage of construction contract costs to be financed by the loan. For planning purposes in this PP, the agreed percentage is assumed to be 35%. This percentage may be changed from time to time if financial conditions change. AID will reimburse the GOI from the loan at the agreed percentage of the approved predetermined estimated cost for each output unit of work completed and approved by AID. The mechanism for reimbursing these local currency costs will be the Fixed Amount Reimbursement (FAR) procedure.

2. Construction

a. Flood control: The Project Office plans to limit each contract to about 10 km. of levee work. Probably about 30 km. (three contracts) will be awarded for the Indonesian Fiscal Year (IFY) 1976/77 and about 40 km. per year thereafter until the work is completed in 1981.

To avoid the loss of one dry season, the Project Office plans to award some contracts in early 1976. Therefore, the loan may be used to reimburse those construction contracts awarded after the loan is authorized but prior to satisfaction of the initial conditions precedent provided all the AID approvals are obtained prior to award of contract. Reimbursement, however, would not take place until after all appropriate conditions precedent are satisfied.

b. Irrigation: Since the eight irrigation systems are of different sizes and in different locations, the number of contracts may vary from year to year. Probably about three to five contracts will be awarded each year for rehabilitation work plus additional contracts for the new construction work. A retention of 20% will be withheld from each FAR payment for construction work on irrigation systems (DGWRD). The retention will be released to the GOI at the time payment is made for completion of the terminal irrigation networks for that irrigation system (Ministry of Agriculture). See item d below.

c. Drainage: The drainage work will also be performed by private contractors in a manner similar to levee and irrigation work.

d. Terminal Irrigation Networks: The SLWC under guidance from AAETE will be responsible for the design, furnishing materials and equipment, and supervision of construction of the terminal irrigation networks (quaternary canals and on-farm service ditches). Some work will be performed by farmers and local workers on a paid basis and some by farmers as their donation to the project. AAETE will be responsible for the organization of water users associations for each terminal irrigation network as well as the O&M for the network after construction is completed.

The GOI may request reimbursement after at least 60% of a rehabilitated irrigation system or 40% of a new irrigation system has both (a) completed terminal irrigation networks (quaternary canals and farm service ditches) and (b) water users associations. The loan will reimburse the GOI for this work at the rate of 50% of the mutually agreed predetermined flat rate per ha. times the number of hectares covered by both terminal irrigation networks and water users associations. For planning purposes, it is assumed that this cost is Rp. 26,000 per ha., for which the FAR payment would be 50% or Rp. 13,000 per ha. At this time, the 20% retention withheld from the FAR payments for major construction work for that irrigation system (DGWRD portion) would also be released to the GOI.

If, within the loan disbursement period, additional terminal networks and water users associations are completed in any irrigation system, a second FAR payment may be made from the loan at the same fixed rate per ha. for the additional land covered by networks and associations.

3. Consulting Engineering Services

As discussed in the issues section of the Summary and Recommendations, it is anticipated that a cost-plus-fixed-fee contract will be entered into with ECI to provide these services without advertising. ECI prepared the feasibility study and is now preparing the final design (AID Loan 497-H-027) which is scheduled to be completed in November 1976. Both GOI and USAID are satisfied with ECI's work to date. Since ECI is fully mobilized, familiar with the project, qualified to provide the supervising engineering services, and under its present contract is to provide some construction supervision services through November 1976, a direct award of the contract would avoid an interruption in the project implementation. Contracting without advertising is permitted under AID regulations (Handbook 11, Chapter 1, pgs. 1-13).

4. Technical Assistance to Project Office

This is included in the budget table as a part of "consulting engineering/assistance during construction." This would be assistance to the Project Office not included in the normal supervising engineering contract. It consists of one management advisor to the Project Office for three years, one O&M advisor for flood control for two years, one O&M advisor for irrigation for three years and one construction equipment operations/maintenance advisor for two years plus 24 man-months of short-term specialists.

Due to the close relationship of this advisory work with the construction supervision, it is proposed that these services also be provided by ECI as a part of their contract for supervising engineering work without advertising.

5. Equipment

Equipment will be ordered from the U.S. or Code 941 countries using regular procurement procedures (Handbook 11, chapter 3). DGWRD will be responsible for the use and maintenance of all equipment purchased for major construction (e.g., all construction work except that for terminal irrigation networks). The equipment will either be leased to contractors or provided to contractors with appropriate adjustment made in contract payments. After completion of the project USAID and GOI will agree on the disposition of the equipment. It will be used for construction under Citanduy II loan and/or O&M work.

Small items of equipment made locally will be provided by the contractors, DGWRD or SIWC without reimbursement from loan funds. The cost of these items was not included in estimates of project costs.

SIWC will receive and be responsible for equipment for construction of the terminal irrigation networks until construction is completed. Then the equipment will either be used for O&M or for construction activities under Citanduy II loan.

6. Technical Assistance to Agriculture

It is expected that this will consist of one advisor for three years plus 24 man-months of short-term advisors. Procurement will be through the usual advertising-selection process described in AID Handbook 11, chapter 1. The loan is to finance all foreign exchange costs and the GOI all local costs.

7. Training

The loan would directly finance all foreign exchange costs of overseas training (both long-term academic training in the United States and short-term observation-type trips to the United States or selected countries in Asia). The loan would reimburse the GOI for incountry training costs approved by AID at the rate of 50% of agreed eligible costs. Eligible costs would include domestic travel, per diem, and other costs directly charged for a training activity. Salaries of trainees would be borne by the employing agency and not be considered as a part of the training costs for reimbursement purposes.

8. Studies and Design Work (Irrigation Projects)

The Master Plan identified a number of additional irrigation projects for rehabilitation or construction at some future date. It is anticipated that feasibility studies for two separate groups of irrigation systems (Upper Citanduy and Central Java) will be financed under the loan in addition to final design for these and two other groups of irrigation systems (Sideraja and Banjar Plains). It is anticipated that ECI will be awarded a contract directly for these studies and design work for the same reason as given above for technical assistance; i.e., close relationship with Citanduy I activities, familiarity with project, ease of logistical support and minimum mobilization time and effort.

9. Upper Watershed Study

The study of upper watershed cropping and land uses is independent of the construction activities for irrigation and outside ECI's area of expertise. Therefore, the usual advertising/selecting process will be followed in obtaining the services of a qualified firm or university to make this study.

C. Evaluation of Implementation:

A plan was prepared for this project by Dr. Arthur Auble of Robert R. Nathan Associates, consultant, November 14, 1975, which contained suggestions for evaluating both the implementation stage of the project and the purpose stage after the project is completed. (Note: The plan is too lengthy to be included in this PP, but is available in AID/W and USAID for use.) The following schedule for evaluation is built around those recommendations although scheduled somewhat differently to conform to AID's programming/implementation cycle.

Two separate and distinct types of evaluation are to be conducted: the first type concerns the implementation stage and second type concerns the purpose stage. Dr. Auble's report was concerned mostly with the purpose stage.

The first evaluation is to take place in the fall of 1977 so that the results can be used in preparing the Citanduy II Project Paper. In preparation for this evaluation the sampling of the padi fields, as recommended in Dr. Auble's Plan, will be conducted in the summer of 1977 for all the project irrigation systems except those under construction and thus not growing rice. The cost of this sampling should be grant funded by USAID. This would provide additional base line data for future evaluations. The Auble plan included some forms to record construction activity. The consulting engineer's quarterly reports will be designed to include all relevant data concerning progress of the construction stage. Also, one of the first tasks of the consulting engineer and project office would be the preparation of a work plan (PERT, CPM, etc.). For the evaluation it would be desirable to have an agricultural specialist and an engineer from outside USAID to participate by providing an objective, fresh view of the project. The evaluation would be a joint effort with Indonesian officials from the DGWRD, Ministry of Agriculture, and BAPPENAS.

The second evaluation of implementation would take place one year before the project is completed; i.e., spring of 1980. Again, sampling of the padi fields would be made by the Indonesians to record changes in production since the 1977 sampling and to provide additional base-line data for the 1986 evaluation. This evaluation should proceed along the same lines as the 1977 evaluation, i.e., an AID engineer and agriculture specialist (preferably from outside the Mission), appropriate Mission and GOI personnel would evaluate the project based on field inspection trips, results of the sampling of padi fields, and periodic reports of the consulting engineer and other data as appropriate. Although this evaluation would be concern implementation and

actions needed for the last of the project, it also would examine progress toward project purpose; i.e., protection from floods and increase in rice production.

The third evaluation, which would be concerned with achievement of project purpose, would be made in the tenth year after construction begins; i.e., the summer of 1986. By this time all irrigation systems would be in production for at least five years after completion of rehabilitation or construction. A third sampling would be made of the padi fields for comparison with the two earlier ones and the baseline data in the ECI Feasibility Report. As in the first two evaluations, outside engineering and agriculture specialists should be used, if possible. This evaluation would also review the experience with flooding and drainage in the project area.

D. Conditions and Covenants

1. The conditions precedent for initial disbursement shall include:

a. Legal opinion
b. Authorized representatives
c. Assurances of GOI financial support of the project
d. List of equipment to be ordered

2. The loan agreement will include the standard provisions concerning AID's approval of all contracts, contractors and construction plans, bid documents, etc., and all equipment to be financed by the loan. A training plan including the names of participants must be approved by AID before loan funds can be used to finance any portion of a training activity.

3. Conditions precedent for disbursement for any purpose other than procurement of equipment shall include submission of plans (manpower, annual financial support, materials, etc.) satisfactory to AID concerning the following:

a. The operations and maintenance of the following physical facilities to be constructed or rehabilitated under this loan: (i) the flood control system, (ii) the irrigation and drainage systems, and (iii) the terminal irrigation systems;

b. The provision of sufficient quantities of farm inputs (fertilizer, etc.) to the eligible farmers in the irrigation systems; and

c. The provision of an adequate level of rural extension services to the project area.

4. The standard provision concerning AID's approval of final design and bid documents shall include a provision that AID and the Borrower shall agree on the percentage at which AID will reimburse the Borrower for the approved construction cost estimate. This percentage may be adjusted periodically by mutual agreement.

5. The loan agreement shall contain a condition or covenant concerning the incorporation into final design any appropriate recommendations that may be made in the environmental assessment to be made by an environmental team which is to visit Indonesia in early CY 1976.

CITANDUY BASIN DEVELOPMENT PROJECT

List of Annexes

A. AID/W Approval of PRP

B. Technical Details -- Flood Control

1. Decree No. 133/KPTS/1969 Establishing Citanduy Project
2. Decree No. 71/KPTS/1973 Establishing Steering Committee
3. Staffing of Citanduy Project Office
4. Citanduy Project Organization Chart
5. Ministry of Public Works Organization Chart
6. Typical Levee Cross Section
7. Levee Maintenance Districts (proposed)
8. Earthwork Quantities
9. Revised Cost Estimates
10. Illustrative Equipment List

C. Technical Details -- Irrigation and Drainage

1. Description of Irrigation and Drainage Systems
2. Major Irrigation Systems
3. Schematic Diagram of Project
4. Location Map of Irrigation Systems
5. Proposed Layout Panulisan Irrigation System (New)
6. Revised Cost Estimates

D. Environmental Statement

E. Logical Framework Matrix

F. Project Performance Tracking System

G. Statutory Checklist

H. Section 611 (e) Certification

I. GOI Loan Application

J. Project Description for Loan Agreement

K. Draft Loan Authorization

Department of State

Annex A

TELEGRAM

027 Citanduy

ACTION AID-8

INFO CHRON
AMB
DCM POL ECON

UNCLASSIFIED ON [illegible]

Classification

MAR 28, 1975

1337

Otto/Br

ACTION COPY
DATE: 3-27.
ACTION TAKEN 1/28
DATE 3-27-75
BY: ENGR
RETURN TO C&R

R 192042Z MAR 75
FM SECSTATE WASHDC
TO AMEMBASSY JAKARTA 1295
BT
UNCLAS STATE 062070

AIDAC

E.O. 11652: N/A
TAGS:
SUBJECT: CITANDUY/CISEEL RIVER BASIN FLOOD CONTROL IRRIGATION AND DRAINAGE PROJECT PRP

1. EAST ASIA ADVISORY COMMITTEE MEETING HELD 4 FEBRUARY ON SUBJECT PCP. APPROVAL GIVEN TO PROCEED PREPARATION PP. ISSUES/POINTS RAISED WHICH NEED TO BE FULLY ADDRESSED IN PP DISCUSSED BELOW.

2. LOGICAL FRAMEWORK MATRIX. PROJECT PURPOSE AND PROGRAM/SECTOR GOAL SHOULD BE STATED MORE CLEARLY SO THAT PRESENT OVERLAPPING AVOIDED. LINKAGE BETWEEN PROJECT PURPOSE AND PROGRAM/SECTOR GOAL SHOULD BE EXPLICITLY STATED. FIRST ASSUMPTION FOR ACHIEVING PROJECT PURPOSE SHOULD BE CHANGED TO READ QUOTE WILL CONTINUE TO MAINTAIN UNQUOTE. OBJECTIVELY VERIFIABLE INDICATORS OF ACHIEVEMENT OF PROJECT PURPOSE SHOULD BE DEVELOPED.

3. BENEFITS TO TARGET GROUP. PROJECT BENEFICIARIES SHOULD BE DESCRIBED IN DETAIL. BENEFITS SHOULD BE DESCRIBED IN DETAIL AND QUANTIFIED WHEREVER POSSIBLE. WILL LAND VALUES INCREASE IN PROJECT AREA? IF SO, HOW WILL THIS AFFECT RENTS AND TARGET GROUP BENEFITS? ARE AVERAGE LAND HOLDINGS LIKELY TO REMAIN SMALL?

4. FARM LEVEL IMPLEMENTATION. AS IN CASE SEDERHANA, TREATMENT THIS AREA DEEMED ONE OF MOST IMPORTANT ASPECTS PROJECT DESIGN. PLANNED ASSISTANCE THIS AREA CITANDUY PROJECT SHOULD BE DISCUSSED IN DETAIL

5. LAND FRAGMENTATION. IS FRAGMENTATION OF LAND HOLDINGS A PROBLEM IN PROJECT AREA? IF SO, WHAT MEASURES PLANNED TO ADDRESS PROBLEM, IF ANY?

6. [illegible]

6. CONCERN EXPRESSED AT PRP REVIEW ON LAND USE CHANGES IN UPPER WATERSHED. PP SHOULD EXPLAIN PLANNED CHANGES AND METHOD OF IMPLEMENTATION TO ADDRESS PROBLEM OF EROSION.

7. CITANDUY PROJECT OFFICE THE ROLE OF DEPARTMENT OF AGRICULTURE, COORDINATION WITH GOI AGENCIES, PERMANENCE, RESPONSIBILITIES, BUDGET AND STAFFING WERE NOT CLEAR IN PRP OR REVIEW DISCUSSION THESE CRITICAL TO PROJECT AND SHOULD ALL BE DISCUSSED IN DETAIL;

8. IMPLEMENTATION CAPABILITY. ABILITY OF GOI AGENCIES CONCERNED TO IMPLEMENT PROJECT SHOULD BE ANALYZED IN DETAIL,

9. O AND M. O AND M OF FLOOD CONTROL WORKS, MAJOR IRRIGATION WORKS AND TERMINAL (TERTIARY) IRRIGATION SYSTEMS SHOULD BE TREATED IN DETAIL WHAT GOI AGENCY WILL BE RESPONSIBLE FOR O AND M OF FLOOD CONTROL AND MAJOR IRRIGATION WORKS AFTER PROJECT COMPLETION, CITANDUY PROJECT OFFICE OR WEST AND CENTRAL JAVA PROVINCIAL PUBLIC WORKS OFFICES? WHAT O AND M ASSISTANCE WILL BE PROVIDED? WILL AREAS NOT INCLUDED IN ASSISTANCE PACKAGE BE COVERED BY CP/COVENANT?

10. BIMAS PRODUCTION INPUT PACKAGE. WHAT IS CURRENT STATUS OF BIMAS PROGRAM IN PROJECT AREA? WHAT ARE GOI PLANS FOR INCREASING BIMAS COVERAGE OF AREA?

11. COORDINATION WITH OTHER DONORS. THIS SHOULD BE DISCUSSED IN DETAIL

12. LC/FAR. METHOD OF LOCAL CURRENCY FINANCING SHOULD BE DISCUSSED; IF USE FAR CONTEMPLATED, PROPOSED COMPLETION UNITS FOR PURPOSE REIMBURSEMENT SHOULD BE INDICATED AND FINAL PP SHOULD HAVE DETAILED DISCUSSION FAR. INDICATE ANY WAIVER CURRENT AGENCY PROCEDURES

THAT MAY BE REQUIRED SO THIS CAN BE ACCOMPLISHED WITH PROJECT AUTHORIZATION.

13. SOIL CLASSIFICATION HAS ADEQUATE SOIL CLASSIFICATION WORK BEEN DONE TO ASSURE THAT LAND RECEIVING IMPROVED/NEW IRRIGATION AS RESULT PROJECT SUITABLE FOR RICE? IF NOT, WHAT ADDITIONAL WORK PLANNED AND ON WHAT TIME SCHEDULE?

14. FLOOD RETURN PERIOD; REASONS FOR DESIGNING FOR 25-YEAR RATHER THAN 50-YEAR OR SOME OTHER FLOOD RETURN PERIOD SHOULD BE DISCUSSED IN DETAIL.

15. FLOOD HYDROLOGY. DO PRESENT PLANS INCLUDE USE MODEL TO ANALYZE FLOOD HYDROLOGY? FLOOD HYDROLOGY SECTION ECI STUDY INDICATES FIELD VERIFICATION OF FLOOD LEVELS NECESSARY; AHAT ADDITIONAL FIELD WORK CONTEMPLATED?

17. FLOOD LEVEE DESIGN MAY BE ADVANTAGEOUS TO DESIGN FOR FAILURE LIMITED SECTION LEVEE WHEN DESIGN FLOOD EXCEEDED, THUS AVOIDING FAILURE LARGER SECTION DURING DESIGN. ECI SHOULD CONSIDER FLOOD FORECASTING, WARNING SYSTEMS AND PROCEDURES FOR EVACUATION THREATENED AREAS.

18. ADDITIONAL STUDIES. WHAT OTHER ECONOMIC/TECHNICAL ANALYSES REQUIRED AS BASIS DEVELOPING PP? WILL RESULTS THESE STUDIES BE AVAILABLE IN TIME MEET PP SCHEDULE INDICATED PRP?

19. PP NEEDS TO INCLUDE DESCRIPTION ENVIRONMENTAL IMPACT OF PROJECT. ALSO NEED INCLUDE DISCUSSION ON HOW PROJECT WILL ENCOURAGE PARTICIPATION WOMEN IN DEVELOPMENT PROCESS. INGERSOLL

REPUBLIC OF INDONESIA

MINISTER OF PUBLIC WORKS AND ELECTRICAL POWER

DECREE OF PUBLIC WORKS AND ELECTRICAL POWER MINISTER
NO : 133 / KPTS / 1969
ON
FORMATION OF IMPLEMENTATION BODY FOR CITANDUY PROJECT

MINISTER OF PUBLIC WORKS AND ELECTRICAL POWER

Considering : a. That in accordance with the Five-Year Development Plan, repairs and development of irrigation (Irrigation, drainage, landreclamation, flood control, etc) is one of the main factors of agricultural development in general, food production in particular ;

b. That the developing efforts for the Citanduy river are not only in the long run converting it into a potential, fertile and prosperous, but also controlling floods and cultivating the area for the safety of food production ;

c. That the area of the Citanduy river situated in 2 (two) first-level area obliges the formation of Implementation Body designed to carry out the above work with coordination and plans, especially flood-controlling works ;

In view of : 1. RI Presidential Decree No.182 jo. 184 of 1968 ;
2. RI Presidential Decree No.319 of 1968 ;
3. Regulation issued by the Minister of Public Works and Electrical Power No.5/PRT/1968 jo. No.03/PRT/1969 ;

Also : MPRS Decision No.XLI/MPRS/1968 on main duties of Development Cabinet ;

HAVING DECIDED :
MINISTER'S DECISION ON FORMATION OF IMPLEMENTATION BODY FOR CITANDUY PROJECT

CHAPTER I
FORMATION
Article 1.

(1) By this Minister's Decision an Implementation Body is formed under the name "Citanduy Project", which is hereafter called Project in this decision.

(2) The existing units of the project, whose activities are within the scope of "Citanduy Project" , are integrated in this project .

CHAPTER II
MAIN DUTIES AND RIGHTS
Article 2.

The Project has the following main duties :

(1) Short-term duties :

a. to intensify safety efforts for the areas frequently affected by floods , especially the areas of food production.

b. reclamation of the food production areas by means of colmatage and / or drainage .

(2) Long-term duties :

a. to conduct surveys, analysis and compilation on : cost, design of the works to be implemented in the context of developing the area of Citanduy river .

b. to conduct physical development of the project in the context of developing the area of Citanduy river.

c. to obtain the best possible working system for a big project.

Article 3.

The Project is granted the rights :

(1) To establish working relations and to seek cooperation with Government agencies (Civil, Military, Central and Regional) as well as with the private parties as required.

(2) To appoint and dismiss workers as the Project requires.

CHAPTER III
STRUCTURE OF ORGANIZATION
Article 4.

(1) The organization of this Project comprises these elements :

a. Management.
b. Staffs of Management.
c. Implementer.

(2) Included in :

a. Element of management for the Project is the Manager (and eventually the Deputy Manager of the Project).

b. Element of Management Staffs are the Chief of Staff along with the Assistants and the staffs.

c. Element of Implementation is the Sub Projects.

(3) If necessary, an Assisting Body could be set up in the Project echelon and/or Sub Project, which could provide advice, suggestions and/or considerations as well as assistance either requested or not requested for the smooth implementation of the Project.

(4) a. The Assisting Body in the Project echelon is set up by the Minister of Public Works and Electrical Power at the suggestion of the Director General for Irrigation.

b. The Assisting Body in the Sub Project echelon is set up by the Director General for Irrigation at the suggestion of the Project Manager with consultations of Sub Project Manager.

Article 5

(1) In the management the Project Manager is assisted by a staff group comprising :

a. Chief of Staff ;

b. Assistant I : Planning matters (Surgeys/Investigations & Designs).

c. Assistant II : Operational matters (including operation planning).

d. Assistant III : Logistics (Equipments and supply).

e. Assistant IV : Finance.

f. Assistant V : Administration.

(2). Each Assistant may have Assisting Staffs, the total number of which is determined by the Project Manager.

(3). If necessary, other Management Staffs or Implementation Staffs could be set up in accordance with the specific characteristics of the relevant project.

Article 6

(1) The Chief of Staff conducts Staff coordination for the smooth implementation of the Project.

(2) Assistant I : To conduct plannings, surveys, investigations and designs.

(3) Assistant II : To prepare progress reports, time schedules, to supervise the implementation of the project, to conduct operational plannings, etc.

(4) Assistant III : To manage and supervise the problems of equipments and supply.

(5) Assistant IV : To handle the financial and administration matters.

(6) Assistant V : To handle the general administrative matters, secretariate matters and personnel matters.

Article 7.

(1) To run the project smoothly, working units are set up, which are called Sub Project, e.g. :

a. Right Citanduy Sub Project ;

b. Left Citanduy Sub Project ;

(2) Duties of Sub Project are :

a. To channel and supplement the instructions and duties of the Project Manager in accordance with the local condition and situation.

b. To conduct operational works.

c. To assist in surveys, data compilation and plannings.

(3) Each Sub Project is led by a Sub Project Manager.

(4) The Sub Project Manager with the approval of the Project Manager could set up Sub Units as required by the Project, either with staffing duties or implementing duties.

CHAPTER IV
DUTIES AND RESPONSIBILITIES
Article 8

(1) Project Manager takes care of the management and is responsible for the Project and is responsible to the Director General for Irrigation.

(2) Project Manager arranges the work of and gives guidance to the Sub Project Manager and Chief of Staff as well as the Assistants.

Article 9

(1) The Chief of Staff is obliged to assist the Project Manager in management matters and daily work as well as coordinating the work of Assistants.

(2) The Assistants are obliged to assist the Project Manager/ Chief of Staff in giving guidance and technical directives for the implementation of the Project in accordance with the respective duties.

(3) The Chief of Staff is responsible to the Project Manager.

(4) The Assistants are responsible to the Project Manager via the Chief of Staff.

Article 10.

(1) The Sub Project Manager is obliged to handle the work of the Sub Project at the directives of Project Manager, for their respective working areas.

(2) The Sub Project Manager is responsible to the Project Manager.

CHAPTER V
APPOINTMENT AND DISMISSAL
Article 11

(1) The Project Manager / Chief of Staff and the Sub Project Managers are appointed and dismissed by the Minister of Public Works and Electrical Power at the suggestion of the Director General for Irrigation.

(2) The Assistants are appointed and dismissed by the Director General for Irrigation at the suggestion of Project Manager.

(3) Members of the Assisting Staff are appointed and dismissed by the Project Manager.

(4) Members of the Project Assisting Body are dismissed and appointed by the Minister of Public Works and Electrical Power at the suggestion of Director General for Irrigation.

(5) Members of the Sub Project Assisting Body are appointed and dismissed by the Director General for Irrigation at the suggestion of Project Manager with consultation of Sub Project Manager.

(6) Sub Project Manager with the approval of Project Manager could appoint main assisting officials for the smooth implementation of the Project.

Article 12

(1) Project Manager could appoint and dismiss project workers in accordance with the interest and needs of the Project and within the limit of Project Cost.

(2) Sub Project Manager could do the same with the approval of Project Manager.

CHAPTER VI

EXPENDITURE

Article 13

(1) All expenditure for the construction of the Project will be borne by the State Budget for Development to the Department of Public Works and Electrical Power , with the budget of 10.000.142.02.

(2) Project Manager determines the system of payment and the utilization of payment funds with the approval of the Director General for Irrigation.

CHAPTER VII

Article 14

(1) Chart of this Project's Organizational Structure is determined as attached to this decree.

(2) Working system and other matters not governed in this decree and which require further explanation, will be determined by the Director General for Irrigation.

(3) Previous regulations stipulated in the context of implementing this Project, as long as they are not in contradiction with the regulations in this decree, are still valid till further notice of revocation by the Director General for Irrigation.

Issued in : JAKARTA
On : April 1, 1969

MINISTER OF PUBLIC WORKS AND ELECTRICAL POWER,
signed,
(Ir. S u t a m i)

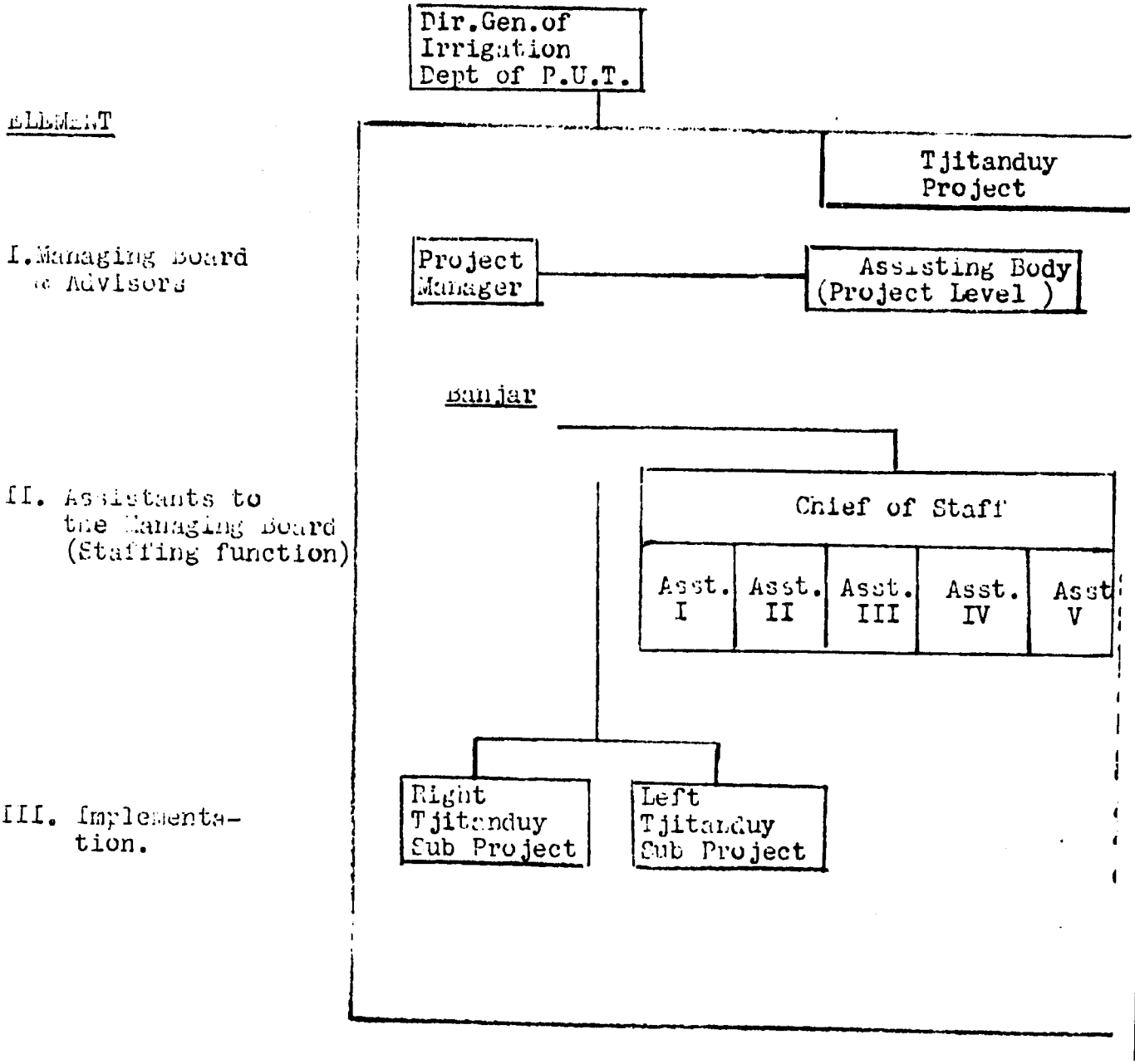
COPIES of this Decree sent to :

1. State Minister for Operational Supervisor of Development.
2. State Secretary / Secretary for the Operational Implementation of Development.
3. Finance Control Body.
4. State Treasury Central Office.
5. Finance Minister.
6. Secretary General of P.U.T. Department.
7. Inspector General of P.U.T. Department.
8. Chiefs/ bureaus / Inspectors at the Department of P.U.T.
9. Directors General at the Department of P.U.T.
10. Secretary of Irrigation Directorate General.
11. Directors at the Directorate General of Irrigation.

Attachment I.

Attachment of the decree issued by the Minister of Public Works and Electrical Power.
No. : 160/APTS/1969
Date : April 1, 1969

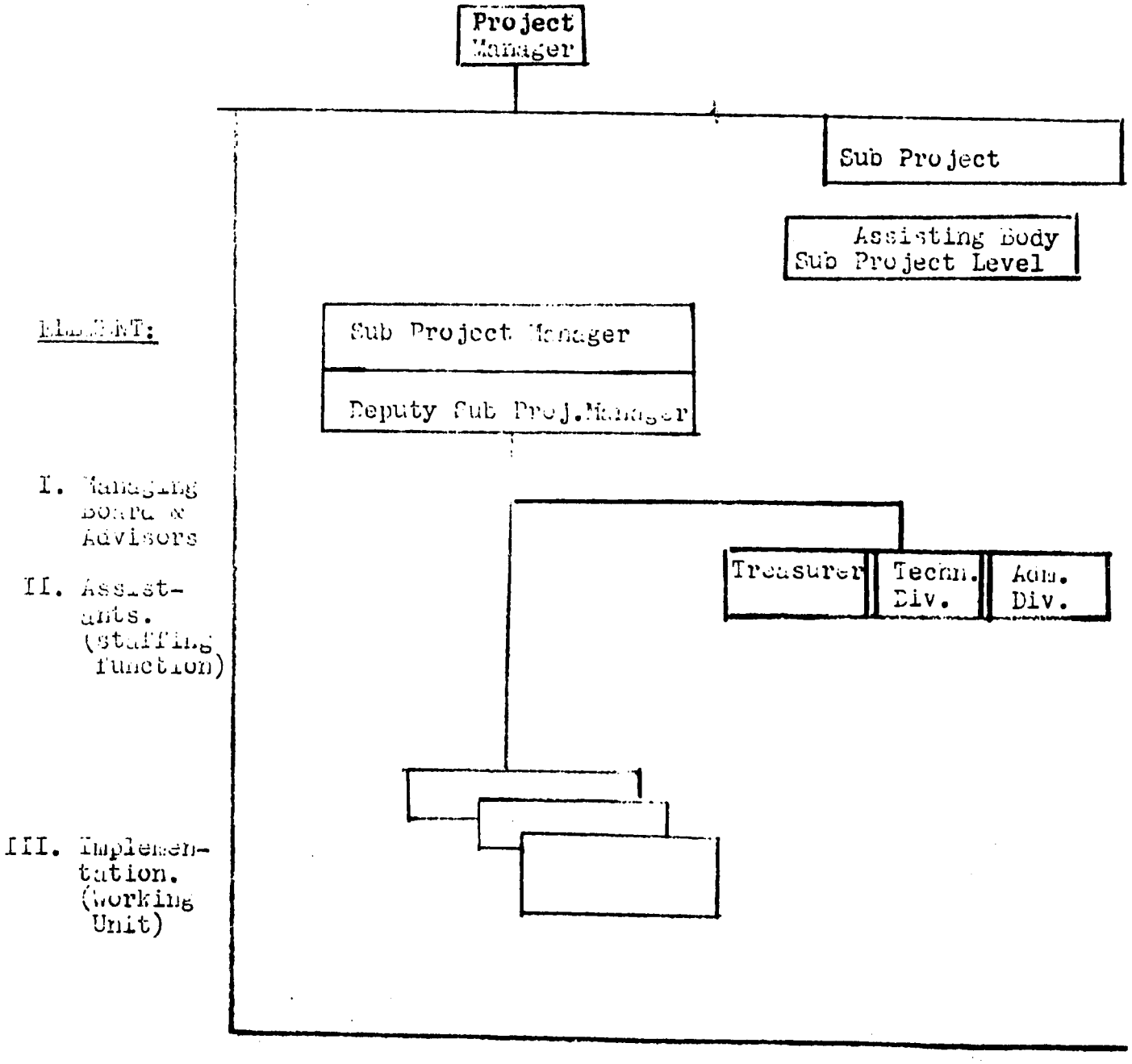
Chart on Structural Organization of Tjitanduy Project.



ANNEX B

Attachment II.

Attachment of the decree issued by the Minister of Public Works and Electrical Power.
No. : 166/MPTB/1969
Date : April 1, 1969



DECREE OF THE DIRECTOR GENERAL FOR IRRIGATION

Number: 71/KPTS/Dirjenair/1975

O N

THE FORMATION OF STEERING COMMITTEE FOR CITANDUY PROJECT

Considering: a. that pursuant to the implementation of the contract between the Directorat General for Irrigation and the Engineering Consultants Inc. (ECI) which will provide consulting services for Citanduy project signed July 23, 1973, it is deemed necessary to form a Steering Committee as stipulated within the contract, in order to achieve planning coordination among the agencies concerned and to provide directives with regard to the implementation of the contract;

b. that by the transfer of the (office) site of Citanduy project to Banjar, the membership of the Project Assistance Body has to be readjusted according to provincial/district level and consequently the members of the Central Project Assistance Body which was created by the decree of the Minister of P.U.T.L. No. 183/KPTS/1973 require reassignment as members of the Steering Committee of Citanduy project as mentioned above in para a and based on necessity;

c. that by the formation of said Steering Committee, then the Assisting Team for Citanduy project as stipulated by the decree of Director General for Irrigation No. 11/KPTS/Ditjenair/1970 has been considered as completing its assignment and should be dissolved;

d. that for this purpose, a decree is deemed necessary to regulate.

In view of : 1. R.I. President's Decree No. 173, Year 1966;
2. Regulation/order of the Minister of P.U.T.L. No. 3/PRT/1960 jis 03/PRT/1969;
3. Decree of the Minister of P.U.T.L. No. 133/KPTS/1969 jis 134/KPTS/1969;
4. Decree of the Director General for Irrigation No. 27/KPTS/Ditjenair/1969;

H A S D E C I D E D

To lay down:

First : To form a Steering Committee for Citanduy project as stipulated within the contract between the Directorat General for Irrigation and Engineering Consultants Inc. (ECI) which will provide engineering services for Citanduy project signed on July 23, 1973, with the following composition:

1. ir. Y. SOEDARYONO — as member concurently also as Chairman.
   Director for Rivers & Marshes, Directorat for Irrigation, Dept. of P.U.T.L.

2. ir. SUDARSO RAWIDJO — as member
(or his representative)
Director for Agric.
Techniques, Directorat
General for Agriculture,
Dept. of Agriculture.

3. ir. MARDJONO — as member
Chief, Directorat of
Village Infrastructure,
Diredtorat General for
Village & Community Dev.
Dept. of Home Affairs.

4. ir. OESMAN DJOJOADINOTO — as member
(or his representative)
Director for Irrigation,
Directorat General for
Irrigation, Dept. PUTL.

5. drs. SARWOHADI — as member
Staff Officer, Agric.
& Estates Bureau
BAPPENAS.

6. ir. I. GEDE OKA — as member
Chief, Reforestration
and Rehabilitation Service
Directorat General for
Forestry, Dept. of Agriculture

7. ir. MARDJONO NOTODIHARDJO — as member
Chief, River area Development
Planning Service, Directorat
for Planning, Directorat General
for Irrigation, Dept. of PUTL.

8. ir. MUSLIM A — as member
P.L.N. official

9. Mr. C. Woody — as member
Chief engineer
USAID/Jakarta

10. ir. SARBINI RONODIBROTO — as member and concurently secretary
Secretary, Directorat
for Rivers and Marshes
Directorat General for
Irrigation, Dept. of PUTL.

Second : 1. The tasks of the Steering Committe are as follows:

1.1. To endeavour the achievement of planning coordination among the agencies concerned and to provide directives and supervision on the performance of consulting services in accordance with the provisions stipulated within the contract signed on July 27, 1973, between the government of Indonesia and E.C.I.

1.2. Conducting review and evaluation on the results of the consulting firm.

1.3. Reporting the activities of the Steering Committee to the Minister of PUTL c.q. Director General for Irrigation.

1.4. In performing its tasks, the Steering Committee is obliged to hold periodical meeting at least once quarterly.

2. Further working procedures will be work out by the Chairman of the Steering Committee.

Third : If the Chairman is unable to attend at a periodical meeting, one of the members present will be appointed to chair the meeting after being approved by other members.

Fourth : The assignment of the Steering Committee commenced as of August 1, 1973 and will last through another one month after the implementation of the consulting services as stipulated within the contract has been completed.

Fifth : By the formation of the Steering Committee for Citanduy project, the tasks of the members of the Assistance Body created by the decree of the Minister of PUTL No. 163/KPTS/1973 and Assistance Team established by the decree of the Director General for Irrigation No. 11/KPTS/Ditjenair/1970 are considered as completed and hereby express many thanks for those officials for their contribution.

Sixth : All expenses as the result of this decree will be charged to the budget of Citanduy project and whenever any stipend/honoraria

will be provided to the members of the steering committee, it should be executed in line with the provisions set up in the decree of Director General for Irrigation No. 32/KPTS/Ditjenair/1973, including category A.

Seventh : This decree is effective retroactively as of August 1, 1973 with the provision that any necessary change and improvement will be undertaken accordingly should any error is to be found later in this decree.

Copies : Copies of this decree is distributed to:

1. Minister of PUTL
2. Secretary General of PUTL
3. Inspector General, Dept. of PUTL
4. Chiefs of Bureaus and Inspectors within the Dept. of PUTL
5. Secretary, Directorat General for Irrigation
6. Directors within the Directorat General for Irrigation
7. Departments Chiefs in the Secretariat of Directorat General for Irrigation
8. Citanduy Project Officer
9. Department of Agriculture
10. Department of Home Affairs
11. BAPPENAS
12. P.L.N.
13. USAID in Jakarta
14. File

QUOTATIONS were submitted to those concerned for their use.

Sanctioned in J a k a r ta

Date August 27, 1973

Director General for Irrigation

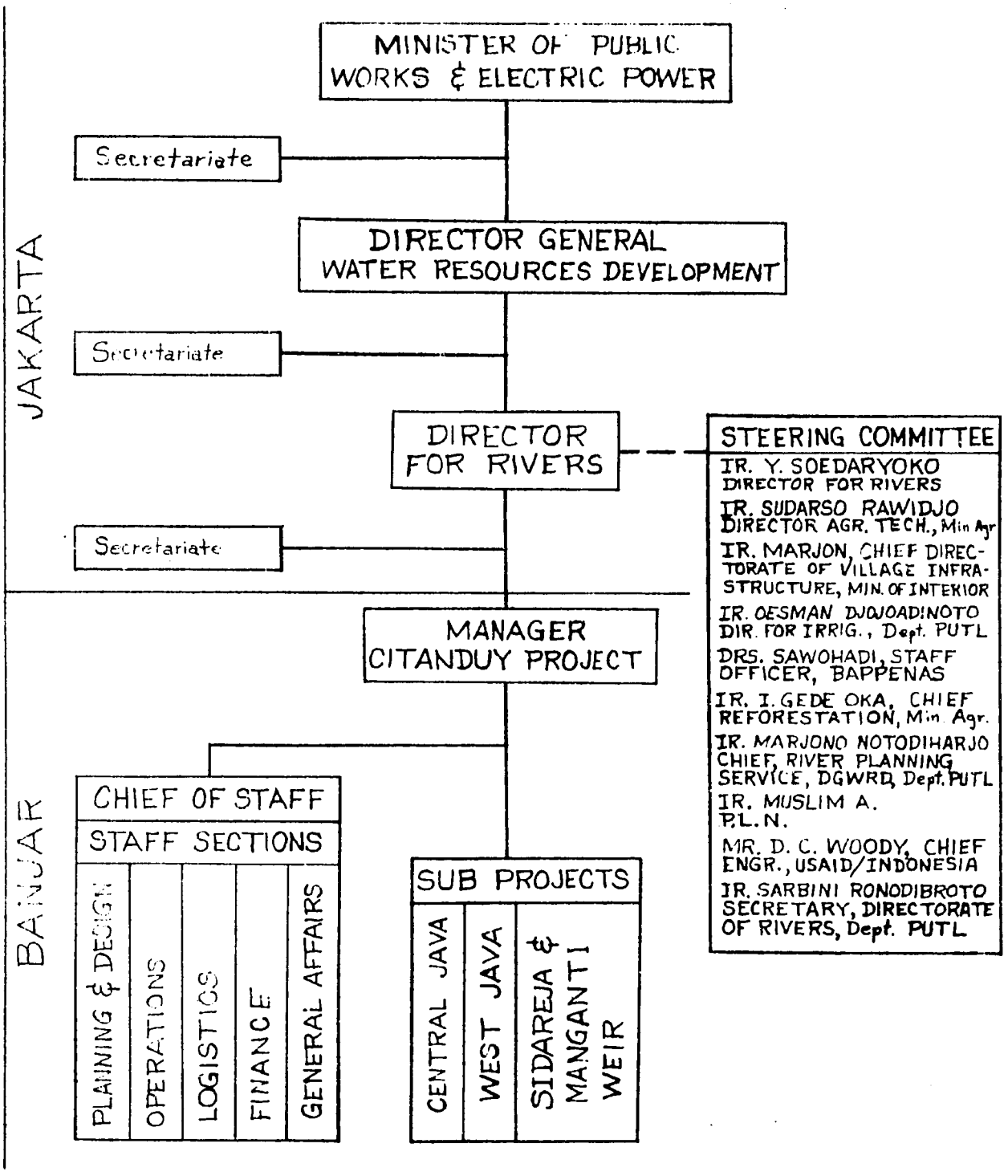
/s/

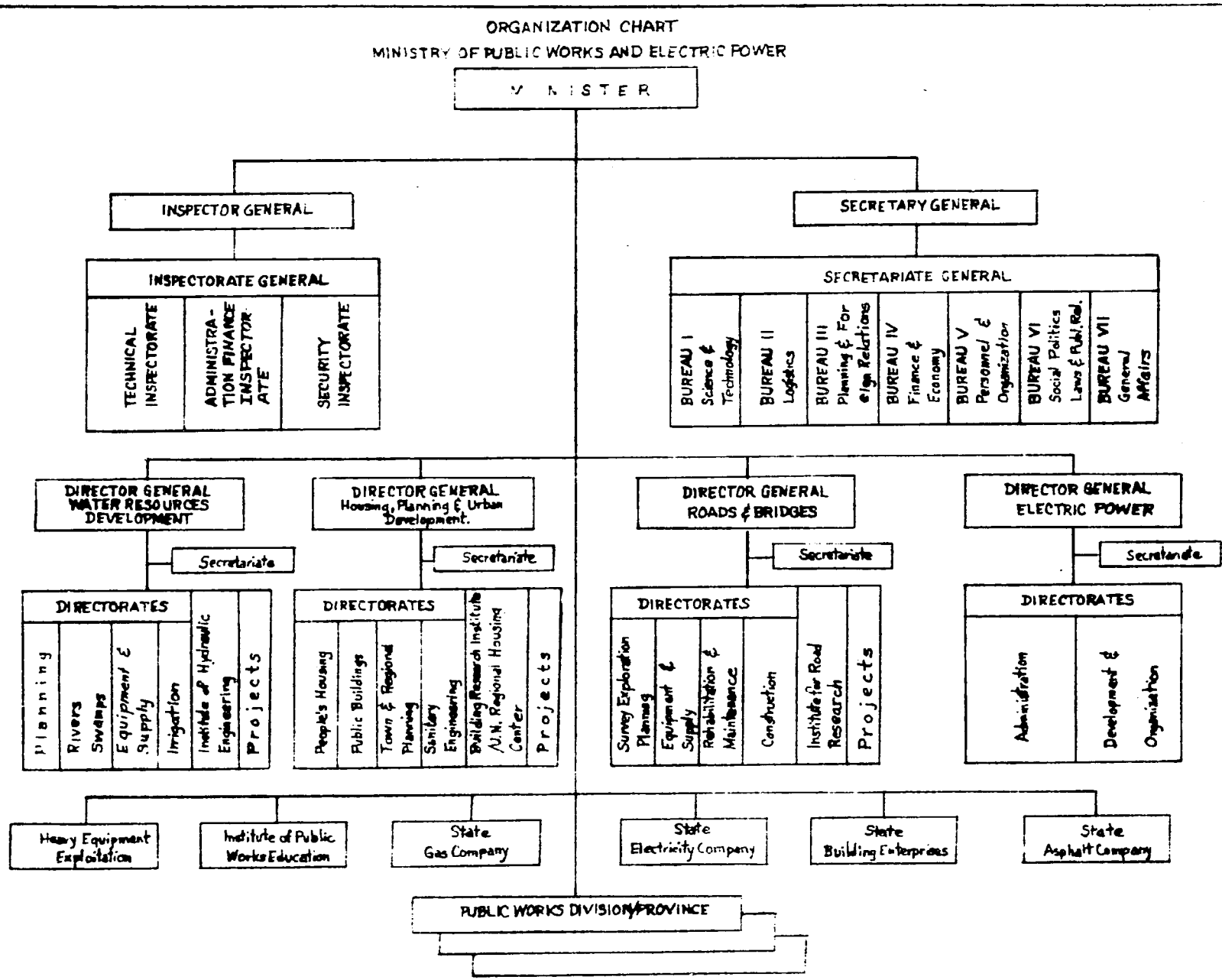
(ir. SUYONO SOSRODARSONO)

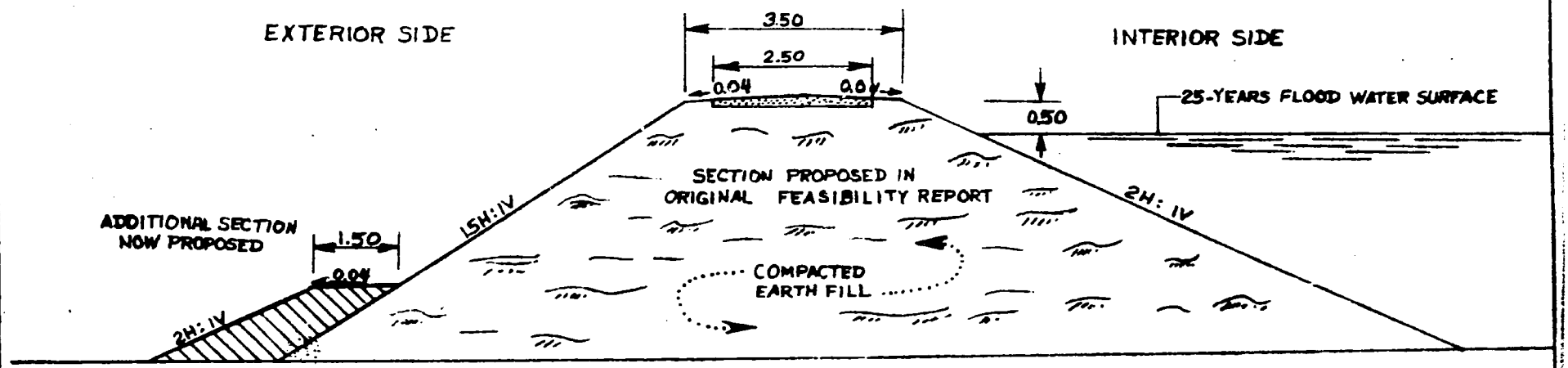
STAFFING OF THE CITANDUY PROJECT OFFICE

Skill/Occupation	University Degree (Ir. or Drs-5yr)	Academic Degree (B.S. -3 yr)	High School & Others	Total
Civil Engr.	10	12		22
Mech. Engr	-	2		2
Geologist	1	1		2
Agriculturalist	2	1		3
Regional Planner	1	-		1
Economist	1	2		3
Geographer	2	-		2
Public Admin.	1	-		1
Law	-	1		1
Public Relations	-	1		1
Social & Politics	-	1		1
		Sub Total		39
Surveyor			10	10
Draftman			9	9
Field Technician			32	32
Heavy Equip. Operator			8	8
Radio-telex Operator			2	2
Others: Clerk Typists Drivers, Guards, etc.			100	100
		Sub Total		161
		Total		200

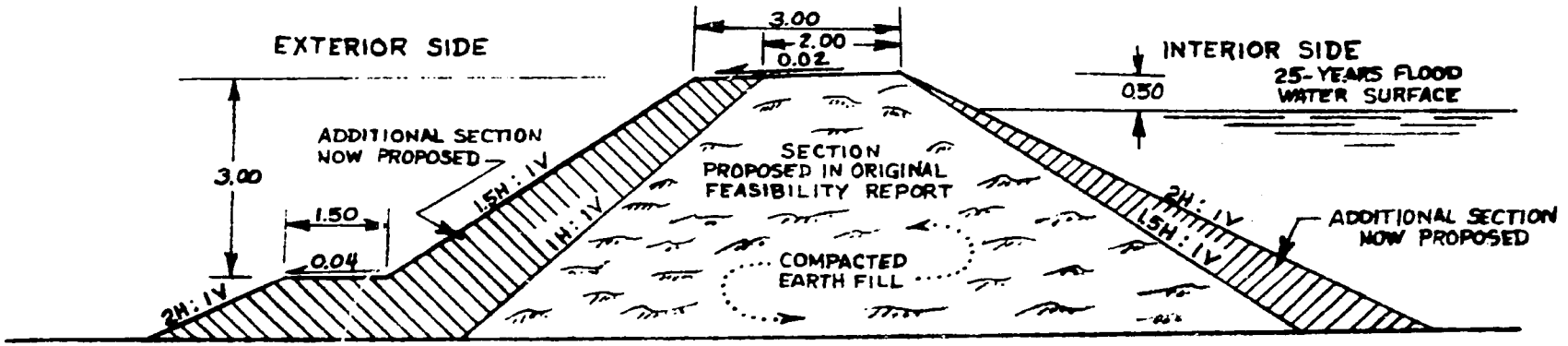
CITANDUY PROJECT ORGANIZATION CHART




ORGANIZATION CHART
MINISTRY OF PUBLIC WORKS AND ELECTRIC POWER
MINISTER
INSPECTOR GENERAL
INSPECTORATE GENERAL
TECHNICAL INSPECTORATE
ADMINISTRATION FINANCE INSPECTORATE
SECURITY INSPECTORATE
SECRETARY GENERAL
SECRETARIATE GENERAL
BUREAU I Science & Technology
BUREAU II Logistics
BUREAU III Planning & For. Relations
BUREAU IV Finance & Economy
BUREAU V Personnel & Organization
BUREAU VI Social Politics Laws & Pub. Rel.
BUREAU VII General Affairs
DIRECTOR GENERAL WATER RESOURCES DEVELOPMENT
Secretariate
DIRECTORATES
Planning
Rivers Swamps
Equipment & Supply
Irrigation
Institute of Hydraulic Engineering
Projects
DIRECTOR GENERAL Housing, Planning & Urban Development.
Secretariate
DIRECTORATES
People's Housing
Public Buildings
Town & Regional Planning
Sanitary Engineering
Building Research Institute /U.N. Regional Housing Center
Projects
DIRECTOR GENERAL ROADS & BRIDGES
Secretariate
DIRECTORATES
Survey Exploration Planning
Equipment & Supply
Rehabilitation & Maintenance
Construction
Institute for Road Research
Projects
DIRECTOR GENERAL ELECTRIC POWER
Secretariate
DIRECTORATES
Administration
Development & Organization
Heavy Equipment Exploitation
Institute of Public Works Education
State Gas Company
State Electricity Company
State Building Enterprises
State Asphalt Company
PUBLIC WORKS DIVISION/PROVINCE



CITANDUY RIVER

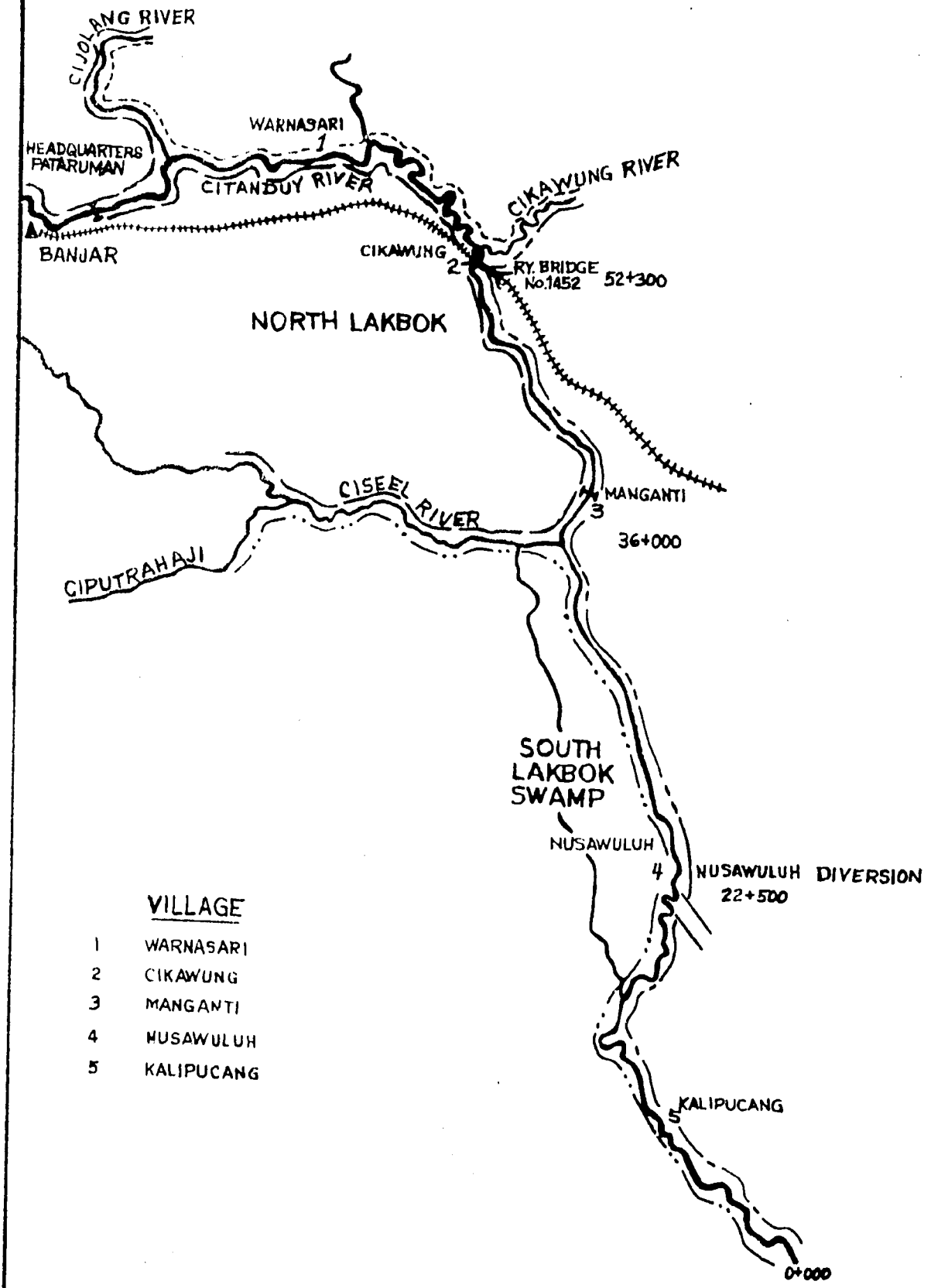


CISEEL RIVER

NOTE:
All dimensions are in meters

PROPOSED TYPICAL CROSS SECTIONS FOR RIVER LEVEES

LOWER CITANDUY/CISEEL RIVER SYSTEM LEVEE MAINTENANCE DISTRICTS



LOWER CITARUM/CISEEL RIVER SYSTEM
REVISED COST ESTIMATE
FLOOD CONTROL SCHEME
(25 Year Protection Level)

EARTHWORK QUANTITIES

River	Original Estimate		Revised Estimate	
	Levee Length (Meters)	Volume (Cubic Meters)	Levee Length (Meters)	Volume (Cubic Meters)
Citarduy	121,000	2,476,500	130,000	3,300,000
Ciseel	34,000	860,600	34,000	975,000
Other Tributaries	18,000	121,000	18,000	225,000
T o t a l s	173,000	3,458,100	182,000	4,500,000

REVISED COST ESTIMATE
FLOOD CONTROL SCHEME
(25-Year Protection Level)

SUMMARY OF TOTAL COST
(Thousands US$)

Item	Unit	Feasibility Study Original Estimate			ECI October 1975 Revised Estimate		
		Quantity	Unit Rate Rp.(1,000)	Cost $	Quantity	Unit Rate	$
Excavation	m^3	100,000	0.5	121	600,000	0.50	725
Compacted Fill	m^3	3,640,000	0.6	5,275	4,500,000	0.60	6,522
Road Surface	km	150	6.21	225	150	621	225
Syphon (Cilisung)	L.S.	-	-	200	-	-	360
Bank Protection	L.S.	-	-	250	-	-	200
Clearing	m^2	1,800,000	0.1	435	2,000,000	0.1	483
Right of Way	ha	350	1,500	1,268	400	1,500	1,449
Total				7,774			9,964
Less equipment depreciation							344
							9,620
Plus 20% inflation							1,924
							11,544
Plus 15% contingency							1,732
Total with inflation and contingency							13,276

ILLUSTRATIVE LIST OF EQUIPMENT TO BE PURCHASED

A. Heavy Equipment

Item	for Irrigation Construction	for Levee	Unit Construction Price	CIF Cost
1. Dragline w/accessories	2	0	80,700	$ 161,400
2. Backhoe/Loader	2	0	45,000	90,000
3. Bulldozer w/accessories	0	4	102,000	408,000
4. Low-Bog Trailer	one only		20,000	20,000
5. Air compressor - portable w/tools	2	0	11,250	22,500
6. Roller (self propelled)	2	4	23,000	138,000
7. Grader w/Attachments	1	1	65,000	130,000
8. Gradall	1	0	75,000	75,000
9. Shop Equipment	Lump sum		-	8,100
Subtotal				$1,053,000

B. Light Equipment for both Irrigation and Levee Construction

1. Small,portable concrete mixer	5		900	4,500
2. Concrete Vibrators	8		600	4,800
3. Ditch Pumps	6		800	4,800
4. Small Compactor	6		1,300	7,800
5. Miscellaneous Items	Lump sum			7,000
Subtotal				$ 28,900

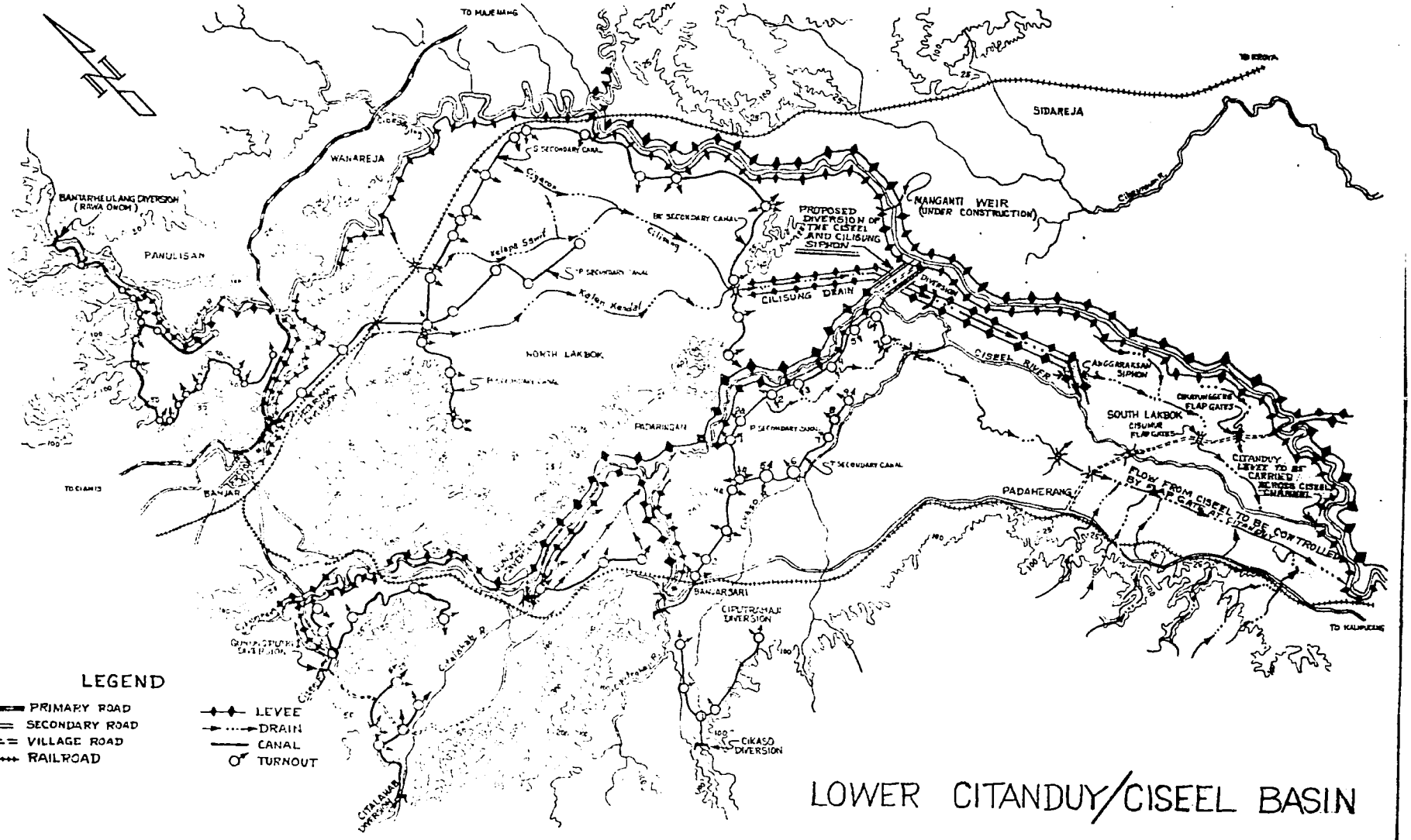
C. Vehicles for Project Office

1. Jeep Type	10		8,500	85,000
2. Trucks	10		16,000	160,000
Subtotal				$ 245,000
Total Equipment for DGWRD				$1,326,900
Spare Parts 10%				132,690
				1,459,590
Contingency 10%				145,959
Total A, B, C				$1,605,549
			Use	1,600,000

D. Equipment for Construction of Terminal Irrigation Systems and Project Area Agriculture Office

	Item	Quantity	Unit Price	Cost
1.	One bag cement mixers	10	1,000	10,000
2.	3/4-ton Pickup Trucks	6	9,000	54,000
3.	Jeeps	12	8,500	102,000
4.	Motor cycles	14	725	10,000
	Total equipment			176,000
	Plus spare parts 10%			18,000
	Contingency			6,000
	Total			200,000
	Grand Total			$ 1,800,000

NOTE: Above list is illustrious only. Complete list with specifications and justifications will be submitted to USAID for review and approval prior to requesting bids.


TO MAJENANG
WANAREJA
SIDAREJA
TO BANDUNG
BANTARHEULANG DIVERSION (RAWA ONOM)
PANULISAN
PROPOSED DIVERSION OF THE CISEEL AND CILISUNG SIPHON
MANGANTI WEIR (UNDER CONSTRUCTION)
CILISUNG DRAIN
NORTH LAKBOK
CISEEL RIVER
ADJGARAKSAN SIPHON
SOUTH LAKBOK
CITANDUY LEVEE TO BE CARRIED BEYOND CISEEL ENTRANCE
FLOW FROM CISEEL TO BE CONTROLLED BY FLAP GATE AT CITANDUY
PADAHERANG
BANJARSARI
CIPUTRIHAJI DIVERSION
CIKASO DIVERSION
TO KALIPUCANG
TO CILACAP
BANJAR
LEGEND
PRIMARY ROAD
SECONDARY ROAD
VILLAGE ROAD
RAILROAD
LEVEE
DRAIN
CANAL
TURNOUT
LOWER CITANDUY/CISEEL BASIN

Technical Details

IRRIGATION AND DRAINAGE

A. Types of Irrigation Systems

Irrigation in Indonesia is divided into three classes:

1. Technical Irrigation Systems: Diversion and all structure are of permanent construction and measuring devices are provided. Construction of the primary and secondary canals and of the diversion are the responsibility of the government. Construction of the tertiary canals and structures and the field distribution system is the responsibility of the local farmer under the guidance of AAETE.

2. Semi-Technical Irrigation Systems: Diversion is of permanent construction. Gates are provided at the intakes and turn-out structures but no measuring devices. Diversion weirs and primary and secondary canals and structures are constructed and maintained by the government. Usually these systems are improved to technical irrigation systems.

3. Simple (Sederhana) Irrigation Systems: These are usually fully financed, constructed, and maintained by the farmers themselves. Normally they do not cover more than a few hundred hectares.

B. General Description of Systems to Be Rehabilitated

1. Rawa Onom:

This technical irrigation system was constructed before 1940 and is reported to have 19.2 km. of primary canals and 17.7 km. of drainage canals. It takes its water from the Cijolang River at the Bantarheulang Diversion. This diversion structure will also be used for the proposed Panulisan System. This will require a new diversion on the left bank.

There are 1,028 ha receiving supplementary irrigation in the rainy season but less than 800 ha. are irrigated in the dry season. ECI's investigations show that there is adequate water from the Cijolang at the Bantarheulang Diversion for both the Rawa Onom and the new Panulisan systems.

The canals have been silted up reducing their capacity by as much as 50 percent. Most turnout structure is deteriorated beyond repair and existing canals and siphons are in poor condition.

The system will be completely rehabilitated. The accumulated sediment in the canals will be removed and the canal cross section and grade restored. Turnout structure and gates will be provided where necessary and existing culverts and siphons will be repaired or replaced as necessary. The tertiary system will be reviewed and improved where necessary. Drainage ditches throughout the area will be cleaned and enlarged where necessary. In the low lying wet areas additional drainage will be designed and constructed in order to bring the whole area to full production.

2. North Lakbok:

This is the largest irrigation system in the basin with an area of 7,033 ha. but only 5,700 ha. presently under technical irrigation in the rainy season. It reportedly has 5.5 km of primary canals, 33.2 km of secondary canals, and 98 km of drainage canals. The system takes its water from the Citanduy River just below Banjar at the Pataruman Weir. Some of the tertiary canals and a portion of the P secondary canal have never been completed. There is also need for additional drainage in some low lying areas. This uncompleted work has prevented an additional 1,333 ha from benefiting from the system. Approximately 4,500 ha are currently irrigated in a normal dry season, but in an extremely dry year the area irrigated in the dry season may drop to as low as 1,700 ha. ECI's studies conclude that there is ample water in the Citanduy at Pataruman to provide irrigation for two crops per year for all 7,033 ha of the North Lakbok Irrigation System and the 3,200 ha of the proposed South Lakbok Irrigation System without depriving other systems which rely upon the Citanduy for their water.

The irrigation system has not had any major maintenance since it was completed in 1960. Consequently 80 percent of the romyn gates at the turnout structures are broken or malfunctioning. The desilting basin has not operated properly and therefore not effectively utilized. As in other systems the canals have been silted up.

The drains in the North Lakbok area have also been silted up causing reduced capacity and overflowing of the drains during heavy storms. The Kalen Kendal and Cilisung Drains will carry irrigation water to the proposed South Lakbok Irrigation System starting from turnout structure T-3 at the end of the North Lakbok primary canal.

The system will be completely rehabilitated, sedimentation removed from the canals and drains, reshaping and/or regrading of canals and drains where necessary, replacement or reconditioning of structures, and extensions as justified and required to properly irrigate and drain the area.

3. and 4. Gunung Putri I and II:

Gunung Putri I and II are classified as semi-technical irrigation systems. Gunung Putri I receives its irrigation water from a diversion structure on the Ciseel River. A diversion structure for Gunung Putri II has been constructed on the Citalahab River, but if this structure is used approximately 100 ha of Gunung Putri I service area is flooded. If dikes are constructed to retain the backwater from the Gunung Putri II diversion, drainage problems result. Both areas can be served from the Gunung Putri I diversion. There is a slight possibility of water shortage for two crops per year but water is available 100 percent of the time for nine months, 99 percent for one month and 90 percent for another. In the twelfth month (October) water is estimated to be available 83 percent of the time. There should not be any problem in raising two crops of rice per year.

In the Gunung Putri I system only 75 percent of the canals have been completed, while in Gunung Putri II only 30 percent of the system has been completed. Presently 550 ha of Gunung Putri II are irrigated by rural systems.

The canals and drainage ditches for Gunung Putri I and II will be completed and the unfinished tertiary canals will be designed and constructed. Both Gunung Putri I and II will be supplied water from Gunung Putri I diversion on the Ciseel River.

5. Ciputrahaji:

This system was constructed before 1940 and no serious rehabilitation of the system has been done since that time. It has about 18.8 km. of primary and secondary canals. It takes its water from the Ciputrahaji River just below Banjarsari. There are 1,706 ha supplied with supplemental irrigation during the rainy season while 1,500 ha are irrigated in the dry season. Fifty-six ha are still rainfed. ECI has concluded that there is a water deficiency in the Ciputrahaji in the months of May, June, and July, with water available 87 percent, 73 percent, and 22 percent of the time. With high yield rice varieties and proper scheduling of planting two rice crops should be able to be produced in the area with a reasonable probability of success.

It is estimated that the capacity of 75 percent of the canals has been severely restricted due to the accumulation of sediment. Only 40 percent of the distribution and drainage structure are functioning. Nine of the 17 turnouts have deteriorated beyond repair.

The system will be completely rehabilitated. Turnout structures (at least nine) will be replaced where necessary or repaired if possible. Canals will have to have sediment removed, be reshaped, and regraded. Drainage ditches will also have to be cleaned, graded, and in some cases enlarged. The tertiary system will be reviewed and required designs and construction will be performed to enable the whole area to be adequately irrigated.

6. Citalahab:

This system was constructed in 1942 and has not had any major maintenance since. Six hundred and thirty ha are technically irrigated during the rainy season while 100 ha are still rainfed only. The canals are about 50 percent effective due to sedimentation and deterioration of structures. All structures except the diversion structure on the Citalahab river are in need of extensive rehabilitation. Water supply for two crops per year is marginal.

The system will be practically rebuilt except for the diversion structure and the canals will have silt deposits removed, reshaped, and graded.

7. Cikaso:

The Cikaso Irrigation System is a semi-technical system constructed before 1940. Water is diverted from the Cikaso River by a badly deteriorated diversion structure. Over the last ten years the service area has been expanded from its original 290 ha to approximately 550 ha. There is a tendency for water to be deficient from July to October but with proper scheduling of plantings two crops should be able to be raised throughout the area.

The whole system is seriously deteriorated. It will be completely rehabilitated including tertiaries and drainage ditches. The diversion structure will also be restored.

C. Drainage

The Citanduy, Ciseel, and Cibeureum are the major rivers in the flood plain. The Cijolang and Cikawung rivers are the main tributaries of the Citanduy River in this area, while the

Ciputrahaji, Citalahab, and Cikaso rivers are the main tributaries of the Ciseel River. There is also a major drainage system in the northern portion of the floodplain; i.e., North Lakbok, which is carried to South Lakbok by the Cilisung Drainage Canal, and discharges into the Ciseel River.

The major drainage problem is the fact that the floodplain is very flat. Levees which provide flood protection impede natural drainage. There is no outlet for internal drainage water when the Citanduy and Ciseel rivers are at high stage. The storm runoff from an area of more than 3,000 km^2 is concentrated in an area of approximately 77 km^2, whose average width is only 5.5 km.

Many attempts have been made to solve the drainage and flooding problems in this low-lying area. However, most attempts have been local solutions, and have only served to magnify the problem in another area. Public Works has constructed flood control levees along the rivers and a temporary flood diversion structure has been built on the Citanduy River at Nusawuluh. Two man-made drainage canals have been constructed, a river was cut off, and many drainage siphons and culverts with gated outlets have been built. However, due to lack of a comprehensive plan and adequate maintenance, none of these measures has been very effective.

North Lakbok Drainage: The major drains in this area are the Kalen Kendal, Kelapa Sawit, Cigaron and Cilisung. They drain an area of approximately 125 km^2 and are located primarily in the eastern part of the area. The western part of the area, particularly the area in the vicinity of the extensive peat deposits, has relatively poor drainage, and some parts remain perennially wet and swampy.

The four major drains join and are carried to South Lakbok by the man-made Cilisung Drainage Canal, which is leveed along both its left and right banks. The drains are subject to silting and a corresponding reduction in carrying capacity. The drains overflow during very heavy storms, particularly in the southern portion of the area.

Ciseel River - Cilisung Drain: Construction of the Cilisung Canal was completed in 1957, and it has been a source of trouble ever since. In addition to its function as a drainage canal for North Lakbok, it is supposed to carry irrigation water to the

South Lakbok area. The original Cilisung drain ran through South Lakbok to the Citanduy River. However, when the improved man-made canal was constructed, it was discharged into the Ciseel River by making a sharp bend in the alignment at Anggaraksan.

The area between the confluence of the Ciseel River and the Cilisung drain and the sharp bend in the alignment in the canal has been a constant problem area. The levees in this area are reportedly overtopped or broken once or twice a year. Levee repairs were made in March 1974 after they failed during January 1974. Backwater from this point is felt as far north as North Lakbok, and is a cause for overtopping and breaking of levees on the Ciseel and Cikano rivers. To further compound the problem, the local people diverted the Cikaso River into the Ciseel River approximately four km above the confluence of the Ciseel River and the Cilisung canal. The old course of the Cikaso River followed what is now the Cirapuan drain and joined the Ciseel River just below Padaherang. The reason for diverting the Cikaso River was to allow faster drainage out of the land between the Ciseel and Cikaso rivers. The Cirapuan drain is now siphoned under the Cikaso River.

The Cirapuan drain above Padaherang is very shallow and normally flows bankfull. A siphon was constructed at Cilalay to take local drainage across the Cirapuan drain. However, the drainage system on the left bank of the Cirapuan drain does not have enough capacity to handle the water from the right bank, and the local people have blocked the inlet to the siphon. Consequently, the right bank area is permanently inundated.

South Lakbok - Padaherang - Tunggilis Area: The area between the Citanduy and Ciseel rivers and above the village road from Padaherang to Nusawuluh has been sufficiently reclaimed, and the drainage is good enough to allow rice cultivation during the rainy season. The major flood problem in this area is caused by broken levees along the Citanduy and Ciseel rivers and the Cilisung drain. When the levees fail, the inhabitants must flee to the sound levee sections until the flood waters recede. In January 1974, the village road from Padaherang to Nusawuluh was cut by the villagers to facilitate drainage into the sump area below the road. There are two culverts with outlet gates, one at Cisumur and one at Cikatunggeng, which were constructed to provide drainage into the sump area below the road. During heavy flooding they are ineffective and the flap gates, due to lack of maintenance, do not prevent backwater effects.

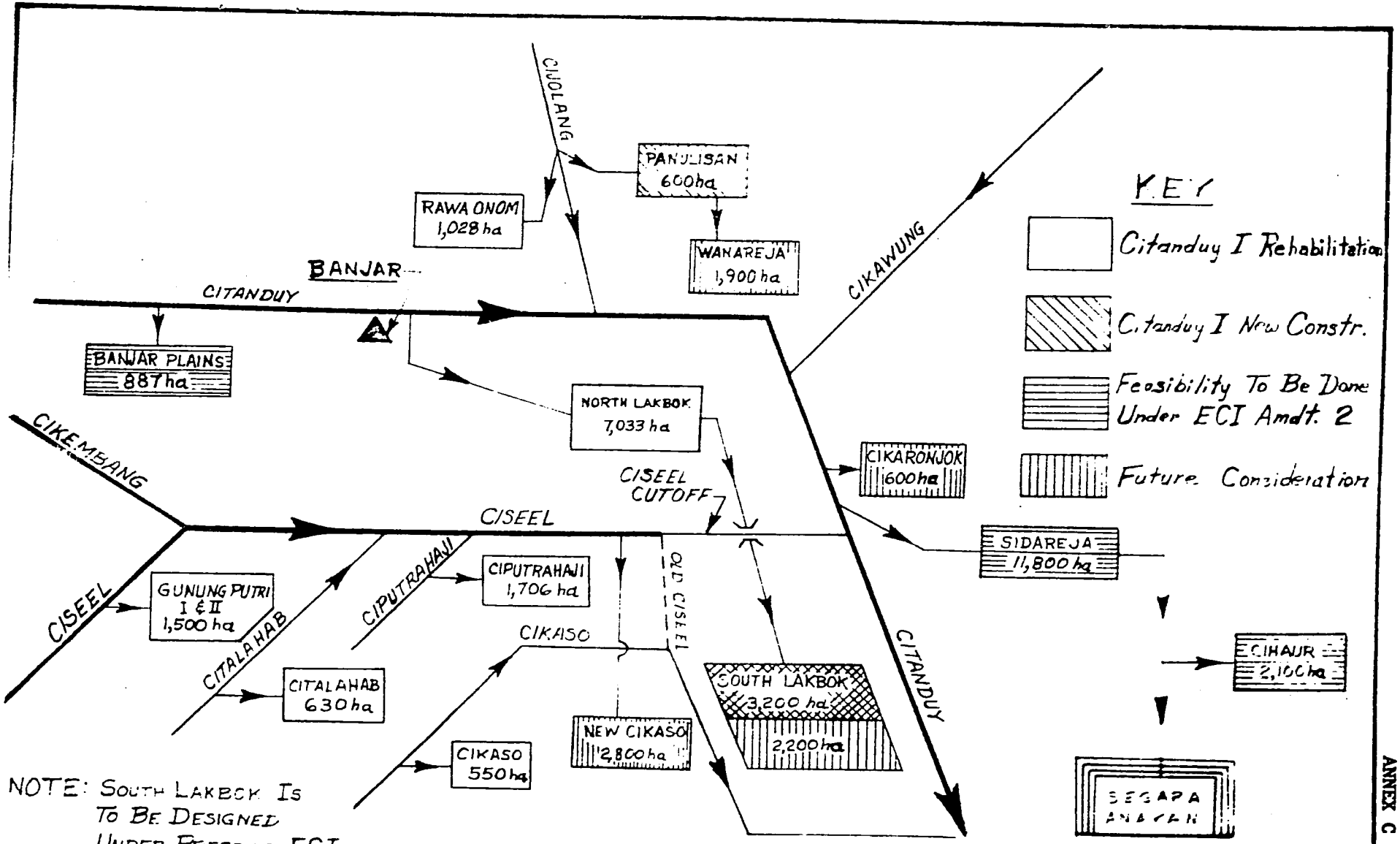
To the west of the Ciseel River, a man-made drain has been constructed between Padaherang and Tunggilis. The drain discharges into the Citanduy River through a culvert which has flap gates on the outlet side. The drain reportedly functions normally, except when the Citanduy River is at high stage and the flap gates can't open. During those periods, the area will flood due to the backwater effect, which causes overtopping of the banks of the drainage canal. During flood stages, the effect of backwater extends above Padaherang.

Major Irrigation Systems

Location	Year Constructed	Type of System and Area 1/				Source of Water	Area Irrigated in Dry Season (ha)	Condition of System			Area Subject to Flooding (ha)	Cause of Flooding	Remarks
		Technical (ha)	Semi-Technical (ha)	Rural (ha)	Rainfed (ha)			Canals	Structures	Drainage			
Rawa Onom	Before 1940	1,028	-	-	100	Cijolang River	800	Fair-Poor	Poor	Fair	300	Dike breaks & poor drainage	New diversion structure built in 1967. No rehabilitation of system.
North Lakbak	1960	7,033	-	-	-	Citanduy River	4,500	Fair	Fair	Fair	200	Dike breaks & poor drainage	No maintenance in the last 3 years. Silting problems. Part of P canal never constructed.
Gunung Putri I	1969	-	750	-	-	Ciseel River	750	Fair	Good	Poor	100	Dike breaks	System still incomplete. Canals lack sufficient capacity; silting and maintenance problems.
Gunung Putri II	1969	-	750	-	-	Citalahab River	400	Fair-Poor	Fair	Fair-Poor	80	Dike breaks & poor drainage	Poor management. Distribution system incomplete.
Ciputrahaji	Before 1940	1,706	-	-	56	Ciputrahaji River	1,500	Fair-Poor	Fair	Fair	Minor	Dike breaks	No rehabilitation of system since constructed. Lower distribution system incomplete.
Citalahab	1942	-	630	-	100	Citalahab River	200	Poor	Fair-Poor	Fair	200	Poor drainage	Needs complete rehabilitation of canals, structures & drains. No dikes along Citalahab River. Flooding problem.
Cikaso	Before 1940	-	550 2/	-	-	Cikaso River	200	Poor	Poor	Poor	60	Dike breaks & poor drainage	System is in poor condition including river diversion structure.
Total		9,767	2,420	-	256		8,350				940		

1/ As reported by Public Works or District irrigation officials.

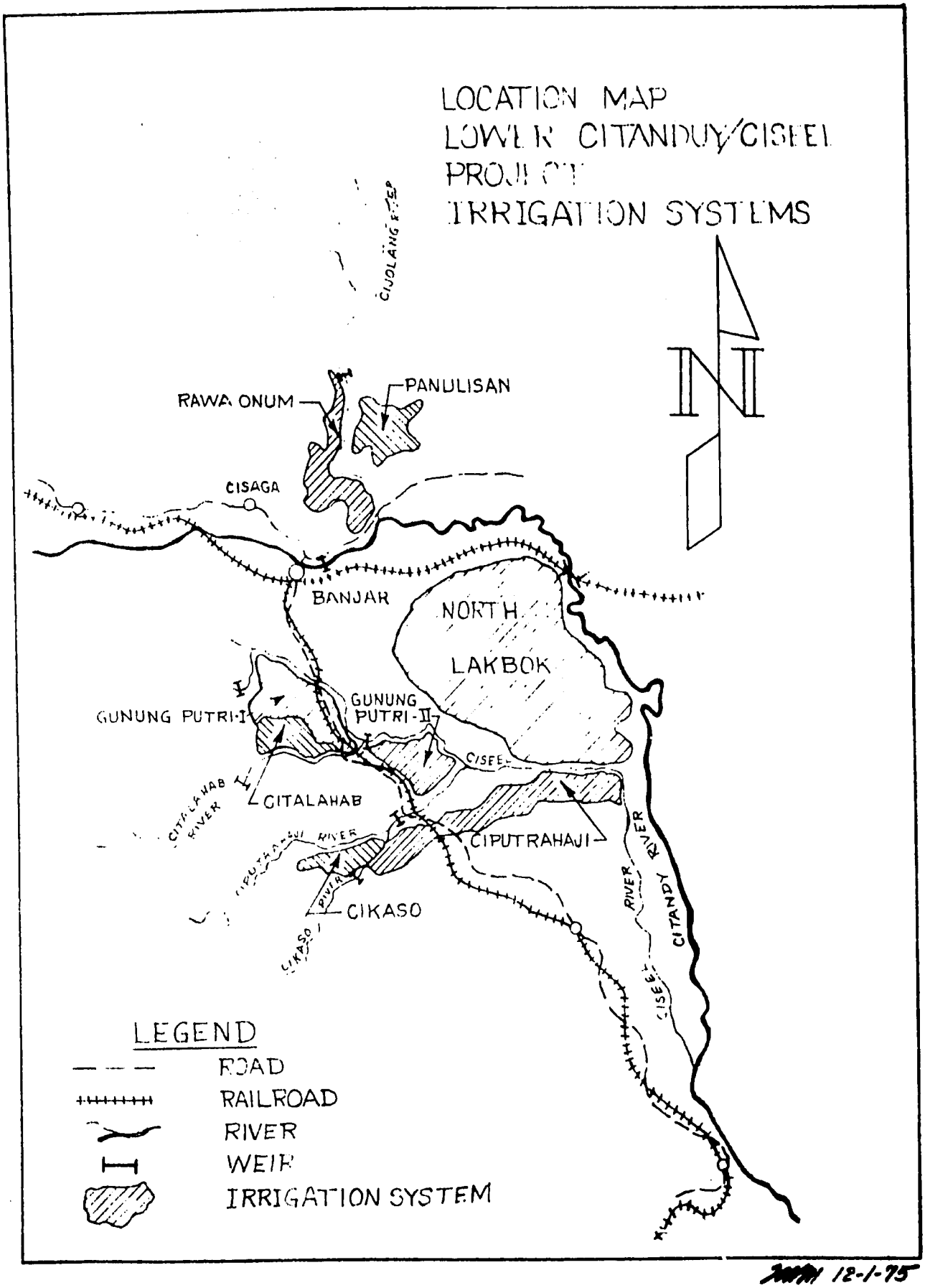
2/ This area is usually reported as 290 ha but according to the local official it was expanded to 550/ ha during the last 10 years.



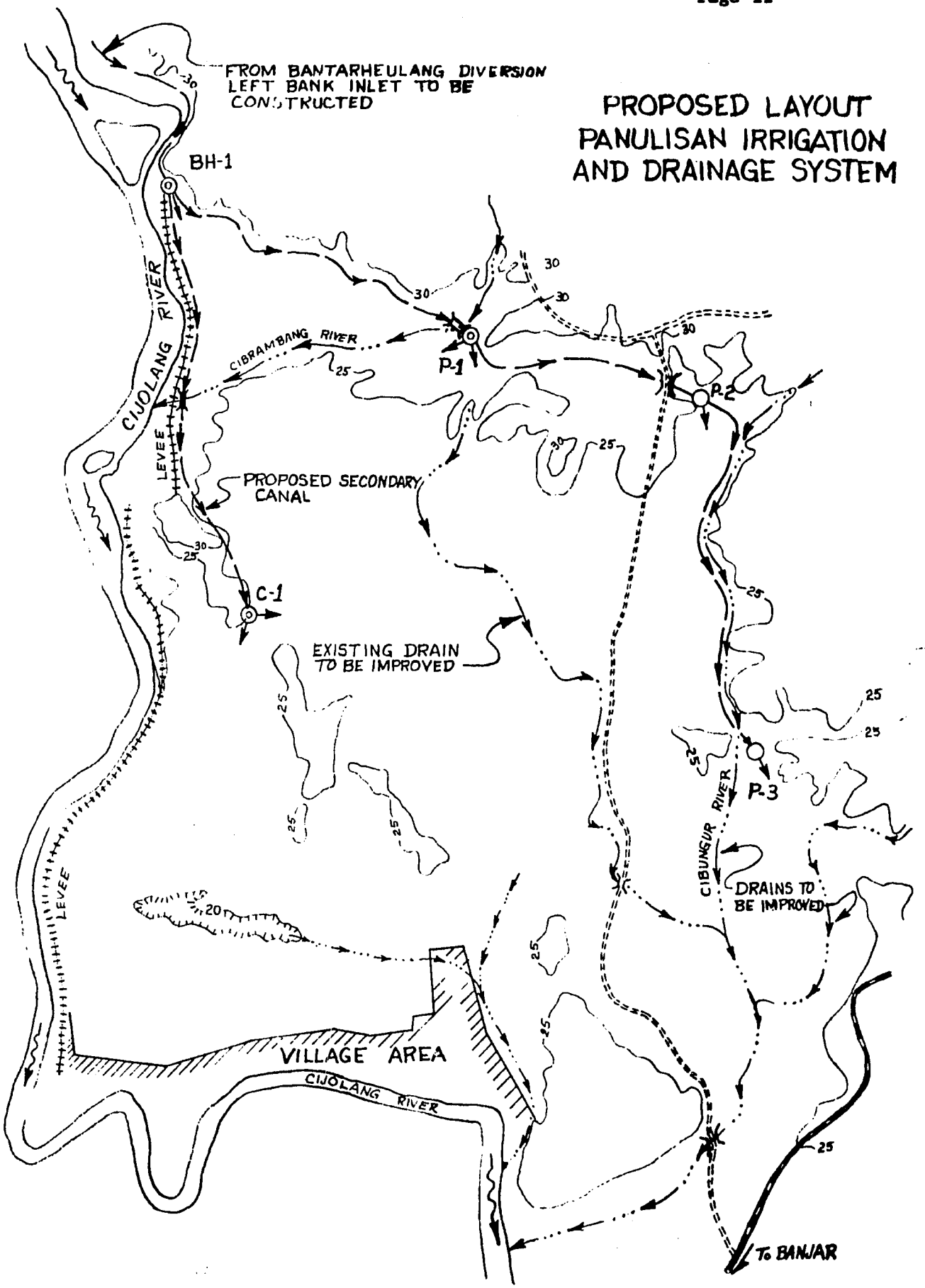
SCHEMATIC DIAGRAM

LOWER CITANDUY/CISEEL RIVER IRRIGATION SYSTEM

11-9-76
12-1-76


LOCATION MAP
LOWER CITANDUY/CISEE
PROJECT
IRRIGATION SYSTEMS
CIJOLANG R.
RAWA ONUM
PANULISAN
CISAGA
BANJAR
NORTH
LAKBOK
GUNUNG PUTRI-I
GUNUNG
PUTRI-II
CISEE
CITALAHAB
CITALAHAB
RIVER
CIPUTRAHAJI
CIPUTRAHAJI RIVER
CIKASO
CIKASO
RIVER
CITANDY RIVER
CISEE
LEGEND
ROAD
RAILROAD
RIVER
WEIR
IRRIGATION SYSTEM

12-1-75


PROPOSED LAYOUT
PANULISAN IRRIGATION
AND DRAINAGE SYSTEM
FROM BANTARHEULANG DIVERSION
LEFT BANK INLET TO BE
CONSTRUCTED
BH-1
CIJOLANG RIVER
CIBRAMBANG RIVER
LEVEE
P-1
P-2
P-3
PROPOSED SECONDARY
CANAL
C-1
EXISTING DRAIN
TO BE IMPROVED
CIBUNGUR RIVER
DRAINS TO
BE IMPROVED
LEVEE
VILLAGE AREA
CIJOLANG RIVER
To BANJAR
30
25
20

REVISED COST ESTIMATE - IRRIGATION AND DRAINAGE
(Thousands US Dollars)

Item	Feasibility Study Original Estimate	ECI Oct 1975 Rev. Est.	Totals after Deduct. 15% Cont., 12% Engr. & Equip Depr.	20% Inflation Allowance	Total with Inflation	15% Cont.	Total with Inflation and Contingency
Rehabilitation of Existing Irrigation Systems							
1. North Lakbok	1,356	1,750					
2. Rawa Onom	209	192					
3. Gunung Putri I	70	70					
4. Gunung Putri II	210	182					
5. Ciputrahaji	318	308					
6. Citalahab	108	78					
7. Cikaso	162	171					
Subtotal	2,433	2,751	1,998	400	2,398	360	2,758
Rehabilitation of Desilting Basin at Pataruman Diversion	-	250	181	36	217	32	249
Construction of New Irrigation System							
1. Panulisan	273	261	232	46	278	42	320
Improvement of Existing Major Drains	709	897	651	130	781	116	897
Providing Secondary Drainage System	-	565	408	82	490	74	564
TOTAL CONSTRUCTION COST	3,415	4,724	3,470	694	4,164	624	4,788

ANNEX D

ENVIRONMENTAL ASSESSMENT OF THE CITANDUY RIVER BASIN DEVELOPMENT PROJECT

A. PROJECT DESCRIPTION

1. Introduction

The three major areas of activity of this project are flood mitigation, improvement and expansion of irrigation facilities, and preparation of studies and designs for continuing the integrated area development of the Citanduy Basin.

The Citanduy Basin on the southern coast of central Java covers some 446,000 ha. and is the home of about 2.5 million people. The Citanduy River, as the main river draining the basin, along with the Ciseel River, frequently floods the lower basin area. In 1973, for example, some 50,000 people were made temporarily homeless as a major flood of a 10-year return frequency covered about 25,000 ha. Small floods occur almost annually. There was a medium-size flood in October 1975 that made about 15,000 people temporarily homeless. Due mostly to the floods, the area is one of the poorest in Java with an annual per capita income of only $40 as compared to about $100 for all of Indonesia (1972 data of the feasibility study). Numerous studies have confirmed that the development of the area cannot take place until the annual damage from flooding is brought under control. The latest study, completed by Engineering Consultants, Inc. (ECI) in 1975, under AID financing, is the basis for this project.

After the floods are brought under control, existing and new irrigation systems will not be damaged by the annual flooding. Therefore, a companion part of the project is the rehabilitation of seven existing irrigation systems (12,447 ha.) and the construction of one new irrigation system (600 ha.) located in the lower Citanduy River Basin.

Since the GOI placed a high priority on the development of the entire Citanduy Basin, the ECI's Master Plan identified several projects outside the lower Citanduy area. These projects, however, should not be started until the flood control activities are well under way. In support of the GOI's policy of fully developing the Citanduy Basin and to demonstrate how a fully integrated long-term approach to area development can work, this loan includes financing for feasibility studies and design of additional projects which might be financed by a Citanduy II loan in FY 1978.

2. Project Purpose

Although for purposes of simplicity, the title of this project does not include the word "integrated," it is in effect an integrated area development project. The first of the three interrelated purposes is so essential to any effort to develop the Citanduy Basin that most of the money in this first stage must go for flood control before anything else can be successfully done. Therefore, this project has three interrelated purposes: (1) reducing or eliminating the annual destruction by floods in the project area; (2) increasing production of rice and other food crops; and (3) developing feasibility studies and final designs for additional projects essential for the long-range integrated development of the Citanduy Basin.

End of Project Status: At the end of theconstruction/disbursement period (five years after loan signing), the following conditions should exist:

a) The 620,00 people in the project area protected from floods of a 25-year frequency. (Note: although all are not directly affected by each flood, nearly all the people in the project area suffer directly or indirectly from the floods.)

b) Farmers on 13,00 ha. in eight irrigation systems growing two crops per year of rice and other crops. Within five years after each system is completed, the production should average 3,800 kilos of rice per ha. per crop. However, it is unlikely that any of the systems will be completed early enough to obtain this level of production by the end of the project.

c) Water user associations functioning in all the irrigation areas rehabilitated and constructed under the loan.

d) Operations and maintenance (O&M) systems functioning satisfactorily for both the flood control and irrigation systems.

e) The project manager's office staffed with an adequate number of well-trained people and capable of continuing the development of the Citanduy Basin.

f) Feasibility studies and final designs available for improvement/construction of additional irrigation systems and other projects essential for the integrated development of the Citanduy Basin area.

3. Outputs

Flood control system: About 182 kilometers of levees on the Citanduy River (130 km.), the Ciseel River (34 km.), the Cilolang River (10 km.), and the Cikawung River (8 km.), including the diversion of the Ciseel River into the Citanduy, will be constructed. An operations and maintenance system (O&M) will be established with five district maintenance offices, about a 50-man staff including trained management,

and an adequate supply of equipment, transportation, and communications facilities.

Irrigation and Drainage: (a) the seven existing technical and semi-technical systems covering 12,447 ha. will be rehabilitated. The rehabilitation includes major works (weir, primary and secondary canals, secondary drains, etc.), tertiary canals, and terminal irragation networks; (b) one new irrigation system covering 600 ha. including major works, tertiary canals, farm service ditches, and secondary drainage will be constructed; (c) the existing major drains will be improved; (d) the desilting basin at Pataruman diversion will be rehabilitated; (e) adequate O&M for the irrigation systems will be established; (f) viable water users associations for all irrigation systems will be established; (g) an adequate number of trained people will be serving on the staff of the agriculture extension service in the project area.

Studies: Feasibility studies will be completed for the upper watershed soil conservation, water management, and cropping program; the rehabilitation of the ten irrigation systems in Upper Citanduy area and the eight systems in Central Java. Final designs will be completed for these 18 irrigation systems and for new irrigation systems for Sidareja and Nanjar Plains areas.

4. Inputs

AID: The AID $12.5 million loan will directly finance the foreign exchange cost of (a) imported equipment for construction, operations and maintenance; (b) supervision of construction; (c) consultant services for feasibility studies, design work, and technical assistance: and (d) overseas training. AID will reimburse the GOI through FAR procedures for a portion of the local currency costs of (a) construction work on the flood control, levees, irrigations systems including terminal networks , and drainage (new and existing); (b) in-country training costs; (c) construction of terminal irrigation networks.

GOI: The GOI will finance the following local currency costs: (a) part of construction costs; (b) local currency costs of contracts for supervision of construction, feasibility studies and design work, and technical assistance; (c) part of in-country training costs, and (d) part of costs of construction of terminal irrigation networks. The GOI portion is estimated to be about $12.8 million.

The GOI will also provide the rupiahs to finance initially those local currency costs for which AID will reimburse under the FAR procedures. The GOI will provide adequate funding for O&M operations, extension services, and operation of the Project Manager Office. Agreement on the exact amounts to be provided will be a condition precedent for disbursement.

The GOI will provide adequate manpower for the Project Manager's Office, O&M, extension service activities, and counterparts as needed for consultants' technical assistance activities, studies and design work.

B. ENVIRONMENTAL STUDIES

As part of a broader contract to prepare a master plan for Citanduy River Basin Development, Engineering Consultants, Incorporated of Denver, Colorado conducted an environmental impact study of the Basin area in 1974. The study team was interdisciplinary in nature, including an ecologist/environmentalist and a land-use planner. The ECI report, published in November 1974, concluded that "the project will cause few, in any, detrimental impacts, and the effects of the beneficial impacts will more than compensate for any less desirable features. Although the study is a general survey of environmental issues for the project area, it appears to cover all relevant issues and does not suggest any significant adverse impact on the environment. It therefore provides a reasonable basis for proceeding with the project.

As part of a continuing emphasis on environmental assessment of water related-projects, AID/W plans to send a team of environmental experts to several Asian countries, including Indonesia, in early 1976. In Indonesia, the team will make a follow-up assessment of environmental effects of the Citanduy River Basin Development Project to verify the findings and extend the investigations of the earlier ECI study. Any pertinent team findings that differ from the conclusions of the ECI team can be incorporated in the final design work which is not scheduled for completion until November 1976.

C. ENVIRONMENTAL CONSIDERATIONS

Archeological:

No archeological sites have been reported in the reference area. However, during the design and preconstruction phase of the water management project to occur in 1975-76, intensive investigations will be made to verify that no archeological sites will be affected by the project. If it is determined that there are one or more archeological sites present, then an evaluation will be made for each site to determine its cultural significance, the environmental impact of the subproject, and the mitigation measures that might be undertaken to protect the respective site.

Historical and Cultural:

The Ciung Wanara Historical Reservation is located just upstream of Banjar at the confluence of the Citanduy River and the Cimuntur River. It covers an area of approximately 30 ha., and is important primarily for the mythical significance of Ciung Wanara. While this location is outside of the subproject area, great care will be taken during the design and preconstruction phase (1975-76) to assure that no subproject features will in any way affect this area.

No other historical sites are known to exist in this area. However, this will be adequately investigated during the design phase.

Although all of the cemeteries that exist within the subproject area have not yet been pinpointed, it is known that there are several. These will all be accurately located during the design phase and adequate steps taken to protect them. Such steps will also be taken to protect all mosques and other places of worship within the subproject area.

Fish and Wildlife:

Since this is a highly populated area, and has been for some time, it is felt that the existence of wildlife is insignificant. Possible exceptions might be the swampy areas such as Wanareja and both North and South Lakbok. The North Lakbok peat swamp area has been the object of such intensive reclamation efforts that little or any wildlife except for perhaps wild fowl now remain. The wanareja and South Lakbok swamps, while they have traditionally served as natural food storage areas, are also farmed to the limit permitted by the annual floods. In the team's opinion, fishing is not of consequence in these two areas with the possible exception of a few isolated examples that have been trapped by receding flood waters.

Domestic and Municipal Water Supplies:

The high rate of annual rainfall and the subsurface geology contribute to widespread occurrence of shallow ground water and make it possible to utilize hand-dug wells for domestic water supplies. The larger, more affluent homes have their own wells. In the "kampung," which is a sort of common courtyard shared by several residences, there may be only one well serving several homes. Hand pumps may be used to raise the water, but more frequent use is made of a bucket and rope, in which case the well is not covered.

According to public health officials, the close proximity of these shallow wells to streams, fish ponds, and wasteways gives rise to probable pollution from human and animal wastes. The ponds and open sewers comprise the principal disposal system for sewage.

Apparently the problem is greater during the dry season when percolation from surface ponds contributes more to the ground water in the well. Many wells go dry during the dry season.

Therefore, the problem appears to be less one of availability of domestic water than of quality. Use of polluted water is a health hazard even if the water is boiled for drinking and cooking. Exposure to illness is quite possible when impure water is used for washing and bathing. When floods occur, wells become polluted. This constitutes a great inconvenience and is a serious health hazard.

In the lower reaches of the subproject area, the instrusion of salt waters into the streams and ground water during the dry season results in domestic supplies of low quality. Chemical analyses of ground waters indicates a higher concentration of soluble salts in the areas bordering the inland side of the Segara Anakan than elsewhere.

None of the towns of the subproject area divert or pump their water supplies from streams. From interviews conducted with public health and public works officials, it does not appear that there is much prospect for this type of development in the project area in the near future. There has been some progress made in the development of natural springs as sources for town water supply. The railroad company pumps water for its locomotives from the Citanduy River at Banjar.

The city of Banjar has a central water supply systems which was installed in 1972. The funds were supplied by the World Health Organization, and installation was done under the auspices of the Ciamis District Public Health department. The system consists of a cistern at a spring source, and a pipeline into town where residents can tap on at specified points. The capacity is five liters per second, which will serve 5,000 people out of the present city population of 40,000. This system delivers untreated water.

Other similar systems are planned for installation at some of the other sub-district headquarters towns. The water supply program also includes hand-dug wells with manual pumps in other villages. The progress of this program depends upon the availability of funds from donor organizations.

Provision of domestic and municipal water supply would come into the scope of this study if one or more reservoirs would be constructed. From them nearby villages could be provided with water at least of the quality now supplied to the town of Banjar, which would be a considerable improvement over most of the existing methods of obtaining domestic water supplies. While complete service to individual homes and purified water are a highly desirable objective, these are not within the scope of plans being made by the communities or by the central government at this time.

Human Factors:

It is this category that the environmental impact of the subproject is expected to be highly beneficial. As previously pointed out, many of the inhabitants suffer illnesses due to conditions attributable to perennially wet conditions. These would include a high incidence of malaria due to poor local drainage, bad drinking water contaminated by flood waters or high water table due to poor drainage, overexposure to the elements during flood times, and malnutrition due to a lack of adequate food during periods of isolation caused by floods.

With the provision of adequate flood control measures and efficient drainage, the primary sources of these illnesses will be greatly reduced, if not completely eliminated.

It is also envisaged that the recommended flood warning organization will practically eliminate the chances for loss of human life should an emergency develop. Furthermore, with adequate warning, the local population will be able to take substantial measures to protect their homes and personal possessions, which will contribute immeasurably to the peace of mind of the local populace.

Public Health: The government-sponsored public health clinics provide health care at low cost. However, access to these clinics is difficult for rural people because of the poor transportation systems. There are reportedly 18 doctors practicing within the two districts with which this subproject is concerned. Banjar, a city of nearly 40,000 population, has two doctors. The health department runs hospitals at Banjar and Sidareja, and clinics at the other major towns. Services are largely provided by paramedics, midwives, and hospital assistants, due to the extreme shortage of doctors.

The lack of central water supply and waste disposal systems in the villages results in a high incidence of sickness from water borne pollution. This is a persistent problem year-round, but particularly severe during the dry season. Drinking water is obtained from questionable sources and the ground water falls in the dry season, subjecting the water supply to an even greater chance of pollution from shallow seepage sources such as open sewers and waste-disposal ponds. Diseases spread in this manner include gastro-enterites, cholera, dysentery, and typhoid. Table I-14 shows the number of cases in the Ciamis and Cilacap Districts, which entirely encompass the subproject area.

Table I-14 - Water-Borne Health Hazards, 1972

Illness	Ciamis District		Cilacap District	
	Cases	Deaths	Cases	Deaths
Typhoid	59	--	11	--
Dysentery	30	--	5,309	--
Diarrhea/Enteritia	182	--	25,645	--
Cholera	94	21	785	94

Source: District Public Health Offices

One of the more serious health hazards is malaria. The Ciamis District reported 221 cases in 1972, and the Cilacap District reported 1,594 cases. The malaria-carrying mosquitos are particularly prevalent in the low-lying swampy areas. The project area contains quite a number of these. Improved drainage would significantly reduce this problem. Health officials provided assurance that diseases caused by water-borne vectors, e.g., Schistosomiasis and filariasia, are not found in the Citanduy Basin.

Much of the public health problem could be reduced by eliminating poverty and improving the peoples' knowledge of hygiene. Naturally, people desire good health, but many of the uneducated people are simply unaware of the causes of illness. They do not know how to cope with these problems. Others may know something about the problem of maintaining good water supply and sanitation, but they are too poor to change their situations. The solutions to these matters will be slow to be realized under the best of circumstances.

Social Factors:

This is a time of rapidly changing goals and values in society everywhere. It is important to recognize desirable social goals and to incorporate these into the planning process. Evaluations should be broadened to include not solely the economic impacts, but the social effects as well. Consequently, it is important to obtain some perspective of the social structure in the project area. Social indicators can be relied upon to express quantitative and qualitative measures. It is pointed out that evaluation criteria and standards do not exist. To a large degree the "goodness" of social factors is a judgement thing and is relative; i.e., to be compared with existing situations elsewhere.

People who have studied human behavioral patterns have structured human needs into the following hierarchy:

Physiological	- The needs for sustenance, clothing, shelter, etc.
Security	- Protection from harm and assurance of livelihood.
Social	- The sense of belonging.
Ego	- Need for recognition and the respect of others.
Self-realization	- The sense of accomplishment and achievement.

These needs seem to be the motivation for most things that people do. If the goals are realized, frustrations may result. When conditions are such that progress toward achievement of these basic needs is restricted, the end result will be an unstable social structure.

Within the project area it appears that, while the standard of living is low and many material wants may go unsatisfied, there is generally a satisfactory attainment of the physiological needs. Clothing needs are minimal, housing is available at low cost, and nutritional levels appear to be reasonably adequate. Nobody is starving and one sees very few persons about who are entirely destitute. Sharing is customary here, and exceptionally few persons in these rural regions are for long homeless and without food. This is not true in the distant large cities, where individuals are separated from their immediate familes and long-time friends.

Security needs are not well met. Hazards from flooding expose a large proportion of the project areas to occasional-to frequent harm or loss of assets. Due to the relatively limited portion of the area covered by irrigation sytems, only a few of the farmers can be assured of abundant crops. Additionally, the need for rehabilitation and drainage under the irrigation systems that do exist further reduces the agricultural stability of the region. When the security needs are not met, as indicated by low income levels, under-and-unemployment and outmigration of the younger, more viable elements of the work force, some adverse situations may develop. Social unrest can develop out of the dissatisfactions that are felt. Personal initiative may be reduced and be evidanced by high drop-out rates at school and radical departure from long-standing social and religious customs. Community cooperative activities may be adversely affected. There are some evidences of these situations that are beginning to show up within the project area.

Social needs are deep-seated in this region. It has been observed that there are strong family and community ties. These conditions may be slowly changing as a result of modern communications influences - television and movies are available at Banjar, radio is heard throughtout the area.

Needs related to the two final categories of ego and feelings of self-realization appear to be largely satisfied, but there is room for improvement. Naturally, there are time of stress when individuals fail to fulfill all their goals in these respects. At the present tire, there seems to be no stigma attached to the availability of only occasional employment and the acceptance of help to meet physiological needs.

To summarize, the predominant social problem that should be given attention when planning for water and land resources development in this immediate area is the safety and security of people in the flood-prone area. Secondly, the enhancement of income levels through improved agricultural production is important with respect to satisfying higher physiological needs. Finally, a more equitable distribution of social and economic opportunities for the rural people should be sought to reduce some of the disparities that exist.

D. ENVIRONMENTAL IMPACT ANALYSIS

Lower Citanduy/Ciseel Water Management Scheme

I. Areas of Natural Beauty and Human Enjoyment:

As was previously pointed out, there are few, if any, remaining areas of natural forests. The systematic elimination of the last, the Rawa Lakbok peat swamp forests, started in 1924, and now there remain not even vestiges of its former mystic beauty.

Since the discharge of the Citanduy River is terrain common to both this sub-project and the Segara Anakan reclamation sub-project, whatever is done to change the discharge of the river will affect portions of both projects. We have previously discussed the changes that will be wrought in the Southern Mountains cuts. Once the construction scars have been obliterated by careful resodding and reforestation, this area should also be declared a national wildlife preserve and recreational area.

II. Uniqueness and Irreversibility Considerations:

The only unique spot in this sub-project area was the Rawa Lakbok, which was once reported to be the largest (but not the only) topogeneous peat marsh in Indonesia. The marsh vegetation has been cleared and peat bogs are farmed to some extent, so that the area does not now resemble its former aspect. However, due to poor drainange and the special characteristics of the soil, this area is still considered to be a problem area for agriculture. Detailed soil and drainage investigations and subsequent irrigation and drainage construction will be required before optimum production can be obtained from this unique soil.

Controlled drainage is traditionally considered to be one of the key practices required for the successful utilization of peat soils. Once proper drainage has been established, it is quite possible to obtain normal agricultural production from them, but this does not necessarily include rice. The investigation that will be required to first establish an optimum drainage pattern and then to determine what intensive cropping patterns will render optimum economical returns will be of benefit, not only to the residents of the area, but also to areas elsewhere having peat soils.

Once the proper measures for successful exploitation of these soils have been initiated, an irreversible process will have also been initiated. With drainage, a certain amount of settlement and consolidation will take place. Subsequent flooding will not cause these soils to swell and return to their former state. Furthermore, if peat soils

are excessively drained and allowed to dry, fire becomes a hazard. Those upper portions of the soil which might be destroyed by fire can never be replaced. This is not expected to be a problem because there will be an irrigation system serving the area.

Another area which will probably undergo significant irreversible environmental changes will be the Lower Ciseel River bed below the proposed cutoff to the Citanduy River. However, since this area now suffers from annual flood damages, it is felt that the benefits to be gained from adequate flood control for the area will more than compensate for any changes in the environmental picture.

III. Quality Considerations:

It is in the categories of land and water quality improvement, with the attendant significant increases in public health and welfare that this sub-project is expected to be especially beneficial. We have repeatedly pointed out that many of the inhabitants suffer illnesses due to conditions attributable to perennially wet conditions. We have also found that poor quality drinking water, contaminated by flood waters and/or a high water table due to poor drainage, is more than likely the principal cause of a high incidence of intestinal illnesses.

Flood control and drainage measures recommended for this sub-project will significantly alter the present situation and the improvements in water and land quality will not only bring benefits of a direct social nature, but will also bring economic benefits through improved agricultural production. A greater and more dependable source of income will add immeasurably to the peace of mind of the local inhabitants and thus contribute to the social and political stability of the area.

Because this is a rural area and will essentially remain so, no improvements in quality of air are foreseen, nor will there be any alterations in noise level, with the possible exception of the increased noise caused by vehicular traffic which will be attracted by any increase in prosperity of the area.

IV. Archeological, Historical, and Cultural Elements:

To the best of our knowledge, no archeological or historical sites exist within the sub-project area. Mosques and burial sites do exist, and proper measures will be taken to protect them. During the design and preconstruction phases, renewed efforts will be made to investigate all possible sites and catalogue and map them.

V. Project Alternatives

In preparing the feasibility study for the Citanduy River Basin Development project, Engineering Consultants, Incorporated considered twelve different combinations of flood control measures, ranging from protection levees alone to a complex system of three dams and levees. The most cost effective measure is the system of protection levees now proposed for loan funding. The next most economical system is the combination of the Matenggeng Dam and river levees, but the cost of this combination is twice the cost of the levees alone.

On environmental grounds, the project alternative now proposed for AID loan funding is also considered superior. Since the other alternatives involved the construction of one or more dams, they would have resulted in the removal of agricultural land from production in the reservoir area, relocation of families, and alternation of the ecology of forest land that would be inundated. Similarly, the proposed project is considered environmentally superior to the option of not undertaking any project. Elimination of the periodic flood that afflict the Citanduy area will provide greater security to the area's inhabitants, prevent recurring destruction of dwellings, crops, and infrastructure, and perturbance of animal and plant life cycles. Finally, the project proposes various drainage schemes that will in effect reduce breeding places for mosquitos that serve as malaria vectors.

Conclusions:

The greatest irreversible detrimental environmental impacts on the sub-project area have already been initiated by Man in his never ending pursuit of new agricultural land. The sub-project will never be able to restore these areas to their original condition, and it would not necessarily be beneficial to attempt to do so. However, the sub-project will introduce such mitigating measures as improved water and land quality. The project will cause few, if any, additional detrimental impacts, and the effects of the beneficial impacts will more than compensate for the less desirable features that now exist.

Citanduy Basin Development Project

LOGICAL FRAMEWORK MATRIX

A. 1. Program or Sector Goal	2. Measures of Goal Achievement	3. Means of Verification	4. Assumption
1) Improve well-being of Indonesia's poor majority who live in Citanduy Basin	a) Reduced personal losses from floods	a) GOI employment and income distribution statistics	a) Other GOI development programs, when taken together, contribute to improvement in income distribution and employment
	b) Improvement in income		
	c) Net number of jobs created per year		
2) Decrease Indonesia's dependence on food imports, particularly rice, needed to feed growing population	d) Decrease in tons of rice imported per year	GOI trade statistics	b) Transportation and marketing system capable of moving rice from producers in surplus areas to consumers in

B.	1. Project Purpose	2. End of Project Status	3. Means of Verification	4. Assumptions
	1) Reduction in flood damage	1) Protection against floods of up to 25-year return period	1) Project Office and local government statistics on flooding	1) No major change in rainfall intensity or runoff flows from upper watershed area
	2) Increase production of rice and other food crops	2) Farmers on 13,000 ha. in irrigation systems growing 2 crops per year	2) Project office reports	2) BIMAS production input package provided to farmers on timely basis and the farmers use it
	3) Preparatory work for continuing the integrated development of Citanduy Basin	3) O&M systems working satisfactorily for both flood control and irrigation systems	3) Ministry of Agriculture rice crop statistics	3) Rice and input prices kept at level adequate to maintain farmer incentives
		4) Water users associations functioning in all irrigation areas	4) Consultant reports	4) The farmers will practice double cropping on the irrigated areas
		5) Project manager's office functioning	5) AID monitoring and periodic formal evaluations in 1977, 1980 and 1986.	5) Funds from other financial sources are available to finance studies in addition to those being financed by this loan
		6) Feasibility studies and final designs completed which are needed for further integrated development of the Basin		

C. 1. Outputs	2. Magnitude of Outputs	3. Means of Verification	4. Assumptions
1. Flood Control System a. Levees and other flood control works b. Adequate O&M	1. a. 182 km. of levees b. Diversion of Ciseel River into Citanduy River c. 50-man O&M office trained and equipped	1. Project Office reports 2. Consultant reports 3. AID monitoring 4. Formal evaluations in 1977 and 1980	1. Adequate GOI financing provided 2. Adequate construction capability in area 3. Willingness of farmers to organize variable water users association
2. Rehabilitation and Construction of Irrigation Systems a. Major works b. Tertiary canals and farm service ditches c. Viable water user associations d. Adequate O&M	2. a. Rehabilitation of existing 7 systems covering about 12,447 ha. b. Construction of new systems covering about 600 ha. c. Water users associations established for all irrigation areas d. O&M offices expanded by DGWRD for major works and water users associations for farm service ditches		
3. Improved drainage in Project Area	3. a. 62 km. of major drains improved b. Improved and new secondary drains c. Rehabilitation of Pataruman desilting basin		
4. Feasibility studies and designs	4. Three feasibility studies and four final designs completed		

D. 1. Inputs

AID-Financing by FAR and direct payments for foreign exchange and local currency costs for:

1) Construction/rehabilitation of flood control works, irrigation and drainage systems
2) Supervision of construction
3) Equipment for construction and O&M
4) Training-incountry and overseas
5) Studies and design work
6) Technical assistance

GOI

1) Rupiah financing of costs for which reimbursement will be made by AID
2) Rupiah financing of GOI portion of costs
3) Annual financing of O&M for the flood control and irrigation systems.
4) Adequate supply of manpower for project office, O&M of both flood control and irrigation systems, extension services
5) Counterpart personnel as needed for studies

Farmers/Water Users Associations

Labor for construction of farm service ditches

2. Implementation Targets

Disbursements
(millions US$)

1) Year

	AID	GOI	Total
FY 77	3.7	1.7	5.4
FY 78	3.0	3.1	6.1
FY 79	2.3	2.9	5.2
FY 80	2.5	3.8	6.3
FY 81	1.0	1.4	2.4
	12.5	12.9	25.4

(see Implementation Plan for additional details)

2) Details of financing for O&M and number of personnel to be subject of condition precedent in loan agreement

3. Means of Verification

1) AID monitoring
2) Consultant's reports
3) Vouchers for FAR

4. Assumptions

1) GOI makes budget provisions for and provides its inputs on a timely basis
2) Adequate number of personnel can be released for training
3) Farmers provide inputs on a timely basis

PROJECT PERFORMANCE TRACKING (PPT) SYSTEM

country:	project no:	project title:	date:	/ original / revision #	approvd:
Indonesia		Citanduy Basin Development Loan	12/75	x	

PPT NARRATIVE

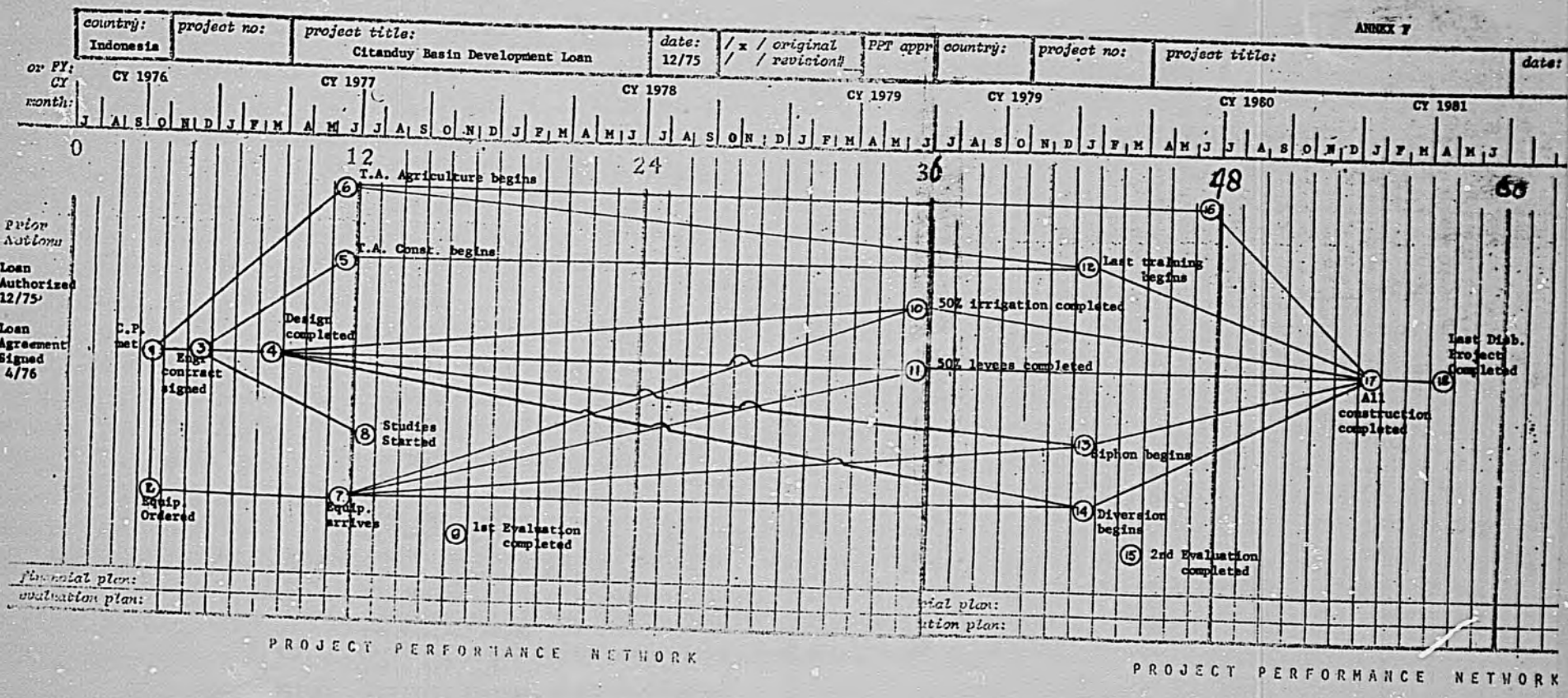
1.	10/1/76	Initial conditions precedent met.
2.	10/15/76	Construction equipment ordered.
3.	12/1/76	Contract signed for consulting engr.
4.	3/1/77	All design work completed.
5.	6/1/77	Technical assistance for construction operations begins.
6.	6/1/77	Technical assistance for agriculture activities begins.
7.	6/1/77	Construction equipment arrives in Banjar.
8.	7/1/77	All feasibility studies started
9.	11/1/77	First evaluation completed.
10.	6/1/79	Irrigation & Drainage - at least 50% of work completed or combination of 75% work completed and under contract.
11.	6/1/79	Levee work - at least 50% of work completed or combination of 75% work completed and under contract.
12.	1/1/80	Last of long term academic training begun.
13.	1/1/80	Construction work on siphon begun.
14.	1/1/80	Construction work on diversion begun.
15.	3/1/80	Second formal evaluation completed.
16.	6/1/80	Terminal irrigation networks and water users associations - completed for at least 60% of all land in irrigation systems.
17.	1/1/81	All construction, training, etc. completed.
18.	4/1/81	Last disbursement. Project completed.

AID/CM-15-75

ANNEX F

country:	project no:	project title:	date:	/ x / original / / revision#	PPT appr
Indonesia		Citanduy Basin Development Loan	12/75		

country:	project no:	project title:	date:



PROJECT PERFORMANCE NETWORK

PROJECT PERFORMANCE NETWORK

STATUTORY CHECKLIST

I. FULFILLMENT OF STATUTORY OBJECTIVES

A. Needs Which the Loan is Addressing

1. FAA Section 103. Discuss the extent to which the loan will alleviate starvation, hunger and malnutrition, and will provide basic services to poor people enhancing their capacity for self-help.

103. The purpose of the loan is to eliminate loss and damage to human lives, crops, and property caused by annual floods in the project area and to increase food production by rehabilitating irrigation systems.

2. FAA Section 104. Discuss the extent to which the loan will increase the opportunities and motivation for family planning; will reduce the rate of population growth; will prevent and combat disease; and will help provide health services for the great majority of the population.

104. Although not directed toward health and family planning activities, the loan would reduce the health problems caused by annual floods.

3. FAA Section 105. Discuss the extent to which the loan will reduce illiteracy, extend basic education, and increase manpower training in skills related to development.

105. The loan is not directed toward educational activities, but elimination of annual floods and increased economic activity from irrigation systems should make increased educational activities possible in the project area.

4. FAA Section 106. Discuss the extent to which the loan will help solve economic and social development problems in fields such as transportation, power, industry, urban development, and export development.

106. The loan is not directed toward activities in these areas.

5. FAA Section 107. Discuss the extent to which the loan will support the general economy of the recipient country; or will support development programs conducted by private or international organizations.	107. Increased production from the irrigation systems as well as avoidance of the disruption of the transportation and commerce in the project area from annual floods will support the general economy.
B. Use of Loan Funds	
1. FAA Section 110. What assurances have been made or will be made that the recipient country will provide at least 25% of the costs of the entire program, project or activity with respect to which such assistance is to be furnished under Sections 103-107 of the FAA?	110. The GOI will be contributing about 51% of direct costs of the program. The loan agreement will contain a provision concerning the GOI contribution.
2. FAA Section 111. Discuss the extent to which the loan will strengthen the participation of the urban and rural poor in their country's development, and will assist in the development of co-operatives which will enable and encourage greater numbers of poor people to help themselves toward a better life.	111. A key element is the establishment of water users associations by the farmers in the irrigation systems to control the usage of water and the operations and maintenance of the irrigation systems at the farm level.
3. FAA Section 112. Will any part of the loan be used to conduct any police training or related program (other than assistance rendered under Section 515(c) of the Omnibus Crime Control and Safe Streets Act of 1968 or with respect to any authority of the Drug Enforcement Administration or the or the FBI in a foreign country?	112. No.
4. FAA Section 113. Describe the extent to which the programs, projects or activities to be financed under the loan give particular attention to the integration of woman into the national economy of the recipient country.	113. The Rural Extension Centers and the actively involved with improving work on programs involving women and the women agriculture agents will participate fully in any training activities.

5. FAA Section 114. Will any part of the loan be used to pay for the performance of the abortions as a method of family planning or to motivate or coerce any person to practice abortions?

114. No.

II. COUNTRY PERFORMANCE

A. Progress Towards Country Goals

1. FAA ss 201(b)(5), 201(b)(7), 201(b)(8), 208. Discuss the extent to which the country is:

(a) Making appropriate efforts to increase food production and improve means for food storage and distribution.

(a). Indonesia is giving priority attention to projects which aim at increasing food production, particularly rice. There are currently 100-110 donor-supported technical and capital assistance projects in support of food production, improved food storage, distribution and marketing.

(b) Creating a favorable climate for foreign and domestic private enterprise and investment.

(b). The GOI enacted a comprehensive law with built-in incentives for encouraging foreign capital investment and has concluded an Investment Guaranty Agreement with the US.

(c) Increasing the people's role in the development process.

(c). It is actively encouraging private domestic investment. Some State Enterprises are being converted to semi-private corporations. National elections were carried out in July 1971 and Parliament has a part in the budgetary process inasmuch as the annual budget must be authorized by Parliament and expenditures reported in the "Annual Report of Budgetary Accounts".

(d) Allocating expenditures to development rather than to unnecessary military purposes or to intervention in other free countries' affairs.	With the ending of confrontation with Malaysia in 1966, the Soeharto Administration reversed the foreign intervention policy of the Sukarno regime. Military expenditures have been sharply reduced as the Government has concentrated the nation's domestic resources - and foreign aid receipts - on achieving economic stability and pursuing an ambitious development program.
(e) Willing to contribute funds to the project or program.	The GOI will contribute an estimated $2.9 million to meet about 51% of project costs.
(f) Making economic, social, and political reforms such as tax collection improvements and changes in land tenure arrangements; and making progress toward respect for the rule of law, freedom of expression and of the press, and recognizing the importance of individual freedom, initiative, and private enterprise.	Major economic reforms have been instituted with IMF/IBRD assistance including incentives to growth of individual initiative and private enterprise. Effective December 9, 1970 the GOI established one uniform exchange rate for all types of foreign exchange. The rate of inflation was reduced from 636.8 percent per annum in CY 1966 to about 10% in CY 1971, about 30% during 1973 and 1974, although due principally to general price increases, not just rice alone. GOI revenues from the oil sector have grown rapidly since 1967 to projected Rp. 1.5 billion in 1975/76 (2/3 of projected government revenues). Non-oil revenues have grown with the economy during the same period. Approximately 12 percent of the development budget is devoted to the social field which includes education, health, family planning, housing, manpower, social welfare, drinking water supply, culture and religion. The cooperating Government has encouraged self-help projects such as Food for Work and other irrigation and road building projects carried out through its Department of Manpower. A substantial low cost housing program will be implemented in the Second Five Year Plan which began in April 1974.
(g) Responding to the vital economic, political, and social concerns of its people, and demonstrating a clear determination to take effective self-help measures.	

B. Relations with the United States

1. FAA §§ 620(c). If assistance is to a government, is the Government indebted to any U.S. citizen for goods or services furnished or ordered where: (a) such citizen has exhausted available legal remedies, including arbitration, or (b) the debt is not denied or contested by the government, or (c) the indebtedness arises under such government's or a predecessor's unconditional guarantee?	We are not aware of any cases that make Indonesia ineligible under this Section.
2. FAA s 620(d). If the loan is intended for construction or operation of any productive enterprise that will compete with U.S. enterprise, has the country agreed that it will establish appropriate procedures to prevent export to the U.S. of more than 20% of its enterprise's annual production during the life of the loan?	Not applicable.

3. FAA § 620(e)(1). If assistance is to a government, has the country's government, or any agency or sub-division thereof, (a) nationalized or expropriated property owned by U.S. citizens or by any business entity not less than 50% beneficially owned by U.S. citizens, (b) taken steps to repudiate or nullify existing contracts or agreements with such citizens or entity, or (c) imposed or enforced discriminatory taxes or other exactions, or operation conditions? If so, and more than six months has elapsed since such occurrence, identify the document indicating that the government, or appropriate agency or subdivision thereof, has taken appropriate steps to discharge its obligations under international law toward such citizen or entity? If less than six months has elapsed, what steps if any has it taken to discharge its obligations?	The majority of business and property owned by U.S. citizens which was nationalized during the Sukarno regime (principally in 1964 and early 1965) has been returned to U.S. owners or mutually acceptable settlement negotiated. The Government of Indonesia in a Presidential Decree dated December 14, 1966 indicated its willingness to return nationalized assets.
4. FAA § 620(i). Has the country permitted, or failed to take adequate measures to prevent the damage or destruction by mob action of U.S. property, and failed to take appropriate measures to prevent a recurrence and to provide adequate compensation for such damage or destruction?	The country has not so permitted nor has it failed to take adequate measures.
5. FAA § 620(l). Has the government instituted an investment guaranty program under FAA § 234 (a)(1) for the specific risks of inconvertibility and expropriation or confiscation?	Yes.

6. FAA § 620(o). Fisherman's Protective Act of 1954, as amended, Section 5. Has the country seized, or imposed any penalty or sanction against, any U.S. fishing activities in international waters? If, as a result of a seizure, the USG has made reimbursement under the provisions of the Fisherman's Protective Act and such amount has not been paid in full by the seizing country, identify the documentation which describes how the withholding of assistance under the FAA has been or will be accomplished.	No. Remainder of question therefore not applicable.
7. FAA § 620(q). Has the country been in default, during a period in excess of six months, in payment to the U.S. on any FAA loan?	No; however, repayment of one FAA loan has been rescheduled by bilateral agreement dated March 16, 1971 in accordance with terms of the Paris Agreed Minutes of April 24, 1970.
8. FAA § 620(t). Have diplomatic relations between the country and the U.S. been severed? If so, have they been renewed?	No. Remainder of question therefore not applicable.

C. Relations with Other Nations and the UnN.

1. FAA § 620(i). Has the country been officially represented at any international conference when that representation included planning activities involving insurrection, or subversion directed against the U.S. or countries receiving U.S. assistance?	We have no information as to any such representational activity.
2. FAA § 620(s), 620(n). Has the country sold, furnished or permitted ships or aircraft under its registry to carry to Cuba or North Vietnam items of economic, military, or other assistance?	We have no information of any such action by Indonesia.

3. FAA § 620(u); App. § 107. What is the status of the country's U.N. dues, assessments, or other obligations? Does the loan agreement bar any use of funds to pay U.N. assessments, dues, or arrearages?	Indonesia is not delinquent with respect to U.N. obligations. The loan agreement will limit the use of loan proceeds to procurement of goods and services from A.I.D. Geographic Code 941 (Selected Free World) countries plus Indonesia.
D. Military Situation	
1. FAA § 620(i). Has the country engaged in or prepared for aggressive military efforts directed against the U.S. or countries receiving U.S. assistance?	No.
2. FAA § 620(s). (1) What is (a) the percentage of the country's bud budget devoted to military purposes, and (b) the amount of the country's foreign exchange resources used to acquire military equipment, and (c) has the country spent money for sophisticated weapons systems purchased since the statutory limitations became effective? (2) Is the country diverting U.S. development assistance or PL-480 sales to military expenditures? (3) Is the country directing its own resources to unnecessary military expenditures? (Findings on these questions are to be made for each country at least once each fiscal year and, in addition, as often as may be required by a material change in relevant information).	(1)(a) The Department of Defense portion of the Operating and Development State Budget has ranged from a high of 33% in CY 1967 to a low of 22% in the FY 1973/74 budget. Defense and national security expenditures equal 4.8% of the 1974/75 development budget. (b) We have no knowledge of any significant expenditures of foreign exchange for the military. Less than 10% of the military budget is allocated for foreign exchange purchases. Moreover, the Department of Defense budget includes substantial amounts for construction of roads, bridges and other civil works projects. (c) No, the Government is placing primary emphasis on economic development and not diverting its own resources for unnecessary military expenditures. (2) No. (3) No.
III. CONDITIONS OF THE LOAN	
A. General Soundness	
Interest and Repayment	

1. FAA §§ 201(d), 201(b)(2). Is the rate of interest excessive or unreasonable for the borrower? Are there reasonable prospects for repayment? What is the grace period interest rate? Is the rate of interest higher than the country's applicable legal rate of interest?	In the recent past Indonesia's debt burden balanced by rapid growth in real Government revenues and favorable economic performances. Despite recent short term set backs caused by the recession and internal financial short falls, it is considered that future debt payments will be manageable. The various donors agree Indonesia has a debt burden for which the prospects of repayment are reasonable. Country terms of a 40-year loan, 10-year grace period, 2% interest during the grace period, 3% thereafter, pertain. The rate of interest is not higher than the country's applicable legal rate of interest.
Financing	
1. FAA § 201(b)(1). To what extent can financing on reasonable terms be obtained from other free-world sources, including private sources within the U.S.?	Loan assistance to Indonesia is provided within the framework of the Inter-Governmental Group on Indonesia (IGGI), advised by the IBRD and the IMF. This loan has been selected by AID as part of the U.S. Government contribution to the IGGI consortium and as such is supported by the IBRD resident mission. The Exim Bank has expressed no interest in financing any portion of this Project.
Economic and Technical Soundness	
1. FAA §§ 201(b)(2), 201(e). The activity's economic and technical soundness to undertake loan; does the loan application, together with information and assurances, indicate that funds will be used in an economically and technically sound manner?	Yes. See the Technical Analysis and Socio-economic Analysis sections of the Project Paper.

2. FAA § 611 (a)(1). Have engineering, financial, and other plans necessary to carry out assistance, and a reasonably firm estimate of the cost of assistance to the U.S., been completed?	Necessary planning and a reasonably firm cost estimate for the Project have been completed (see the Technical and Financial Analysis Sections of the Project Paper).
3. FAA § 611(b); App. § 101. If the loan or grant is for water or related land-resource construction project of program, do plans include a cost-benefit computation? Does the project or program meet the relevant U.S. construction standards and criteria used in determining feasibility?	An internal rate of return analysis has been performed on the Project. Yes, the program meets the relevant U.S. construction standards and criteria used in determining feasibility.
4. FAA § 611(e). If this is a Capital Assistance Project with U.S. financing in excess of $1 million, has the principal AID officer in the country certified as to country's capability effectively to maintain and utilize the project?	Yes, the Mission Director has so certified. See Annex H.

B. Relation to Achievement of Country and Regional Goals

1. FAA §§ 207, 281 (a). Describe this loan's relation to: (a) Institutions needed for a democratic society and to assure maximum participation on the part of the people in the task of economic development.	The Project will assist in the development of water user associations which will also result in the participation of small farmers in economic development.
(b) Enabling the country to meet its food needs, both from its own resources and through development, with U.S. help, of infrastructure to support increased agricultural productivity.	The Project will help increase the production of food and decrease loss or damage to crops by annual floods.
(c) Meeting increasing need for trained manpower.	The Project includes on-the-job, in country and overseas training for staff of the project authority and training at the farm level for the farmers.
(d) Developing programs to meet public health needs.	The increase in small farmer income and improved income distribution resulting from the Project should result in greater access to health services.

(e) Assisting other important economic, political, and social development activities, including industrial development; growth of free labor unions; cooperatives and voluntary agencies; improvement of transportation and communication systems; capabilities for planning and public administration; urban development and modernization of existing laws.	By establishing water users associations, raising incomes and improving income distribution among the population and thereby the ability of the rural people to play a greater role in the activities of the country, this Project is an essential precondition to economic, political and social development.
2. FAA § 201(b)(4). Describe the activity's consistency with and relationship to other development activities, and its contribution to realizable long-range objectives.	The Project is consistent with other development activities and will make a substantial contribution to the long-range objectives of (1) decreasing Indonesia's dependence on food imports, particularly rice, needed to feed its growing population and (2) expanding and broadening Indonesia's production base.
3. FAA § 201(b)(9). How will the activity to be financed contribute to the achievement of self-sustaining growth?	By increasing its irrigated hectarage, and providing supporting services for its small farmers, the loan will increase the agricultural productiveness of its farmers thereby contributing to self-sustaining growth.

4. FAA § 201(f). If this is a project loan, describe how such project will promote the country's economic development, taking into account the country's human and material resource requirements and the relationship between ultimate objectives of the project and overall economic development.	The Project will promote the country's economic development through increasing agricultural productivity, increasing rural incomes, improving income distribution and generating employment opportunities.
5. FAA § 201(b)(3). In what way does the activity give reasonable promise of contributing to development of economic resources, or to increase of productive capacities?	The Project will contribute to the development and increase the productive capacity of Indonesia's land resources through improving and constructing irrigation systems.
6. FAA § 281(b). How does the program under which assistance is provided recognize the particular needs, desires, and capacities of the country's people; utilize the country's intellectual resources to encourage institutional development; and support civic education and training in skills required for effective participation in political processes?	The Project will meet the needs and desires of Indonesia's rural people for increased incomes, better income distribution and expanded employment opportunities. Civic education and training in skills required for effective participation in political processes will be gained by the formation of water user associations.

7. FAA § 601(a). How will this loan encourage the country's efforts to: (a) increase the flow of international trade; (b) foster private initiative and competition; (c) encourage development and use of cooperatives, credit unions, and savings and loan associations; (d) discourage monopolistic practices; (e) improve technical efficiency of industry, agriculture, and commerce; and (f) strengthen free labor unions?	(a) Not applicable. (b) " " (c) " " (d) " " (e) The Project will increase the efficiency of irrigation systems. (f) Not applicable.
8. FAA § 202(a). Indicate the amount of money under the loan which is: going directly to private enterprise; going to intermediate credit institutions or other borrowers for use by private enterprise; being used to finance imports from private sources; or otherwise being used to finance procurements from private sources.	Commodities to be procured for the Project using foreign exchange will be purchased from private enterprise. Construction of most works will be contracted to Indonesian firms, many of them privately-owned, wherever possible. The integrated area development scheme is designed to benefit small, privately-owned farms directly and the economy indirectly.

9. FAA § 611(a)(2). What legislative action is required within the recipient country? What is the basis for a reasonable anticipation that such action will be completed in time to permit orderly accomplishment of purposes of loan?	None
Regional Goals	
1. FAA § 619. If this loan is assisting a newly independent country, to what extent do the circumstances permit such assistance to be furnished through multilateral organizations or plans?	Not applicable.
2. FAA § 209. If this loan is directed at a problem or an opportunity that is regional in nature, how does assistance under this loan encourage a regional development program? What multilateral assistance is presently being furnished to the country?	The loan is not directed at a regional program.

C. Relation to U.S. Economy

Employment, Balance of Payments, Private Enterprises.

1. FAA s s 201(b)(6): 102. Fifth. What are the possible effects of this loan on U.S. economy, with special reference to areas of substantial labor surplus? Describe the extent to which assistance is constituted of U.S. commodities and services, furnished in a manner consistent with improving the U.S. balance of payments position.

Since traditional direct procurement finance by the Loan will be limited to AID Geographic Code 941 (Selected Free World) countries plus Indonesia and reimbursement to the GOI for Fixed Amount Reimbursement (FAR) items will be made via a Direct Reimbursement Authority (DRA) against evidence of the recent import of goods and services from the U.S., there will be no adverse effect on the U.S. balance of payments.

2. FAA §§ 612(b), 636(h). What steps have been taken to assure that, to the maximum extent possible, foreign currencies contributed by the country are utilized to meet the cost of contractual and other services, and that U.S. foreign-owned currencies are utilized in lieu of dollars?

Goods and services requiring foreign exchange financing will be procured from AID Geographic Code 941 countries plus Indonesia. U.S. owned local currency is not available in Indonesia.

3. FAA § 601(d); App. § 108. If this loan is for a capital project, to what extent has the Agency encourage utilization of engineering and professional services of U.S. firms and their affiliates? If the loan is to be used to finance direct costs for construction, will any of the contractors be persons other than qualified nationals of the country or qualified citizens of the U.S.? If so, has the required waiver been obtained?

Advisory services required to implement the Project will be procured from AID Geographic Code 941 countries plus Indonesia. All construction contractors will be qualified Indonesian nationals or firms.

4. FAA § 608(a). Provide information on measures to be taken to utilize U.S. Government excess personal property in lieu of the procurement of new items.	U.S. Government excess property will not be used for this Project.
5. FAA § 602. What efforts have been made to assist U.S. small business to participate equitably in the furnishing of commodities and services financed by this loan?	The loan agreement will contain a provision to ensure that opportunity for such participation will be provided and appropriate notices published.
6. FAA § 621. If the loan provides technical assistance, how is private enterprise on a contract basis utilized? If the facilities of other Federal agencies will be utilized, in what ways are they competitive with private enterprise (if so, explain); and how can they be made available without undue interference with domestic programs?	It is anticipated that the advisory services required to implement the Project will be provided through contracts with consultants from AID Geographic Code 941 sources plus Indonesia programs. The utilization of other Federal agencies is not envisioned for this Project.
7. FAA § 611(c). If this loan involves a contract for construction that obligates in excess of $100,000, will it be on a competitive basis? If not, are there factors which make it impracticable?	The loan agreement will cover this requirement.
8. FAA § 601(b). Describe the efforts made in connection with this loan to encourage and facilitate participation of private enterprise in achieving the purposes of the Act.	Commodities to be procured for the Project using foreign exchange will be purchased from private enterprise. Commodities to be procured for the Project using local currency will be purchased from Indonesian suppliers, most of them privately-owned. Construction of most physical works will be contracted to Indonesian firms, many of them privately-owned, wherever possible.

Procurement

1. FAA § 604(a). Will commodity procurement be restricted to U.S. except as otherwise determined by the President?	Yes, procurement is limited to AID Geographic Code 941 countries plus Indonesia.
2. FAA § 604(b). Will any part of this loan be used for bulk commodity procurement at adjusted prices higher than the market price prevailing in the U.S. at the time of purchase?	No.
3. FAA § 604(e). Will any part of this loan be used for procurement of any agricultural commodity or product thereof outside the U.S. when the domestic price of such commodity is less than parity?	No.
4. FAA § 604(f). Will the agency receive the necessary prepayment certifications from suppliers under a commodity import program agreement as to description and condition of commodities, and on the basis of such, determine eligibility and suitability for financing?	Not applicable. This is a project loan and not a commodity import program assistance loan.

D. Other Requirements

1. FAA § 201(b). Is the country among those countries in which development loan funds may be used to make loans in this fiscal year?	Yes.
2. App. § 105. Does the loan agreement provide, with respect to capital projects, for U.S. approval of contract terms and firms?	The loan agreement will cover this requirement.
3. FAA § 620(k). If the loan is for construction of a production enterprise, with respect to which the aggregate value of assistance to be furnished will exceed $100 million, what preparation has been made to obtain the express approval of the Congress?	Not applicable.

4. FAA § 620(b), 620(f). Has the President determined that the country is not dominated or controlled by the International Communist movement? If the Country is a Communist country (including, but not limited to, the countries listed in FAA § 620(f))and the loan is intended for economic assistance, have the findings required by FAA § 620(f) been made and reported to the Congress?	Yes, the required determination has been made. Reminder of question is, therefore, not applicable.
5. FAA § 620(h). What steps have been taken to insure that the loan will not be used in a manner which, contrary to the best interest of the United States, promotes or assists the foreign aid projects of the Communist-bloc countries?	The loan agreement will cover this requirement.
6. App. § 109. Will any funds be used to finance procurement of iron and steel products for use in Viet-Nam other than as contemplated by § 109?	No.
7. FAA § 636(1). Will any part of this loan be used in financing non-U.S. manufactured automobiles? If so, has the required waiver been obtained?	No. The remainder of the question is therefore not applicable.
8. FAA § 620(a)(1) and (2), 620 (p). Will any assistance be furnished or funds made available to the government of Cuba or the United Arab Republic?	No.
9. FAA § 620(g). Will any part of this loan be used to compensate owners for expropriated or nationalized property? If any assistance has been used for such purpose in the past, has appropriate reimbursement been made to the U.S. for sums diverted?	No. No assistance has been used for such purposes in the past.

10. FAA § 201(f). If this is a project loan, what provisions have been made for appropriate participation by the recipient country's private enterprise?	Commodities to be procured for the Project using local currency will be purchased from Indonesian suppliers, most of them privately-owned. Construction of most works will be contracted to Indonesian firms, many of them privately-owned, wherever possible.
11. App. § 103. Will any funds under the loan be used to pay pensions, etc., for persons who are serving or who have served in the recipient country's armed forces?	No.
12. MMA § 901.b. Does the loan agreement provide, for compliance with U.S. shipping requirements, that at least 50% of the gross tonnage of all commodities financed with funds made available under this loan (computed separately by geographic area for dry bulk carriers, dry cargo liners, and tankers) be transported on privately owned U.S.-flag commercial vessels to the extent such vessels are available at fair and reasonable rates for U.S. flag vessels. Does the loan agreement also provide for compliance with U.S. shipping requirements, that at least 50% of the gross freight revenues of goods shipped under this loan must be earned by privately owned U.S. flag commercial vessels to the extent such vessels are available at fair and reasonable rates for U.S. vessels?	Yes to both questions. These requirements will be applicable only to traditional direct procurement financed by the loan. The loan agreement will contain a provision covering these requirements.
13. FAA § 481. Has the President determined that the recipient country has failed to take adequate steps to prevent narcotic drugs produced or procured in, or transported through such country from being sold illegally within the jurisdiction of such country to U.S. Government personnel or their dependents or from entering the United States unlawfully?	No.

14. App. § 110. Is the loan being used to transfer funds to world lending institutions under FAA §§ 209(d) and 251(h)?	No.
15. App. § 601. Are any of these funds being used for publicity or propaganda within the United States?	No.
16. FAA § 612(d) and Section 40 of PL 93-189 (FAA of 1973). Does the United States own excess foreign currency and, if so, what arrangements have been made for its release in compliance with Section 40 (FAA of 1973)?	U.S. owned excess local currency is not available in Indonesia.
17. FAA § 604(d). Will provision be made for placing marine insurance in the U.S. if the recipient country discriminates against any marine insurance company authorized to do business in the U.S.?	Yes. This requirement will be applicable only to traditional direct procurement financed by the Loan. The loan agreement will contain a provision covering this requirement.
18. Section 29 of PL 93-189 (FAA of 1973). Is there a military base located in the recipient country which base was constructed or is being maintained or operated with funds furnished by the U.S., and in which U.S. personnel carry our military operations? If so, has a determination been made that the government of such recipient country has, consistent with security, authorized access, on a regular basis to bonafide news media correspondents of the U.S. to such military base?	No. Remainder of question therefore not applicable.
19. Sections 30 and 31 of PL 93-189 (FAA of 1973). Will any part of the loan be used to finance directly or indirectly military or paramilitary operations by the U.S. or by foreign forces in or over Laos, Cambodia, North Vietnam, South Vietnam, or Thailand?	No.

20. Section 37 of PL 93-189 (FAA of 1973); App. § 111. Will any part of this loan be used to aid or assist generally or in the reconstruction of North Vietnam?	No.
21. FAA Section 640(c). Will a grant be made to the recipient country to pay all or part of such shipping differential as is determined by the Secretary of Commerce to exist between U.S. and foreign flag vessel charter or freight rates?	No.
22. App. § 112. Will any of the funds appropriated or local currencies generated as a result of AID assistance be used for support of police or prison construction and administration in South Vietnam or for support of police training of South Vietnamese?	No.
23. App. § 113. Will any of the loan funds be used to acquire currency of recipient country from non-U.S. Treasury sources when excess currency of that country is on deposit in the U.S. Treasury?	No.
24. App. § 114. Have the House and Senate Committees on Appropriations been notified fifteen days in advance of the availability of funds for the purposes of this project?	Project is included in FY 76 Congressional Presentation at the proposed level of $12.5 million. No notification is necessary.
25. App. § 504. Will any of the funds appropriated for this project be used to furnish petroleum fuels produced in the continental United States to Southeast Asia for use by non-U.S. nationals?	No.

Annex H

INDONESIA - CITANDUY BASIN DEVELOPMENT PROJECT

CERTIFICATION PURSUANT TO SECTION 611(e) OF THE FOREIGN ASSISTANCE ACT OF 1961, AS AMENDED

I, Kenneth M. Kauffman, the principal officer of the Agency for International Development in Indonesia, having taken into account among other things the experience of the Government of Indonesia in association with multilateral and bilateral donors, including AID, in implementing programs directed to the construction, rehabilitation, operation and maintenance of irrigation systems and other water resources developments; do hereby certify that in my judgment Indonesia has the financial and human resources capability to implement, maintain and utilize effectively the Citanduy Basin Development Project.

Kenneth M. Kauffman
Acting Director, USAID Indonesia

Dec 2, 1975
Date

ANNEX I

GOI LOAN APPLICATION

The Government of Indonesia, by letter on/about December 18, 1975, made a formal application to A.I.D. for this loan. The application is being transmitted to AID/W by cable.

Project Description for Loan Agreement

The loan provides assistance to the Ministry of Public Works and Electric Power and the Ministry of Agriculture in carrying out an integrated program of development in the Citanduy Basin. The first stage is the elimination of annual flooding by the Citanduy and Ciseel Rivers to increased production of rice and other crops. The project shall consist of (1) construction of levees on the Citanduy and Ciseel Rivers and their tributaries, including a cutoff of the Ciseel River into the Citanduy River, (2) rehabilitation of seven existing irrigation systems, (3) construction of one new irrigation system, (4) rehabilitation and construction of primary and secondary drains, (5) construction of terminal irrigation systems and establishment of water users associations, (6) consulting engineering services, (7) technical assistance, and training in on-farm water management and operations and maintenance of the flood control and irrigation systems and (8) equipment for construction/operations, (9) and feasibility studies and designs for additional projects in the Citanduy Basin.

LOAN AUTHORIZATION

A.I.D. Loan No.: _____

Provided under : Section 103:
Food Production

For: Indonesia: Citanduy Basin Development
Project

Pursuant to the authority vested in the Administrator, Agency for International Development ("A.I.D."), by the Foreign Assistance Act of 1961, as amended, ("Act") and the delegations of authority issued thereunder, I hereby authorize the establishment of a Loan pursuant to Section 103 of said Act to the Government of the Republic of Indonesia ("Borrower") of not to exceed twelve million, five hundred thousand United States dollars ($12,500,000) to assist in financing the United States dollar and local currency costs of the Citanduy Basin development project for Indonesia, the Loan to be subject to the following terms and conditions:

1. Terms of Repayment and Interest Rate

Borrower shall repay the Loan to A.I.D. in United States dollars within forty (40) years from the date of the first disbursement under the Loan, including a grace period of not to exceed ten (10) years. Borrower shall pay to A.I.D. in United States dollars interest at the rate of two percent (2%) per annum during the grace period and three percent (3%) per annum thereafter on the outstanding disbursed balance of the Loan and on any due and unpaid interest accrued thereon.

2. Other Terms and Conditions

a. Except as A.I.D. may otherwise agree in writing:

(1) Goods and services financed under the Loan shall have their source and origin in Indonesia and countries included in A.I.D. Geographic Code 941;

(2) The Borrower shall agree, by condition precedent, covenant, or both, to provide on a timely basis its

portion of project financing at levels, under arrangements and on timing acceptable to A.I.D.

(3) The Borrower shall submit plans satisfactory to AID concerning (i) the operations and maintenance of the physical facilities to be constructed or rehabilitated under this loan, (ii) the provision of farm inputs to the project area, and (iii) the provision of an adequate level of rural extension services to the project area.

(4) The Borrower and AID shall agree on the percentage at which AID shall reimburse the Borrower for the approved construction cost estimate.

b. The Loan shall be subject to such other terms and conditions as A.I.D. may deem advisable.

_____
Administrator

_____
Date

CITANDUY BASIN DEVELOPMENT PROJECT

List of Annexes

A. AID/W Approval of PRP

B. Technical Details -- Flood Control

1. Decree No. 133/KPTS/1969 Establishing Citanduy Project
2. Decree No. 71/KPTS/1973 Establishing Steering Committee
3. Staffing of Citanduy Project Office
4. Citanduy Project Organization Chart
5. Ministry of Public Works Organization Chart
6. Typical Levee Cross Section
7. Levee Maintenance Districts (proposed)
8. Earthwork Quantities
9. Revised Cost Estimates
10. Illustrative Equipment List

C. Technical Details -- Irrigation and Drainage

1. Description of Irrigation and Drainage Systems
2. Major Irrigation Systems
3. Schematic Diagram of Project
4. Location Map of Irrigation Systems
5. Proposed Layout Panulisan Irrigation System (New)
6. Revised Cost Estimates

D. Environmental Statement

E. Logical Framework Matrix

F. Project Performance Tracking System

G. Statutory Checklist

H. Section 611 (e) Certification

I. GOI Loan Application

J. Project Description for Loan Agreement

K. Draft Loan Authorization

Department of State

Annex A

TELEGRAM

027 Citanduy

UNCLASSIFIED

Classification

MAR 20, 1975

1337

Otto/Br

ACTION AID-5

INFO CHRON
AMB
DCM POL ECON

R 192045Z MAR 75
FM SECSTATE WASHDC
TO AMEMBASSY JAKARTA 4295
BT
UNCLAS STATE 062070

AIDAC

E.O. 11652: N/A
TAGS:
SUBJECT: CITANDUY/CISEEL RIVER BASIN FLOOD CONTROL IRRIGATION AND DRAINAGE PROJECT PRP

ACTION COPY
DATE: 3-27.
ACTION TAKEN: 1/2 d
DATE 3-27-75
BY: ENGR
RETURN TO C&R

1. EAST ASIA ADVISORY COMMITTEE MEETING HELD 4 FEBRUARY ON SUBJECT PCP. APPROVAL GIVEN TO PROCEED PREPARATION PP. ISSUES/POINTS RAISED WHICH NEED TO BE FULLY ADDRESSED IN PP DISCUSSED BELOW.

2. LOGICAL FRAMEWORK MATRIX. PROJECT PURPOSE AND PROGRAM/SECTOR GOAL SHOULD BE STATED MORE CLEARLY SO THAT PRESENT OVERLAPPING AVOIDED. LINKAGE BETWEEN PROJECT PURPOSE AND PROGRAM/SECTOR GOAL SHOULD BE EXPLICITLY STATED. FIRST ASSUMPTION FOR ACHIEVING PROJECT PURPOSE SHOULD BE CHANGED TO READ QUOTE WILL CONTINUE TO MAINTAIN UNQUOTE. OBJECTIVELY VERIFIABLE INDICATORS OF ACHIEVEMENT OF PROJECT PURPOSE SHOULD BE DEVELOPED.

3. BENEFITS TO TARGET GROUP. PROJECT BENEFICIARIES SHOULD BE DESCRIBED IN DETAIL. BENEFITS SHOULD BE DESCRIBED IN DETAIL AND QUANTIFIED WHEREVER POSSIBLE. WILL LAND VALUES INCREASE IN PROJECT AREA? IF SO, HOW WILL THIS AFFECT RENTS AND TARGET GROUP BENEFITS? ARE AVERAGE LAND HOLDINGS LIKELY TO REMAIN SMALL?

4. FARM LEVEL IMPLEMENTATION. AS IN CASE SEDERHANA, TREATMENT THIS AREA DEEMED ONE OF MOST IMPORTANT ASPECTS PROJECT DESIGN. PLANNED ASSISTANCE THIS AREA CITANDUY PROJECT SHOULD BE DISCUSSED IN DETAIL

5. LAND FRAGMENTATION. IS FRAGMENTATION OF LAND HOLDINGS A PROBLEM IN PROJECT AREA? IF SO, WHAT MEASURES PLANNED TO ADDRESS PROBLEM, IF ANY?

6. [illegible]

6. CONCERN EXPRESSED AT PRP REVIEW ON LAND USE CHANGES IN UPPER WATERSHED. PP SHOULD EXPLAIN PLANNED CHANGES AND METHOD OF IMPLEMENTATION TO ADDRESS PROBLEM OF EROSION.

7. CITANDUY PROJECT OFFICE THE ROLE OF DEPARTMENT OF AGRICULTURE, COORDINATION WITH GOI AGENCIES, PERMANENCE, RESPONSIBILITIES, BUDGET AND STAFFING WERE NOT CLEAR IN PRP OR REVIEW DISCUSSION THESE CRITICAL TO PROJECT AND SHOULD ALL BE DISCUSSED IN DETAIL;

8. IMPLEMENTATION CAPABILITY. ABILITY OF GOI AGENCIES CONCERNED TO IMPLEMENT PROJECT SHOULD BE ANALYZED IN DETAIL,

9. O AND M. O AND M OF FLOOD CONTROL WORKS, MAJOR IRRIGATION WORKS AND TERMINAL (TERTIARY) IRRIGATION SYSTEMS SHOULD BE TREATED IN DETAIL WHAT GOI AGENCY WILL BE RESPONSIBLE FOR O AND M OF FLOOD CONTROL AND MAJOR IRRIGATION WORKS AFTER PROJECT COMPLETION, CITANDUY PROJECT OFFICE OR WEST AND CENTRAL JAVA PROVINCIAL PUBLIC WORKS OFFICES? WHAT O AND M ASSISTANCE WILL BE PROVIDED? WILL AREAS NOT INCLUDED IN ASSISTANCE PACKAGE BE COVERED BY PP/COVENANT?

10. BIMAS PRODUCTION INPUT PACKAGE. WHAT IS CURRENT STATUS OF BIMAS PROGRAM IN PROJECT AREA? WHAT ARE GOI PLANS FOR INCREASING BIMAS COVERAGE OF AREA?

11. COORDINATION WITH OTHER DONORS. THIS SHOULD BE DISCUSSED IN DETAIL

12. LC/FAR. METHOD OF LOCAL CURRENCY FINANCING SHOULD BE DISCUSSED; IF USE FAR CONTEMPLATED, PROPOSED COMPLETION UNITS FOR PURPOSE REIMBURSEMENT SHOULD BE INDICATED AND FINAL PP SHOULD HAVE DETAILED DISCUSSION FAR. INDICATE ANY WAIVER CURRENT AGENCY PROCEDURES

THAT MAY BE REQUIRED SO THIS CAN BE ACCOMPLISHED WITH PROJECT AUTHORIZATION.

13. SOIL CLASSIFICATION HAS ADEQUATE SOIL CLASSIFICATION WORK BEEN DONE TO ASSURE THAT LAND RECEIVING IMPROVED/NEW IRRIGATION AS RESULT PROJECT SUITABLE FOR RICE? IF NOT, WHAT ADDITIONAL WORK PLANNED AND ON WHAT TIME SCHEDULE?

14. FLOOD RETURN PERIOD; REASONS FOR DESIGNING FOR 25-YEAR RATHER THAN 50-YEAR OR SOME OTHER FLOOD RETURN PERIOD SHOULD BE DISCUSSED IN DETAIL.

15. FLOOD HYDROLOGY. DO PRESENT PLANS INCLUDE USE MODEL TO ANALYZE FLOOD HYDROLOGY? FLOOD HYDROLOGY SECTION ECI STUDY INDICATES FIELD VERIFICATION OF FLOOD LEVELS NECESSARY; WHAT ADDITIONAL FIELD WORK CONTEMPLATED?

17. FLOOD LEVEE DESIGN MAY BE ADVANTAGEOUS TO DESIGN FOR FAILURE LIMITED SECTION LEVEE WHEN DESIGN FLOOD EXCEEDED, THUS AVOIDING FAILURE LARGER SECTION DURING DESIGN. ECI SHOULD CONSIDER FLOOD FORECASTING, WARNING SYSTEMS AND PROCEDURES FOR EVACUATION THREATENED AREAS.

18. ADDITIONAL STUDIES. WHAT OTHER ECONOMIC/TECHNICAL ANALYSES REQUIRED AS BASIS DEVELOPING PP? WILL RESULTS THESE STUDIES BE AVAILABLE IN TIME MEET PP SCHEDULE INDICATED PRP?

19. PP NEEDS TO INCLUDE DESCRIPTION ENVIRONMENTAL IMPACT OF PROJECT. ALSO NEED INCLUDE DISCUSSION ON HOW PROJECT WILL ENCOURAGE PARTICIPATION WOMEN IN DEVELOPMENT PROCESS. INGERSOLL

REPUBLIC OF INDONESIA

MINISTER OF PUBLIC WORKS AND ELECTRICAL POWER

DECREE OF PUBLIC WORKS AND ELECTRICAL POWER MINISTER
NO : 133 / KPTS / 1969
ON
FORMATION OF IMPLEMENTATION BODY FOR CITANDUY PROJECT

MINISTER OF PUBLIC WORKS AND ELECTRICAL POWER

Considering : a. That in accordance with the Five-Year Development Plan, repairs and development of irrigation (Irrigation, drainage, landreclamation, flood control, etc) is one of the main factors of agricultural development in general, food production in particular ;

b. That the developing efforts for the Citanduy river are not only in the long run converting it into a potential, fertile and prosperous, but also controlling floods and cultivating the area for the safety of food production ;

c. That the area of the Citanduy river situated in 2 (two) first-level area obliges the formation of Implementation Body designed to carry out the above work with coordination and plans, especially flood-controlling works ;

In view of : 1. RI Presidential Decree No.183 jo. 184 of 1968 ;
2. RI Presidential Decree No.319 of 1968 ;
3. Regulation issued by the Minister of Public Works and Electrical Power No.3/PRT/1968 jo. No.03/PRT/1969 ;

Also : MPRS Decision No.XLI/MPRS/1968 on main duties of Development Cabinet ;

HAVING DECIDED :
MINISTER'S DECISION ON FORMATION OF IMPLEMENTATION BODY FOR CITANDUY PROJECT

CHAPTER I
FORMATION
Article 1.

(1) By this Minister's Decision an Implementation Body is formed under the name "Citanduy Project", which is hereafter called Project in this decision.

(2) The existing units of the project, whose activities are within the scope of "Citanduy Project" , are integrated in this project .

CHAPTER II
MAIN DUTIES AND RIGHTS
Article 2.

The Project has the following main duties :
(1) Short-term duties :

a. to intensify safety efforts for the areas frequently affected by floods , especially the areas of food production.

b. reclamation of the food production areas by means of colmatage and / or drainage .

(2) Long-term duties :

a. to conduct surveys, analysis and compilation on : cost, design of the works to be implemented in the context of developing the area of Citanduy river .

b. to conduct physical development of the project in the context of developing the area of Citanduy river.

c. to obtain the best possible working system for a big project.

Article 3.

The Project is granted the rights :

(1) To establish working relations and to seek cooperation with Government agencies (Civil, Military, Central and Regional) as well as with the private parties as required.

(2) To appoint and dismiss workers as the Project requires.

CHAPTER III
STRUCTURE OF ORGANIZATION
Article 4.

(1) The organization of this Project comprises these elements :

a. Management.
b. Staffs of Management.
c. Implementer.

(2) Included in :

a. Element of management for the Project is the Manager (and eventually the Deputy Manager of the Project).

b. Element of Management Staffs are the Chief of Staff along with the Assistants and the staffs.

c. Element of Implementation is the Sub Projects.

(3) If necessary, an Assisting Body could be set up in the Project echelon and/or Sub Project, which could provide advice, suggestions and/or considerations as well as assistance either requested or not requested for the smooth implementation of the Project.

(4) a. The Assisting Body in the Project echelon is set up by the Minister of Public Works and Electrical Power at the suggestion of the Director General for Irrigation.

b. The Assisting Body in the Sub Project echelon is set up by the Director General for Irrigation at the suggestion of the Project Manager with consultations of Sub Project Manager.

Article 5

(1) In the management the Project Manager is assisted by a staff group comprising :

a. Chief of Staff ;

b. Assistant I : Planning matters (Surgeys/Investigations & Designs).

c. Assistant II : Operational matters (including operation planning).

d. Assistant III : Logistics (Equipments and supply).

e. Assistant IV : Finance.

f. Assistant V : Administration.

(2). Each Assistant may have Assisting Staffs, the total number of which is determined by the Project Manager.

(3). If necessary, other Management Staffs or Implementation Staffs could be set up in accordance with the specific characteristics of the relevant project.

Article 6

(1) The Chief of Staff conducts Staff coordination for the smooth implementation of the Project.

(2) Assistant I : To conduct plannings, surveys, investigations and designs.

(3) Assistant II : To prepare progress reports, time schedules, to supervise the implementation of the project, to conduct operational plannings, etc.

(4) Assistant III : To manage and supervise the problems of equipments and supply.

(5) Assistant IV : To handle the financial and administration matters.

(6) Assistant V : To handle the general admistrative matters, secretariate matters and personnel matters.

Article 7.

(1) To run the project smoothly, working units are set up, which are called Sub Project, e.g. :

a. Right Citanduy Sub Project ;

b. Left Citanduy Sub Project ;

(2) Duties of Sub Project are :

a. To channel and supplement the instructions and duties of the Project Manager in accordance with the local condition and situation.

b. To conduct operational works.

c. To assist in surveys, data compilation and plannings.

(3) Each Sub Project is led by a Sub Project Manager.

(4) The Sub Project Manager with the approval of the Project Manager could set up Sub Units as required by the Project, either with staffing duties or implementing duties.

CHAPTER IV
DUTIES AND RESPONSIBILITIES
Article 8

(1) Project Manager takes care of the management and is responsible for the Project and is responsible to the Director General for Irrigation.

(2) Project Manager arranges the work of and gives guidance to the Sub Project Manager and Chief of Staff as well as the Assistants.

Article 9

(1) The Chief of Staff is obliged to assist the Project Manager in management matters and daily work as well as coordinating the work of Assistants.

(2) The Assistants are obliged to assist the Project Manager/ Chief of Staff in giving guidance and technical directives for the implementation of the Project in accordance with the respective duties.

(3) The Chief of Staff is responsible to the Project Manager.

(4) The Assistants are responsible to the Project Manager via the Chief of Staff.

Article 10.

(1) The Sub Project Manager is obliged to handle the work of the Sub Project at the directives of Project Manager, for their respective working areas.

(2) The Sub Project Manager is responsible to the Project Manager.

CHAPTER V
APPOINTMENT AND DISMISSAL
Article 11

(1) The Project Manager / Chief of Staff and the Sub Project Managers are appointed and dismissed by the Minister of Public Works and Electrical Power at the suggestion of the Director General for Irrigation.

(2) The Assistants are appointed and dismissed by the Director General for Irrigation at the suggestion of Project Manager.

(3) Members of the Assisting Staff are appointed and dismissed by the Project Manager.

(4) Members of the Project Assisting Body are dismissed and appointed by the Minister of Public Works and Electrical Power at the suggestion of Director General for Irrigation.

(5) Members of the Sub Project Assisting Body are appointed and dismissed by the Director General for Irrigation at the suggestion of Project Manager with consultation of Sub Project Manager.

(6) Sub Project Manager with the approval of Project Manager could appoint main assisting officials for the smooth implementation of the Project.

Article 12

(1) Project Manager could appoint and dismiss project workers in accordance with the interest and needs of the Project and within the limit of Project Cost.

(2) Sub Project Manager could do the same with the approval of Project Manager.

CHAPTER VI

EXPENDITURE

Article 13

(1) All expenditure for the construction of the Project will be borne by the State Budget for Development to the Department of Public Works and Electrical Power , with the budget of 10.000.142.02.

(2) Project Manager determines the system of payment and the utilization of payment funds with the approval of the Director General for Irrigation.

CHAPTER VII

Article 14

(1) Chart of this Project's Organizational Structure is determined as attached to this decree.

(2) Working system and other matters not governed in this decree and which require further explanation, will be determined by the Director General for Irrigation.

(3) Previous regulations stipulated in the context of implementing this Project, as long as they are not in contradiction with the regulations in this decree, are still valid till further notice of revocation by the Director General for Irrigation.

Issued in : JAKARTA
On : April 1, 1969

MINISTER OF PUBLIC WORKS AND ELECTRICAL POWER,
signed,
(Ir. [illegible])

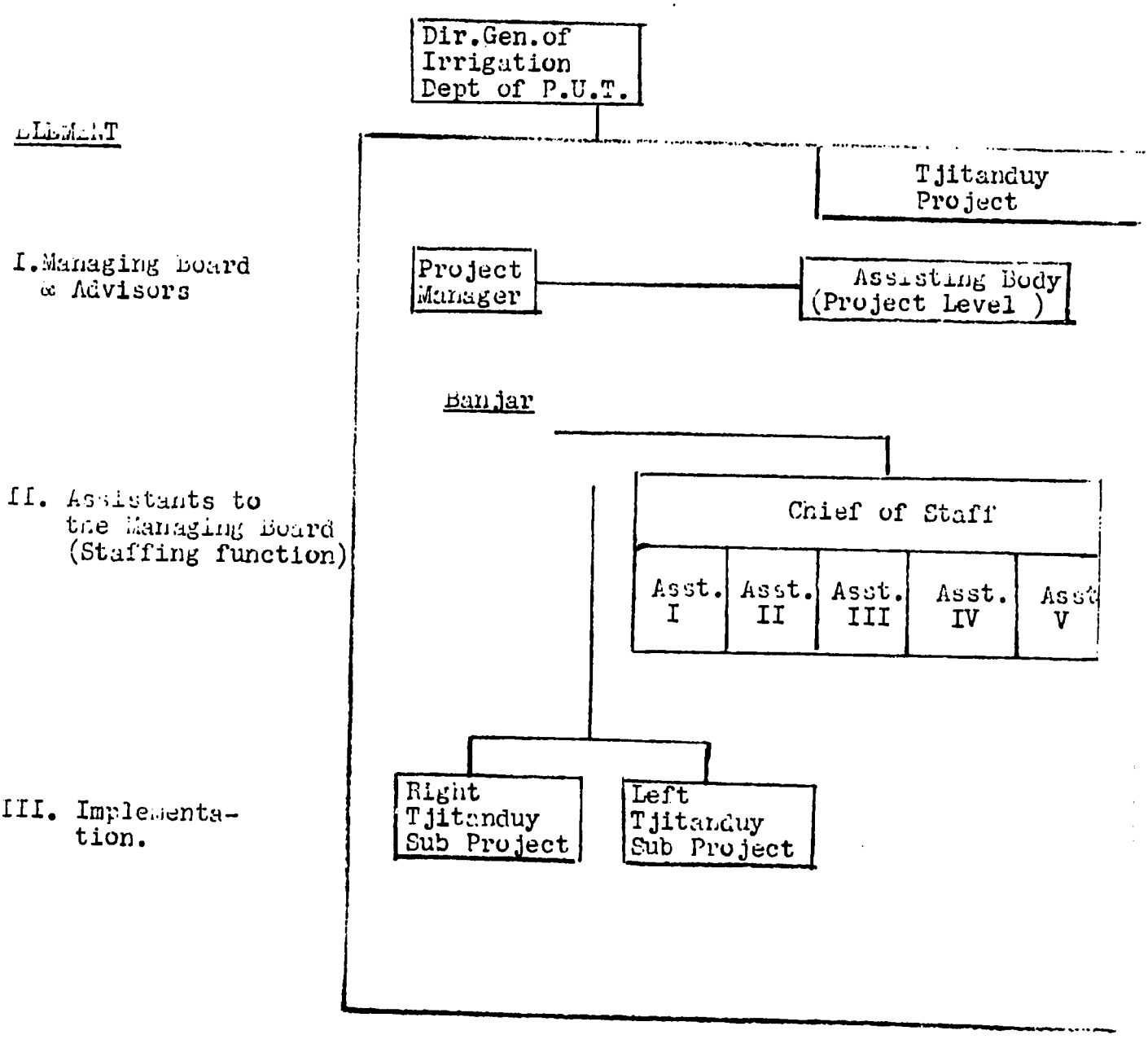
COPIES of this Decree sent to :

1. State Minister for Operational Supervisor of Development.
2. State Secretary / Secretary for the Operational Implementation of Development.
3. Finance Control Body.
4. State Treasury Central Office.
5. Finance Minister.
6. Secretary General of P.U.T. Department.
7. Inspector General of P.U.T. Department.
8. Chiefs/ Bureaus / Inspectors at the Department of P.U.T.
9. Directors General at the Department of P.U.T.
10. Secretary of Irrigation Directorate General.
11. Directors at the Directorate General of Irrigation.

Attachment I.

Attachment of the decree Issued by the Minister of Public Works and Electrical Power.
No. : 165/kPTS/1969
Date : April 1, 1969

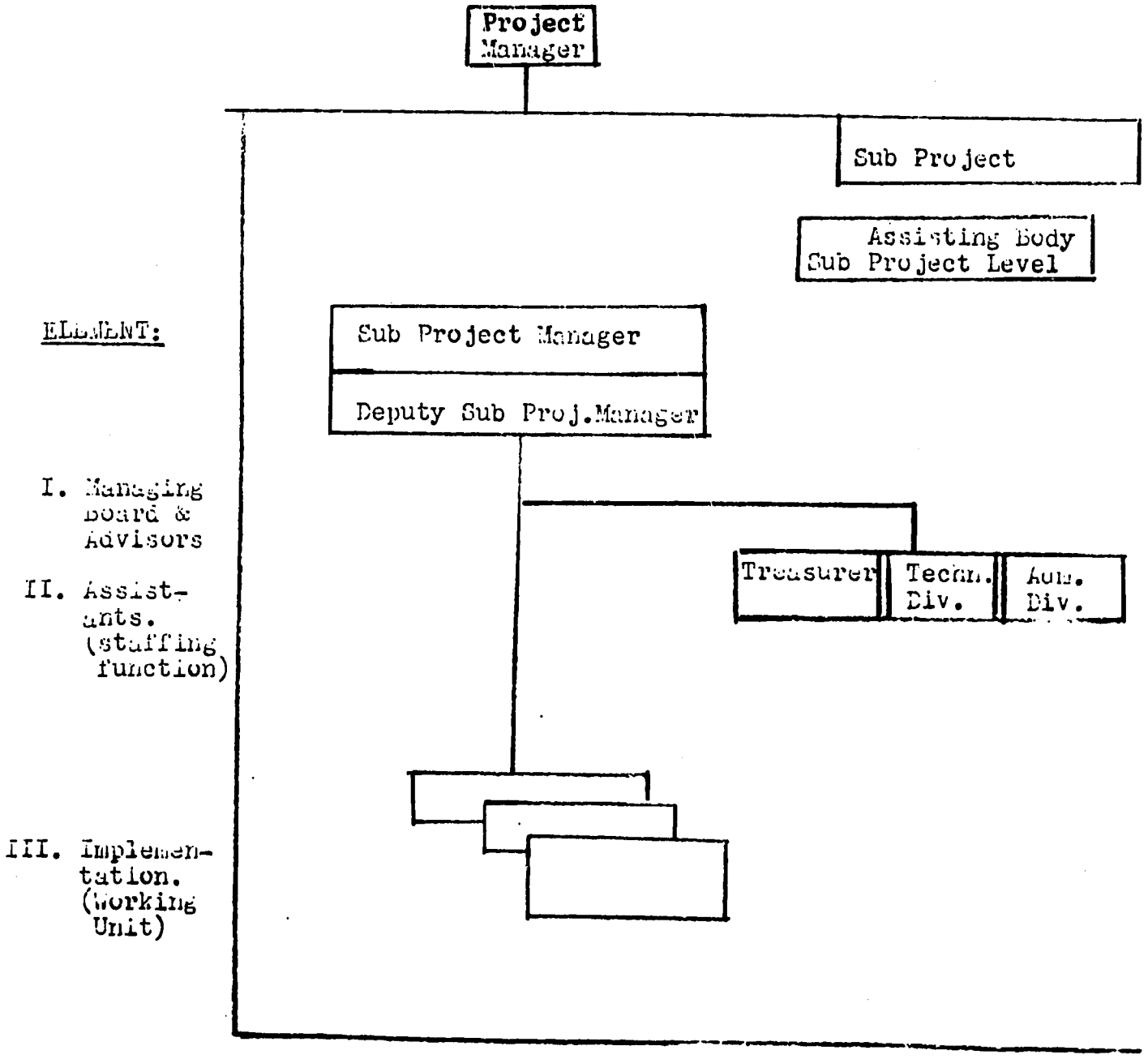
Chart on Structural Organization of Tjitanduy Project.



ANNEX B

Attachment II.

Attachment of the decree issued by the Minister of Public Works and Electrical Power.
No. : 163/KPTS/1969
Date : April 1, 1969



DECREE OF THE DIRECTOR GENERAL FOR IRRIGATION

Number: 71/KPTS/Dirjenair/1973

ON

THE FORMATION OF STEERING COMMITTEE FOR CITANDUY PROJECT

Considering: a. that pursuant to the implementation of the contract between the Directorat General for Irrigation and the Engineering Consultants Inc. (ECI) which will provide consulting services for Citanduy project signed July 23, 1973, it is deemed necessary to form a Steering Committee as stipulated within the contract, in order to achieve planning coordination among the agencies concerned and to provide directives with regard to the implementation of the contract;

b. that by the transfer of the (office) site of Citanduy project to Banjar, the membership of the Project Assistance Body has to be readjusted according to provincial/district level and consequently the members of the Central Project Assistance Body which was created by the decree of the Minister of P.U.T.L. No. 183/KPTS/1973 require reassignment as members of the Steering Committee of Citanduy project as mentioned above in para a and based on necessity;

c. that by the formation of said Steering Committee, then the Assisting Team for Citanduy project as stipulated by the decree of Director General for Irrigation No. 11/KPTS/Ditjenair/1970 has been considered as completing its assignment and should be dissolved;

d. that for this purpose, a decree is deemed necessary to regulate.

In view of :
1. R.I. President's Decree No. 173, Year 1966;
2. Regulation/order of the Minister of P.U.T.L. No. 3/PRT/1960 jis 03/PRT/1969;
3. Decree of the Minister of P.U.T.L. No. 133/KPTS/1969 jis 134/KPTS/1969;
4. Decree of the Director General for Irrigation No. 27/KPTS/Ditjenair/1969;

H A S D E C I D E D

To lay down:

First : To form a Steering Committee for Citanduy project as stipulated within the contract between the Directorat General for Irrigation and Engineering Consultants Inc. (ECI) which will provide engineering services for Citanduy project signed on July 23, 1973, with the following composition:

1. ir. Y. SOEDARYOKO — as member concurently also as Chairman.
   Director for Rivers & Marshes, Directorat for Irrigation, Dept. of PUTL.

2. ir. SUDARSO RAWIDJO (or his representative) Director for Agric. Techniques, Directorat General for Agriculture, Dept. of Agriculture. — as member

3. ir. MARDJONO Chief, Directorat of Village Infrastructure, Directorat General for Village & Community Dev. Dept. of Home Affairs. — as member

4. ir. OESMAN DJOJOADINOTO (or his representative) Director for Irrigation, Directorat General for Irrigation, Dept. PUTL. — as member

5. drs. SARWOHADI Staff Officer, Agric. & Estates Bureau BAPPENAS. — as member

6. ir. I. GEDE OKA Chief, Reforestration and Rehabilitation Service Directorat General for Forestry, Dept. of Agriculture — as member

7. ir. MARDJONO NOTODIHARDJO Chief, River area Development Planning Service, Directorat for Planning, Directorat General for Irrigation, Dept. of PUTL. — as member

8. ir. MUSLIM A P.L.N. official — as member

9. Mr. C. Woody Chief engineer USAID/Jakarta — as member

10. ir. SARBINI RONODIBROTO Secretary, Directorat for Rivers and Marshes Directorat General for Irrigation, Dept. of PUTL. — as member and concurently secretary

Second : 1. The tasks of the Steering Committe are as follows:

1.1. To endeavour the achievement of planning coordination among the agencies concerned and to provide directives and supervision on the performance of consulting services in accordance with the provisions stipulated within the contract signed on July 27, 1973, between the government of Indonesia and E.C.I.

1.2. Conducting review and evaluation on the results of the consulting firm.

1.3. Reporting the activities of the Steering Committee to the Minister of PUTL c.q. Director General for Irrigation.

1.4. In performing its tasks, the Steering Committee is obliged to hold periodical meeting at least once quarterly.

2. Further working procedures will be work out by the Chairman of the Steering Committee.

Third : If the Chairman is unable to attend at a periodical meeting, one of the members present will be appointed to chair the meeting after being approved by other members.

Fourth : The assignment of the Steering Committee commenced as of August 1, 1973 and will last through another one month after the implementation of the consulting services as stipulated within the contract has been completed.

Fifth : By the formation of the Steering Committee for Citanduy project, the tasks of the members of the Assistance Body created by the decree of the Minister of PUTL No. 183/KPTS/1973 and Assistance Team established by the decree of the Director General for Irrigation No. 11/KPTS/Ditjenair/1970 are considered as completed and hereby express many thanks for those officials for their contribution.

Sixth : All expenses as the result of this decree will be charged to the budget of Citanduy project and whenever any stipend/honoraria

will be provided to the members of the steering committee, it should be executed in line with the provisions set up in the decree of Director General for Irrigation No. 32/KPTS/Ditjenair/1973, including category A.

Seventh : This decree is effective retroactively as of August 1, 1973 with the provision that any necessary change and improvement will be undertaken accordingly should any error is to be found later in this decree.

Copies : Copies of this decree is distributed to:

1. Minister of PUTL
2. Secretary General of PUTL
3. Inspector General, Dept. of PUTL
4. Chiefs of Bureaus and Inspectors within the Dept. of PUTL
5. Secretary, Directorat General for Irrigation
6. Directors within the Directorat General for Irrigation
7. Departments Chiefs in the Secretariat of Directorat General for Irrigation
8. Citanduy Project Officer
9. Department of Agriculture
10. Department of Home Affairs
11. BAPPENAS
12. P.L.N.
13. USAID in Jakarta
14. File

QUOTATIONS were submitted to those concerned for their use.

Sanctioned in J a k a r ta

Date August 27, 1973

Director General for Irrigation

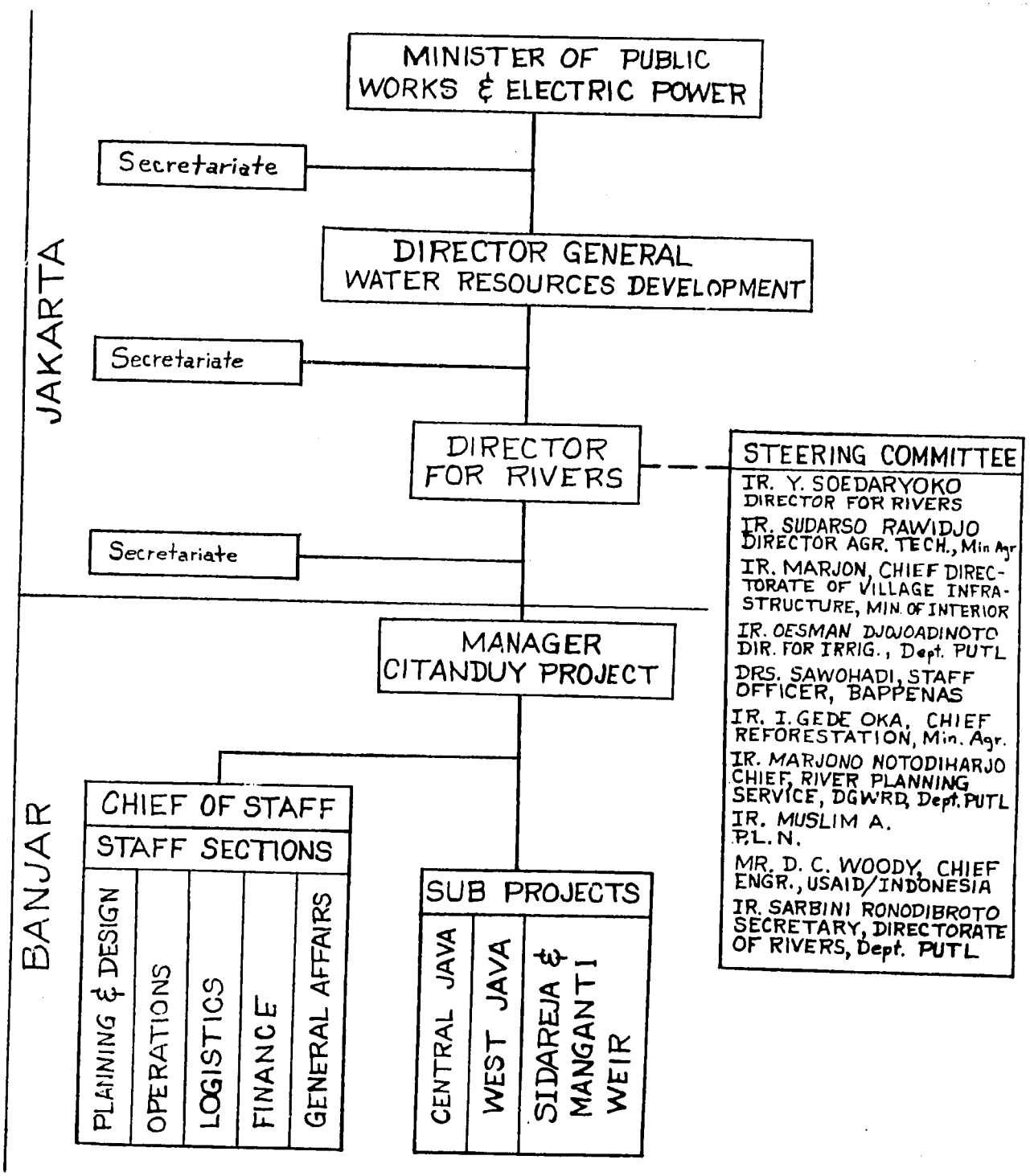
/s/

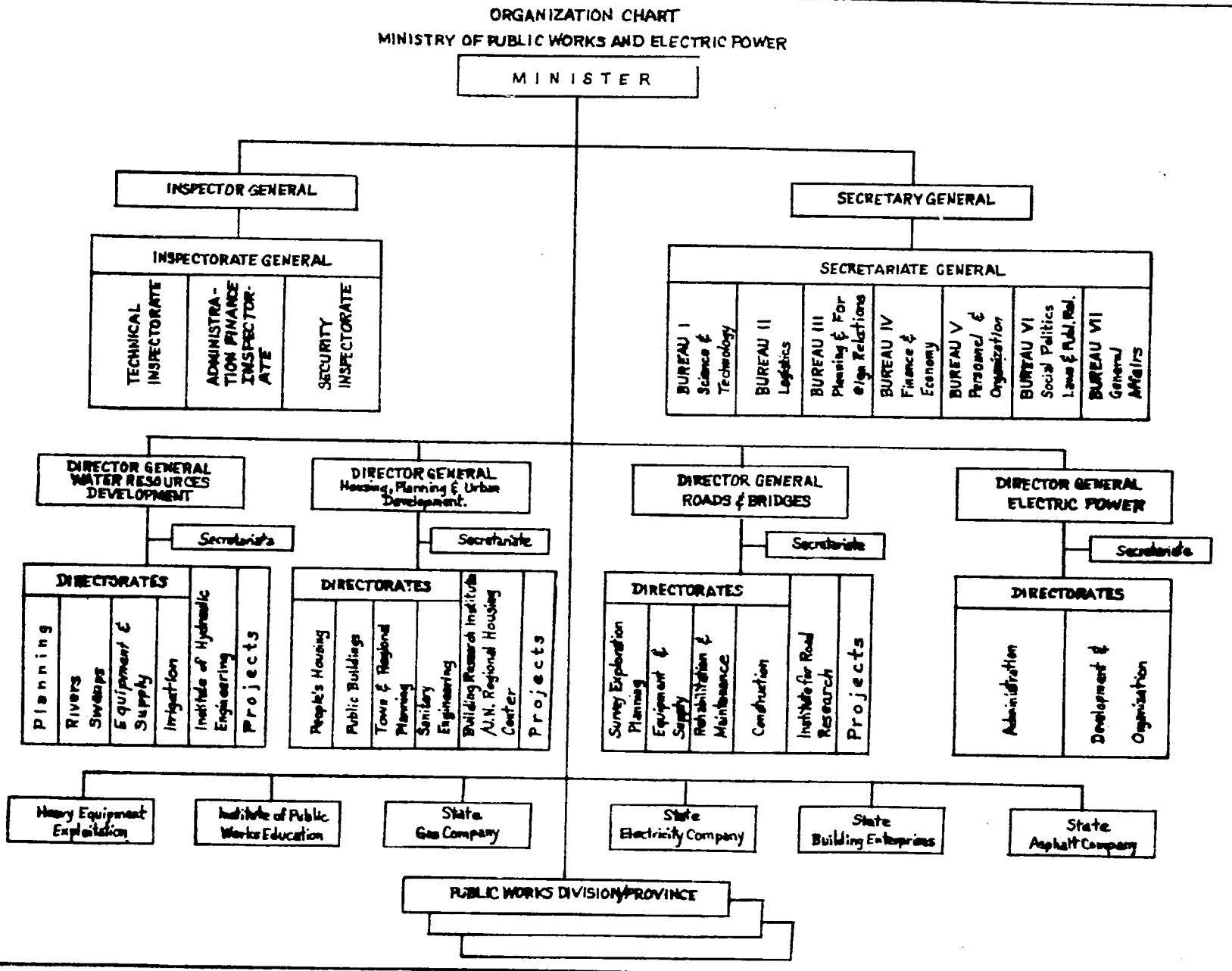
(ir. SUYONO SOSRODARSONO)

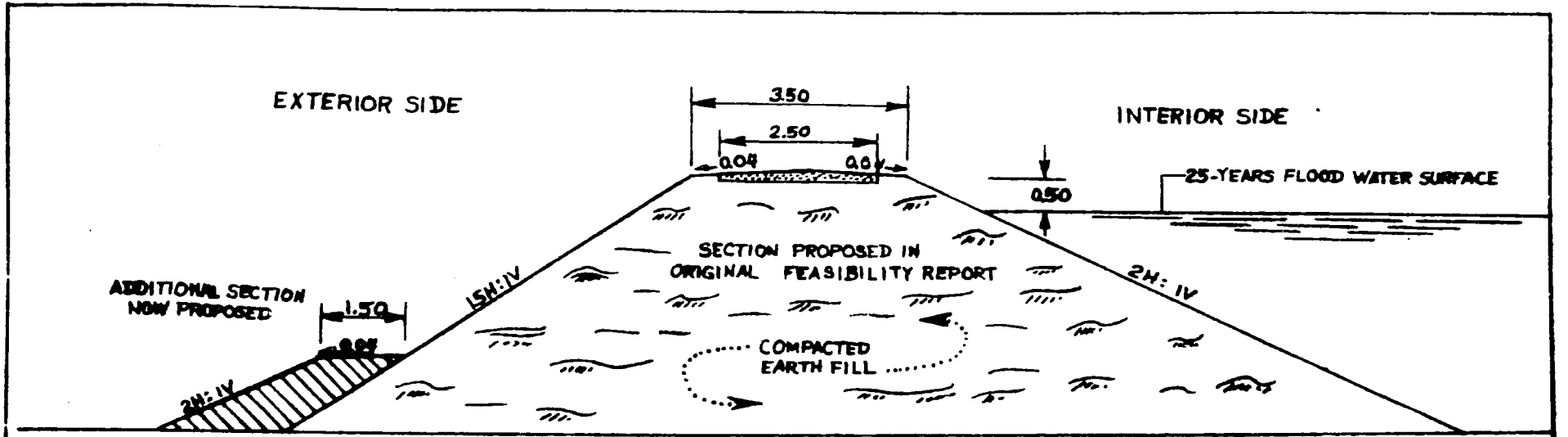
STAFFING OF THE CITANDUY PROJECT OFFICE

Skill/Occupation	University Degree (Ir. or Drs-5yr)	Academic Degree (B.S. -3 yr)	High School & Others	Total
Civil Engr.	10	12		22
Mech. Engr	-	2		2
Geologist	1	1		2
Agriculturalist	2	1		3
Regional Planner	1	-		1
Economist	1	2		3
Geographer	2	-		2
Public Admin.	1	-		1
Law	-	1		1
Public Relations	-	1		1
Social & Politics	-	1		1
		Sub Total		39
Surveyor			10	10
Draftman			9	9
Field Technician			32	32
Heavy Equip. Operator			8	8
Radio-telex Operator			2	2
Others: Clerk Typists Drivers, Guards, etc.			100	100
		Sub Total		161
		Total		200

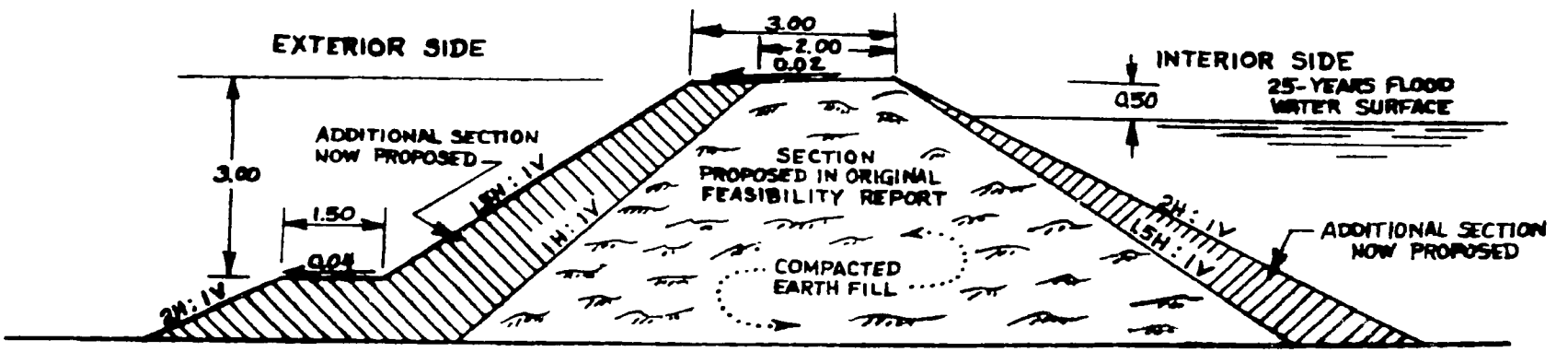
CITANDUY PROJECT ORGANIZATION CHART




ORGANIZATION CHART
MINISTRY OF PUBLIC WORKS AND ELECTRIC POWER
MINISTER
INSPECTOR GENERAL
INSPECTORATE GENERAL
TECHNICAL INSPECTORATE
ADMINISTRATION FINANCE INSPECTORATE
SECURITY INSPECTORATE
SECRETARY GENERAL
SECRETARIATE GENERAL
BUREAU I Science & Technology
BUREAU II Logistics
BUREAU III Planning & For. Relations
BUREAU IV Finance & Economy
BUREAU V Personnel & Organization
BUREAU VI Social Politics Laws & Publ. Rel.
BUREAU VII General Affairs
DIRECTOR GENERAL WATER RESOURCES DEVELOPMENT
DIRECTOR GENERAL Housing, Planning & Urban Development.
DIRECTOR GENERAL ROADS & BRIDGES
DIRECTOR GENERAL ELECTRIC POWER
Secretariate
Secretariate
Secretariate
Secretariate
DIRECTORATES
Planning
Rivers Swamps
Equipment & Supply
Irrigation
Institute of Hydraulic Engineering
Projects
DIRECTORATES
People's Housing
Public Buildings
Town & Regional Planning
Sanitary Engineering
Building Research Institute A.U.N. Regional Housing Center
Projects
DIRECTORATES
Survey Exploration Planning
Equipment & Supply
Rehabilitation & Maintenance
Construction
Institute for Road Research
Projects
DIRECTORATES
Administration
Development & Organization
Heavy Equipment Exploitation
Institute of Public Works Education
State Gas Company
State Electricity Company
State Building Enterprises
State Asphalt Company
PUBLIC WORKS DIVISION/PROVINCE



CITANDUY RIVER

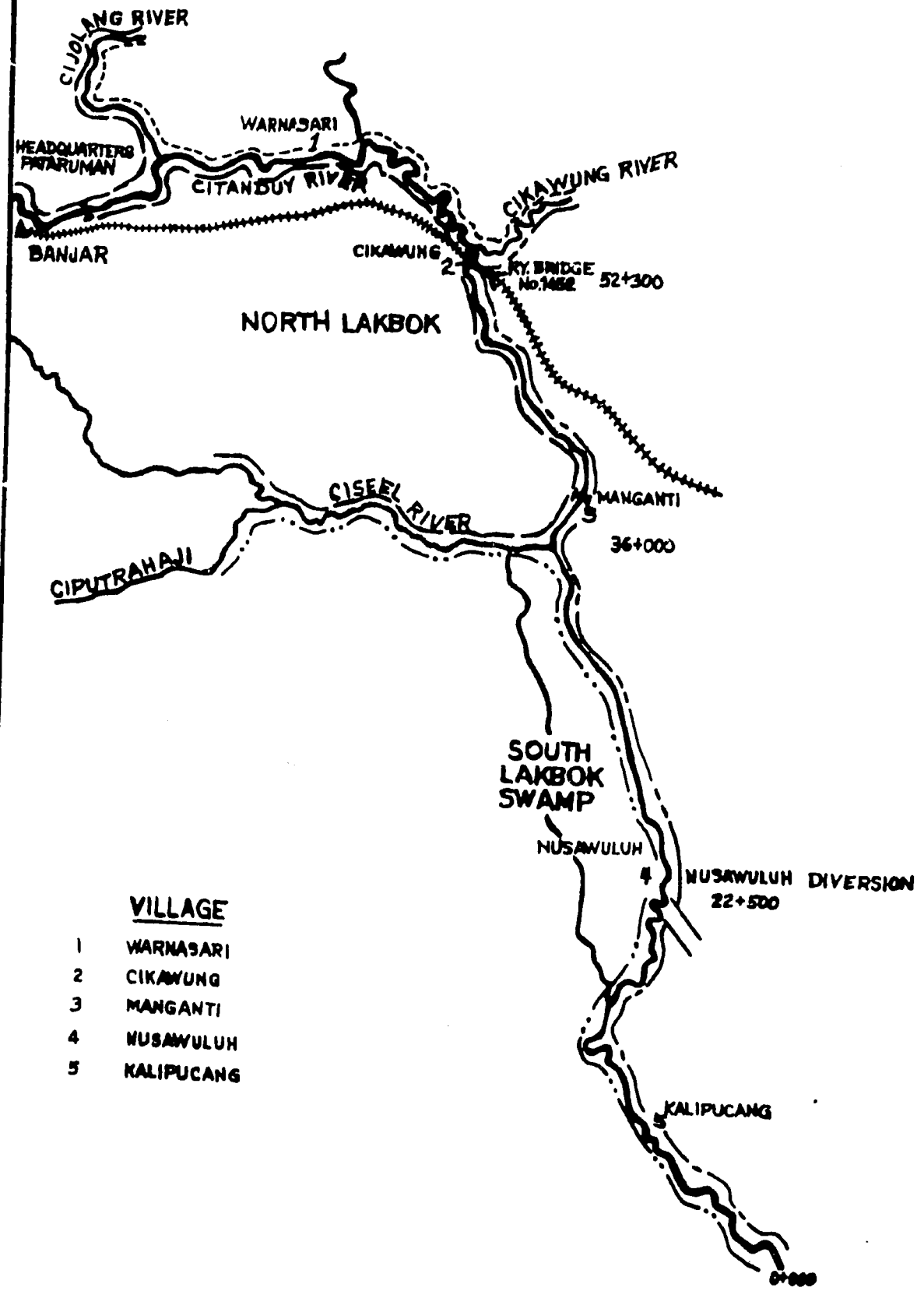


CISEEL RIVER

NOTE:
All dimensions are in meters

PROPOSED TYPICAL CROSS SECTIONS FOR RIVER LEVEES

LOWER CITANDUY/CISEEL RIVER SYSTEM LEVEE MAINTENANCE DISTRICTS



LOWER CITANDUY/CISEEL RIVER SYSTEM
REVISED COST ESTIMATE
FLOOD CONTROL SCHEME
(25 Year Protection Level)

EARTHWORK QUANTITIES

River	Original Estimate		Revised Estimate	
	Levee Length (Meters)	Volume (Cubic Meters)	Levee Length (Meters)	Volume (Cubic Meters)
Citanduy	121,000	2,476,500	130,000	3,300,000
Ciseel	34,000	860,600	34,000	975,000
Other Tributaries	18,000	121,000	18,000	225,000
T o t a l s	173,000	3,458,100	182,000	4,500,000

REVISED COST ESTIMATE
FLOOD CONTROL SCHEME
(25-Year Protection Level)

SUMMARY OF TOTAL COST
(Thousands US$)

Item	Unit	Feasibility Study Original Estimate Quantity	Unit Rate Rp.(1,000)	Cost $	ECI October 1975 Revised Estimate Quantity	Unit Rate	$
Excavation	m^3	100,000	0.5	121	600,000	0.50	725
Compacted Fill	m^3	3,640,000	0.6	5,275	4,500,000	0.60	6,522
Road Surface	km	150	6.21	225	150	621	225
Syphon (Cilisung)	L.S.	-	-	200	-	-	360
Bank Protection	L.S.	-	-	250	-	-	200
Clearing	m^2	1,800,000	0.1	435	2,000,000	0.1	483
Right of Way	ha	350	1,500	1,268	400	1,500	1,449
Total				7,774			9,964
Less equipment depreciation							344
							9,620
Plus 20% inflation							1,924
							11,544
Plus 15% contingency							1,732
Total with inflation and contingency							13,276

ILLUSTRATIVE LIST OF EQUIPMENT TO BE PURCHASED

A. Heavy Equipment

Item	for Irrigation Construction	for Levee	Unit Construction Price	CIF Cost
1. Dragline w/accessories	2	0	80,700	$ 161,400
2. Backhoe/Loader	2	0	45,000	90,000
3. Bulldozer w/accessories	0	4	102,000	408,000
4. Low-Bog Trailer	one only		20,000	20,000
5. Air compressor - portable w/tools	2	0	11,250	22,500
6. Roller (self propelled)	2	4	23,000	138,000
7. Grader w/Attachments	1	1	65,000	130,000
8. Gradall	1	0	75,000	75,000
9. Shop Equipment	Lump sum		-	8,100
Subtotal				$1,053,000

B. Light Equipment for both Irrigation and Levee Construction

1. Small,portable concrete mixer	5		900	4,500
2. Concrete Vibrators	8		600	4,800
3. Ditch Pumps	6		800	4,800
4. Small Compactor	6		1,300	7,800
5. Miscellaneous Items	Lump sum			7,000
Subtotal				$ 28,900

C. Vehicles for Project Office

1. Jeep Type	10		8,500	85,000
2. Trucks	10		16,000	160,000
Subtotal				$ 245,000
Total Equipment for DGWRD				$1,326,900
Spare Parts 10%				132,690
				1,459,590
Contingency 10%				145,959
Total A, B, C				$1,605,549
			Use	1,600,000

D. Equipment for Construction of Terminal Irrigation Systems and Project Area Agriculture Office

	Item	Quantity	Unit Price	Cost
1.	One bag cement mixers	10	1,000	10,000
2.	3/4-ton Pickup Trucks	6	9,000	54,000
3.	Jeeps	12	8,500	102,000
4.	Motor cycles	14	725	10,000
	Total equipment			176,000
	Plus spare parts 10%			18,000
	Contingency			6,000
	Total			200,000
	Grand Total			$ 1,800,000

NOTE: Above list is illustrious only. Complete list with specifications and justifications will be submitted to USAID for review and approval prior to requesting bids.

Technical Details

IRRIGATION AND DRAINAGE

A. Types of Irrigation Systems

Irrigation in Indonesia is divided into three classes:

1. Technical Irrigation Systems: Diversion and all structure are of permanent construction and measuring devices are provided. Construction of the primary and secondary canals and of the diversion are the responsibility of the government. Construction of the tertiary canals and structures and the field distribution system is the responsibility of the local farmer under the guidance of AAETE.

2. Semi-Technical Irrigation Systems: Diversion is of permanent construction. Gates are provided at the intakes and turn-out structures but no measuring devices. Diversion weirs and primary and secondary canals and structures are constructed and maintained by the government. Usually these systems are improved to technical irrigation systems.

3. Simple (Sederhana) Irrigation Systems: These are usually fully financed, constructed, and maintained by the farmers themselves. Normally they do not cover more than a few hundred hectares.

B. General Description of Systems to Be Rehabilitated

1. Rawa Onom:

This technical irrigation system was constructed before 1940 and is reported to have 19.2 km. of primary canals and 17.7 km. of drainage canals. It takes its water from the Cijolang River at the Bantarheulang Diversion. This diversion structure will also be used for the proposed Panulisan System. This will require a new diversion on the left bank.

There are 1,028 ha receiving supplementary irrigation in the rainy season but less than 800 ha. are irrigated in the dry season. ECI's investigations show that there is adequate water from the Cijolang at the Bantarheulang Diversion for both the Rawa Onom and the new Panulisan systems.

The canals have been silted up reducing their capacity by as much as 50 percent. Most turnout structure is deteriorated beyond repair and existing canals and siphons are in poor condition.

The system will be completely rehabilitated. The accumulated sediment in the canals will be removed and the canal cross section and grade restored. Turnout structure and gates will be provided where necessary and existing culverts and siphons will be repaired or replaced as necessary. The tertiary system will be reviewed and improved where necessary. Drainage ditches throughout the area will be cleaned and enlarged where necessary. In the low lying wet areas additional drainage will be designed and constructed in order to bring the whole area to full production.

2. North Lakbok:

This is the largest irrigation system in the basin with an area of 7,033 ha. but only 5,700 ha. presently under technical irrigation in the rainy season. It reportedly has 5.5 km of primary canals, 33.2 km of secondary canals, and 98 km of drainage canals. The system takes its water from the Citanduy River just below Banjar at the Pataruman Weir. Some of the tertiary canals and a portion of the P secondary canal have never been completed. There is also need for additional drainage in some low lying areas. This uncompleted work has prevented an additional 1,333 ha from benefiting from the system. Approximately 4,500 ha are currently irrigated in a normal dry season, but in an extremely dry year the area irrigated in the dry season may drop to as low as 1,700 ha. ECI's studies conclude that there is ample water in the Citanduy at Pataruman to provide irrigation for two crops per year for all 7,033 ha of the North Lakbok Irrigation System and the 3,200 ha of the proposed South Lakbok Irrigation System without depriving other systems which rely upon the Citanduy for their water.

The irrigation system has not had any major maintenance since it was completed in 1960. Consequently 80 percent of the romyn gates at the turnout structures are broken or malfunctioning. The desilting basin has not operated properly and therefore not effectively utilized. As in other systems the canals have been silted up.

The drains in the North Lakbok area have also been silted up causing reduced capacity and overflowing of the drains during heavy storms. The Kalen Kendal and Cilisung Drains will carry irrigation water to the proposed South Lakbok Irrigation System starting from turnout structure T-3 at the end of the North Lakbok primary canal.

The system will be completely rehabilitated, sedimentation removed from the canals and drains, reshaping and/or regrading of canals and drains where necessary, replacement or reconditioning of structures, and extensions as justified and required to properly irrigate and drain the area.

3. and 4. Gunung Putri I and II:

Gunung Putri I and II are classified as semi-technical irrigation systems. Gunung Putri I receives its irrigation water from a diversion structure on the Ciseel River. A diversion structure for Gunung Putri II has been constructed on the Citalahab River, but if this structure is used approximately 100 ha of Gunung Putri I service area is flooded. If dikes are constructed to retain the backwater from the Gunung Putri II diversion, drainage problems result. Both areas can be served from the Gunung Putri I diversion. There is a slight possibility of water shortage for two crops per year but water is available 100 percent of the time for nine months, 99 percent for one month and 90 percent for another. In the twelfth month (October) water is estimated to be available 83 percent of the time. There should not be any problem in raising two crops of rice per year.

In the Gunung Putri I system only 75 percent of the canals have been completed, while in Gunung Putri II only 30 percent of the system has been completed. Presently 550 ha of Gunung Putri II are irrigated by rural systems.

The canals and drainage ditches for Gunung Putri I and II will be completed and the unfinished tertiary canals will be designed and constructed. Both Gunung Putri I and II will be supplied water from Gunung Putri I diversion on the Ciseel River.

5. Ciputrahaji:

This system was constructed before 1940 and no serious rehabilitation of the system has been done since that time. It has about 18.8 km. of primary and secondary canals. It takes its water from the Ciputrahaji River just below Banjarsari. There are 1,706 ha supplied with supplemental irrigation during the rainy season while 1,500 ha are irrigated in the dry season. Fifty-six ha are still rainfed. ECI has concluded that there is a water deficiency in the Ciputrahaji in the months of May, June, and July, with water available 87 percent, 73 percent, and 22 percent of the time. With high yield rice varieties and proper scheduling of planting two rice crops should be able to be produced in the area with a reasonable probability of success.

It is estimated that the capacity of 75 percent of the canals has been severely restricted due to the accumulation of sediment. Only 40 percent of the distribution and drainage structure are functioning. Nine of the 17 turnouts have deteriorated beyond repair.

The system will be completely rehabilitated. Turnout structures (at least nine) will be replaced where necessary or repaired if possible. Canals will have to have sediment removed, be reshaped, and regraded. Drainage ditches will also have to be cleaned, graded, and in some cases enlarged. The tertiary system will be reviewed and required designs and construction will be performed to enable the whole area to be adequately irrigated.

6. Citalahab:

This system was constructed in 1942 and has not had any major maintenance since. Six hundred and thirty ha are technically irrigated during the rainy season while 100 ha are still rainfed only. The canals are about 50 percent effective due to sedimentation and deterioration of structures. All structures except the diversion structure on the Citalahab river are in need of extensive rehabilitation. Water supply for two crops per year is marginal.

The system will be practically rebuilt except for the diversion structure and the canals will have silt deposits removed, reshaped, and graded.

7. Cikaso:

The Cikaso Irrigation System is a semi-technical system constructed before 1940. Water is diverted from the Cikaso River by a badly deteriorated diversion structure. Over the last ten years the service area has been expanded from its original 290 ha to approximately 550 ha. There is a tendency for water to be deficient from July to October but with proper scheduling of plantings two crops should be able to be raised throughout the area.

The whole system is seriously deteriorated. It will be completely rehabilitated including tertiaries and drainage ditches. The diversion structure will also be restored.

C. Drainage

The Citanduy, Ciseel, and Cibeureum are the major rivers in the flood plain. The Cijolang and Cikawung rivers are the main tributaries of the Citanduy River in this area, while the

Ciputrahaji, Citalahab, and Cikaso rivers are the main tributaries of the Ciseel River. There is also a major drainage system in the northern portion of the floodplain; i.e., North Lakbok, which is carried to South Lakbok by the Cilisung Drainage Canal, and discharges into the Ciseel River.

The major drainage problem is the fact that the floodplain is very flat. Levees which provide flood protection impede natural drainage. There is no outlet for internal drainage water when the Citanduy and Ciseel rivers are at high stage. The storm runoff from an area of more than 3,000 km^2 is concentrated in an area of approximately 77 km^2, whose average width is only 5.5 km.

Many attempts have been made to solve the drainage and flooding problems in this low-lying area. However, most attempts have been local solutions, and have only served to magnify the problem in another area. Public Works has constructed flood control levees along the rivers and a temporary flood diversion structure has been built on the Citanduy River at Nusawuluh. Two man-made drainage canals have been constructed, a river was cut off, and many drainage siphons and culverts with gated outlets have been built. However, due to lack of a comprehensive plan and adequate maintenance, none of these measures has been very effective.

North Lakbok Drainage: The major drains in this area are the Kalen Kendal, Kelapa Sawit, Cigaron and Cilisung. They drain an area of approximately 125 km^2 and are located primarily in the eastern part of the area. The western part of the area, particularly the area in the vicinity of the extensive peat deposits, has relatively poor drainage, and some parts remain perennially wet and swampy.

The four major drains join and are carried to South Lakbok by the man-made Cilisung Drainage Canal, which is leveed along both its left and right banks. The drains are subject to silting and a corresponding reduction in carrying capacity. The drains overflow during very heavy storms, particularly in the southern portion of the area.

Ciseel River - Cilisung Drain: Construction of the Cilisung Canal was completed in 1957, and it has been a source of trouble ever since. In addition to its function as a drainage canal for North Lakbok, it is supposed to carry irrigation water to the

South Lakbok area. The original Cilisung drain ran through South Lakbok to the Citanduy River. However, when the improved man-made canal was constructed, it was discharged into the Ciseel River by making a sharp bend in the alignment at Anggaraksan.

The area between the confluence of the Ciseel River and the Cilisung drain and the sharp bend in the alignment in the canal has been a constant problem area. The levees in this area are reportedly overtopped or broken once or twice a year. Levee repairs were made in March 1974 after they failed during January 1974. Backwater from this point is felt as far north as North Lakbok, and is a cause for overtopping and breaking of levees on the Ciseel and Cikano rivers. To further compound the problem, the local people diverted the Cikaso River into the Ciseel River approximately four km above the confluence of the Ciseel River and the Cilisung canal. The old course of the Cikaso River followed what is now the Cirapuan drain and joined the Ciseel River just below Padaherang. The reason for diverting the Cikaso River was to allow faster drainage out of the land between the Ciseel and Cikaso rivers. The Cirapuan drain is now siphoned under the Cikaso River.

The Cirapuan drain above Padaherang is very shallow and normally flows bankfull. A siphon was constructed at Cilalay to take local drainage across the Cirapuan drain. However, the drainage system on the left bank of the Cirapuan drain does not have enough capacity to handle the water from the right bank, and the local people have blocked the inlet to the siphon. Consequently, the right bank area is permanently inundated.

South Lakbok - Padaherang - Tunggilis Area: The area between the Citanduy and Ciseel rivers and above the village road from Padaherang to Nusawuluh has been sufficiently reclaimed, and the drainage is good enough to allow rice cultivation during the rainy season. The major flood problem in this area is caused by broken levees along the Citanduy and Ciseel rivers and the Cilisung drain. When the levees fail, the inhabitants must flee to the sound levee sections until the flood waters recede. In January 1974, the village road from Padaherang to Nusawuluh was cut by the villagers to facilitate drainage into the sump area below the road. There are two culverts with outlet gates, one at Cisumur and one at Cikatunggeng, which were constructed to provide drainage into the sump area below the road. During heavy flooding they are ineffective and the flap gates, due to lack of maintenance, do not prevent backwater effects.

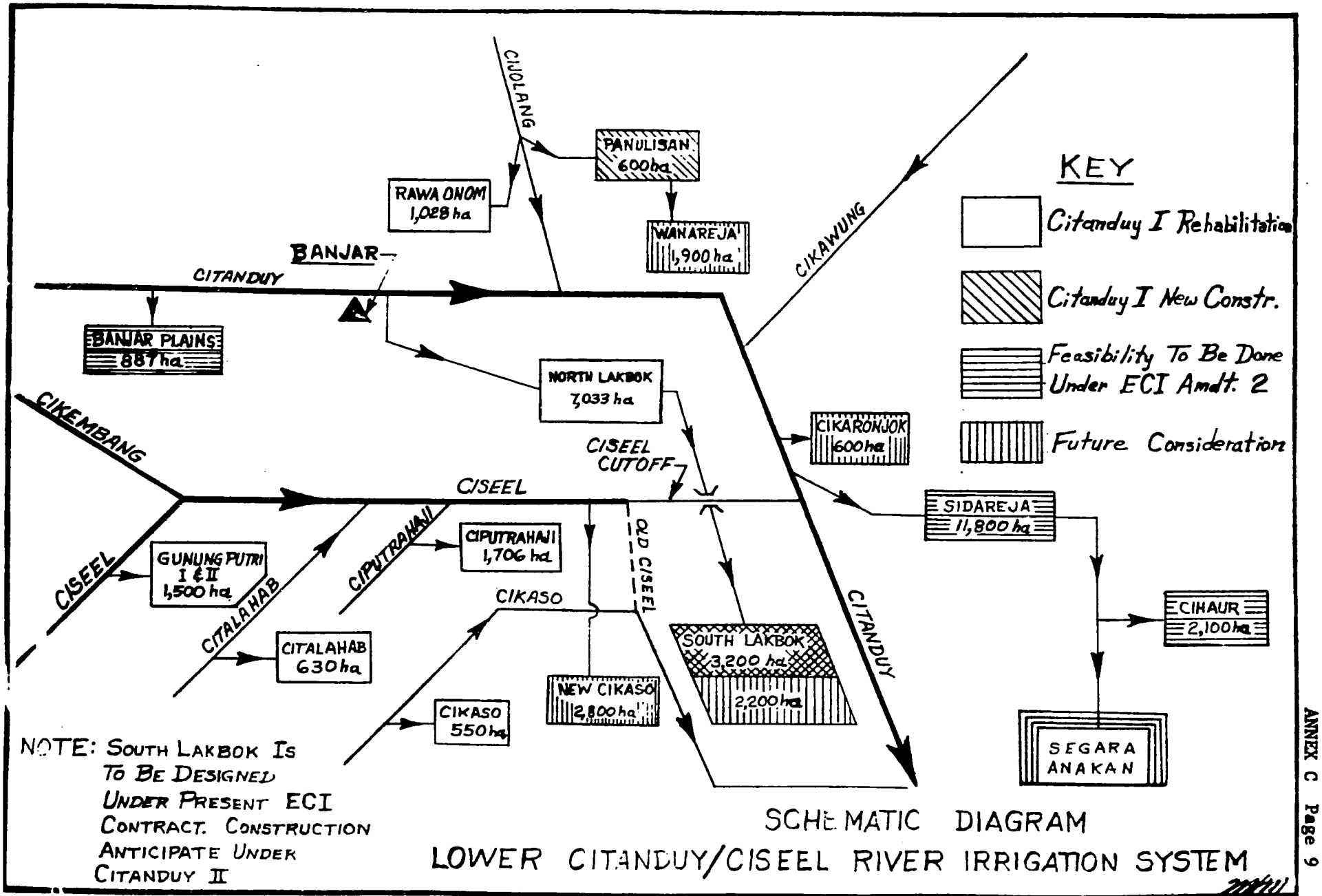
To the west of the Ciseel River, a man-made drain has been constructed between Padaherang and Tunggilis. The drain discharges into the Citanduy River through a culvert which has flap gates on the outlet side. The drain reportedly functions normally, except when the Citanduy River is at high stage and the flap gates can't open. During those periods, the area will flood due to the backwater effect, which causes overtopping of the banks of the drainage canal. During flood stages, the effect of backwater extends above Padaherang.

Major Irrigation Systems

Location	Year Constructed	Type of System and Area 1/				Source of Water	Area Irrigated in Dry Season (ha)	Condition of System			Area Subject to Flooding (ha)	Cause of Flooding	Remarks
		Technical (ha)	Semi-Technical (ha)	Rural (ha)	Rainfed (ha)			Canals	Structures	Drainage			
Rawa Onom	Before 1940	1,028	-	-	100	Cijolang River	800	Fair-Poor	Poor	Fair	300	Dike breaks & poor drainage	New diversion structure built in 1967. No rehabilitation of system.
North Lakbok	1960	7,033	-	-	-	Citanduy River	4,500	Fair	Fair	Fair	200	Dike breaks & poor drainage	No maintenance in the last 3 years. Silting problems. Part of P canal never constructed.
Gunung Putri I	1969	-	750	-	-	Ciseel River	750	Fair	Good	Poor	100	Dike breaks	System still incomplete. Canals lack sufficient capacity; silting and maintenance problems.
Gunung Putri II	1969	-	750	-	-	Citalahab River	400	Fair-Poor	Fair	Fair-Poor	80	Dike breaks & poor drainage	Poor management. Distribution system incomplete.
Ciputrahaji	Before 1940	1,706	-	-	56	Ciputrahaji River	1,500	Fair-Poor	Fair	Fair	Minor	Dike breaks	No rehabilitation of system since constructed. Lower distribution system incomplete.
Citalahab	1942	-	630	-	100	Citalahab River	200	Poor	Fair-Poor	Fair	200	Poor drainage	Needs complete rehabilitation of canals, structures & drains. No dikes along Citalahab River. Flooding problem.
Cikaso	Before 1940	-	550 2/	-	-	Cikaso River	200	Poor	Poor	Poor	60	Dike breaks & poor drainage	System is in poor condition including river diversion structure.
Total		9,767	2,420	-	256		8,350				940		

1/ As reported by Public Works or District irrigation officials.

2/ This area is usually reported as 290 ha but according to the local official it was expanded to 550/ ha during the last 10 years.

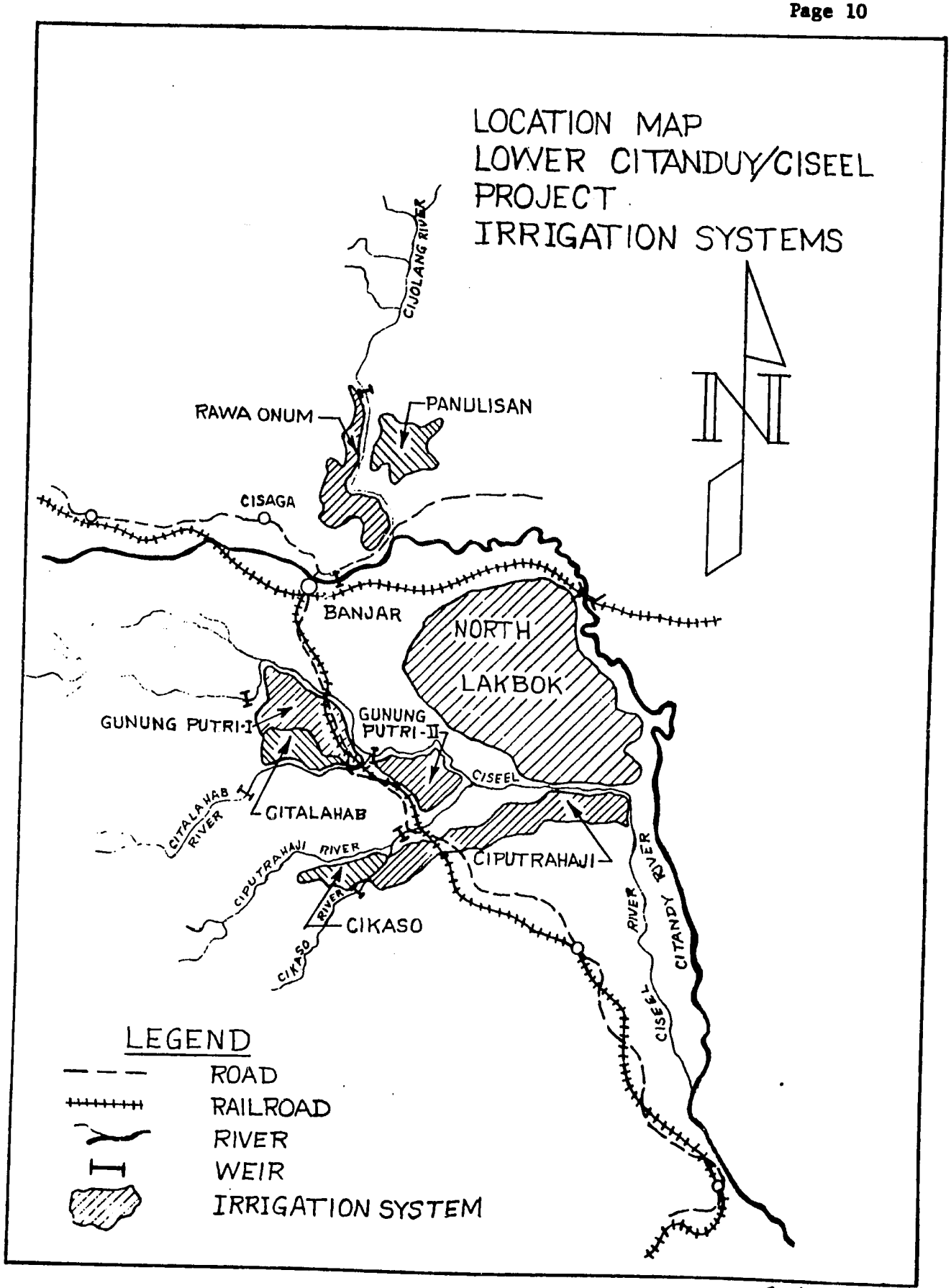


NOTE: SOUTH LAKBOK IS TO BE DESIGNED UNDER PRESENT ECI CONTRACT. CONSTRUCTION ANTICIPATE UNDER CITANDUY II

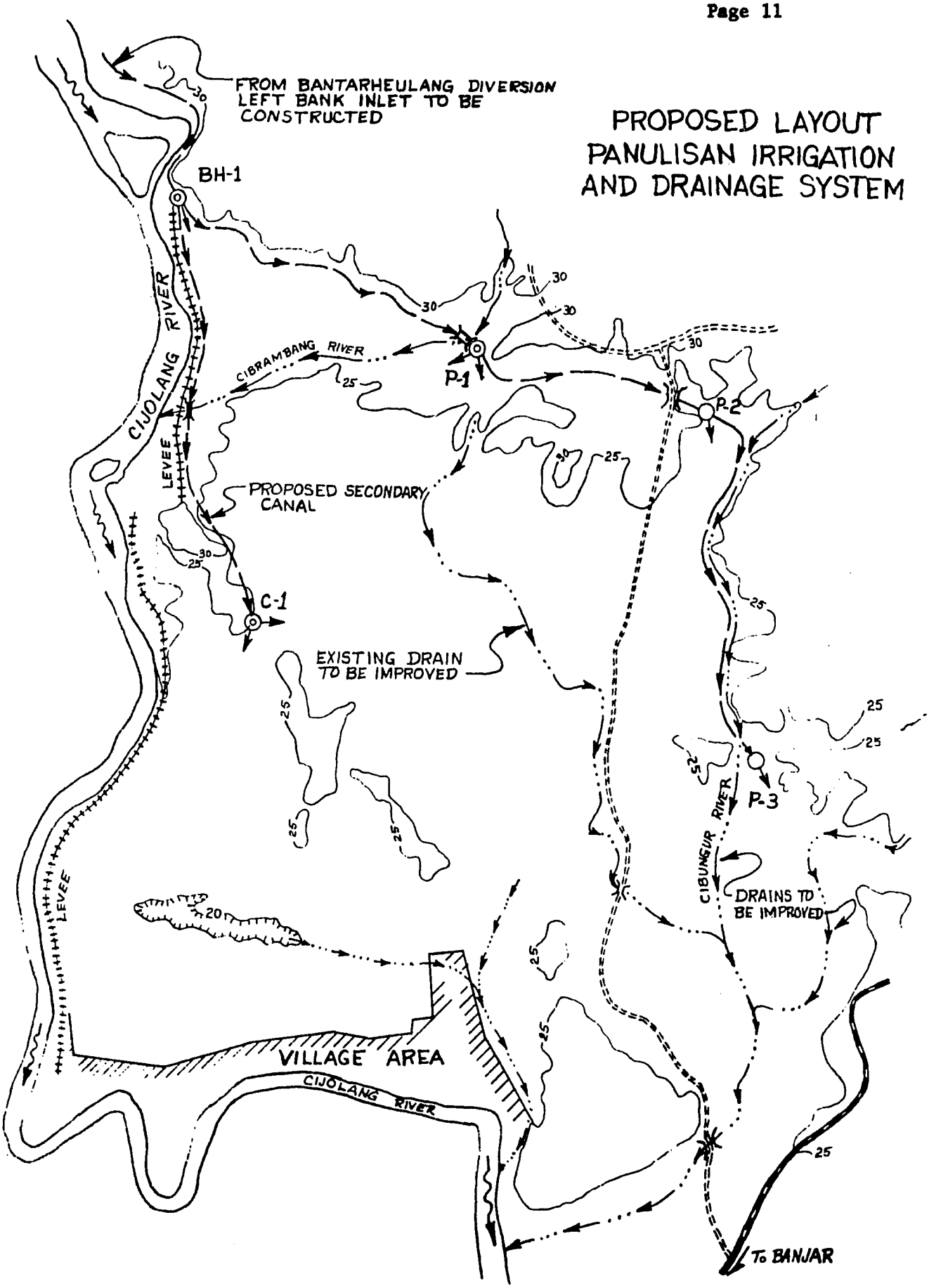
SCHEMATIC DIAGRAM

LOWER CITANDUY/CISEEL RIVER IRRIGATION SYSTEM

11-9-75
12-1-75


LOCATION MAP
LOWER CITANDUY/CISEEL
PROJECT
IRRIGATION SYSTEMS
CIJOLANG RIVER
RAWA ONUM
PANULISAN
CISAGA
BANJAR
NORTH
LAKBOK
GUNUNG PUTRI-I
GUNUNG
PUTRI-II
CISEEL
CITALAHAB
CITALAHAB
RIVER
CIPUTRAHAJI RIVER
CIPUTRAHAJI
CIKASO
CIKASO
RIVER
CISEEL
RIVER
CITANDY
RIVER
LEGEND
ROAD
RAILROAD
RIVER
WEIR
IRRIGATION SYSTEM

12-1-75


PROPOSED LAYOUT
PANULISAN IRRIGATION
AND DRAINAGE SYSTEM
FROM BANTARHEULANG DIVERSION
LEFT BANK INLET TO BE
CONSTRUCTED
BH-1
CIJOLANG RIVER
LEVEE
CIBRAMBANG RIVER
P-1
P-2
P-3
C-1
PROPOSED SECONDARY
CANAL
EXISTING DRAIN
TO BE IMPROVED
CIBUNGUR RIVER
DRAINS TO
BE IMPROVED
VILLAGE AREA
CIJOLANG RIVER
To BANJAR
30
25
20
52

REVISED COST ESTIMATE - IRRIGATION AND DRAINAGE
(Thousands US Dollars)

Item	Feasibility Study Original Estimate	ECI Oct 1975 Rev. Est.	Totals after Deduct. 15% Cont., 12% Engr. & Equip Depr.	20% Inflation Allowance	Total with Inflation	15% Cont.	Total with Inflation and Contingency
Rehabilitation of Existing Irrigation Systems							
1. North Lakbok	1,356	1,750					
2. Rawa Onom	209	192					
3. Gunung Putri I	70	70					
4. Gunung Putri II	210	182					
5. Ciputrahaji	318	308					
6. Citalahab	108	78					
7. Cikaso	162	171					
Subtotal	2,433	2,751	1,998	400	2,398	360	2,758
Rehabilitation of Desilting Basin at Pataruman Diversion	-	250	181	36	217	32	249
Construction of New Irrigation System							
1. Panulisan	273	261	232	46	278	42	320
Improvement of Existing Major Drains	709	897	651	130	781	116	897
Providing Secondary Drainage System	-	565	408	82	490	74	564
TOTAL CONSTRUCTION COST	3,415	4,724	3,470	694	4,164	624	4,788

CHAPTER III- A COMPREHENSIVE WATER MANAGEMENT PLAN FOR THE LOWER CITANDUY/CISEEL RIVER SYSTEM*

Environmental Considerations

Archeological:

Even though no archeological sites have been reported in the reference area, during the design and preconstruction phase of Stage I of the water management project, intensive investigations should be made to determine if there are indeed no archeological sites. If it is determined that there are one or more archeological sites present, then an evaluation should be made for each site to determine its cultural significance, the environmental impact of the subproject, and the mitigation measures that might be considered to protect the respective site.

Historical And Cultural:

The Ciung Wanara Historical Reservation is located just upstream of Banjar at the confluence of the Citanduy River and the Cimuntur River. It covers an area of approximately 30 ha, and is important primarily for the mythical significance of Ciung Wanara. While this location is outside of the subproject area, great care will be taken to assure that no subproject features will in any way affect this area.

No other historical sites are known to exist in this area. However, this will be adequately investigated during the design phases of both Stage I and Stage II.

* Excerpted from Appendix I, Environmental Impact, of The Master Plan for the Citanduy River Basin Development Project, by Engineering Consultants, Inc., Nov.,1974.

Although all of the cemeteries that exist within the subproject area have not yet been pinpointed, it is known that there are several. These will all be accurately located during the design phase and adequate steps taken to protect them. Such steps will also be taken to protect all mosques and other places of worship within the subproject area.

Fish And Wildlife:

Since this is a highly populated area, and has been for some time, it is felt that the existence of wildlife is insignificant. Possible exceptions might be the swampy areas such as Wanareja and both North and South Lakbok. The North Lakbok peat swamp area has been the object of such intensive reclamation efforts that little or any wildlife except for perhaps wild fowl now remain. The Wanareja and South Lakbok swamps, while they have traditionally served as natural food storage areas, are also farmed to the limit permitted by the annual floods. It is doubtful if even fishing is of any consequence in these two areas with the possible exception of a few isolated examples that have been trapped by receding flood waters.

The area that will be inundated by the Matenggeng has been inhabited and farmed for a good number of years. It is doubtful if any significant fish or wildlife inhabit the area. Our staff ecologist was not able to find any evidence of such life, nor natural forest or other vegetation.

However, quite a different environment will reign once the Matenggeng reservoir is up to design level. There is every reason to feel that in this case the project impact will be beneficial.

The lands surrounding the man-made lake could be developed into a park and recreational area. A well managed program of selective fish breeding could considerably enhance the fresh water fish supply available to the area. The provision of a recreational park area for the environs of the reservoir would also serve to reduce pollution, which would be an important consideration if the surrounding small villages decide to utilize the reservoir as a source of potable water.

No fish or wildlife on the national protected list have been observed in the area. If the expected improvement of the environment is achieved, some of these species might be attracted to the area. If this should occur, it would be the responsibility of the management group to so advise the appropriate government agencies.

Domestic And Municipal Water Supplies:

The high rate of annual rainfall and the subsurface geology contribute to widespread occurrence of shallow ground water and make it possible to utilize hand-dug wells for domestic water supplies. The larger, more affluent homes have their own wells. In the "kampung," which is a sort of common courtyard shared by several residences, there may be only one well serving several homes. Hand pumps may be used to raise the water, but more frequent use is made of a bucket and rope, in which case the well is not covered.

According to public health officials, the close proximity of these shallow wells to streams, fish ponds, and wasteways gives rise to probable pollution from human and animal wastes. The ponds and open sewers comprise the principal disposal system for sewage.

Apparently the problem is greater during the dry season when percolation from surface ponds contributes more to the ground water in the well. Many wells go dry during the dry season.

Therefore, the problem appears to be less one of availability of domestic water than of quality. Use of polluted water is a health hazard even if the water is boiled for drinking and cooking. Exposure to illness is quite possible when impure water is used for washing and bathing. When floods occur, wells become polluted. This constitutes a great inconvenience and is a serious health hazard.

In the lower reaches of the subproject area, the intrusion of salt waters into the streams and ground water during the dry season results in domestic supplies of low quality. Chemical analyses of ground waters indicates a higher concentration of soluble salts in the areas bordering the inland side of the Segara Anakan than elsewhere.

None of the towns of the subproject area divert or pump their water supplies from streams. From interviews conducted with public health and public works officials, it does not appear that there is much prospect for this type of development in the project area in the near future. There has been some progress made in the development of natural springs as sources for town water supply. The railroad company pumps water for its locomotives from the Citanduy River at Banjar.

The city of Banjar has a central water supply system which was installed in 1972. The funds were supplied by the World Health Organization, and installation was done under the auspices of the Ciamis District Public Health department. The system consists of a cistern at a spring source, and a pipeline into town where residents

can tap on at specified points. The capacity is five liters per second, which will serve 5,000 people out of the present city population of 40,000. This system delivers untreated water.

Other similar systems are planned for installation at some of the other sub-district headquarters towns. The water supply program also includes hand-dug wells with manual pumps in other villages. The progress of this program depends upon the availability of funds from donor organizations.

Provision of domestic and municipal water supply would come into the scope of this study if one or more reservoirs would be constructed. From them nearby villages could be provided with water at least of the quality now supplied to the town of Banjar, which would be a considerable improvement over most of the existing methods of obtaining domestic water supplies. While complete service to individual homes and purified water are a highly desirable objective, these are not within the scope of plans being made by the communities or by the central government at this time.

Human Factors:

It is this category that the environmental impact of the subproject is expected to be highly beneficial. As previously pointed out, many of the inhabitants suffer illnesses due to conditions attributable to perennially wet conditions. These would include a high incidence of malaria due to poor local drainage, bad drinking water contaminated by flood waters or high water table due to poor drainage, overexposure to the elements during flood times, and malnutrition due to a lack of adequate food during periods of isolation caused by floods.

With the provision of adequate flood control measures and efficient drainage, the primary sources of these illnesses will be greatly reduced, if not completely eliminated.

It is also envisaged that the recommended flood warning organization will practically eliminate the chances for loss of human life should an emergency develop. Furthermore, with adequate warning, the local population will be able to take substantial measures to protect their homes and personal possessions, which will contribute immeasurably to the peace of mind of the local populace.

Public Health: The government-sponsored public health clinics provide health care at low cost. However, access to these clinics is difficult for rural people because of the poor transportation systems. There are reportedly 18 doctors practicing within the two districts with which this subproject is concerned. Banjar, a city of nearly 40,000 population, has two doctors. The health department runs hospitals at Banjar and Sidareja, and clinics at the other major towns. Services are largely provided by paramedics, midwives, and hospital assistants, due to the extreme shortage of doctors.

The lack of central water supply and waste disposal systems in the villages results in a high incidence of sickness from water borne pollution. This is a persistent problem year-round, but particularly severe during the dry season. Drinking water is obtained from questionable sources and the ground water falls in the dry season, subjecting the water supply to an even greater chance of pollution from shallow seepage sources such as open sewers and waste-disposal ponds. Diseases spread in this manner include gastro-enteritis, cholera, dysentery, and typhoid. Table I-14 shows the number of cases in the Ciamis and Cilacap Districts, which entirely encompass the subproject area.

Table I-14 - Water-Borne Health Hazards, 1972

Illness	Ciamis District		Cilacap District	
	Cases	Deaths	Cases	Deaths
Typhoid	59	—	11	—
Dysentery	30	—	5,309	—
Diarrhea/Enteritia	182	—	25,645	—
Cholera	94	21	785	94

Source: District Public Health Offices

One of the more serious health hazards is malaria. The Ciamis District reported 221 cases in 1972, and the Cilacap District reported 1,594 cases. The malaria-carrying mosquitos are particularly prevalent in the low-lying swampy areas. The project area contains quite a number of these. Improved drainage would significantly reduce this problem.

Much of the public health problem could be reduced by eliminating poverty and improving the peoples' knowledge of hygiene. Naturally, people desire good health, but many of the uneducated people are simply unaware of the causes of illness. They do not know how to cope with these problems. Others may know something about the problem of maintaining good water supply and sanitation, but they are too poor to change their situations. The solutions to these matters will be slow to be realized under the best of circumstances.

Social Factors:

This is a time of rapidly changing goals and values in society everywhere. It is important to recognize desirable social goals and to incorporate these into the planning process. Evaluations should be broadened to include not solely the economic impacts, but the social effects as well. Consequently, it is important to obtain some perspective of the social structure in the project area. Social indicators can be relied upon to express quantitative and qualitative measures. It is pointed out that evaluation criteria and standards do not exist. To a large degree the "goodness" of social factors is a judgement thing and is relative; i.e., to be compared with existing situations elsewhere.

People who have studied human behavioral patterns have structured human needs into the following hierarchy:

Physiological	- The needs for sustenance, clothing, shelter, etc.
Security	- Protection from harm and assurance of livelihood.
Social	- The sense of belonging.
Ego	- Need for recognition and the respect of others.
Self-realization	- The sense of accomplishment and achievement.

These needs seem to be the motivation for most things that people do. If the goals are realized, frustrations may result. When conditions are such that progress toward achievement of these basic needs is restricted, the end result will be an unstable social structure.

Within the project area it appears that, while the standard of living is low and many material wants may go unsatisfied, there is generally a satisfactory attainment of the physiological needs. Clothing needs are minimal, housing is available at low cost, and nutritional levels appear to be reasonably adequate. Nobody is starving and one sees very few persons about who are entirely destitute. Sharing is customary here, and exceptionally few persons in these rural regions are for long homeless and without food. This is not true in the distant large cities, where individuals are separated from their immediate families and long-time friends.

Security needs are not well met. Hazards from flooding expose a large proportion of the residents of the project area to occasional-to-frequent harm or loss of assets. Due to the relatively limited portion of the area covered by irrigation systems, only a few of the farmers can be assured of abundant crops. Additionally, the need for rehabilitation and drainage under the irrigation systems that do exist further reduces the agricultural stability of the region. When the security needs are not met, as indicated by low income levels, under-and-unemployment and outmigration of the younger, more viable elements of the work force, some adverse situations may develop. Social unrest can develop out of the dissatisfactions that are felt. Personal initiative may be reduced and be evidenced by high drop-out rates at school and radical departure from long-standing social and religious customs. Community cooperative activities may be adversely affected. There are some evidences of these situations that are begining to show up within the project area.

Social needs are deep-seated in this region. It has been observed that there are strong family and community ties. These conditions may be slowly changing as a result of modern communications influences - television and movies are available at Banjar, radio is heard throughout the area.

Needs related to the two final categories of ego and feelings of self-realization appear to be largely satisfied, but there is room for improvement. Naturally, there are times of stress when individuals fail to fulfill all their goals in these respects. At the present time, there seems to be no stigma attached to the availability of only occasional employment and the acceptance of help to meet physiological needs.

To summarize, the predominant social problem that should be given attention when planning for water and land resources development in this immediate area is the safety and security of people in the flood-prone area. Secondly, the enhancement of income levels through improved agricultural production is important with respect to satisfying higher physiological needs. Finally, a more equitable distribution of social and economic opportunities for the rural people should be sought to reduce some of the disparities that exist.

Lower Citanduy/Ciseel Water Management Scheme

I. Areas of Natural Beauty and Human Enjoyment:

As was previously pointed out, there are few, if any, remaining areas of natural forests. The systematic elimination of the last, the Rawa Lakbok peat swamp forests, started in 1924, and now there remain not even vestiges of its former mystic beauty.

The upland areas of the proposed reservoir location have all been cut over and now are in agricultural production, rubber plantations, or secondary growth. However, we have proposed that, with the completion of the dam and reservoir, it will be possible to change all of this for the better. To reduce pollution of the waters of the reservoir, we have suggested that a significant belt of land surrounding the reservoir be designated as a national forest and wildlife sanctuary. With proper control measures in effect, this area could be opened to the public as a recreational area as well.

Since the discharge of the Citanduy River is terrain common to both this sub-project and the Segara Anakan reclamation sub-project, whatever is done to change the discharge of the river will affect portions of both projects. We have previously discussed the changes

that will be wrought in the Southern Mountains cuts. Once the construction scars have been obliterated by careful resodding and reforestation, this area should also be declared a national wildlife preserve and recreational area.

II. Uniqueness and Irreversibility Considerations:

The only unique spot in this sub-project area was the Rawa Lakbok, which was once reported to be the largest (but not the only) topogeneous peat marsh in Indonesia. The marsh vegetation has been cleared and peat bogs are farmed to some extent, so that the area does not now resemble its former aspect. However, does to poor drainage and the special characteristics of the soil, this area is still considered to be a problem area for agriculture. Detailed soil and drainage investigations and subsequent irrigation and drainage construction will be required before optimum production can be obtained from this unique soil.

Controlled drainage is traditionally considered to be one of the key practices required for the successful utilization of peat soils. Once proper drainage has been established, it is quite possible to obtain normal agricultural production from them, but this does not necessarily include rice. The investigation that will be required to first establish an optimum drainage pattern and then to determine what intensive cropping patterns will render optimum economical returns will be of benefit, not only to the residents of the area, but also to areas elsewhere having peat soils.

Once the proper measures for successful exploitation of these soils have been initiated, an irreversible process will have also been initiated. With drainage, a certain amount of settlement and consolidation will take place. Subsequent flooding will not cause these soils to swell and return to their former state. Furthermore, if peat soils are excessively drained and allowed to dry, fire becomes a hazard. Those upper portions of the soil which might be destroyed by fire can never be replaced. This is not expected to be a problem because there will be an irrigation system serving the area.

As far as the ecological systems now prevailing in the proposed reservoir area are concerned, the change from the present environment to a lake environment will undoubtedly be irreversible. However, since little or no wildlife now exists in the area, it is felt that any changes wrought by the reservoir will probably be an improvement over the present condition.

Another area which will probably undergo significant irreversible environmental changes will be the Lower Ciseel River bed below the proposed cutoff to the Citanduy River. However, since this area now suffers from annual flood damages, it is felt that the benefits to be gained from adequate flood control for the area will more than compensate for any changes in the environmental picture.

III. Biological, Geological, and Ecological Elements:

We have already indicated those areas where changes may be expected in the biological resources and ecological systems. We have also pointed out that the changes will not necessarily be detrimental. In fact, those changes which may be directly attributable to the

features of the sub-project may be considerably more beneficial than detrimental. Parks, recreational areas, and wildlife sanctuaries will be established where none now exist. Foundation investigations, borrow pit operations, and construction methods employed will all serve to increase the geological knowledge of the area around the proposed Matenggeng damsite. Should any unique geological formations or nonconformities be discovered, ample opportunity will be afforded to record them.

IV. Quality Considerations:

It is in the categories of land and water quality improvement, with the attendant significant increases in public health and welfare that this sub-project is expected to be especially beneficial. We have repeatedly pointed out that many of the inhabitants suffer illnesses due to conditions attributable to perennially wet conditions. We have also found that poor quality drinking water, contaminated by flood waters and/or a high water table due to poor drainage, is more than likely the principal cause of a high incidence of intestinal illnesses.

Flood control and drainage measures recommended for this sub-project will significantly alter the present situation and the improvements in water and land quality will not only bring benefits of a direct social nature, but will also bring economic benefits through improved agricultural production. A greater and more dependable source of income will add immeasurably to the peace of mind of the local inhabitants and thus contribute to the social and political stability of the area.

Because this is a rural area and will essentially remain so, no improvements in quality of air are foreseen, nor will there be any alterations in noise level, with the possible exception of the increased noise caused by vehicular traffic which will be attracted by any increase in prosperity of the area.

Certainly, the wildlife reserves and recreational areas recommended for both the Matenggeng area and the area at the new discharge of the Citanduy River will greatly enhance the visual quality of the surroundings. Reforestation and repopulation with other types of vegetation will add greatly to the beauty of the area.

V. Archeological, Historical, and Cultural Elements:

To the best of our knowledge, no archeological nor historical sites exist within the sub-project area. Mosques and burial sites do exist, and proper measures will be taken to protect them. During the design and preconstruction phases, renewed efforts will be made to investigate all possible sites and catalogue and map them.

Conclusions:

The greatest irreversible detrimental environmental impacts on the sub-project area have already been initiated by Man in his never ending pursuit of new agricultural land. The sub-project will never be able to restore these areas to their original condition, and it would not necessarily be beneficial to attempt to do so. However, the sub-project will introduce such mitigating measures as a man-made lake, improved water and land quality, and parks and recreational areas. The project will cause few, if any, additional detrimental impacts, and the effects of the beneficial impacts will more than compensate for the less desirable features that now exist.

Citanduy Basin Development Project

LOGICAL FRAMEWORK MATRIX

A. 1. Program or Sector Goal	2. Measures of Goal Achievement	3. Means of Verification	4. Assumption
1) Improve well-being of Indonesia's poor majority who live in Citanduy Basin	a) Reduced personal losses from floods	a) GOI employment and income distribution statistics	a) Other GOI development programs, when taken together, contribute to improvement in income distribution and employment
	b) Improvement in income		
	c) Net number of jobs created per year		
2) Decrease Indonesia's dependence on food imports, particularly rice, needed to feed growing population	d) Decrease in tons of rice imported per year	GOI trade statistics	b) Transportation and marketing system capable of moving rice from producers in surplus areas to consumers in deficit areas

B.	1. Project Purpose	2. End of Project Status	3. Means of Verification	4. Assumptions
	1) Reduction in flood damage	1) Protection against floods of up to 25-year return period	1) Project Office and local government statistics on flooding	1) No major change in rainfall intensity or runoff flows from upper watershed area
	2) Increase production of rice and other food crops	2) Farmers on 13,000 ha. in irrigation systems growing 2 crops per year	2) Project office reports	2) BIMAS production input package provided to farmers on timely basis and the farmers use it
	3) Preparatory work for continuing the integrated development of Citanduy Basin	3) O&M systems working satisfactorily for both flood control and irrigation systems	3) Ministry of Agriculture rice crop statistics	3) Rice and input prices kept at level adequate to maintain farmer incentives
		4) Water users associations functioning in all irrigation areas	4) Consultant reports	4) The farmers will practice double cropping on the irrigated areas
		5) Project manager's office functioning	5) AID monitoring and periodic formal evaluations in 1977, 1980 and 1986.	5) Funds from other financial sources are available to finance studies in addition to those being financed by this loan
		6) Feasibility studies and final designs completed which are needed for further integrated development of the Basin		

C. 1. Outputs	2. Magnitude of Outputs	3. Means of Verification	4. Assumptions
1. Flood Control System a. Levees and other flood control works b. Adequate O&M	1. a. 182 km. of levees b. Diversion of Ciseel River into Citanduy River c. 50-man O&M office trained and equipped	1. Project Office reports	1. Adequate GOI financing provided
2. Rehabilitation and Construction of Irrigation Systems a. Major works b. Tertiary canals and farm service ditches c. Viable water user associations d. Adequate O&M	2. a. Rehabilitation of existing 7 systems covering about 12,447 ha. b. Construction of new systems covering about 500 ha. c. Water users associations established for all irrigation areas d. O&M offices expanded by DGWRD for major works and water users associations for farm service ditches	2. Consultant reports 3. AID monitoring 4. Formal evaluations in 1977 and 1980	2. Adequate construction capability in area
3. Improved drainage in Project Area	3. a. 62 km. of major drains improved b. Improved and new secondary drains c. Rehabilitation of Pataruman desilting basin		3. Willingness of farmers to organize variable water users association
4. Feasibility studies and designs	4. Three feasibility studies and four final designs completed		

D. 1. Inputs

AID-Financing by FAR and direct payments for foreign exchange and local currency costs for:

1) Construction/rehabilitation of flood control works, irrigation and drainage systems
2) Supervision of construction
3) Equipment for construction and O&M
4) Training-incountry and overseas
5) Studies and design work
6) Technical assistance

GOI

1) Rupiah financing of costs for which reimbursement will be made by AID
2) Rupiah financing of GOI portion of costs
3) Annual financing of O&M for the flood control and irrigation systems
4) Adequate supply of manpower for project office, O&M of both flood control and irrigation systems, extension services
5) Counterpart personnel as needed for studies

Farmers/Water Users Associations

Labor for construction of farm service ditches

2. Implementation Targets

Disbursements
(millions US$)

1) Year

	AID	GOI	Total
FY 77	3.7	1.7	5.4
FY 78	3.0	3.1	6.1
FY 79	2.3	2.9	5.2
FY 80	2.5	3.8	6.3
FY 81	1.0	1.4	2.4
	12.5	12.9	25.4

(see Implementation Plan for additional details)

2) Details of financing for O&M and number of personnel to be subject of condition precedent in loan agreement

3. Means of Verification

1) AID monitoring
2) Consultant's reports
3) Vouchers for FAR

4. Assumptions

1) GOI makes budget provisions for and provides its inputs on a timely basis
2) Adequate number of personnel can be released for training
3) Farmers provide inputs on a timely basis

PROJECT PERFORMANCE TRACKING (PPT) SYSTEM

country:	project no:	project title:	date:	/ original / revision #	apprvd:
Indonesia		Citanduy Basin Development Loan	12/75	x	

PPT	NARRATIVE	
1.	10/1/76	Initial conditions precedent met.
2.	10/15/76	Construction equipment ordered.
3.	12/1/76	Contract signed for consulting engr.
4.	3/1/77	All design work completed.
5.	6/1/77	Technical assistance for construction operations begins.
6.	6/1/77	Technical assistance for agriculture activities begins.
7.	6/1/77	Construction equipment arrives in Banjar.
8.	7/1/77	All feasibility studies started.
9.	11/1/77	First evaluation completed.
10.	6/1/79	Irrigation & Drainage - at least 50% of work completed or combination of 75% work completed and under contract.
11.	6/1/79	Levee work - at least 50% of work completed or combination of 75% work completed and under contract.
12.	1/1/80	Last of long term academic training begun.
13.	1/1/80	Construction work on siphon begun.
14.	1/1/80	Construction work on diversion begun.
15.	3/1/80	Second formal evaluation completed.
16.	6/1/80	Terminal irrigation networks and water users associations - completed for at least 60% of all land in irrigation systems.
17.	1/1/81	All construction, training, etc. completed.
18.	4/1/81	Last disbursement. Project completed.

FAA/AID 11.75

ANNEX F

ANNEX F

country:	project no:	project title:	date:	/ x / original
Indonesia		Citanduy Basin Development Loan	12/75	/ / revision?

country:	project no:	project title:	date:

CY 1976 | CY 1977 | CY 1978 | CY 1979 | CY 1979 | CY 1980 | CY 1981

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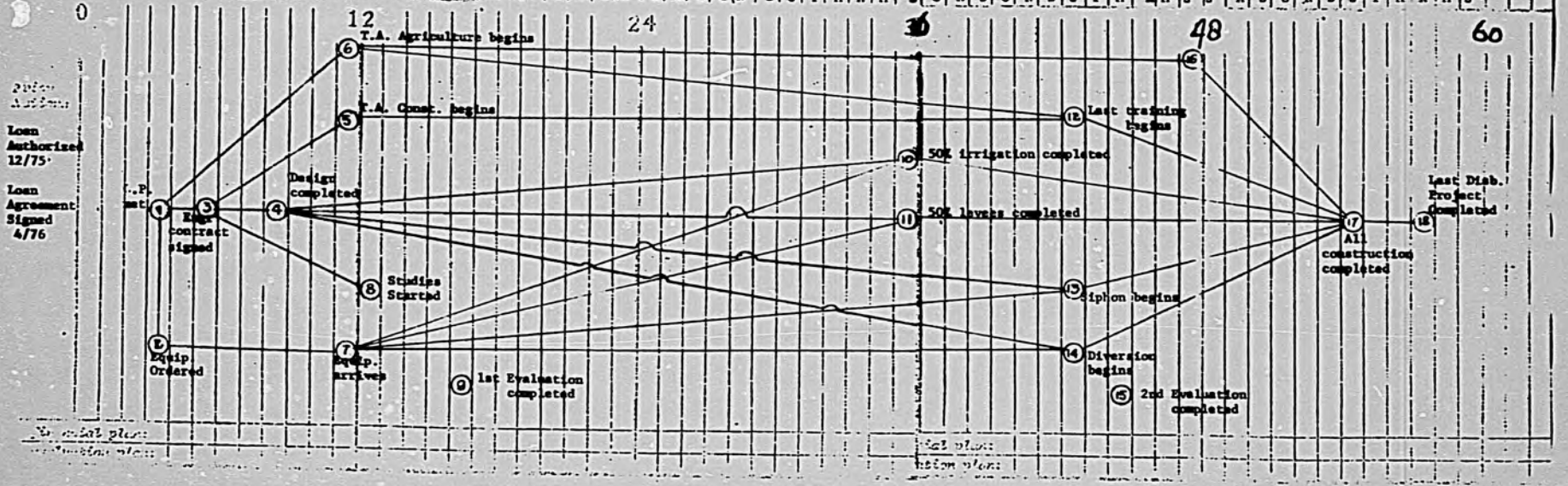

PROJECT PERFORMANCE NETWORK

PROJECT PERFORMANCE NETWORK

STATUTORY CHECKLIST

I. FULFILLMENT OF STATUTORY OBJECTIVES

A. Needs Which the Loan is Addressing

1. FAA Section 103. Discuss the extent to which the loan will alleviate starvation, hunger and malnutrition, and will provide basic services to poor people enhancing their capacity for self-help.	103. The purpose of the loan is to eliminate loss and damage to human lives, crops, and property caused by annual floods in the project area and to increase food production by re-habilitating irrigation systems.
2. FAA Section 104. Discuss the extent to which the loan will increase the opportunities and motivation for family planning; will reduce the rate of population growth; will prevent and combat disease; and will help provide health services for the great majority of the population.	104. Although not directed toward health and family planning activities, the loan would reduce the health problems caused by annual floods.
3. FAA Section 105. Discuss the extent to which the loan will reduce illiteracy, extend basic education, and increase manpower training in skills related to development.	105. The loan is not directed toward educational activities, but elimination of annual floods and increased economic activity from irrigation systems should make increased educational activities possible in the project area.
4. FAA Section 106. Discuss the extent to which the loan will help solve economic and social development problems in fields such as transportation, power, industry, urban development, and export development.	106. The loan is not directed toward activities in these areas.

5. FAA Section 107. Discuss the extent to which the loan will support the general economy of the recipient country; or will support development programs conducted by private or international organizations.	107. Increased production from the irrigation systems as well as avoidance of the disruption of the transportation and commerce in the project area from annual floods will support the general economy.
B. Use of Loan Funds	
1. FAA Section 110. What assurances have been made or will be made that the recipient country will provide at least 25% of the costs of the entire program, project or activity with respect to which such assistance is to be furnished under Sections 103-107 of the FAA?	110. The GOI will be contributing about 51% of direct costs of the program. The loan agreement will contain a provision concerning the GOI contribution.
2. FAA Section 111. Discuss the extent to which the loan will strengthen the participation of the urban and rural poor in their country's development, and will assist in the development of co-operatives which will enable and encourage greater numbers of poor people to help themselves toward a better life.	111. A key element is the establishment of water users associations by the farmers in the irrigation systems to control the usage of water and the operations and maintenance of the irrigation systems at the farm level.
3. FAA Section 112. Will any part of the loan be used to conduct any police training or related program (other than assistance rendered under Section 515(c) of the Omnibus Crime Control and Safe Streets Act of 1968 or with respect to any authority of the Drug Enforcement Administration or the or the FBI in a foreign country?	112. No.
4. FAA Section 113. Describe the extent to which the programs, projects or activities to be financed under the loan give particular attention to the integration of woman into the national economy of the recipient country.	113. The Rural Extension Centers and the actively involved with improving work on programs involving women and the women agriculture agents will participate fully in any training activities.

5. FAA Section 114. Will any part of the loan be used to pay for the performance of the abortions as a method of family planning or to motivate or coerce any person to practice abortions?

114. No.

II. COUNTRY PERFORMANCE

A. Progress Towards Country Goals

1. FAA ss 201(b)(5), 201(b)(7), 201(b)(8), 208. Discuss the extent to which the country is:

(a) Making appropriate efforts to increase food production and improve means for food storage and distribution.

(a). Indonesia is giving priority attention to projects which aim at increasing food production, particularly rice. There are currently 100-110 donor-supported technical and capital assistance projects in support of food production, improved food storage, distribution and marketing.

(b) Creating a favorable climate for foreign and domestic private enterprise and investment.

(b). The GOI enacted a comprehensive law with built-in incentives for encouraging foreign capital investment and has concluded an Investment Guaranty Agreement with the US.

(c) Increasing the people's role in the development process.

(c). It is actively encouraging private domestic investment. Some State Enterprises are being converted to semi-private corporations. National elections were carried out in July 1971 and Parliament has a part in the budgetary process inasmuch as the annual budget must be authorized by Parliament and expenditures reported in the "Annual Report of Budgetary Accounts".

(d) Allocating expenditures to development rather than to unnecessary military purposes or to intervention in other free countries' affairs.	With the ending of confrontation with Malaysia in 1966, the Soeharto Administration reversed the foreign intervention policy of the Sukarno regime. Military expenditures have been sharply reduced as the Government has concentrated the nation's domestic resources - and foreign aid receipts - on achieving economic stability and pursuing an ambitious development program.
(e) Willing to contribute funds to the project or program.	The GOI will contribute an estimated $2.9 million to meet about 51% of project costs.
(f) Making economic, social, and political reforms such as tax collection improvements and changes in land tenure arrangements; and making progress toward respect for the rule of law, freedom of expression and of the press, and recognizing the importance of individual freedom, initiative, and private enterprise.	Major economic reforms have been instituted with IMF/IBRD assistance including incentives to growth of individual initiative and private enterprise. Effective December 9, 1970 the GOI established one uniform exchange rate for all types of foreign exchange. The rate of inflation was reduced from 636.8 percent per annum in CY 1966 to about 10% in CY 1971, about 30% during 1973 and 1974, although due principally to general price increases, not just rice alone. GOI revenues from the oil sector have grown rapidly since 1967 to projected Rp. 1.5 billion in 1975/76 (2/3 of projected government revenues). Non-oil revenues have grown with the economy during the same period. Approximately 12 percent of the development budget is devoted to the social field which includes education, health, family planning, housing, manpower, social welfare, drinking water supply, culture and religion. The cooperating Government has encouraged self-help projects such as Food for Work and other irrigation and road building projects carried out through its Department of Manpower. A substantial low cost housing program will be implemented in the Second Five Year Plan which began in April 1974.
(g) Responding to the vital economic, political, and social concerns of its people, and demonstrating a clear determination to take effective self-help measures.	

B. **Relations with the United States**

1. FAA §§ 620(c). If assistance is to a government, is the Government indebted to any U.S. citizen for goods or services furnished or ordered where: (a) such citizen has exhausted available legal remedies, including arbitration, or (b) the debt is not denied or contested by the government, or (c) the indebtedness arises under such government's or a predecessor's unconditional guarantee?	We are not aware of any cases that make Indonesia ineligible under this Section.
2. FAA s 620(d). If the loan is intended for construction or operation of any productive enterprise that will compete with U.S. enterprise, has the country agreed that it will establish appropriate procedures to prevent export to the U.S. of more than 20% of its enterprise's annual production during the life of the loan?	Not applicable.

3. FAA § 620(e)(1). If assistance is to a government, has the country's government, or any agency or sub-division thereof, (a) nationalized or expropriated property owned by U.S. citizens or by any business entity not less than 50% beneficially owned by U.S. citizens, (b) taken steps to repudiate or nullify existing contracts or agreements with such citizens or entity, or (c) imposed or enforced discriminatory taxes or other exactions, or operation conditions? If so, and more than six months has elapsed since such occurrence, identify the document indicating that the government, or appropriate agency or subdivision thereof, has taken appropriate steps to discharge its obligations under international law toward such citizen or entity? If less than six months has elapsed, what steps if any has it taken to discharge its obligations?	The majority of business and property owned by U.S. citizens which was nationalized during the Sukarno regime (principally in 1964 and early 1965) has been returned to U.S. owners or mutually acceptable settlement negotiated. The Government of Indonesia in a Presidential Decree dated December 14, 1966 indicated its willingness to return nationalized assets.
4. FAA § 620(i). Has the country permitted, or failed to take adequate measures to prevent the damage or destruction by mob action of U.S. property, and failed to take appropriate measures to prevent a recurrence and to provide adequate compensation for such damage or destruction?	The country has not so permitted nor has it failed to take adequate measures.
5. FAA § 620(l). Has the government instituted an investment guaranty program under FAA § 234 (a)(1) for the specific risks of inconvertibility and expropriation or confiscation?	Yes.

6. FAA § 620(o). Fisherman's Protective Act of 1954, as amended, Section 5. Has the country seized, or imposed any penalty or sanction against, any U.S. fishing activities in international waters? If, as a result of a seizure, the USG has made reimbursement under the provisions of the Fisherman's Protective Act and such amount has not been paid in full by the seizing country, identify the documentation which describes how the withholding of assistance under the FAA has been or will be accomplished.	No. Remainder of question therefore not applicable.
7. FAA § 620(q). Has the country been in default, during a period in excess of six months, in payment to the U.S. on any FAA loan?	No; however, repayment of one FAA loan has been rescheduled by bilateral agreement dated March 16, 1971 in accordance with terms of the Paris Agreed Minutes of April 24, 1970.
8. FAA § 620(t). Have diplomatic relations between the country and the U.S. been severed? If so, have they been renewed?	No. Remainder of question therefore not applicable.

C. Relations with Other Nations and the UnN.

1. FAA § 620(i). Has the country been officially represented at any international conference when that representation included planning activities involving insurrection, or subversion directed against the U.S. or countries receiving U.S. assistance?	We have no information as to any such representational activity.
2. FAA § 620(s), 620(n). Has the country sold, furnished or permitted ships or aircraft under its registry to carry to Cuba or North Vietnam items of economic, military, or other assistance?	We have no information of any such action by Indonesia.

2. FAA § 611 (a)(1). Have engineering, financial, and other plans necessary to carry out assistance, and a reasonably firm estimate of the cost of assistance to the U.S., been completed?	Necessary planning and a reasonably firm cost estimate for the Project have been completed (see the Technical and Financial Analysis Sections of the Project Paper).
3. FAA § 611(b); App. § 101. If the loan or grant is for water or related land-resource construction project of program, do plans include a cost-benefit computation? Does the project or program meet the relevant U.S. construction standards and criteria used in determining feasibility?	An internal rate of return analysis has been performed on the Project. Yes, the program meets the relevant U.S. construction standards and criteria used in determining feasibility.
4. FAA § 611(e). If this is a Capital Assistance Project with U.S. financing in excess of $1 million, has the principal AID officer in the country's capability effectively to maintain and utilize the project?	Yes, the Mission Director has so certified. See Annex H.

B. Relation to Achievement of Country and Regional Goals

1. FAA §§ 207, 281 (a). Describe this loan's relation to: (a) Institutions needed for a democratic society and to assure maximum participation on the part of the people in the task of economic development.	The Project will assist in the development of water user associations which will also result in the participation of small farmers in economic development.
(b) Enabling the country to meet its food needs, both from its own resources and through development, with U.S. help, of infrastructure to support increased agricultural productivity.	The Project will help increase the production of food and decrease loss or damage to crops by annual floods.
(c) Meeting increasing need for trained manpower.	The Project includes on-the-job, in country and overseas training for staff of the project authority and training at the farm level for the farmers.
(d) Developing programs to meet public health needs.	The increase in small farmer income and improved income distribution resulting from the Project should result in greater access to health services.

(e) Assisting other important economic, political, and social development activities, including industrial development; growth of free labor unions; cooperatives and voluntary agencies; improvement of transportation and communication systems; capabilities for planning and public administration; urban development and modernization of existing laws.	By establishing water users associations, raising incomes and improving income distribution among the population and thereby the ability of the rural people to play a greater role in the activities of the country, this Project is an essential precondition to economic, political and social development.
2. FAA § 201(b)(4). Describe the activity's consistency with and relationship to other development activities, and its contribution to realizable long-range objectives.	The Project is consistent with other development activities and will make a substantial contribution to the long-range objectives of (1) decreasing Indonesia's dependence on food imports, particularly rice, needed to feed its growing population and (2) expanding and broadening Indonesia's production base.
3. FAA § 201(b)(5). How will the activity to be financed contribute to the achievement of self-sustaining growth?	By increasing its irrigated hectarage, and providing supporting services for its small farmers, the loan will increase the agricultural productiveness of its farmers thereby contributing to self-sustaining growth.

4. FAA § 201(f). If this is a project loan, describe how such project will promote the country's economic development, taking into account the country's human and material resource requirements and the relationship between ultimate objectives of the project and overall economic development.	The Project will promote the country's economic development through increasing agricultural productivity, increasing rural incomes, improving income distribution and generating employment opportunities.
5. FAA § 201(b)(3). In what way does the activity give reasonable promise of contributing to development of economic resources, or to increase of productive capacities?	The Project will contribute to the development and increase the productive capacity of Indonesia's land resources through improving and constructing irrigation systems.
6. FAA § 281(b). How does the program under which assistance is provided recognize the particular needs, desires, and capacities of the country's people; utilize the country's intellectual resources to encourage institutional development; and support civic education and training in skills required for effective participation in political processes?	The Project will meet the needs and desires of Indonesia's rural people for increased incomes, better income distribution and expanded employment opportunities. Civic education and training in skills required for effective participation in political processes will be gained by the formation of water user associations.

7. FAA § 601(a). How will this loan encourage the country's efforts to: (a) increase the flow of international trade; (b) foster private initiative and competition; (c) encourage development and use of cooperatives, credit unions, and savings and loan associations; (d) discourage monopolistic practices; (e) improve technical efficiency of industry, agriculture, and commerce; and (f) strengthen free labor unions?	(a) Not applicable. (b) " " (c) " " (d) " " (e) The Project will increase the efficiency of irrigation systems. (f) Not applicable.
8. FAA § 202(a). Indicate the amount of money under the loan which is: going directly to private enterprise; going to intermediate credit institutions or other borrowers for use by private enterprise; being used to finance imports from private sources; or otherwise being used to finance procurements from private sources.	Commodities to be procured for the Project using foreign exchange will be purchased from private enterprise. Construction of most works will be contracted to Indonesian firms, many of them privately-owned, wherever possible. The integrated area development scheme is designed to benefit small, privately-owned farms directly and the economy indirectly.

9. FAA § 611(a)(2). What legislative action is required within the recipient country? What is the basis for a reasonable anticipation that such action will be completed in time to permit orderly accomplishment of purposes of loan?	None
Regional Goals	
1. FAA § 619. If this loan is assisting a newly independent country, to what extent do the circumstances permit such assistance to be furnished through multilateral organizations or plans?	Not applicable.
2. FAA § 209. If this loan is directed at a problem or an opportunity that is regional in nature, how does assistance under this loan encourage a regional development program? What multilateral assistance is presently being furnished to the country?	The loan is not directed at a regional program.

C. Relation to U.S. Economy

Employment, Balance of Payments, Private Enterprises.

1. FAA s s 201(b)(6): 102. Fifth. What are the possible effects of this loan on U.S. economy, with special reference to areas of substantial labor surplus? Describe the extent to which assistance is constituted of U.S. commodities and services, furnished in a manner consistent with improving the U.S. balance of payments position.	Since traditional direct procurement finance by the Loan will be limited to AID Geographic Code 941 (Selected Free World) countries plus Indonesia and reimbursement to the GOI for Fixed Amount Reimbursement (FAR) items will be made via a Direct Reimbursement Authority (DRA) against evidence of the recent import of goods and services from the U.S., there will be no adverse effect on the U.S. balance of payments.
2. FAA § § 612(b), 636(h). What steps have been taken to assure that, to the maximum extent possible, foreign currencies contributed by the country are utilized to meet the cost of contractual and other services, and that U.S. foreign-owned currencies are utilized in lieu of dollars?	Goods and services requiring foreign exchange financing will be procured from AID Geographic Code 941 countries plus Indonesia. U.S. owned local currency is not available in Indonesia.
3. FAA § 601(d); App. § 108. If this loan is for a capital project, to what extent has the Agency encourage utilization of engineering and professional services of U.S. firms and their affiliates? If the loan is to be used to finance direct costs for construction, will any of the contractors be persons other than qualified nationals of the country or qualified citizens of the U.S.? If so, has the required waiver been obtained?	Advisory services required to implement the Project will be procured from AID Geographic Code 941 countries plus Indonesia. All construction contractors will be qualified Indonesian nationals or firms.

4. FAA § 608(a). Provide information on measures to be taken to utilize U.S. Government excess personal property in lieu of the procurement of new items.	U.S. Government excess property will not be used for this Project.
5. FAA § 602. What efforts have been made to assist U.S. small business to participate equitably in the furnishing of commodities and services financed by this loan?	The loan agreement will contain a provision to ensure that opportunity for such participation will be provided and appropriate notices published.
6. FAA § 621. If the loan provides technical assistance, how is private enterprise on a contract basis utilized? If the facilities of other Federal agencies will be utilized, in what ways are they competitive with private enterprise (if so, explain); and how can they be made available without undue interference with domestic programs?	It is anticipated that the advisory services required to implement the Project will be provided through contracts with consultants from AID Geographic Code 941 sources plus Indonesia programs. The utilization of other Federal agencies is not envisioned for this Project.
7. FAA § 611(c). If this loan involves a contract for construction that obligates in excess of $100,000, will it be on a competitive basis? If not, are there factors which make it impracticable?	The loan agreement will cover this requirement.
8. FAA § 601(b). Describe the efforts made in connection with this loan to encourage and facilitate participation of private enterprise in achieving the purposes of the Act.	Commodities to be procured for the Project using foreign exchange will be purchased from private enterprise. Commodities to be procured for the Project using local currency will be purchased from Indonesian suppliers, most of them privately-owned. Construction of most physical works will be contracted to Indonesian firms, many of them privately-owned, wherever possible.

Procurement

1. FAA § 604(a). Will commodity procurement be restricted to U.S. except as otherwise determined by the President?	Yes, procurement is limited to AID Geographic Code 941 countries plus Indonesia.
2. FAA § 604(b). Will any part of this loan be used for bulk commodity procurement at adjusted prices higher than the market price prevailing in the U.S. at the time of purchase?	No.
3. FAA § 604(e). Will any part of this loan be used for procurement of any agricultural commodity or product thereof outside the U.S. when the domestic price of such commodity is less than parity?	No.
4. FAA § 604(f). Will the agency receive the necessary prepayment certifications from suppliers under a commodity import program agreement as to description and condition of commodities, and on the basis of such, determine eligibility and suitability for financing?	Not applicable. This is a project loan and not a commodity import program assistance loan.

D. Other Requirements

1. FAA § 201(b). Is the country among those countries in which development loan funds may be used to make loans in this fiscal year?	Yes.
2. App. § 105. Does the loan agreement provide, with respect to capital projects, for U.S. approval of contract terms and firms?	The loan agreement will cover this requirement.
3. FAA § 620(k). If the loan is for construction of a production enterprise, with respect to which the aggregate value of assistance to be furnished will exceed $100 million, what preparation has been made to obtain the express approval of the Congress?	Not applicable.

4. FAA § 620(b), 620(f). Has the President determined that the country is not dominated or controlled by the International Communist movement? If the Country is a Communist country (including, but not limited to, the countries listed in FAA § 620(f))and the loan is intended for economic assistance, have the findings required by FAA § 620(f) been made and reported to the Congress?	Yes, the required determination has been made. Reminder of question is, therefore, not applicable.
5. FAA § 620(h). What steps have been taken to insure that the loan will not be used in a manner which, contrary to the best interest of the United States, promotes or assists the foreign aid projects of the Communist-bloc countries?	The loan agreement will cover this requirement.
6. App. § 109. Will any funds be used to finance procurement of iron and steel products for use in Viet-Nam other than as contemplated by § 109?	No.
7. FAA § 636(1). Will any part of this loan be used in financing non-U.S. manufactured automobiles? If so, has the required waiver been obtained?	No. The remainder of the question is therefore not applicable.
8. FAA § 620(a)(1) and (2), 620 (p). Will any assistance be furnished or funds made available to the government of Cuba or the United Arab Republic?	No.
9. FAA § 620(g). Will any part of this loan be used to compensate owners for expropriated or nationalized property? If any assistance has been used for such purpose in the past, has appropriate reimbursement been made to the U.S. for sums diverted?	No. No assistance has been used for such purposes in the past..

10. FAA § 201(f). If this is a project loan, what provisions have been made for appropriate participation by the recipient country's private enterprise?	Commodities to be procured for the Project using local currency will be purchased from Indonesian suppliers, most of them privately-owned. Construction of most works will be contracted to Indonesian firms, many of them privately-owned, wherever possible.
11. App. § 103. Will any funds under the loan be used to pay pensions, etc., for persons who are serving or who have served in the recipient country's armed forces?	No.
12. MMA § 901.b. Does the loan agreement provide, for compliance with U.S. shipping requirements, that at least 50% of the gross tonnage of all commodities financed with funds made available under this loan (computed separately by geographic area for dry bulk carriers, dry cargo liners, and tankers) be transported on privately owned U.S.-flag commercial vessels to the extent such vessels are available at fair and reasonable rates for U.S. flag vessels. Does the loan agreement also provide for compliance with U.S. shipping requirements, that at least 50% of the gross freight revenues of goods shipped under this loan must be earned by privately owned U.S. flag commercial vessels to the extent such vessels are available at fair and reasonable rates for U.S. vessels?	Yes to both questions. These requirements will be applicable only to traditional direct procurement financed by the loan. The loan agreement will contain a provision covering these requirements.
13. FAA § 481. Has the President determined that the recipient country has failed to take adequate steps to prevent narcotic drugs produced or procured in, or transported through such country from being sold illegally within the jurisdiction of such country to U.S. Government personnel or their dependents or from entering the United States unlawfully?	No.

14. App. § 110. Is the loan being used to transfer funds to world lending institutions under FAA §§ 209(d) and 251(h)?	No.
15. App. § 601. Are any of these funds being used for publicity or propaganda within the United States?	No.
16. FAA § 612(d) and Section 40 of PL 93-189 (FAA of 1973). Does the United States own excess foreign currency and, if so, what arrangements have been made for its release in compliance with Section 40 (FAA of 1973)?	U.S. owned excess local currency is not available in Indonesia.
17. FAA § 604(d). Will provision be made for placing marine insurance in the U.S. if the recipient country discriminates against any marine insurance company authorized to do business in the U.S.?	Yes. This requirement will be applicable only to traditional direct procurement financed by the Loan. The loan agreement will contain a provision covering this requirement.
18. Section 29 of PL 93-189 (FAA of 1973). Is there a military base located in the recipient country which base was constructed or is being maintained or operated with funds furnished by the U.S., and in which U.S. personnel carry our military operations? If so, has a determination been made that the government of such recipient country has, consistent with security, authorized access, on a regular basis to bonafide news media correspondents of the U.S. to such military base?	No. Remainder of question therefore not applicable.
19. Sections 30 and 31 of PL 93-189 (FAA of 1973). Will any part of the loan be used to finance directly or indirectly military or paramilitary operations by the U.S. or by foreign forces in or over Laos, Cambodia, North Vietnam, South Vietnam, or Thailand?	No.

20. Section 37 of PL 93-189 (FAA of 1973); App. § 111. Will any part of this loan be used to aid or assist generally or in the reconstruction of North Vietnam?	No.
21. FAA Section 640(c). Will a grant be made to the recipient country to pay all or part of such shipping differential as is determined by the Secretary of Commerce to exist between U.S. and foreign flag vessel charter or freight rates?	No.
22. App. § 112. Will any of the funds appropriated or local currencies generated as a result of AID assistance be used for support of police or prison construction and administration in South Vietnam or for support of police training of South Vietnamese?	No.
23. App. § 113. Will any of the loan funds be used to acquire currency of recipient country from non-U.S. Treasury sources when excess currency of that country is on deposit in the U.S. Treasury?	No.
24. App. § 114. Have the House and Senate Committees on Appropriations been notified fifteen days in advance of the availability of funds for the purposes of this project?	Appropriate steps are being taken to satisfy this requirement.
25. App. § 504. Will any of the funds appropriated for this project be used to furnish petroleum fuels produced in the continental United States to Southeast Asia for use by non-U.S. nationals?	No.

Annex H

INDONESIA - CITANDUY BASIN DEVELOPMENT PROJECT

CERTIFICATION PURSUANT TO SECTION 611(e) OF THE FOREIGN ASSISTANCE ACT OF 1961, AS AMENDED

I, Kenneth M. Kauffman, the principal officer of the Agency for International Development in Indonesia, having taken into account among other things the experience of the Government of Indonesia in association with multilateral and bilateral donors, including AID, in implementing programs directed to the construction, rehabilitation, operation and maintenance of irrigation systems and other water resources developments; do hereby certify that in my judgment Indonesia has the financial and human resources capability to implement, maintain and utilize effectively the Citanduy Basin Development Project.

Kenneth M. Kauffman
Acting Director, USAID Indonesia

Dec 2, 1975
Date

Project Description for Loan Agreement

The loan provides assistance to the Ministry of Public Works and Electric Power and the Ministry of Agriculture in carrying out an integrated program of development in the Citanduy Basin. The first stage is the elimination of annual flooding by the Citanduy and Ciseel Rivers to increased production of rice and other crops. The project shall consist of (1) construction of levees on the Citanduy and Ciseel Rivers and their tributaries, including a cutoff of the Ciseel River into the Citanduy River, (2) rehabilitation of seven existing irrigation systems, (3) construction of one new irrigation system, (4) rehabilitation and construction of primary and secondary drains, (5) construction of terminal irrigation systems and establishment of water users associations, (6) consulting engineering services, (7) technical assistance, and training in on-farm water management and operations and maintenance of the flood control and irrigation systems and (8) equipment for construction/operations, (9) and feasibility studies and designs for additional projects in the Citanduy Basin.

LOAN AUTHORIZATION

A.I.D. Loan No.: _____

Provided under : Section 103:
Food Production

For: Indonesia: Citanduy Basin Development
Project

Pursuant to the authority vested in the Administrator, Agency for International Development ("A.I.D."), by the Foreign Assistance Act of 1961, as amended, ("Act") and the delegations of authority issued thereunder, I hereby authorize the establishment of a Loan pursuant to Section 103 of said Act to the Government of the Republic of Indonesia ("Borrower") of not to exceed twelve million, five hundred thousand United States dollars ($12,500,000) to assist in financing the United States dollar and local currency costs of the Citanduy Basin development project for Indonesia, the Loan to be subject to the following terms and conditions:

1. Terms of Repayment and Interest Rate

Borrower shall repay the Loan to A.I.D. in United States dollars within forty (40) years from the date of the first disbursement under the Loan, including a grace period of not to exceed ten (10) years. Borrower shall pay to A.I.D. in United States dollars interest at the rate of two percent (2%) per annum during the grace period and three percent (3%) per annum thereafter on the outstanding disbursed balance of the Loan and on any due and unpaid interest accrued thereon.

2. Other Terms and Conditions

a. Except as A.I.D. may otherwise agree in writing:

(1) Goods and services financed under the Loan shall have their source and origin in Indonesia and countries included in A.I.D. Geographic Code 941;

(2) The Borrower shall agree, by condition precedent, covenant, or both, to provide on a timely basis its

portion of project financing at levels, under arrangements and on timing acceptable to A.I.D.

b. The Loan shall be subject to such other terms and conditions as A.I.D. may deem advisable.

_____
Administrator

_____
Date