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PD-446-361

CLASSIFICATION PROJECT EVALUATION SUMMARY (PES) - PART I

Report Symbol U-447

PROJECT TITLE  CITANDUY RIVER BASIN DEVELOPMENT	2. PROJECT NUMBER 497-0245	3. MISSION/AID/W OFFICE INDONESIA
	4. EVALUATION NUMBER: Enter the number maintained by the reporting unit (e.g., Country or AID/W Administrative Code, Fiscal Year, Serial No. beginning with No. 1 each FY) 79-10	
<input checked="" type="checkbox"/> REGULAR EVALUATION <input type="checkbox"/> SPECIAL EVALUATION		

5. KEY PROJECT IMPLEMENTATION DATES			6. ESTIMATED PROJECT FUNDING	7. PERIOD COVERED BY EVALUATION	
First PRO-AG or Equivalent FY 77	B. First Obligation Expected FY 77	C. Final Input Delivery FY 82		A. Total \$	From (month/yr.) 6/77
			B. U.S. \$12,500,00	8. DATE OF EVALUATION REVIEW	

9. ACTION DECISIONS APPROVED BY MISSION OR AID/W OFFICE DIRECTOR

A. List decisions and/or unresolved issues; cite those items needing further study. (NOTE: Mission decisions which anticipate AID/W or regional office action should specify type of document, e.g., telegram, SFAR, PIO, which will present detailed request.)	B. NAME OF OFFICER RESPONSIBLE FOR ACTION	C. DATE ACTION TO BE COMPLETED
Report on status and plans needed to satisfy CP 302.c.	GOI, Project Office	1/31/79
Contract for base-line survey of yields in irrigation system areas: Scope of work: Funding (PDSF) Contract	USAID/AGR AID/W USAID/OMF	1/31/79
Refine crop production estimates.	USAID	5/31/79
Refine beneficiary data.	USAID	10/31/79
Explore feasibility of assigning Agriculture Service personnel directly to project activities.	USAID/GOI	3/31/79
Explore possibilities for formalizing coordination which has developed into institutional framework.	USAID/GOI	
Explore possibilities for expanded attention to total rural development needs of the area.	USAID/GOI	5/31/79

10. INVENTORY OF DOCUMENTS TO BE REVISED PER ABOVE DECISIONS			11. ALTERNATIVE DECISIONS ON FUTURE OF PROJECT	
<input type="checkbox"/> Project Paper	<input type="checkbox"/> Implementation Plan e.g., CPI Network	<input type="checkbox"/> Other (Specify)	A. <input type="checkbox"/> Continue Project Without Change	
<input type="checkbox"/> Financial Plan	<input type="checkbox"/> PIO/T		B. <input type="checkbox"/> Change Project Design and/or	
<input type="checkbox"/> Logical Framework	<input type="checkbox"/> PIO/C	<input type="checkbox"/> Other (Specify)	<input type="checkbox"/> Change Implementation Plan	
<input type="checkbox"/> Project Agreement	<input type="checkbox"/> PIO/P		C. <input type="checkbox"/> Discontinue Project	

12. PROJECT OFFICER AND HOST COUNTRY AS APPROPRIATE (Name and Title)		12. Mission/AID/W Office Director Approval	
RD: PABisek <i>[Signature]</i>	RD: WCLarson <i>[Signature]</i>	Signature <i>[Signature]</i>	
RO: RCohen <i>[Signature]</i>	DD: WGBollinger <i>[Signature]</i>	Typed Name Thomas C. Niblock	
		Date 2-23-79	

AID 1220-15 (2-78) PRO: RZimmerman *[Signature]*

### 13. SUMMARY

Given all the difficulties inherent in integrated area development, the Citanduy project is in good shape. This summary will briefly cover construction, project paper design features, coordination and climate of opinion.

As noted in item 17, construction is about 25 percent behind schedule now and will probably be about 10 percent behind one year from now. This is good progress in view of the late start, out of (construction) phase budget cycle, high quality standards, remote site, unseasonal rains and the number of contractors involved. Of special note, levee soil compaction is probably the highest quality ever attained in Indonesia. The loan TDD can be met and if it is, Citanduy may be our only large-scale RD project where this happens.

Most of the agricultural inputs of the project shown in the PP were deleted by the GOI during the negotiation of the loan. These deleted inputs included TA, equipment, construction and training. While broad agricultural outputs remained, in focus and administration the project was at the outset a civil works project dominated by the Directorate of Rivers. During the past two years this sectoral focus has broadened considerably resulting in an improvement on the project design at the time of loan signing and in some respects an improvement on the PP design. Now there are training programs for low land and upland farmers, agricultural extension, community development and local government officials. One very successful pilot watershed is under development and another is starting. Terminal canals will be constructed under a separate government program.

Due to the weaknesses in the loan agreement mentioned above, the centralized sectoral structure of Indonesian administration, the early predominance taken in the Project by the Directorate of Rivers, and the sheer complexity of river basin development, coordination has been a major problem. Fortunately, there has been much progress in knitting together the various lateral and vertical levels of administration involved in the project.

Related to improved coordination has been a wider phenomenon which can be called ~~the~~ creation of a project constituency or climate of opinion. In a sense this was an unplanned effect, because its importance was not realized at the outset. High level officials in West and Central Java, Bappenas, Public Works, Agriculture and Bina Graha have taken an interest in the project. At the working level technical participation has spread far beyond the initial base at the Directorate of Rivers.

Finally, a number of Kabupaten and Residency officials have become much more involved than is normally the case in a technical national project. These growing spheres of interest have mutually awakened and reinforced each other. We are close to or have reached that critical mass of interest and interaction which in this highly personalized environment is likely to be self sustaining and provide the best assurance of project integration and dynamism.

#### 14. EVALUATION METHODOLOGY

This evaluation was undertaken as part of the Mission's regular evaluation schedule to measure progress and improve implementation. At the same time it was done with an eye to AID's long-term interest in Citanduy River Basin development and, specifically, plans for a follow-on project to be funded in FY 1980. The evaluation was prepared in-house by Mission personnel and includes contributions from the initial Project Officer, who departed post in September, 1978, his replacement, who had benefit of an overlap of several months, the Project Engineer, the FSN Project Assistant and the Evaluation Officer. During preparation of the evaluation, consultations were held with GOI project personnel, members of the consultant team and local government officials in the area. The following Indonesian officials participated in the evaluation review meeting held on December 13, 1978:

- Ir. Rachardjo Notosaputro, Citanduy Project Manager
- Ir. Darmati, Project Office
- Ir. Joko Subarkah, Project Office
- Ir. KUSDARYONO, Dir. of Rivers
- Drs. Mursidin, D.G. Forestry
- S. Munandar, D.G. Food Crops
- Ir. Soekotjo, Central Java Agricultural Service
- R. Rachlan, Chief, Planning Board for Ciamis District, West Java
- R. Soedarjadi, B.A., Chief, Planning Board for Cilacap District, Central Java

The Project Paper makes reference to an evaluation plan prepared by Dr. Arthur Auble of Robert R. Nathan Associates. That plan devotes greatest attention to project purpose with in-depth evaluations to be conducted two years and four years after completion of the irrigation systems. The plan also calls for annual evaluation of inputs and outputs and includes a proposed set of tables for this purpose. Attachment I includes

tables which, while differing somewhat from those proposed by Dr. Auble, provide most of the same information and a comprehensive and detailed picture of the current status.

For evaluation of project purpose, a base-line survey of yields was to have been done prior to construction of the irrigation systems. While construction is already underway in four of these systems, a yield survey is planned for the next harvest period, February-March 1979. PDSF funding will be needed for this survey; a scope of work is being prepared and a cable requesting funds was sent on 1/12/79 (Jakarta 0646).

#### 15. EXTERNAL FACTORS

The PP provided that central and provincial agricultural officers would work under the Public Works field office, that this office would be the primary executing instrument for all project activities and that coordination would be provided by a central steering committee. All these arrangements, plus over \$1 million in loan financing for agricultural components of the project, were deleted at the request of the GOI during the loan negotiations. The steering committee carried on from the pre-loan period but did not in itself achieve coordination. Thus we started with a project having agricultural outputs and purposes but no agricultural inputs apart from civil works.

Largely through innovation, step by step approach and personal diplomacy, the acceptance of parallel tracking and the maintenance of concept integrity (see item 22 below), coordination has greatly improved and most of the agricultural inputs have come back into the project.

The following assumptions were stated in the PP:

- (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.

To be more precise, the first assumption should read "adverse changes" since watershed conservation can be expected to produce desirable changes in runoff flows. There is indication this is already beginning to happen. Assumption three remains valid but it is at least questionable whether current rice price levels do in fact provide adequate incentive to farmer investment in high yield variety seed, fertilizer and insecticide. All other assumptions remain valid.

## 16. INPUTS

Key AID inputs include technical assistance, training and construction equipment as well as partial financing of construction costs under FAR. GOI inputs include personnel, project headquarters facilities, and equipment. Coordination between involved GOI agencies should also be considered an input that is a key to project success.

### Technical Assistance:

Technical assistance is provided by Engineering Consultants, Inc. (ECI) under a three year host country contract. ECI is tasked with preparation of a series of feasibility studies for further development in the basin as well as providing advice and assistance to the GOI project office in construction, training and procurement of construction equipment. ECI relationship with the project began in 1973 under a contract to provide a Master Plan, feasibility studies and initial engineering designs. The current contract became effective in February 1977.

Problems with errors, slow submissions and changes in management personnel were noted in the June 1977 project evaluation report. While delays in submissions have continued and there have been further changes in the company's management personnel, the improvement in performance also noted at that time has continued. Personnel assigned to the project are generally of high calibre and can share in credit for both high quality construction work and the success of coordination and local participation in the pilot watershed.

Training:

The consultant's training proposal was submitted and approved in July 1977 and after some delays in getting started is now actively underway. The program is diverse, as appropriate to the nature of the project, and includes academic and non-academic training in the U.S. and third countries as well as an extensive series of in-country training courses in such areas as project administration, agriculture and engineering.

Commodities:

In terms of dollar value, about 40 percent of the equipment to be procured with AID financing has arrived at the project site. Delays have been experienced, however, in delivery of some important support equipment. Causes have included lack of responses to repeated invitations for bids, lack of availability from suppliers after awards were made, and tighter GOI restriction on imports of fully assembled vehicles. At the time of this evaluation it appears nearly all of these problems have been resolved but delivery of some items will be delayed until mid 1979.

GOI inputs:

The Citanduy project is administered by a project office under the Directorate of Rivers in the Ministry of Public Works with headquarters in Banjar, West Java, a central location in the project area. The project office is well staffed although absences of key individuals participating in the training program are keenly felt. Headquarters facilities and logistical support are adequate.

GOI budgetary support of project activities has been in sufficient amounts, but the timing of the GOI fiscal year and delays in transfer of funds to the project have posed problems for construction. The GOI fiscal year begins April 1 and funds were available in June during IFY 1977/78 and 1978/79. Since the dry season construction period is roughly April to October, part of the season is lost before contracts can be let or work started.

Funding for agriculture inputs was deleted from the loan by the GOI during negotiations. Agriculture outputs remain, as reflected in some of the CPs, and are important to achieving the project purpose. The role of the Ministry of Agriculture

has increased substantially as the project has developed. In the pilot watershed, Forestries has taken on major responsibility, assigning a capable staff and budgetting funds for continuing the work. Other Agriculture services are also becoming more actively involved both in the watershed and in training extension agents and farmers for the irrigation systems. There remains a need for better targetting of budget funds to needs, or greater flexibility in their use. Assignment of Agriculture personnel specifically to project activities rather than adding this responsibility to other regular staff duties would be helpful.

One of the conditions precedent to reimbursement for completed construction requires inputs from the Agriculture Services and local administrations as well as the project office and has not yet been satisfied. This CP. 3.02(c), relates to design and construction of tertiaries and terminal systems, establishment of water user associations and availability of agriculture inputs needed to increase production - high yield varieties, fertilizer, credit and extension services. Discussions have been held between the involved agencies and it appears that the necessary actions are underway. A formal report from the GOI describing the present status and plans is expected to be sufficient to satisfy the CP.

The need for coordination among line agencies and local administrations is recognized and was a major topic of the Project Steering Committee meeting in July 1978. Progress experienced in this area suggest that the decision not to create a new comprehensive "authority" for the basin was appropriate. Initial momentum was gained on the strength of existing institutions and coordination is evolving in a more natural manner from operations.

## 17. OUTPUTS

It is difficult to measure overall progress of a truly integrated rural development project. Project construction elements may be considered indicative and a detailed status report on construction is contained in Attachment I. Key project outputs are:

Construction of about 200 kilometers of levees along the lower Citanduy and Ciseel Rivers to provide protection against 25 year frequency floods.

- Rehabilitation/construction of eight irrigation systems serving a total of 13,047 hectares.
- Training of Indonesian personnel in watershed management, flood control and irrigation C&M.
- Preparation of feasibility studies for future basin development including additional irrigation systems and upper watershed protection.

Compared to original schedules prepared in 1976, flood control construction is seriously behind schedule. As of October 1978, some 34 percent of planned levee construction had been contracted; progress at the same time was equal to eight percent of total work scheduled was completed. Inlet construction is ahead of original schedule with seven inlets contracted, of which one is completed. The original schedule called for 40 percent of the flood control work to be completed by the end of 1978. The actual rate of progress will obviously be well below that. However, if all current and proposed (budgeted) contracts are completed by the end of the next season, flood control work will be essentially back on schedule.

Contracts covering approximately 13 percent of irrigation and drainage work were in effect by the end of October. Even if all current and currently planned and budgeted work were completed by the end of the 78-79 season, irrigation work would still be some 23 percent behind original schedule. Nevertheless, it is reasonable to anticipate completion of four of the eight systems by about the end of 1979. (The completed systems would not include the two largest and thus would not represent 50 percent of the total work).

The misfit of the GOI budget cycle with the dry season construction period has already been mentioned. GOI fiscal procedures allow carry-over of funds after the end of the fiscal year. Thus, contracts let in one fiscal year can be completed during more than one May-October construction period. However, GOI failure to release funds to the project until the second quarter of the fiscal year has resulted in delay of initial contract implementation until late in the first construction period.

In 1978 nature compounded the construction difficulties with heavy rains throughout the dry season. Serious flooding occurred in the lower basin in June. Proper compaction cannot be attained with excessive soil moisture and construction was consequently often halted and in general severely hampered. Despite the delays, there is still a very good chance for this project to be completed on time. If work is able to proceed well during the next construction period, and contracts already in effect or planned and budgeted can be completed, overall construction work will be less than 10 percent behind schedule by this time next year.

Project personnel have expressed determination to complete all construction before the loan TDD of October 28, 1981. Provided the GOI continues to adequately fund the project and funds are made available when required (and provided nature cooperates), the strong institutional capacity is in place to make this possible.

A final note that should be made regarding the construction outputs is to acknowledge the high quality of work being performed. In particular, compaction standards are the best yet achieved in Indonesia.

The present training program is included in the contract with ECI. It is likely there will be additions to the training program (ECI's present contract covers only the first three years of the project) so training is roughly estimated as 80 percent contracted and 15 percent complete. Attachment II provides a summary of completed and planned training activities. Areas of potential expansion include further training in watershed conservation for key farmers and extension agents and training for water users associations leaders/members.

ECI work on the feasibility studies and design is well underway but there have been some difficulties and delays. Submittals past due include the Banjar Plains final design report and feasibility studies for the Sidareja and Cihaur irrigation systems and for rehabilitation of eight small irrigation systems in Central Java. Quarterly and monthly reports have also been delayed, making evaluation of contract progress difficult (the most recent report received is as of June, 1978). Mapping has been a frequently cited problem. Delays have been experienced in receipt of topographic maps needed for the feasibility studies and design work. Aerial mapping for the watershed has not been possible due to cloud cover.

Funding delays and staffing problems have also hampered ECI operations. Quarterly rupiah payments from the GOI have not been made on schedule. Turnover of ECI resident staff during 1978 has included the Resident Manager, Construction Engineer and Planning Engineer.

#### 18. PURPOSE

The approved three-fold purpose is: reduction in flood damage, increased production of rice and other food crops and studies for further integrated basin development. The progress of studies and levee and irrigation construction is treated in item 17. Although there has been some delay in budgeting and construction due to unexpected rains and the misfit between the budgeting and construction cycles, there is greater than a 50 percent probability that the three parts of the purpose will be met on target by mid 1981. This rare optimism about finishing a major project on time reflects the wisdom of not thwarting the initial sectoral domination of the project by the Directorate of Rivers. If an authority or super structure (see item 22) had taken power, budget and staff from this Directorate after loan signing, it is unlikely that the transition from planning to implementation would have been as smooth.

The studies being made under the current TA contract focus on irrigation systems and upper watershed management. The planned follow-on loan will address wider range of rural development needs but the present project framework also provides possibility for broadening activity in integrated basin development. Some starts have been made as, for example, community development training added to the training program and funds are available for additional TA which might be used for expanded attention to other sectors such as marketing, roads, health and education.

#### 19. GOAL/SUBGOAL

The major programming goals are to decrease dependence on food imports, particularly rice and to improve the well being of the portion of the poor majority living in the Citanduy Basin. These goals continue to enjoy very high priority in Indonesia.

Flood control will contribute to these goals by protecting crops and, with this protection, encouraging greater investment in inputs needed to increase crop yields. It will also alleviate hardships caused by destruction of homes, disruption of communication, spread of water borne diseases and risk to

investment which has retarded growth of basic rural support facilities. The irrigation program will also directly serve these goals by increasing crop yields and providing insurance for a second crop. Assured water supply will encourage investment in inputs needed for higher crop yields.

While realization of these benefits must await completion of the construction now underway, numerous indications point to likelihood of success. Increasing availability and use of improved rice varieties and fertilizer, encouragement of formation of water user associations and training of agriculture extension agents are all already taking place in the project area.

GOI efforts for food self-sufficiency remain heavily focused on irrigated rice. Rice is the traditional food staple, its cultivation is understood and marketing throughout the country is well established. However, a major contribution of the project to the twin goals of decreased dependence on food imports and improved well being of the poor majority may be in the area of upland mixed farming. The successful pilot watershed sub-project at Panawangan has already called attention to the productive potential of the hillsides for both increased food production and employment. Proper terracing and vegetative practices can both protect the watershed (and consequently the rice lands below) and provide significantly higher returns from crops and livestock with productive labor spread throughout the year.

## 20. BENEFICIARIES:

Agricultural employment and production will rise due to flood prevention, improved drainage and irrigation development. When the irrigation systems are operational, 2500 permanent man years will be added to small farm employment. The improvements in drainage and flood control will significantly reduce water borne diseases which are a major cause of infant mortality.

With farm size estimated at .25 hectares and five members per farm family, irrigation improvements of 13,000 hectares will provide increased employment and food production for approximately 260,000 rural people. These people should increase rough rice production from a projected 2.7 mt/ha without the project to 3.9 mt/ha with the project, a gain of 44 percent. In addition the irrigation and flood control works will make possible a second rice crop and perhaps a third non-rice crop during the dry season. The remainder of the people in the area estimated at 25 percent of the agricultural

population of 65,000 will benefit indirectly from their linkage to an expanding agricultural sector.

A maximum of 60,000 ha with an estimated population of 1.2 million people will be protected from flooding. Subtracting the above mentioned 325,000 (260,000 + 65,000) direct and indirect beneficiaries from irrigation, at least 875,000 more people will benefit from the absence of property damage, disease, severed communications and uncertainty caused by intermittent flooding.

All however, will not share evenly in the benefit. As rehabilitated irrigation systems make more water available to farmers furthest from the source, those relatively less advantaged before the project will benefit more. Higher yields and second crops will provide additional employment opportunities, benefitting landless laborers as well as farm operators. However, increased production may well lead to further changes including introduction of labor saving techniques, especially if wages rise or more pronounced peak demands for labor result from standardized cropping schedules. While improved irrigation can be expected to increase food production and expand rural employment opportunities, attention should also be given to alternate rural employment in integrated upland agriculture, rural industries, trade and services. Additional information is provided in Attachment III.

Note: While the beneficiary data provided here and in Attachment III is the best that can be provided at this time, it is based on assumptions and calculations which need substantial refinement and verification. An effort will be made to accomplish this in the coming months.

#### 21. UNPLANNED EFFECTS:

The most remarkable unplanned effect has been the enthusiasm generated by the pilot watershed at Panawangan. This has come to be considered the best such watershed project in Indonesia, a showpiece of local leadership and farmer participation and an exercise in interagency coordination. The success of this pilot effort has given impetus to further watershed conservation efforts in the basin and throughout Indonesia. In fact, however, eager local efforts to replicate the activity require major efforts to make test results and technical guidance available more quickly to take full advantage of the momentum.

It is too early for effects to be felt from the major project construction; levees, drains and irrigation systems. As noted in item 20, irrigation system improvements may well lead to further modernization of agriculture with reduced labor requirements. In any event, basin development plans should not rely on increased rice cropping and yields to provide sufficient employment opportunities for its residents and should include other sectors such as rural industry, marketing and services.

As mentioned in the previous evaluation report, an uninterrupted rice regime based on availability of year around water supplies could lead to a dangerous build up of diseases and pests. Work is still needed to counter this threat.

While they probably cannot be considered direct effects of the project, numerous signs of development in the area reflect a progressive climate to which it has contributed. These include construction and rehabilitation of shops and sidewalks in the major towns, university involvement in development at Majingklak at the mouth of the Citanduy, various integrated agriculture efforts by key farmers, livestock breeding and experiments with forage planting on coconut plantations, cassava grafting and upland fish ponds.

## 22. LESSONS LEARNED

In Citanduy, and apparently in the Bicol Region in Luzon, Philippines, having the ministries work in mainly informal or traditionally parallel tracks seems a more effective method of multisectoral coordination than the creation of a new comprehensive bureaucratic superstructure.

The role of the USAID Project Officer under this method of administrative coordination may be more critical as well as more complicated. Without a comprehensive project superstructure he will have no single counterpart, i.e., no one with direct working responsibility for the whole project over the long term. However, from his position outside the existing host government structure, the Project Officer is in a unique position to assist in making and maintaining connections between the parallel tracks. He has direct access to the various levels and vertical lines of the government organizations involved. He is in a position to constantly remind people of the overall concept of the project and, through use of personal diplomacy, to involve the high level policy makers who concentrate on unified goals and whose influence can keep the project from fragmenting with its bureaucratic and technical components. At the same time he can influence the sectoral agencies who produce the project in the field to maintain contact with each other and keep pace with the overall project.

For this type of approach to be most useful, the project should be long-term;- i.e., expected to continue through several loans. Time is required to build up the Project Officer's effectiveness in personal diplomacy and to firmly implant the overall project concepts. As coordination develops naturally in operation over a period of time there is a better chance that the patterns will become self-sustaining.

Questions can be raised as to replicability/continuation without sustained outside intervention, and the possibility of creating a formal structure to perpetuate the developed pattern of coordination must not be overlooked. However, ability to provide such intervention in early project stages may be viewed as a valuable development opportunity.

CITANDUY RIVER BASIN DEVELOPMENT PROJECT  
PROGRESS SUMMARY - NOVEMBER 1978

<u>Item</u>	<u>Description</u>	<u>Contracted (%)</u>	<u>Complete (%)</u>
A	Flood Control		
	1. Levees	33.6	7.6
	2. Structures	7.4	4.5
B	Irrigation Rehabilitation		
	7 subprojects	21.3	1.2
C	New Irrigation, 1 subproject	0	0
D	Drainage	1.5(est.)	0
E	Irrigation Terminal Systems,		
	Design & Constr.	0	0
F	Consulting Service	60	38
G	Equipment	51	38
H	Feasibility Studies (3)	100	33
I	Training	30 (est.)	15 (est.)
	Overall Project (on est. cost basis)	38%	11.6%

Time frame: 60 mo. (5 yr.); Time expended: 24 mo. or 40%

Loan signed: October 28, 1976, Consultancy started Feb. 10, 1977

TDD: October 28, 1981

I. USAID Approved 039 Costs.

A. "Construction of levees on the Citanduy and Ciseel Rivers and their tributaries, including a cutoff of the Ciseel River into the Citanduy River"<sup>1/</sup>

1. Required Levees (taken from record drawings)

a. Citanduy River	:	122.65 km (Rt. & Lt.)
b. Ciseel River	:	43.86 km (Rt. & Lt.)
c. Cijolang River	:	8.88 km (Rt. & Lt.)
d. Cikawung River	:	6.50 km (Rt. & Lt.)
e. Ciputrahaji River	:	<u>7.72 km (Rt. &amp; Lt.)</u>
Total Length:		169.61 km (Rt. & Lt.)

2. Total Cost.

1. Compacted embankment	Rp.	4,138,678,605
2. Clearing ROW	Rp.	169,463,246
3. Bank protection	Rp.	<u>23,149,500</u>
Subtotal: (including contingencies, Engr. and Adm.)	Rp.	4,331,291,351 <sup>2/</sup>
3. Average cost per kilometer:	Rp.	<u>22,843,159</u> <sup>2/</sup> (\$36,549)

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<sup>1/</sup> Loan Agreement Section 1.02

<sup>2/</sup> F.C. Design Report, App. III, excluding road surfacing.

2. Citanduy, Ciseel, Cijolang and Cikawang river structures.

a. Citanduy River

1. Nine(9) gated inlets	Rp. 19,511,167
2. Kalipucang Flapgate	Rp. 21,515,346
3. Kedunggaong Flapgate	Rp. 11,594,821
4. Tunggilis Flapgate	Rp. 26,006,074
5. Drain Inlet No. I	Rp. 55,750,176
6. Drain Inlet No. II	Rp. 43,346,605
7. Drain Inlet No. III	Rp. 71,004,678
8. Drain Inlet No. IV	Rp. 70,214,236
9. Overflow structures	Rp. 102,713,630
10. Nusawuluh Spillway	Rp. 36,778,120
11. Cipanggung Spillway	Rp. 15,923,196

b. Ciseel River

1. Cross connection

a. Earthwork, excluding road surface	Rp. 271,637,392
b. Bridge	Rp. 125,999,070
c. Preloading	Rp. 62,626,666

2. Flapgate

a. Structure	Rp. 156,418,105
b. Preloading	Rp. 62,626,667

3. Drainage Inlets	Rp. 37,634,180
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## c. Cijolang River

Ciakar Flapgate	Rp.	19,293,266
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Sub-total flood control appurtenances (structures):	Rp.	1,210,593,395
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(including contingencies, Engr. and Adm.)

Total flood control (Item A) work:	Rp.	5,541,884,746
		(\$8,867,016)

Note: Channel straightening is not considered an essential component of flood control work and is excluded from the above calculations.

B. "Rehabilitation of seven existing irrigation systems"<sup>1/</sup>

1. Citalahab I	31 ha (5%)	Rp. 4,260,100
	II 95 ha (15%)	12,780,300
	III- 378 ha (60%)	51,121,200
	IV <u>126 ha (20%)</u>	<u>17,040,400</u>
Sub-total:	<u>630 ha (100%)</u>	<u>Rp.85,202,000</u>
2. Rawz Onom I	185 ha (18%)	18,061,380
	II 278 ha (27%)	27,092,070
	III <u>565 ha (55%)</u>	<u>55,187,550</u>
Sub- total	<u>1,028 ha (100%)</u>	<u>Rp.100,341,000</u>
3. North Lakbok		
a. Irrigation	7,033 ha	636,852,000
b. Pataruman Desilting Basia		103,500,000

4. Ciputrahaji	1,706 ha	Rp. 156,488,000
5. Gunung Putri I	750 ha	Rp. 33,516,000
6. Gunung Putri II	750 ha	Rp. 75,852,000
7. Cikaso	<u>550 ha</u>	<u>Rp. 74,383,000</u>
Total irrigation (Item B) work: 12,447 ha		Rp. 1,266,134,000
(including contingencies, Engr., and Adm.)		(\$ 2,025,814)

Note: Percentage distribution is estimated.

C. "Construction of one new irrigation system".<sup>1/</sup>

Panulisan	600 ha	Rp. 105,840,000
		=====
Total irrigation (Item C) work:		Rp. 105,840,000
(including contingencies, Engr. and Adm.)		(\$ 169,344)

D. "Rehabilitation of primary and secondary drains".<sup>1/</sup>

1. Primary Drains

a. Kalen Kendal.	13.3 km	Rp. 72,605,064
b. Cigaron	5.2 km	Rp. 5,625,984
c. Kelapa Sawit	7.0 km	Rp. 10,512,264
d. Cilisung	17.7 km	Rp. 42,775,824
e. Cirapuan	<u>19.0 km</u>	Rp. <u>234,656,688</u>
f. Ciseel River closure & gated outlet		<u>Rp. 150,763,200</u>
Sub-total		Rp. 516,939,024

## g. Cilisung Drain

1. Siphon	Rp. 311,637,000
2. Preloading	<u>Rp. 62,626,667</u>
Sub total (Primary Drains): 62.2 km	Rp. 891,202,691
(including contingencies, Engr. and Adm.)	

## 2. Secondary Drains - costs prorated on subproject area basis.

<u>Subproject</u>		<u>Engrs. Estimate</u>
1. Citalahab	630 ha	Rp. 9,536,355
2. Rawa Onom	1,028 ha	Rp. 15,560,909
3. North Lakbok	7,033 ha	Rp. 106,459,024
4. Ciputrahaji	1,706 ha	Rp. 25,823,844
5. Gunung Putri I	750 ha	Rp. 11,352,804
6. Gunung Putri II	750 ha	Rp. 11,352,804
7. Cikaso	550 ha	Rp. 8,325,389
8. Panulisan	600 ha	Rp. 9,082,243
9. South Lakbok <sup>3/</sup>	3,200 ha	<u>Rp. (48,438,629)</u> <sup>3/</sup>
Subtotal (Secondary Drains):		Rp. 197,493,371
Total drainage (Item D) costs:		Rp. 1,088,696,062 (\$ 1,741,914 )

3/ Not included in Loan Agreement or in total.

E. "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." <sup>1/</sup>

Design partially included in Item F, balance of design work and construction to be funded by IMPRES.

F. "Consulting engineering services for the supervision of construction, operations and maintenance of the flood control and irrigation systems." <sup>1/</sup>

1. Engineering Consultants, Inc. -3 year contract,

including Add. No. 1 \$ 2,883,948

2. Estimated cost of 2 year

consultancy extension:

(\$ 2,883,948) (2/3) (1.225) <sup>4/</sup> \$ 2,355,224  
=====

Total estimated consultancy (Item F) cost: \$ 5,329,172

G. "Equipment for construction and operations" <sup>1/</sup> (L/Comms.)

1. CRP-3 \$ 954,000

2. CRP-4 \$ 635,000

3. ECI \$ 363,255

Total estimated equipment (Item G) cost: \$ 1,952,295

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4) Inflation compounding factor for 3 years at 7%.

H. "Feasibility studies and designs for additional projects in the

Citanduy Basin: I'

included in Item F above

I. "In-country and overseas training" I'

included in Item F above

II. 4. USAID approved reimbursement costs.

A. 100% Reimbursement

1. Consultancy, studies and training.

(Items F, H, & I above) \$ 5,239,172

2. Equipment (Item G above) \$ 1,952,295

Total \$ 7,191,467

B. Fixed Amount Reimbursement (FAR), 33% 5' of all

IFY 1977/78 and 1978/79<sup>9</sup> contract work.

1. Item A, Flood control work: \$ 799,181

2. Item B, Irrigation Rehabilitation: \$ 119,723

3. Item C, Irrigation, New: \$

4. Item D, Drainage: \$ 8,622 (est)

Total FAR \$ 927,526

5) At 33% of applicable Engineers Estimate, see Imp. letter No. 1, dt. 1/20/77 and USAID letter No. II/1556, dt. 8/14/78.

## C. Earmarked 039 Funds thru IFY 1978/79

from 2A above	\$ 7,191,467
from 2B above	<u>\$ 927,526</u>
Total	\$ 8,118,993

## D. Fixed Amount Reimbursement (FAR) Calculation for IFY 1979/80

1. 039 Loan Funds:	\$ 12,500,000
Less earmarked funds (-)	<u>\$ 8,118,993</u>
Funds Remaining, Total	\$ 4,381,007
2. USAID Approved Engrs. Estimate for construction (Item A, B, C and D):	\$ 12,804,088
Less Work Contracted (-)	<u>\$ 2,753,882</u>
Work Remaining:	\$ 10,050,206

## 3. Percentage Calculation

$$\$ 4,381,007 / \$ 10,050,206 = 43.6\%$$

USAID Approved Engineer's Estimate (039)

Item A	Flood Control	Rp. 5,541,884,746 (\$ 8,867,016)
<del>Item B</del>	<del>Irrigation, Rehabilitation</del>	<del>Rp. 1,266,134,000 (\$ 2,025,814)</del>
Item C	Irrigation, New	Rp. 105,840,000 (\$ 169,344)
Item D	Drainage	Rp. 1,088,696,062 (\$ 1,741,914)
Item E	Terminal Systems	(see Item F)
Item F	Consultancy	\$ 5,239,172 (Rp. 3,274,482,500)
Item G	Equipment	\$ 1,952,295 (Rp. 1,220,184,375)
Item H	Studies	(see Item F)
Item I	Training	(see Item F)
<b>T o t a l</b>		<b>Rp. 12,497,221,690</b> <b>(\$ 19,995,555)<sup>6/</sup></b>

Note: US\$ 1.00 = Rp. 625, - used in all of above calculations.

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<sup>6/</sup> Total does not include GOI inputs except for construction and administration, calculated as a percentage of the Engineer's estimate for Items A, B, C and D. Total project cost is estimated to be \$ 25.4 million in the Project Paper (AID - DLC/P - 2139).

CITANDUY RIVER DASIN DEVELOPMENT PROJECT, LOAN NO. 497-T-039

ITEM: A - Citanduy Levee Construction

STATUS REPORT

DATE: November 1978

Left Bank

Station (ECI)	Length (km)	Contactora	Contract No.	Value (Rp. x 10 <sup>6</sup> )	Contract Award Date	Estimated Compl. Date	Progress to Date (%)	FAR (Rp. x 10 <sup>6</sup> )	FAR <sup>2/</sup> (\$)	FAR Percent Contract	Work Item <sup>2/</sup> (%)	Remarks
0-106L	5.30	P.T. Propelat	015/PP/CIT/1977 (FC/03/1977) 37a/AM/CIT/78	93,730	11-2-77 7-25-78	12-31-78	30	39,953	63,924	42.6	2.8	1/October 1978
106-208L	4.95	P.T. Propelat	016/PP/CIT/1977 (FC/04/1977) 37b/AM/CIT/78	96.134	11-2-77 7-25-78	12-31-78	30	37,114	59,703	38.8	2.6	2/ Based on total length of levees.
208-248L	1.82	P.T. Pembangunan	09/PP/CIT/1978 (FC/01/1978) 39a/AM/CIT/78	65.233	3-21-78 8-3-78	2-27-79	23	13,719	21,951	21.0	1.0	3/ US\$1 = Rp.625
248-278L	1.50							(11,307)	18,092		(0.8)	To be let in Dec.78
278-300L	1.10		Manganti weir					( 8,292)	13,267		(0.6)	Levee required
300-302L	0.10							( 0,754)	1,206		(0.1)	To be let in Dec.78
302-351L	2.45	P.T. Pembangunan	F.1-02-L/1978	109,029	7-22-78	3-31-79	23	18,469	29,550	16.9	1.3	
351-405L	2.70	P.T. Pembangunan	F.1-03-L/'78	110,320	7-22-78	3-31-79	23	20,353	32,565	18.4	1.4	
405-478L	3.65	P.T. Sekayu Int.	F.1-06-L/'78	102,420	8-30-78	3-31-79	4.5	27,515	44,023	26.9	1.9	
478-561L	4.00	P.T. Waskita Karya	F.1-07-L/'78	145,641	9-13-78	3-31-79	-	30,153	48,245	20.7	2.1	
561-565L	0.20	-	Nusawuluh Spillway	-	-	-	-	-	-	-	-	No levee required
565-604L	1.91	P.T. Mutama Karya	P.1-08-L/'78	131,394	9-13-78	3-10-79	1	14,398	23,037	11.0	1.0	
Page Tot:	1s:29.68	-	-	853,901	-	-	-	201,874	322,998	23.6	15.6	Contracted

Figures in ( ) not included in totals.

CITANDUY RIVER BASIN DEVELOPMENT PROJECT, LOAN NO. 497-T-039

ITEM: A-Citanduy Levee Construction

STATUS REPORT

DATE: November 1978

Right Bank

Station (ECI)	Length (km)	Contractor	Contract No.	Value (Rp. x 10 <sup>6</sup> )	Contract Award Date	Estimated Compl. Date	Progress to Date <sup>1/</sup> (%)	FAR (Rp. x 10 <sup>6</sup> )	FAR <sup>2/</sup> (\$) / 1	FAR Percent Contract	Work Item <sup>2/</sup> (%)	Remarks
0-120R	5.99	P.T.Waskita Karya	010/PP/CIT/1977 (F.C./01/1977) 407/AN/CIT/78	116.914	10-8-77 8-5-78	12-31-78	56	45.154	72,247	28.6	3.2	1/ October 1978
120-210R	4.46	P.T.Waskita Karya	011/PP/CIT/1977 (F.C./02/1977) 43a/AN/CIT/78	97.429	10-8-77 8-21-78	12-31-78	56	33.621	53,793	34.5	2.4	2/ Based on total length of levees.
210-243R	1.89	P.T.Sarang Teknik	08/PP/CIT/1978 (F.C./08/1978)	61.527	3-31-78	12-31-78	67	14.247	22,796	23.2	1.5	3/ US\$1= Rp.625
243-254R	0.39	-	Managanti Weir	-	-	-	-	-	-	-	-	No levee required
254-305R	2.55	P.T. Waskita Karya	F.1.-01-L/1978	116.040	6-24-78	3-31-79	-	19.223	30,756	16.6	1.3	
305-348R	2.15	P.T. Mekar Karta	F.1-07-R/'78	115.656	8-26-78	3-31-79	1	16.207	25,932	14.0	1.1	
348-394R	2.30	P.T. Nindya Karya	F.1-04-R/'78	98.801	8-26-78	3-7-79	4.5	17.338	27,741	17.5	1.2	
394-456R	3.13	P.T. Sekayu Int.	F.1-05-R/'78	98.826	8-30-78	3-7-79	4	23.595	37,752	23.9	1.7	
456-570R	5.72	P.T. Waskita Karya	F.1-06-R/'78	126.559	9-13-78	3-31-79	-	43.119	68,990	34.1	3.0	
Page Tot									340,007	25		

CITANDUY RIVER DASIN DEVELOPMENT PROJECT, LOAN NO. 497-T-039

ITEM: A-6iseel Levee Construction

STATUS REPORT

DATE: November 1978

Station (ECI)	Length (km)	Contactor	Contract No.	Value (Rp. x 10 <sup>6</sup> )	Contract Award Date	Estimated Compl. Date	Progress to Date (%)	FAR (Rp. x 10 <sup>6</sup> )	FAR (\$) <sup>3/</sup>	FAR Percent Contract	Work Item % <sup>2/</sup>	Remarks
C126-228	5.81	P.T.Nindya Karya	018/PP/CYT/1977 (P. C. 198/1977) 36/AM/CIT/778	141.398	11-3-77 5-5-78	12-28-78	25	43.797	70,076	31.0	3.1	<sup>1/</sup> October 1978 Based on total <sup>2/</sup> length of levees <sup>3/</sup> US\$1=Rp. 625
Page Totals:	5.81	-	-	141.398	-	-	-	43.797	70,076	31.0	3.1	Contracted

Σ 33.6% of all levee work







CITANDUY RIVER BASIN DEVELOPMENT PROJECT  
IN - COUNTRY TRAINING

Attachment II  
PES 11/78

No.	Number of Participants	Kinds of Participants	Description of Course	Location	Duration	Dates:	
						Conducted	Planned
1.	30	Project Construction Inspectors	Construction Inspection and laboratory procedures	Banjar	2 days	4/77	-
2.	24	8 field extension officers from Pakarlungan and Langensari and 16 from Laldak irrigation area.	Background for guiding the main Demonstration Farmers in Langensari and Pakarlungan Pilot Irrigation Project.	B.P.P. Panatasan Banjar, Ciamis	7 days	9/10-16/78	-
3.	50	Key Farmers from the same areas.	Similar training as above, for farmers.	"	3 days	9/24-27/78	-
4.	50	"	"	"	"	-	4/79
5.	18	Key Farmers from upper watershed areas in West and Central Java.	Training for watershed practices instruction in the villages/sound movie to be produced.	.....	.....	-	1/79
6.	18	Ciamis/Cilacap Kabupatèn officials.	Class in community development.	Solo	6 weeks	-	1/79 <sup>a/</sup>
7.	30	Engineers from D.G. Water Resources, Project and Provincial Public Works.	Project Planning and Design for flood control and river training.	Education and Training Centre of Irrigation, Bandung.	13 weeks	-	2/12-5/13/79
8.	30	Construction Inspectors.	Training in independently performing supervision work.	"	2 weeks	-	5/79

<sup>a/</sup> Only three openings are presently available in the 1/79 session; efforts are underway to increase the number and additional sessions in 6/79 and 10/79 may accommodate balance.

9.	30	Construction Inspectors.	Training in independently performing supervision work.	Education and Training Centre of Irrigation, Bandung	2 weeks	-	6/79
10.	30	"	"	"	"	-	7/79
11.	30	"	"	"	"	-	8/79
12.	30	O&M Specialists from Provincial Public Works and Agriculture Services.	Practical knowledge on operation and maintenance.	Project. CHanduy, Banjar.	5 days	-	5/79
13.	30	"	"	"	"	-	6/79
14.	30	"	"	"	"	-	7/79
15.	30	"	"	"	"	-	8/79

OVERSEAS TRAINING

No.	Number of Participants	Kind of Participants	Description of Course	Location	Duration	Dates:	
						Conducted	Planned
<u>Academic Training:</u>							
1.	2	Engineers from the Directorate of Rivers Jakarta	Project Management and Project Administration.	Colorado State University (CSU)	1½ month	6/13-7/27/1977	-
2.	4	Citanduy Project Engineers	Project Administration and Watershed Management.	"	6 months	7/27/1978 - Dec. 1978	-
3.	1	"	Watershed Management.	"	5 months	-	1/79-6/79
4.	1	"	Hydrology	"	12 months	-	1/79-12/79
5.	1	"	Masters degree in River Engineering.	"	18-24 months	-	1/79-12/80
6.	1	"	Surveying and Mapping	"	10-12 months	-	3/79- 1/80
7.	1	"	Soil Mechanics	"	3-4 months	-	3/79- 7/79
8.	1	"	Hydraulic Structures	"	10-12 months	-	6/79- 5/80
9.	1	Project Finance Officer	Project Administration	"	5 months	-	9/79- 1/80
<u>Study Tours:</u>							
10.	1	Project Manager	Water Resources	USA, Philippines.	1 month	8/18-10/1/1978	-
11.	7	Officials from Ciamis & Cilacap Districts and Provincial/Jkt. level Agriculture & Irrigation Offices.	Water Management and soil conservation	Philippines, Thailand, Malaysia, Taiwan.	1 month	9/16-10/19/1978	-
12.	5	Local/Provincial Officials	Public Administration	Japan, Korea, Philippines, Malaysia	6 weeks	-	4/79

PROJECT TITLE: Citanduy River Basin Development Project

I. Impact re Section 102(d) Criteria: (Explain How)

Increase Agricultural Productivity

Flood control will protect crops from flood damage. Irrigation systems will assure adequate water for crops including second crops. Both will reduce risk and thus encourage investment in input needed for higher yields. Upper watershed pilot is showing significant production increases through improved agricultural practices.

Reduce Infant Mortality

Prevention of flooding will reduce transmission of water-born diseases.

Control Population Growth

Promote Greater Income Distribution

Relatively poorer population in flood prone areas will benefit from flood control. Rehabilitation of irrigation systems will improve water distribution to relatively disadvantaged farmers at ends of systems.

Reduce Un-Under Employment

Protecting crops from flooding and irrigation to promote higher yields and second crops will extend periods of productive employment to farmers in the area and provide additional employment to laborers for peak season work. Labor intensive construction work provides employment to local residents.

And related criteria:

Strengthen/Create institutions which aid social/economic development

Project sponsored training will strengthen water resources and agriculture agencies to better serve agricultural development in the area.

Improve condition of women: Social/Economic/Political

Women will of course benefit from flood protection. They have a major role in agriculture and thus benefit from the irrigation work. Women have also been included in initial groups receiving agriculture extension training.

II. Benefit Incidence\* (Please specify effect on women wherever possible)

A. Direct Beneficiaries

	(Number) **	(Who)	(Where)
Income	1,200,000	Farmers in irrigation systems and other inhabitants of flood plain protected from floods.	
Labor	5,000	Laborers engaged in construction and additional farm employment.	
Agricultural Production	900,000	Farmers provided improved irrigation and agricultural practices and protected from floods.	
<u>Education/Training/Management</u>	500	Government officials and farmers in project area and engineers involved in river management from other areas in Indonesia.	
Medical Treatment (Reduction of disease, available facilities/services)	---		
Living Conditions Improved (water, housing, sanitation, nutrition, institutions, decrease cost of living)	1,200,000	Inhabitants of lower basin.	
Provision of Power/Transportation	---		
Estimated Overall Total Without Double Counting	<u>1,200,000</u>		

B. General Population in an Area that indirectly benefits from:

increased availability of food	<u>X</u>	
increased mobility in area	<u>-</u>	
<del>general health improvement</del>	<u>X</u>	
or overall economic improvement	<u>X</u>	
		Overall <u>2,800,000</u>

C. People in Area not affected. Why? None

D. People in Area adversely affected. How? None

\* Most of these figures are not mutually exclusive and many will include people who benefit in two or more ways.

\*\* Numbers are rough estimates and require considerable refinement.

COUNTRY Indonesia	PROJECT NO. 497-0245	PROJECT TITLE Citanduy River Basin Development Project	DATE 11/30/78	<input checked="" type="checkbox"/> ORIGINAL <input type="checkbox"/> REVISION # <u>1</u>	APPROVED
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PROJECT PURPOSE (FROM PRP FACESHEET)

Reduction in flood damage.

Increased production of rice and other food crops.

Preparatory work for continuing the integrated development of the Citanduy Basin.

CPI DESCRIPTION

1. Technical Assistance contract for studies and designs and advisory services effective	2/77	11. Agricultural program (production inputs & credit, water-users associations) operational	10/79
2. Conditions precedent to initial disbursement (excluding FAR for construction)	2/77	12. Levee maintenance program operational	10/79
3. Equipment IFB in Commerce Business Daily	4/77	13. Second pilot watershed (Karang Pucang) operational-construction and planting underway	11/79
4. Panawangan pilot watershed ground work begun	6/77	14. Construction 50% complete including completion of first four irrigation systems	1/80
5. Training plan accepted	7/77	15. T.A. studies and designs complete	2/80
6. First contracts for construction of levees, irrigation and drainage let	10/77	16. All construction complete	8/81
7. Agricultural in-country training begun	9/78	17. Final disbursement under loan	10/81
8. Conditions precedent for reimbursement for construction met	1/78		
9. T.A. studies and designs estimated 80% complete	5/79		
10. Last items of construction/maintenance equipment arrive	8/79		