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REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS AND ELECTRIC POWER
DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT

THE CITANDUY RIVER BASIN
DEVELOPMENT PROJECT

33p.

MONTHLY REPORT FOR THE PERIOD
Ending: 31 March 1976

SUBMITTED BY:

ENGINEERING CONSULTANTS, INC.

DENVER, COLORADO USA BANJAR, INDONESIA

April 1, 1976.

Directorate General of
Water Resources Development
Ministry of Public Works
and Electric Power
Jalan Pattimura 20
Kebayoran Baru, Jakarta
Republic of Indonesia.

Our file: 1163/143
MR 3/76
Subject : Monthly Report
Citanduy River Basin
Development Project.

Attn: Ir. Y. Sudaryoko
Director of Rivers.

Dear Sir:

We are herewith submitting our thirty-second monthly report, which covers the month of March 1976. We hope that these reports continue to be of assistance in your evaluation of contract progress.

Yours truly,

Encl: Thirty copies (30) of
Progress Report No. 32.

Engineering Consultants, Inc.


Gifford E. Rogers
Resident Manager.

CC:

1. USAID/Jakarta, American Embassy
Jakarta, Republic of Indonesia
Attn: Mr. MacAleer
Engineering Section
Six (6) enclosures.
2. Directorate of Rivers. Banjar Office
Attn: Ir. Soebandi Wirosoemarto, Project Manager
Citanduy Project. Five (5) enclosures.
3. ECI/Denver.
Attn: Mr. C.M. Langford, Project Sponsor.
Three (3) enclosures.
4. ECI/Staff. Banjar.

2-Way Memo

Subject : Citanduy Project.

INSTRUCTIONS	
Use routing symbols whenever possible.	
SENDER: Use brief, informal language. Conserve space. Forward original and one copy.	
RECEIVER: Reply below the message, keep one copy, return one copy.	

To : Mr. Joseph Howe
SER/ENGR
AID/W

DATE OF MESSAGE	Routing Symbol
April 12, 1976	
SIGNATURE OF ORIGINATOR	
<i>Walt H. McAleer</i>	
TITLE OF ORIGINATOR	
Civil Engineer	

INITIAL MESSAGE

Transmitted herewith is one copy of ECI's report for March for the Citanduy Project. A copy has also been sent to ASIA/OSD. USAID has reassigned projects and from here on out Mr. Gerrit H. Argento will be project manager for Citanduy development. I retain the Pragung Dam Studies and the potable water studies.

REPLY MESSAGE

Walt: I note the report still cites the delays in getting equipment through Customs as a major problem and one which interferes with design. Just as a personal opinion it might be a good plan to make a report for the record on what USAID has done to try to alleviate the problem and what could be done to avoid a similar problem on future loans.

Regards,
Joe

From : Walter H. McAleer
USAID/ENGR
Jakarta, Indonesia

DATE OF REPLY	Routing Symbol
4/26/76	
SIGNATURE OF REPLIER	
<i>Joe Howe</i>	
TITLE OF REPLIER	
Hydraulic Engineer	

from ECI monthly report for March 76
Indonesia / Citanduy

I. GENERAL

At the risk of seeming to have a "one-track mind", we wish to point out the seriousness of the problem associated with getting our Project equipment through Customs. Specially, we are referring to our hydrological equipment which has languished in the Customs building in Jakarta since last October.

These complaints have been in nearly every report since the team was mobilized (1973).

Because of the failure to clear our equipment, we have lost an entire rainy season. We have been unable to take flood measurements during the high water flows, and this will make our final conclusions more difficult.

Before mid-year we expect the arrival of Project soils sampling and testing equipment and foundation drilling equipment. If the same pattern is followed as before and this equipment is left in Customs for six months, it will never be of any use on the design phase of this project.

Copies of purchase orders have been sent to the Client as quickly as they are received. Shipping documents will be furnished as quickly as they are available. We respectfully, but urgently, request that proper arrangements be made so that Project money and Consultant time will not be wasted.

II. PERSONNEL

A. Present at last report:

- | | |
|------------------------|--------------------------|
| 1. C.M. Langford, V.P. | - Project Sponsor |
| 2. Gifford E. Rogers | - Resident Manager |
| 3. Saeed A. Rana | - Design Engineer |
| 4. Malcolm J. Crawford | - O & M Engineer |
| 5. Ralph L. Kerr | - Hydrologist |
| 6. C.L.G. Goss | - Surveyor & Mapper |
| 7. Peter Howard | - Geologist |
| 8. N. Fred Dennis | - Civil Engineer |
| 9. William J. Russell | - Farm Management |
| 10. H.C. Fletcher | - Land Management |
| 11. M. Sabir Mirza | - Irrigation & Drainage. |

B. Arrivals subsequent to last report:

- | | |
|--------------------|---------------------------|
| 1. John P. Jeffers | - Soil Scientist |
| 2. Paul Otter | - Chief Planning Engineer |

C. Departures subsequent to last report:

- | | |
|---------------|---------------------------|
| 1. Paul Otter | - Chief Planning Engineer |
|---------------|---------------------------|

D. Scheduled to arrive in April 1976:

- | | |
|----------------|-----------------------|
| 1. J.C. Ismert | - Mechanical Engineer |
|----------------|-----------------------|

E. Scheduled to depart in April 1976:

N o n e

F. Scheduled to arrive at a later date:

1. H.N. Cole - Chief Civil Engineer

G. Scheduled to depart at a later date:

1. J.C. Ismert - Mechanical Engineer

H. Administrative personnel present:

1. Nungki S.W. - Secretary
2. Pauline Sulianti - Interpreter
3. F.I. Susanti - Clerk
4. Setiani O.S. - Typist.

III. IMPORTANT EVENTS AND FIELD TRIPS

<u>No.</u>	<u>Day of month</u>	<u>Location</u>	<u>Purpose</u>	<u>Personnel</u>
1.	1 - 3	Jakarta	Introduce Mirza to project officials and orient him with Immigration, meet Mr. Langford.	Rogers
2.	10	Bandung	Meet Jeffers family and orient them	Rogers, Goss
3.	11 - 12	Jakarta	Deliver invitation to visit Denver office, discuss Segara Anakan with Project officials.	Rogers
4.	13 - 14	Jakarta	Dispatch Mrs. Rogers to USA because of family emergency.	Rogers
5.	24 - 27	Jakarta	Make final arrangements to send two client technicians to visit Denver office, confer with client and USAID.	Rogers
6.	3	Cikaso	Field check map manuscript with Tri Tunggal.	Dennis
7.	4	Banjar	Discuss Project equipment situation	Dennis, Djihad, Irsjad, Mulyono.
8.	9	Banjar	Discuss respective mapping programs of PENAS and Tri Tunggal.	Dennis, Soemitro, Drajat, Agus
9.	16	N. Lakkok	Field check map quality	Dennis, Soemitro, Drajat, Sutarman
10.	20	Bandung	Check N. Lakkok planning map	Dennis, Widodo, Sarman

III. IMPORTANT EVENTS AND FIELD TRIPS

(Continued)

<u>No.</u>	<u>Day of month</u>	<u>Location</u>	<u>Purpose</u>	<u>Personnel</u>
11.	23	Banjar	Check Project equipment assigned to Manganti weir.	Dennis, Djihad
12.	25	Banjar	Check levee drainage due to termite boring.	Dennis, Sriyono
13.	1	Cikupa	Investigate pilot watershed project	Fletcher, Nurdin, Dedy
14.	2	Majenang	Inspect Malabar watershed	Fletcher, Rachman
15.	3	Cijolang	Inspect upper watershed	Fletcher, Rianto, Dedy
16.	4	Cimara	Inspect watershed areas	Fletcher, Nurdin, Rianto
17.	8	Ciamis	Discuss demonstration program with Bupati & staff.	Fletcher, Russell, Soebandi, Rianto, Bambang
18.	16 - 20	Solo	Inspect upper Solo watershed area with USAID officials.	Fletcher, Tappan, Brooks, Sidarto, Rianto
19.	25	Ciamis	Meet with Mr. Rachlan and planning staff of Bupati to discuss proposed pilot watershed program and corresponding organization.	Fletcher, Russell, Rianto, Bambang, Soebandi, Satryo, Supradja
20.	25 - 27	Bandung	Discuss pilot project with Mr. Darga, Chief of Land Use, and Mr. Sugiyanto, Land Research Chief.	Fletcher, Goss, Subagyo, Rianto
21.	3	Langensari	Discuss pilot irrigation project with Village Chief, PTD Chief and PPL.	Russell, Bambang

III. IMPORTANT EVENTS AND FIELD TRIPS

(Continued)

<u>No.</u>	<u>Day of month</u>	<u>Location</u>	<u>Purpose</u>	<u>Personnel</u>
22.	4	Padaringan	Discuss pilot irrigation project with Village Chief, PTD Chief.	Russell, Bambang
23.	12	Padaringan	Discuss pilot irrigation project with Village Chief, PTD Chief.	Russell, Bambang
24.	15	Langensari	Discuss pilot irrigation project with Village Chief, PTD Chief.	Russell, Bambang
25.	18	Padaringan	Discuss pilot irrigation project with PTD Chief.	Russell, Bambang
26.	22	Langensari	Discuss pilot irrigation project with Village Chief, PTD Chief.	Russell, Bambang
27.	24	Padaringan	Discuss pilot irrigation project with PTD Chief.	Russell, Bambang
28.	26	Langensari	Discuss pilot irrigation project with PPL.	Russell, Bambang
29.	10 - 11	Bandung	Discuss North Lakkok Topo revisions with PENAS, meet with Tri Tunggal.	Goss, Subagyo, Widodo, Soemitro, Achmad, Supangat
30.	16 & 17	N. Lakkok	Field check new topo map with PENAS.	Goss, Subagyo, Agus, Sutarman, Hassan
31.	27	Bandung	Discuss work schedule with Tri Tunggal.	Goss, Subagyo, Achmad
32.	23 - 25	Jatiluhur	Inspect Jatiluhur State Enterprise	Crawford, Karno
33.	9	Pamulisan	Check possible survey routes	Mirza, Goss, Subagyo

III. IMPORTANT EVENTS AND FIELD TRIPS

(Continued)

<u>No.</u>	<u>Day of month</u>	<u>Location</u>	<u>Purpose</u>	<u>Personnel</u>
34.	23	Citalahab	Check existing irrigation canals	Mirza, Djoko
35.	29	Citalahab	Check existing irrigation canals	Mirza, Djoko
36.	3 - 5	Bandung	Visit LMJ and collect soil test results	Howard, Soedaryanto
37.	18 - 19	Bandung	Visit Geological Survey, discuss core tests.	Howard, Soedaryanto
38.	23 - 25	Cilacap	Visit remaining drilling areas with representatives from Geological Survey	Howard, Soedaryanto, Imam
39.	3	Lakbok	Visited R.R. Bridge 1452 & Ciseel Cutoff	Rana, Kerr, Otter
40.	6 - 8	Solo	Visited hydraulic laboratory at Bengawan Solo Project to discuss model for Ciseel cut-off.	Rana, Kerr, Imam
41.	9 - 10	Semarang	Met Dr. Stevens to discuss model studies for Ciseel cut-off, flood routing, and backwater studies.	Kerr, Rana
42.	31	Citanduy R.	Inspect channel for possible sites for improvement or protection.	Kerr, Rana
43.	17	Gunung P. I	Observe soil conditions, topography, etc.	Jeffers, Sambudhi, Rachman
44.	19	Gunung P. I	Examine soil profiles and take soil samples.	Jeffers, Rachman
45.	22	Padaringan	Obtain soil information in peat area	Jeffers, Russell Bambang, Rachman

III. IMPORTANT EVENTS AND FIELD TRIPS

(Continued)

<u>No.</u>	<u>Day of month</u>	<u>Location</u>	<u>Purpose</u>	<u>Personnel</u>
46.	24	Citalahab	Investigate soils of the area	Jeffers, Sambudhi, Rachman
47.	25	Cikaso	Exploratory trip over project area	Jeffers, Sambudhi, Rachman
48.	26	Cikaso	Plan field procedures for land classification	Jeffers, Sambudhi, Rachman
49.	29,30, 31	Cikaso	Initiate field mapping	Jeffers, Sambudhi, Rachman.

IV. MAJOR PROBLEM AREAS

Once again we have to report that our major problem is that of failure to clear badly needed equipment through Customs. We are now at the end of the rainy season and we have been unable to complete our flood stage stream gaging and sedimentation flow because of the lack of this equipment.

The equipment for hydrologic work has been in Customs since October 1975. Our alidade and electronic distance measuring equipment, both badly needed for our mapping program, have been in Customs since December 1975.

This is equipment ordered especially for use in the conduct of our work. All items were approved as "Equipment for the Ministry". It is to be lamented that information vital to the proper design of both subprojects cannot be obtained simply because the equipment was not cleared through Customs.

Transportation, or the lack of it, continues to be a growing problem. Because of the short-term personnel which are now on the job, or will arrive shortly, we will require additional transportation facilities from now to mid-year. Also, the state of repair of the transportation now available to us is becoming a problem. This is not surprising in view of the fact that most of the vehicles assigned to ECI are at least three years old.

Another problem, which can have serious consequences if not soon corrected, is the cessation of all foundation drilling activities on the Cilisung Drain syphon location. Because of this delay, we have had to stop all design activities on the syphon and the bridge. The drilling organization claim that they have no money to proceed. This work must be resumed as quickly as possible or our design schedule for the Ciseel Diversion and Cilisung Drain will be seriously affected.

V. PROGRESS

A. TECHNICAL

1. Geology and Soil Mechanics

- a. As mentioned previously, foundation drilling at the Cilisung Syphon and Ciseel Flap Gate has been halted due to lack of funds. Design schedule of these structures will suffer. It is imperative that drilling be renewed by mid-April.
- b. Drilling on the West Quarry area has also been suspended. However, we have been informed that this work would commence anew about April 1st. Only two to four more holes are required to complete that program.
- c. Drilling in the cut-off dike axes has also been suspended. Geologic Survey has tentatively agreed to undertake the drilling of the four to six holes required to complete this part of the work. If all goes well, this work will be completed by June.
- d. The soils laboratory is now in an operating condition but work is handicapped by a lack of certain simple but essential items. For instance, adequate mechanical grain-size analyses cannot be performed because part of the screens are American made and part are Japanese, and they do not nest one with the other. Moisture content analyses cannot be performed because of the lack of a laboratory thermometer. Field tests for compactive effort cannot be completed until these small items have been supplied.
- e. If the difficulties mentioned are resolved quickly, we would expect to complete all geologic work and respective final reports by August.

2. Hydrology.

- a. Flood routing work is complete. Peak discharges and complete hydrographs have been established for all confluences and at Nusawuluh Weir.
- b. Design water surface elevations are complete from Segara Anakan to R.R.Bridge 1452 and from Banjar Bridge to Pataruman Weir. To maintain the same approximate water levels as presented in the feasibility study, certain significant changes have been made:
 - (1) Protection of Wanareja Swamp up to $1300 \text{ m}^3/\text{s}$ and storage of all flood water above this discharge during the 25-year flood.
 - (2) Possibility of raising R.R.Bridge 1452.
 - (3) Reduction of flow across Nusawuluh spillway to $600 \text{ m}^3/\text{s}$, the approximate capacity of the floodway.
 - (4) Diversion of $150 \text{ m}^3/\text{s}$ into South Lakbok when the Nusawuluh Weir flow approaches capacity.
- c. Input data for the Ciseel Cut-off Model Study has been completed. This included transposed daily discharges, bed load samples, discharge measurements, and cross-sections. Development of the model is now underway at the Solo Hydraulic laboratory.
- d. Water supply and water requirements have been completed for the areas supplied from the Citalahab, Ciputrahaji, Cikaso, and Cijolang Rivers.

- e. Field work has consisted of the following activities:
- (1) Discharge measurements in the irrigation system.
 - (2) Surface sediment sampling
 - (3) Slope-area (indirect) discharge calculations from high water marks at these locations.
 - (4) Review of complete hydrometeorological station network with recommended changes and additions.
 - (5) Selection of locations for water quality sampling in the Segara Anakan and the Citanduy River system.
 - (6) Establishment of high water marks from October 1975 floods.
- f. Work remaining to be accomplished includes:
- (1) Finalization of design water surface profiles on the Citanduy River from R.R. Bridge 1452 to Pataruman Weir, and on the entire Ciseel River.
 - (2) Discharge measurements and sediment sampling (to be completed when equipment is released from customs).
 - (3) Evaluation of existing flood warning system and modification as required.
 - (4) Complete reevaluation of Segara Anakan
 - a) Effect of water supply, water requirements, sediment inflow, and floods on costs and economic analysis.
 - b) Soundings for revised area-capacity curves, water quality sampling, etc.
 - (5) Instrumentation and data collection procedures for both pilot irrigation and upstream land management projects.
 - (6) Evaluation and analysis of any discharge, sedimentation, or water quality samples which may be collected during high river stages.

- (7) Continuing assistance in the establishment of new hydrometeorological stations or evaluation of new equipment.

3. Agriculture.

- a. Land Classification of irrigation rehabilitation projects is underway and will be complete in May.
- b. Land classification of new irrigation projects will be undertaken when rehabilitation projects are complete.
- c. Segara Anakan soil and land classification verification will be undertaken by mid-year.
- d. Work continues on the preparation of a proposal for the upstream land management projects. The draft will be complete by mid-April as promised. It is hoped that all comments will be returned by the end of April so that the final report can be prepared prior to the departure of Mr. Fletcher in early May.
- e. Preparation of the pilot irrigation demonstration farms continues. Construction works on the Langensari Project was started at the end of the month.
- f. Many meetings have been held with officials from other Government agencies as well as local officials. The object is to assure complete cooperation and participation by all concerned agencies.

4. Surveying and Mapping.

- a. All Citanduy River levee work is complete; traverses, levee cross-sections, river cross-sections.
- b. All Ciseel River levee work will be complete by mid-April; complete traverses and river and levee cross-sections.

- c. Topography and cartography completed for both pilot irrigation projects.
- d. Enlarged air-photo maps of the proposed upstream water management project area have been completed.
- e. The Ciseel cutoff has been staked.
- f. 1:20,000 and 1:25,000 mosaics are complete.
- g. North Lakbok topography will be complete by mid-April.
- h. South Lakbok topography will be complete by end of April.
- i. Wanareja topography will be complete by mid-April.
- j. West outlet Segara Anakan topography will be completed in early April.
- k. Work remaining to be accomplished includes:
 - 1) Nusawuluh floodway topography and meander.
 - 2) North Lakbok irrigation and drainage traverses and cross-sections
 - 3) Topography and planimetry of upper watershed management areas.
 - 4) Ciseel cut-off levee topography, traverse, and cross-sections.
 - 5) Levee traverse and cross-sections for Cikawung, Ciputrahaji, and Cijolang areas.
 - 6) Complete topography for Wanareja and all structures.
 - 7) Traverse and cross-sections for Citanduy relocation to ocean.
 - 8) Traverse and cross-sections for east and west cut-off dikes and gate structures.
 - 9) Segara Anakan reclamation area (Part one) topography and natural waterway traverse and cross-sections.

5. Irrigation and Drainage.

- a. Pilot irrigation farms are complete.
- b. Citalahab rehabilitation plan is nearly complete.
- c. This work is seriously behind schedule. However, we hope to be back on schedule by Mid-Year.
- d. Work proceeds on the preparation of standard structure drawings.

6. Hydraulic Structure Design.

- a. We are still awaiting comments on the first draft of the Flood Control Design Criteria. This report was submitted in November 1975.
- b. We are awaiting comments on the final draft of the Irrigation and Drainage Design Criteria. This report was submitted in February 1976.
- c. We are still awaiting comments on the final drafts of the Padaringan and Langensari Pilot Irrigation Projects. The report on the former was submitted in January, while the report on the latter was submitted in March.
- d. Flood Control Levees.
 - 1) Citanduy River - Existing plan and profile for the entire length of the levee on both banks are complete. Design water surface profile has been finalized from outfall in the Indian Ocean to R.R. Bridge 1452, and from Pataruman to Banjar Bridge. Design profile and typical design cross-sections have been plotted for the section from R.R. Bridge 1452 to the Ciseel cross-connection.

- 2) Ciseel River - Existing plan and profile for the reach from the cross-connection to Ciputrahaji confluence on both banks are complete. Design water surface profile up to Ciawitali bridge has been completed. Design profile and typical design cross-sections have been plotted from the cross-connection to the Ciawitali bridge.
- e. Wanareja Swamp - Hydrology and initial hydraulic design of the associated structures is half finished.
 - f. Channel connections - The initial work of final location is complete.
 - g. Ciseel Cross Connection - Initial investigation is complete. Model testing is in progress. The channel has been designed provisionally. Final design of Cilisung syphon is in progress, but now halted due to lack of foundation data.
 - h. Pataruman Desilting Basin - The initial work is well advanced.
 - i. Existing Structures - Check of the stability of R.R. Bridge 1452 has been completed and we have found that new regime for a 25-year flood frequency will not affect the stability of the bridge if the structure is raised.
 - j. It is planned that all lower Citanduy/Ciseel structural design work will be complete by mid-year. Heavy emphasis will then be placed on Segara Anakan structural design.
 - k. Design of tide gate structures for Segara Anakan cut off dikes is in progress.

7. Construction

- a. Preliminary draft of construction specifications is 90% complete. We are awaiting the arrival of the specifications man from the Denver office to complete this work.
- b. Equipment requirements are practically complete. Denver specification specialist reports that the specifications are practically complete.
- c. Now that the soils laboratory is operable, we will plan to undertake the construction of the test sections as agreed upon at the January Steering Committee meeting.
- d. In many sections of the new levee construction now underway, the quality of the work will not meet our proposed specifications. We hope that this deficiency will be corrected.

8. Operation and Maintenance.

- a. The O & M Manual for the Pilot Irrigation projects is practically complete. It will be submitted in April.
- b. Work on preparation of the general Irrigation and Drainage O & M Manual progresses. It will be done by June.
- c. Work on preparation of the flood control O & M Manual progresses. It will be complete by soon after mid-year.

B. ADMINISTRATIVE

The following tables show the status of both the Rupiah and the U.S.dollar accounts. A total of 32 months (80%) of allotted 40 months has now elapsed. During this time we have expended 57% of our Rupiah funds and 68% of our U.S. dollar funds. It does not appear that there will be any budget problems on this project.

Budget Status - US \$ and Rupiah Accounts

I T E M	Cost (US \$)		
	Budgeted	Actual	Balance
1. Resident Personnel, Base Pay	470,020	315,000	155,020
2. Overseas Differential	125,105	79,000	46,105
3. Overseas Overhead	332,533	198,000	134,533
4. TDY and Denver Personnel, Base Pay	206,350	155,000	51,350
5. TDY and Denver Overhead	175,520	115,000	60,520
6. Special Consultants	20,000	10,000	10,000
7. Travel	153,000	120,000	33,000
8. Per Diem	6,726	6,000	726
9. Transportation	45,800	25,000	20,800
10. Other Direct Costs	55,400	45,000	10,400
11. Ministry Personnel in Denver	76,000	64,000	12,000
12. Special Equipment	99,500	60,000	39,500
13. Fixed Fee	185,760	141,000	44,760
T o t a l	1,951,714	1,333,000	618,714

I T E M	Cost (Rupiahs)		
	Budgeted	Actual	Balance
1. Local Per Diem	28,515,000	16,238,000	12,277,000
2. Cables and Telephone	2,600,000	1,822,887	777,113
3. Postage	2,600,000	1,206,558	1,393,442
4. Reproduction and Printing	10,500,000	8,219,943	2,280,057
5. Supplies and Materials	5,600,000	3,728,415	1,871,585
6. Miscellaneous	3,200,000	2,392,496	807,504
7. In-Country Shipping	1,500,000	372,799	1,127,201
8. Personnel	20,300,000	9,337,801	10,962,199
9. Withdrawn	-	(400,295)	(400,295)
T o t a l	74,815,000	42,918,604	31,896,396

VI. PROGRAM

1. At the Steering Committee Meeting scheduled for early in April, we will discuss progress to date and proposed program to the end of the Contract.
2. It is presently envisaged that top priority will be given to completion of the Lower Citanduy/Ciseel Water Management scheme by August.
3. Meanwhile, mapping of the Segara Anakan will be planned for completion by mid-year.
4. Work on the Segara Anakan drilling and borrow pit delineation will be complete before mid-year.
5. Work on the Segara Anakan will be undertaken at an increasing rate so that by July the maximum attention will be on this sub-project.
6. Work on the irrigation demonstration plots started the last of this month. Full attention will be given to assisting Project in their development.
7. The report on the proposed upstream water management plots will be ready by April 15th as promised. It is hoped that comments from all interested parties can be obtained quickly so that this important sub-project can be launched.
8. If and when, the hydrological equipment is released from Customs, work on flood discharge and bed sediment load will be initiated anew.

9. Our soil scientist has arrived, so work will now proceed on the completion of the necessary land classification work.
10. Our specifications expert is expected by mid-April. With his arrival, work on specifications and bid-documents can be completed in short order.
11. Our irrigation and drainage work is lagging behind schedule. All extra available man time will be devoted to the completion of this work phase.
12. The soils laboratory is now functioning. Main work efforts will be on quality control of the levee rebuilding operations.

VII. APPENDICES

Table I	--	Manpower Schedule (Expatriate Specialists--Cumulative Man--Months)	A--1
Table II	--	Manpower Schedule (Administrative Staff -- Cumulative Man--Months)	A--2
Table III	--	Arrivals and Departures (ECI) Administrative Staff	A--3 A--4
Table IV	--	Arrivals and Departures Counterpart Team Draftsmen	A--5 A--6
Table V	--	Schedule of Submittals First Amendment only	A--7

TABLE 1 - MANPOWER SCHEDULE
(Expatriate Specialists - Cumulative Man - Months)

DESCRIPTION		TOTALS		1 9 7 6												TOTALS	
POSITION TITLE	NAME	31/1/75	31/12/75	JAN.	FEB.	MAR.	APR.	MAY.	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	ACT.	CONT.	
R E S I D E N T S T A F F																	
RES MANAGER	ROGERS	18.00	29.00	1.00	2.00	3.00										40.00	
CIVIL ENGINEER	SCHOENLEBER	13.20	13.20	-	-	-	-	-	-	-	-	-	-	-	13.20	16.00	
CIVIL ENGINEER	DENNIS	-	1.90	1.00	2.00	3.00										13.00	
SURVEYOR	GOSS	-	7.50	1.00	2.00	3.00										13.00	
HYDROLOGIST	SAUNDERS	10.30	13.80	-	-	-	-	-	-	-	-	-	-	-	13.80	14.00	
HYDROLOGIST	KERR		6.30	1.00	2.00	3.00										18.00	
IRRIG. & DRAIN.	BOGAN	16.50	19.00	-	-	-	-	-	-	-	-	-	-	-	19.00	17.00	
IRRIG. & DRAIN.	MIRZA	-	-	-	-	1.00										11.00	
IRRIG. O. & M.	CRAWFORD	-	7.70	1.00	2.00	3.00										10.00	
HYDRAULIC DESIGN	RANA	-	7.70	1.00	2.00	3.00										10.00	
MATERIAL ENGR.	HANCOCK	-	7.00	-	-	-	-	-	-	-	-	-	-	-	7.00	8.00	
MATERIAL ENGR.	POLASKY	-	-	-	-	-	-	-	-	-	-	-	-	-			
GEOLOGIST	SCOTT	10.10	10.10	-	-	-	-	-	-	-	-	-	-	-	10.10	7.00	
GEOLOGIST	HOWARD	-	8.40	1.00	2.00	3.00										17.00	
AGRICULTURIST	EDWARDS	12.00	-	-	-	-	-	-	-	-	-	-	-	-	12.00	12.00	
FARM MANAGER	BURKE	-	1.60	-	-	-	-	-	-	-	-	-	-	-	1.60	2.00	
FARM MANAGER	RUSELL	-	0.50	1.00	2.00	3.00										12.00	
SOIL SCIENTIST	GARDNER	12.00	-	-	-	-	-	-	-	-	-	-	-	-	12.00	12.00	
SOIL SCIENTIST	BOULTER	-	7.50	-	-	-	-	-	-	-	-	-	-	-	7.50	8.00	
SOIL SCIENTIST	JEFFERS	-	-	-	-	0.70										6.00	
ECONOMIST	STRUTHERS	16.50	-	-	-	-	-	-	-	-	-	-	-	-	16.50	16.00	
SUB-TOTAL		108.60	181.70	8.00	16.00	25.70											
D E N V E R A N D T D Y S T A F F																	
PROJECT SPONS.	LANGFORD	1.70	2.10	0.50	0.60	0.60										4.00	
PLAN ENGINEER	WILL	1.00	1.00	-	-	-	-	-	-	-	-	-	-	-	1.00	1.00	
PLAN ENGINEER	OTTER	-	1.10	-	-	0.20										4.00	
CHIEF ENGINEER	KUEHL	1.60	1.80	-	-	-										3.50	
CHIEF CIVIL ENG.	COLE	1.90	2.80	-	-	-										2.00	
HYDROLOGIST	AU YEUNG	2.50	2.50	-	-	-										4.00	
RIVER ENGINEER	STEVENS	3.00	4.10	-	-	-										9.00	
LAND - USE	FLETCHER	4.00	4.00	0.60	1.60	2.60										8.00	
MECH. ENGINEER	ISMERT	-	-	-	-	-										9.00	
ENVIRONMENT.	CHURCHILL	1.90	1.90	-	-	-										1.50	
FISH EXPERT	TO BE NAMED	-	-	-	-	-										3.00	
SPECIALIST		-	-	-	-	-										20.00	
SUB-TOTAL		17.60	21.30	1.10	2.20	3.4											
S P E C I A L C O N S U L T A N T S																	
M. BIOLOGIST	TURNER	-	1.20	-	-	-	-	-	-	-	-	-	-	-	1.20	2.00	
FOUND. SPEC.	BURKE	0.70	-	-	-	-	-	-	-	-	-	-	-	-	0.70	2.00	
SUB TOTAL		0.70	1.20	-	-	-	-	-	-	-	-	-	-	-	1.90	4.00	
TOTAL		130.90	208.90	9.10	18.20	29.1											

TABLE III ARRIVALS AND DEPARTURES

(ECI)

<u>Name</u>	<u>Position</u>	<u>Arrived</u>	<u>Departed</u>
<u>Expatriate Specialists</u>			
1. G.E. Rockwell	President, ECI	14/10/73 18/10/75	19/10/73 22/10/75
2. C.M. Langford	Project Sponsor	23/ 7/73 27/ 1/74 7/ 7/74 5/ 1/75 10/ 7/75 21/ 1/76	4/ 8/73 8/ 2/74 23/ 7/74 18/ 1/75 22/ 7/75 31/ 1/76
3. G.E. Rogers	Resident Manager	30/ 7/73 8/ 7/75	1/ 6/75 -
4. W.J. Schoenleber	Civil Engineer	1/ 8/73	6/ 9/74
5. C.L.G. Goss	Surveyor	18/ 5/75	-
6. M.P. Saunders	Hydrologist	17/ 3/74	26/ 4/75
7. R.L. Kerr	Hydrologist	6/ 6/75	-
8. D.E. Bogan	Irr. & Drainage	12/ 8/73 7/ 2/75	15/12/74 20/ 4/75
9. M.J. Crawford	Irrigation O & M	10/ 5/75	-
10. S.A. Rana	Design Engineer	10/ 5/75	-
11. D.P. Scott	Geologist	15/ 9/73 19/ 6/74	17/ 4/74 19/ 9/74
12. P. Howard	Geologist	4/ 4/75	-
13. A.E. Hancock	Const. Management	3/ 4/75	1/11/75
14. R.T. Edwards	Agriculturist	16/ 9/73	31/ 8/74
15. R.A. Gardner	Soil Scientist	15/ 9/73	31/ 8/74
16. K.E. Boulter	Soil Scientist	17/ 5/75	31/12/75
17. R.E. Struthers	Economist	15/ 9/73	18/ 1/75
18. E. Will	Planning Engineer	15/ 9/73	15/10/73
19. P.N. Otter	Planning Engineer	30/ 3/75 1/ 3/76	25/ 4/75 5/ 3/76
20. M.K. Kuehl	Chief Engineer	26/ 8/73 29/ 3/74 6/12/75	18/ 9/73 21/ 4/74 15/12/75

<u>Name</u>	<u>Position</u>	<u>Arrived</u>	<u>Departed</u>
<u>Expatriate Specialists</u>			
21. H.N. Cole	Chief Civil Engineer	22/ 6/74 16/ 8/75	18/ 8/74 10/ 9/75
22. Yin Au Yeung	Hydrologist	25/ 8/73 9/ 3/74	13/10/73 12/ 4/74
23. M.A. Stevens	River Morph.	27/10/73 6/ 7/74 30/ 3/75	1/12/73 5/ 9/74 2/ 5/75
24. H.C. Fletcher	Land Management	13/ 1/74 15/ 1/76	12/ 5/74 -
25. Dick Churchill	Environment	17/ 2/74	3/ 4/74
26. H.W. Burke	Geologist	6/ 7/74	28/ 7/74
27. R.E. Turner	M. Biologist	11/ 6/75 10/ 8/75	25/ 6/75 1/ 9/75
28. William Burke	Farm Management	12/ 9/75	31/10/75
29. N. Fred Dennis	Civil Engineer	1/11/75	-
30. William Russell	Farm Management	16/12/75	-
31. M. Sabir Mirza	Irrig. & Drainage	29/ 2/76	-
<u>Administrative Staff</u>			
1. Nungki S.W.	Secretary	13/ 8/73	-
2. Pauline Sulianti	Interpreter	28/ 9/73	-
3. Sylvia Djocliandi	Interpreter	13/ 9/73	30/ 6/74
4. Supiarti	Clerk	28/ 8/73	1/ 8/75
5. Sri Z. Oemar	Typist	13/ 8/73	31/ 1/75
6. Etjih Suhari	Typist	29/ 8/73	31/ 3/75
7. Susanti	Typist	1/ 6/75	-
8. Irawati	Typist	4/ 8/75	2/10/75
9. Setiani O.S.	Typist	11/ 8/75	-
10. Dasiran	Messenger	1/ 9/73	31/ 1/75

TABLE IV - ARRIVALS AND DEPARTURES

(Counterpart Team)

N A M E	POSITION	ARRIVED	DEPARTED
1. Ir. Soebandi Wirosoemarto	Team Leader	1/4/75	-
2. Ir. Sriyono Mitrosutarno	Deputy Team Leader I	1/4/75	-
3. Ir. Satriyo Untung	Deputy Team Leader II Hydraulic Structures	1/4/75	-
4. Ir. Imam Hidayat	General Planning Hydrology	1/4/75	-
5. Ir. Siswoko	Chief Planning Eng. Irrigation/Drainage	1/4/75	-
6. Ir. Bare Tjupang	Surveying/Mapping	1/4/75	31/1/76
7. Drs. Subagyo	Surveying/Mapping	1/4/75	-
8. Ir. M. Djihad	Const. Material Eng. Chief Engineer	1/5/75	-
9. Drs. Sitanggang	Const. Material Eng.	1/5/75	-
10. Ir. Sambudhi Sudibyو	Soil/Land Class.	1/4/75	-
11. Drs. M. Rianto	Land Use/Management	1/6/75	-
12. Ir. Soedaryanto H.S.	Geology	1/4/75	-
13. R. Abdul Karno	O & M	1/7/75	-
14. Drs. Hudadi	General Affairs/ Finance	1/4/75	Part Time
15. Hendro Pradono S.H.	General Affairs/ Finance	1/4/75	Part Time
16. Ir. Djoko Subarkah	Irrigation/Drainage	1/12/75	-
17. Ir. Sukrisno Ramelan	General Affairs/ Finance	1/2/76	Part Time

Assistant Counterparts

1. Djoko Subarkah	Irrigation/Drainage	1/6/75	1/12/75
2. Tristiyar D.S.	Irrigation/Drainage	1/5/75	-
3. B. Suprobowasono	Hydraulic Structures	1/5/75	31/7/75
4. Martono	Geology/Chief Eng.	1/4/75	-
5. Sutarto	Hydraulic Structures	1/8/75	-

N A M E	POSITION	ARRIVED	DEPARTED
6. Rachman Sutanto	Soil/Land Class	1/7/75	-
7. Agus Wardoyo	Surveying/Mapping	1/8/75	-
8. Dradjat Suhardjo	Surveying/Mapping	1/8/75	-
9. Ir. Setyadi	Irr. & Drainage	17/9/75	1/2/76
10. Ir. Bambang Sudibyso	Farm Management	15/10/75	-

Draftsmen

1. Dasiran	Draftsman	1/4/75	-
2. Walaman	Draftsman	1/7/75	-
3. M. Latief	Draftsman	1/7/75	-
4. Maman	Draftsman	1/7/75	-

TABLE V - SCHEDULE OF SUBMITTALS

(First Amendment Only)

<u>REPORT NO.</u>	<u>SUBJECT</u>	<u>DUE</u>	<u>SUBMITTED</u>	<u>MONTHS</u>
1.	Work Plan	1/ 7/75*	30/ 9/75	5
+2.	Design Criteria - Flood Control	1/ 9/75	1/12/75 (Draft)	7
3.	Design Criteria - Irrig.& Drain.	1/ 9/75	4/ 9/75 (Draft)	7
+4.	Design Criteria - Levees, Structures, Canals	1/12/75	1/12/75	10
5.	Specifications - Levees	1/ 2/76		12
6.	O & M Manual, Pilot Project	1/ 2/76		12
7.	Land Classification	1/ 2/76		12
8.	Specifications - Irrigation and Drainage	1/ 4/76		14
9.	O & M Manual, Irrigation	1/ 6/76		16
10.	Specifications - Canals and Structures	1/ 6/76		16
11.	O & M, Flood Control	1/ 8/76		18
12.	Specifications - Civil, Mechanical, Electrical (Draft)	1/ 8/76		18
13.	Final Design Report - Irrigation and Drainage	1/10/76		20
14.	Segara Anakan Land Classifica- tion	1/10/76		20
15.	Final Design Report - Flood Control	1/11/76		21
16.	Specifications - Civil, Mechanical, Electrical	1/11/76		21
17.	Final Design Report - Segara Anakan	1/11/76		21

* Time extension granted by Steering Committee

+ Combined into one report

TABLE V - SCHEDULE OF SUBMITTALS (CONTINUED)
(First Amendment Only)

<u>REPORT NO.</u>	<u>SUBJECT</u>	<u>DUE</u>	<u>SUBMITTED</u>	<u>MONTHS</u>
18.	Updated Cost Estimate, Lower Citanduy/Ciseel	1/10/75**	29/ 9/75	-
19.	Design Report, Padaringan Pilot Demonstration Farm	**	Nov. 1975	-
20.	Design Report, Langensari Pilot Demonstration Farm	**	Dec. 1975	-

** Not included in Amendment I