



MINISTRY OF PUBLIC WORKS AND ELECTRIC POWER
DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT
DIRECTORATE OF IRRIGATION
AND PROSIDA

JRAGUNG DAM

MULTI - PURPOSE IRRIGATION FLOOD CONTROL
HYDROELECTRIC AND MUNICIPAL
AND INDUSTRIAL WATER SUPPLY PROJECT

MONTHLY PROGRESS REPORT

No. 21

NOVEMBER 1978

SUBMITTED BY

ENGINEERING CONSULTANTS, INC.

Denver, Co., USA Semarang, Indonesia



MINISTRY OF PUBLIC WORKS AND ELECTRIC POWER
DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT
DIRECTORATE OF IRRIGATION
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HYDROELECTRIC AND MUNICIPAL
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MONTHLY PROGRESS REPORT

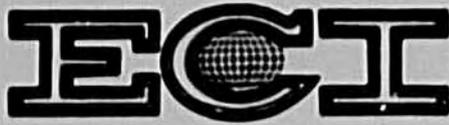
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ENGINEERING CONSULTANTS, INC.

CABLE ADDRESS
ECISEMARANG
SEMARANG
INDONESIA
Tel: CANDI 1008

JRAGUNG DAM PROJECT
P.O. BOX 220
SEMARANG
CENTRAL JAVA
INDONESIA

December 18, 1978

Director General of
Water Resources Development
Ministry of Public Works
Jl. Pattimura 20/7
Kebayoran Baru
Jakarta Selatan

Attention: Ir. Oesman Djojoadinoto
Director Irrigation

Our file: 1196/MR/21
429/78

Subject : Monthly Progress
Report No. 21.

Dear Sir:

We submit herewith fifteen (15) copies of the Monthly Progress Report No. 21 for the month of November, 1978. The report is prepared in pursuance of Section 10.15 of Contract No. KAB. 9/3/72 between the Directorate General of Water Resources Development and the Engineering Consultants, Inc. for providing engineering services for the design of Jragung Dam Project. The draft of the report was shown to the Jragung Dam Project Management at Semarang before its printing.

Your comments, if any, on the contents of the report are respectfully requested.

cc. U.S. AID Jakarta
(Attention: Mr. P. Thorn)
with eight (8) copies of
the report.

General Manager PROSIDA
Ten (10) copies.
Project Manager
Jratunseluna Basin Project
ECI Denver (SD 340)
ECI Semarang

Very truly yours,
Engineering Consultants, Inc.

Saeed A. Rana
Saeed A. Rana
Resident Manager

SAR/ m.

JRAGUNG DAM PROJECT

MONTHLY
PROGRESS REPORT
NO. 21

PERIOD
NOVEMBER 1976

CONTRACT NO. KAB. 9/3/12
U.S. AID LOAN NO. 497 - T - 040

ENGINEERING CONSULTANTS, INC.
DENVER, COLORADO SEMARANG
U.S.A. INDONESIA

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SECTION I

GENERAL

This report has been prepared in pursuance of Section 10.15 of Contract No. KAB. 9/3/12 dated March 15, 1977 between the Directorate General of Water Resources Development of the Ministry of Public Works and Engineering Consultants, Inc. for consulting services for the Jragung Dam Project. The design job is being financed by the United States of America acting through the Agency for International Development for which a loan No. 497-T-040 dated July 28, 1978 was obtained by the Government of Indonesia.

During the month under report, the axes of the main dam and the dikes were finalized. This was accomplished during the visit to the project of Mr. S.F. Hillis, the Consultant's dam design and material specialist. The model testing of the Spillway to decide the configuration at the downstream end of the structure was concluded. An updated report on the reservoir operation studies and project economic analysis was compiled and submitted.

The events which took place, the actions that were initiated or completed and the points pertinent to the Project design including those mentioned above are described in the following.

1. Mr. S.F. Hillis, the Consultant's dam design and material specialist arrived on the project on November 20. The purpose of his visit is to review the design of the main dam and the dikes and help in its finalization. He is scheduled to stay at Semarang through the first week of December during which time he will advise on the technical specifications for the dam and help in the preparation of draft of the final dam design report.
2. The mapping of the damsite and of all the appurtenant structures

is complete. A need arose to map an additional area on the right ridge to extend the blanketing at that location. That work has also been completed. The secondary mapping work progressed on schedule.

3. The geological field investigation work is complete. More results of the foundation material testing currently being done in North America have been received. The slope stability analyses for the final dam section are continuing based on those test results. The entire testing program is expected to be completed by the end of the next month.

4. The design and specification drawings of the Tuntang Diversion Works have been completed and are ready for review. The drafting of the "Good for Construction" drawings of the River Diversion Works was completed. Work continued on the drafting of the design and specification drawings for the inlet and the chute of the Spillway structure.

The hydraulic model of the Jragung Spillway in the DPMA laboratory at Bandung was tested continuously for a period of about one week in the presence of the ECI design engineers. Different schemes for the flipbucket and the downstream conditions were tested and the final arrangement of the flipbucket and the position of the downstream plunge pool was decided. Further testing continued to determine pressures at different points along the structure. By the end of the month most of the testing needed for the Spillway was essentially complete.

5. The design of the main dam and the dikes have mostly been finalized. During the month, design effort was concentrated on finalizing the position of the dam axis in the main section and along the ridges. All previous axes which were under consideration were reviewed by Mr. Hillis, and with his help and guidance typical cross sections of the main dam representing the position of the finally adopted axis relative to the ridges were prepared. The availability and the quantities of different types of materials from the two borrow areas No. VII and at Penawangan were also

reviewed and various zones of the proposed dam section were sized accordingly. Because of the inherent weakness of clay obtainable from the top surface of borrow area VII, it has been decided that it should not be used in the core of the dam. Instead, weathered gravel whose gradation is found suitable for the core of the dam will be used. Top soil clay from the borrow areas will be used in the core of the coffer dam which eventually will be incorporated in the upstream berm of the dam.

The testing of the foundation material being performed in North America has provided additional results for finalizing the slopes of the dam. The entire testing needed for the dam design is expected to be completed by the end of next month. Work continued on carrying out slope stability analysis on the ECI computer at Denver. This work is scheduled to continue through the month of January and by that time the entire design of the dam would be complete.

Detailed reports of progress achieved in the design of various components of the Project are given in Section IV-A and IV-B of this report.

6. There is a possibility that the renovation of the Borobudur Temple in Central Java may be given priority to use rock from the two quarries at Puduk Payung and Gunung Tjantung which were being considered to supply rock and concrete aggregates for the Jragung Project. A search has, therefore, to be made to explore other possible quarries to supplement rock supply to Jragung. In this connection, exploratory work was started and a potential quarry site at Mergi Mount was investigated. In this area quarrying of andesite rock is already in progress on a small scale. The site is nearer to the Project area compared to the above mentioned two quarries. If rock is found to be of acceptable quality, exploiting of this source will be economical. Necessary recommendations are being made to the Proyek authorities to start drilling work in that area.

7. Work on the preparation of specifications for the Main Civil Works contract progressed on schedule. The specification for "Excavation and Earthwork" for the dam are being drafted by Mr. Hillis. It is expected that the contract documents for the Main Civil Works contract will be ready for reviews by the end of January next year. A detailed report on the preparation of contract documents is given in Section IV-C of this report.

8. The results of the reservoir operation studies given in the previous months' report and the revised project economics were compiled in a special report which was issued on November 6. The Project estimate is further being reviewed by considering the final design quantities and the unit costs which are being established in consultation with other agencies involved in similar jobs. The project economics will be finally reviewed and the analysis will be revised during the month of February 1979, when all the needed information will be available.

9. ECI's engineering economist, Mr. Berger, was at Semarang for about a week on TDY assignment to update the economic analysis and to do cost allocation based on the present project estimate.

The schedules of the expatriate personnel of the Consultant are given in Section II of the Report.

10. The reimbursable U.S. Dollar expenditure up to the end of October 1978 amounted to \$ 1,099,392.99. As of the end of November 1978, the reimbursable Rupiah expenditure amounted to Rp. 34,348,484.-

The detailed description of Rupiah and Dollar expenditures is given in Section VII of this Report.

SECTION II

PERSONNEL

A. EXPATRIATE

1. At Semarang on November 1, 1978

Saeed A. Rana	Resident Manager
Carlos A. Borinelli	Materials and Dam Engineer
Robert G. McLaughlin	Structural Engineer
Jeffery P. Frey	Specification Engineer

2. Arrived in Semarang during November 1978

S.F. Hillis	Dam and Materials Specialist
Robert L. Berger	Economist

3. Departed from Semarang during November 1978

Robert L. Berger	Economist
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4. At Semarang on November 30, 1978

Saeed A. Rana	Resident Manager
Carlos A. Borinelli	Materials and Dam Engineer
Robert G. McLaughlin	Structural Engineer
Jeffery P. Frey	Specification Engineer
S.F. Hillis	Dam and Materials Specialist

B. COUNTERPART

1. Assigned Full Time as of November 30, 1978

Mr. Maryono Bony M.E.
Ir. Wisnu Suharto
Ir. Sudaryanto Hs
Drs. Redjiono
Triyono B.E. (Assistant Counterpart)
Sutardjo B.E. (Assistant Counterpart)
Ir. Haryono Wardi
Ir. Sudarno
Ir. Supriyo
Ir. Rustiyanti (Assistant Counterpart)
Eddy Arifin (Assistant Counterpart)
Buang Sukardjono (Assistant Counterpart)
Ir. Muhammad Ali
Ir. Tri Hardono
Djasriansyah Aht.
Harris BME
Ir. Bambang Sujono
Nursalim B.Sc.

C. TECHNICAL

During the period under report, the following technical personnel provided by the Proyek worked with the Consultant:

Mr. Mukiyat	Draftsman
Mr. Barleyanto	Draftsman
Mr. Bambang Prayitno	Draftsman
Mr. Aris Mudjianto	Draftsman
Mr. Baryono	Geology Field Supervision

D. ADMINISTRATIVE

On-Hand as of December 1, 1978

Mrs. Tan Ik Goen	Interpreter I
Miss Dra. Djoa Sioe Lan	Interpreter II
Miss Dra. L. Murtianingsih	Secretary
Miss Sri Anon	Clerk/Typist
Mr. Suhandi	Messenger

Dates of arrival and departure of the Consultant's resident staff, TDY Staff, the ministry personnel and the direct hire administrative personnel are given in Annexures I, II and III, respectively.

SECTION III

MEETINGS CONFERENCES AND MAJOR EVENTS

<u>Date</u>	<u>Place</u>	<u>Event</u>	<u>Participation</u>	<u>Organization</u>
November 1, 1978	Jakarta	Discussion Contract Matters	Ir. Habibuddin Rana	PROSIDA ECI
November 8, 1978	Semarang	Presented and Explained Updated Report on Jragung Project	Ir. Martopo, Ir. Bambang, Mr. Takrim Rana	Jratunseluna ECI
November 10, 1978	Jakarta	Presented and Explained Updated Report on Jragung Project	Ir. Soewasono Rana	PROSIDA ECI
November 20-21, 1978	Bandung	Finalization Spillway Model Testing	Ir. Memed Drs. Erman Rana, Frey, McLaughlin Ir. Suharto	DPMA ECI Jratunseluna
November 23, 1978	Jakarta	Discussion Finalization of Dam Design	S.F. Hillis, Rana, Borinelli	ECI

In addition to the above mentioned events, regular field trips were made to the project area and the damsite by the Consultant's resident staff at Semarang.

SECTION IV

PROGRESS REPORT BY ACTIVITIES

A brief description of work being done in the major fields of activity on the Project was given in Section I. A detailed description of the work involved and the progress achieved during the period under report are given in the following.

A. Structural Design

The work of designing the appurtenant structures and the progress achieved is hereunder described according to each individual structure. The completion of the specification drawings for the two structures, i.e., the Tuntang Diversion Works and the Spillway, was accomplished on schedule. This was necessary in order to obtain the comments of the ECI Chief Engineer from Denver who will be working in Semarang office at the beginning of the next report period. This work was done with the combined efforts of ECI staff and the structural and hydraulic counterparts plus the additional counterparts assigned to this area.

Tuntang Diversion

The major portion of the work of turning the design sketches into specification document drawings for these structures was finished during the period under report, albeit there were fifteen drawings resulting instead of only ten as mentioned in the last report. The drawings now depict the following features of these works; a general layout, a geologic map and a cross section, excavation plans, the main spillway weir and right abutting wall, the headworks (including a side overflow intake structure, a sluiceway and by-pass structure, and a flow regulating structure), the cut and cover sections and tunnel portals, and the outlet structure. Minor checking and results of comments from the ECI Chief

Engineer comprise the work which remains to be done yet. During the next period, a design report will be written and work on the remaining construction drawings will begin.

Spillway

During the period under report, the major portion of the work of converting the design sketches into contract drawings for specifications was finished. These drawings will next be examined for errors and minor revisions and also be checked by the ECI Chief Engineer who will be in Semarang office at the start of the next period. These ten drawings now depict a general layout, a geologic map and cross section, the spillway weir and apron, the chute and its details, and the terminal structural configuration, which was finalized during this period also. The hydraulic model testing results indicated that the flip bucket type energy dissipation system, described in detail elsewhere in this report, be utilized as the spillway works outlet structure. The completion of this work also was achieved with the help of the regular and additional counterpart staff.

River Diversion

The work on this appurtenant structure including the preparation of construction drawings has been completed, however, a design report will be written next period.

Power and Irrigation

The drawings which needed revision in this structure have been completed during this period under report. The design report has also been prepared and is ready for typing. The construction drawing phase still remains.

B. Dam Design

During this month a considerable amount of work was carried out concerning the design of the main dam, dike and reservoir rim. Two slightly different alternative alignments and layouts were studied for the main dam under the advice of the Dam Design Advisor, Mr. S.F. Hillis. Subsequently, a third alignment and layout were selected and studied and were adopted as final design for the dam. The design as finalized presents, the most economical and the best technical solution. The main features of the dam design are the following:

- 1) The downstream part of the dam overflows most of the right ridge which resulted in reducing fill quantities.
- 2) A downstream berm was provided in most of the right ridge and on part of the left ridge to ensure the downstream stability of the ridge and/or downstream slope of the dam.
- 3) An upstream berm with the top at elevation 100.0 in the maximum section and with variable elevations towards both right and left ridges was provided to ensure foundation stability. A downstream berm with the top at elevation 85 was considered in the maximum section.
- 4) The dam is a zoned earth embankment in the main section connected to homogeneous weather gravel blankets along the ridges both on the left and the right sides. The upstream blanket has a minimum thickness of 10 meters.
- 5) Although the dam overflows the ridge, its axis has been located sufficiently upstream so that the back of the dam is not broken and a stable support for the core is maintained all along.
- 6) In the area where the dam overflows the ridge, a line projected from the downstream contact of the core with the dam crest, at an angle of 45 degrees to the normal, intercepts the upstream slope

of the ridge and contains a wedge of supporting material downstream of the core. In most of the sections a downstream berm was provided to ensure stability of the ridge and the downstream slope of the dam.

The design of the dike, which was completed, earlier was reviewed. The slope of dikes will be 1V to 3H upstream and 1V to 4H downstream. Berms have been provided both at the upstream and the downstream toes of the dikes.

Weathered gravel will be used for the upstream shell and Penawangan agglomerate will be used for the downstream shell of the embankments. A drainage gallery and drainage holes will be provided along the ridges under the embankment.

The reservoir rim was also completely checked using actual field topographic data. Only one low saddle located at the left of the Spillway, was detected where raising has to be done. A 70 meters long and 5 meters high dike will be built at that location. The loose and weathered surface under the embankment will be stripped. The stripped material will be used to backfill low areas in the upstream and the downstream.

Preparation of Appendix IV - "Geotechnical Data" for the Final Design Report is well underway. All the testing results are being plotted and drafted. Also, preparation of Chapter III "Design Description Dam and Dike" and Chapter II.2.2. "Materials" have been started.

C. Specification

During the month of November, specifications work concentrated on the preparation of contract document drawings for the various appurtenant structures related to the dam, namely the Spillway, Tuntan, Diversion Works, and Power and Irrigation facilities. Revision of the drawings was necessitated after design changes were made for the raising in the normal operating level of the reservoir and the dam crest elevation.

The set of contract document drawings for the power and irrigation facilities has been completed and submitted to the Jragung Proyek authorities for their review and comments. Work on the contract drawings for the spillway and Tuntang diversion works will continue through December.

In addition to the preparation of contract document drawings, work on the specifications for the Main Civil Works contract has been underway. Draft copies of the technical specification sections prepared in Denver by the Civil, mechanical and electrical departments have been forwarded to the Semarang office for review and compilation. All of the various sections for the technical specifications are on hand, except the "Excavation and Earthwork" and "Instrumentation" sections which are expected to be completed in January.

SECTION V
PREPARATION OF REPORTS

The schedule of submittals and the current status of all the reports required to be prepared by the Consultant is stated in the following:

<u>Name of Report</u>	<u>Date Due</u>	<u>Status</u>	<u>Date Submitted</u>
1. Inception Report (draft)	May 15, 1977	Completed	May 12, 1977
2. Final Design Report (draft)	November 15, 1978		
3. Final Completion and Engineering Report on Construction Contracts	March 15, 1979		
4. Monthly Progress Reports	10th Day of the following month	Schedule being met	
5. Quarterly Progress Reports	20th Day of the following month	Schedule being met	
6. General Design Criteria Civil Works			July 8, 1977
7. Appendix I to (6) Dam and Dikes Design Criteria			August 1, 1977
8. Advance Notice of Intent to Invite Bids and Pre-qualification Instructions		Draft	January 25, 1978
Submitted Revised Draft			March 15, 1978
Submitted 130 copies		Final	June 1, 1978
9. Contract Documents River Diversion Works		Draft	February 23, 1978
Revised Bill of Quantities and Drawings			June 8, 1978
Revised Contract Documents as per PROSIDA-Advance Draft Copy			September 22, 1978

<u>Name of Report</u>	<u>Date Due</u>	<u>Status</u>	<u>Date Submitted</u>
Revised Contract Documents as per PROSIDA		Draft	October 19, 1978
Revised Drawings		Draft	October 3, 1978
10. Technical Specifications and Drawings Access Roads and Bridge		Draft	March 13, 1978
11. Drawings Irrigation and Power Tunnel and Powerhouse			June 14, 1978
12. Electrical Design Criteria and Specifications of Electrical Equipment		Draft	July 10, 1978
Technical Specifications and Drawings for Power Plant Electrical Equipment and Switchyard and 20 KV Transmission Line Contracts		Draft	October 13, 1978
13. Jragung Dam Project - Design Status Report			August 9, 1978
14. Jragung Dam Project - Upper Watershed Management Report		Draft	August 7, 1978
15. Jragung Dam Project - Reservoir Operation Studies and Project Economic Analysis.		Final	November 6, 1978

SECTION VI
PROBLEM AREAS

None.

SECTION VII

FINANCIAL

Dollar Accounts

Due to the reasons explained in monthly progress report No. 2, the Dollar accounts are being reported for the period up to the end of the month of October 1978. The expenditure to that date as well as the budget amounts are shown in Annexure IV. The percentage expenditure of the budget is 87.93.

Rupiah Accounts

Up to the end of the month under report, a total amount of Rp. 34,348,484.- was expended. This represents 48.53 percent of the total Rupiah reimbursable costs provided in the Contract. The corresponding percentage of the contract period elapsed is 85.42.

The summary of the Rupiah budget and costs is given in Annexure V.

Engineering Consultants, Inc.

JRAGUNG DAM PROJECT

Monthly Progress Report No. 21
 Period: Ending November 1978

Assignment of Resident and TDY Staff

<u>NAME</u>	<u>NATIONALITY</u>	<u>JOB TITLE</u>	<u>PROJECT ASSIGNMENT</u>		<u>MANMONTHS IN INDONESIA</u>	
			<u>ARRIVAL</u>	<u>DEPARTURE</u>	<u>SCHEDULED</u>	<u>ACTUAL</u>
1. Saeed A. Rana	Permanent Resident U.S.A.	Resident Manager	March 16, 1977		24	20.5
2. James E. Rollins	U.S.A.	Geologist	March 16, 1977	June 30, 1977	3.5	3.5
3. Robert McLaughlin	U.S.A.	Structural Design	April 5, 1977		23	19.9
4. Carlos Borinelli	Permanent Resident U.S.A.	Materials and Dam Design Engineer	June 4, 1977		18	17.9
5. James E. Pyne	U.S.A.	Resident Geologist	September 1, 1977	May 1, 1978	8.5	
			May 21, 1978	June 4, 1978		8.5
6. Jeffery P. Frey	U.S.A.	Specifications Engineer	December 18, 1978		12	11.45
7. Glen Trowbridge	U.S.A.	Design Engineer	February 7, 1978	July 20, 1978	18	5.40
8. James Hoge	U.S.A.	Design Engineer	March 23, 1978	June 20, 1978		3.00

Engineering Consultants, Inc.

JRAGUNG DAM PROJECT

Monthly Progress Report No. 21
Period: Ending November 1978

Assignment of Resident and TDY Staff

<u>NAME</u>	<u>NATIONALITY</u>	<u>JOB TITLE</u>	<u>PROJECT ASSIGNMENT</u>		<u>MANMONTHS IN INDONESIA</u>	
			<u>ARRIVAL</u>	<u>DEPARTURE</u>	<u>SCHEDULED</u>	<u>ACTUAL</u>
9. E.B. Bartel	U.S.A.	Design Engineer	November 12, 1977	December 20, 1977		
			May 4, 1978	May 13, 1978		
			July 8, 1978	July 14, 1978		1.83
10. Cecil M. Langford	U.S.A.	Project Sponsor	August 6, 1977	August 12, 1977	1.5	
			January 23, 1978	January 31, 1978		0.52
11. M.K. Kuehl	U.S.A.	Chief Engineer	June 27, 1977	July 2, 1977	1.5	
			February 4, 1978	February 12, 1978		
			July 25, 1978	August 16, 1978		1.25
12. Paul Otter	U.S.A.	Project Engineer	March 16, 1977	March 18, 1977	1.5	
			March 1, 1978	March 4, 1978		0.23

Engineering Consultants, Inc.

JRAGUNG DAM PROJECT

Monthly Progress Report No. 21
Period: Ending November 1978

Assignment of Resident and TDY Staff

20

<u>NAME</u>	<u>NATIONALITY</u>	<u>JOB TITLE</u>	<u>PROJECT ASSIGNMENT</u>		<u>MANMONTHS IN INDONESIA</u>	
			<u>ARRIVAL</u>	<u>DEPARTURE</u>	<u>SCHEDULED</u>	<u>ACTUAL</u>
13. Peter Strauss	U.S.A.	Chief Geologist	March 16, 1977	March 18, 1977	4	1.63
			June 13, 1977	July 1, 1977		
			February 4, 1978	February 7, 1978		
			May 21, 1978	June 4, 1978		
			September 25, 1978	September 28, 1978		
14. William Wenger	U.S.A.	Electrical Engineer	March 16, 1977	March 21, 1977	4	0.50
15. Ralph Goodrich	U.S.A.	Electrical Engineer	January 20, 1978	February 15, 1978		0.90
16. Lawrence Boval	U.S.A.	Electrical Engineer	June 15, 1978	June 25, 1978		0.37
17. M.A. Stevens	Canada	River Regime Sedi- ment Specialist	March 20, 1977	March 23, 1977	3	3.30
			October 21, 1977	December 15, 1977		
			March 20, 1978	May 20, 1978		

Annexure I
(Continued)

Engineering Consultants, Inc.

JRAGUNG DAM PROJECT

Monthly Progress Report No. 21
Period: Ending November 1978

Assignment of Resident and TDY Staff

<u>NAME</u>	<u>NATIONALITY</u>	<u>JOB TITLE</u>	<u>PROJECT ASSIGNMENT</u>		<u>MANMONTHS IN INDONESIA</u>	
			<u>ARRIVAL</u>	<u>DEPARTURE</u>	<u>SCHEDULED</u>	<u>ACTUAL</u>
18. W. Stevens	U.S.A.	Surveyor	April 4, 1977	May 31, 1977	7.5	
			August 1, 1977	January 15, 1978		7.25
19. S.F. Hillis	Canada	Chief Materials	June 26, 1977	July 18, 1977	3	
			February 2, 1978	February 12, 1978		
			July 23, 1978 November 20, 1978	August 3, 1978		1.88
20. Robert Campbell	U.S.A.	Assistant Chief Engineer	November 7, 1977	November 10, 1977	0.63	
			November 28, 1977	December 12, 1977		
21. John Ismert	U.S.A.	Chief Mechanical	January 27, 1978	February 12, 1978	4	0.77
22. Dr. H.W. Burke	U.S.A.	Geologist Consultant	February 4, 1978	February 12, 1978	0.43	
			September 25, 1978	September 28, 1978		
23. Mr. H.C. Fletcher	U.S.A.	Watershed Manage- ment	March 31, 1978	June 1, 1978	3	2.1

Annexure I
(Continued)

Engineering Consultants, Inc.

JRAGUNG DAM PROJECT

Monthly Progress Report No. 21
Period: Ending November 1978

Assignment of Resident and TDY Staff

NAME	NATIONALITY	JOB TITLE	PROJECT ASSIGNMENT		MANMONTHS IN INDONESIA	
			ARRIVAL	DEPARTURE	SCHEDULED	ACTUAL
24. Mr. R.L. Berger	U.S.A.	Economist	October 18, 1978	October 23, 1978		0.4
			November 13, 1978	November 19, 1978		

JRAGUNG DAM PROJECT

Engineering Consultants, Inc.

Monthly Progress Report No. 21
Period: Ending November 1978Assignment of Counterparts and Technical Personnel

<u>NAME</u>	<u>EXPERTISE</u>	<u>WORK ASSIGNMENT</u>	<u>PROJECT ASSIGNMENT DATES</u>		<u>MAN MONTHS WORKED</u>
			<u>STARTING</u>	<u>ENDING</u>	
<u>Counterparts</u>					
1. Ir. Martopo	1. Project Management 2. Project Planning	November 1, 1975	March 16, 1977		20.5
2. Ir. Bambang Soedjono	1. Project Management 2. Project Planning	November 1, 1975	March 16, 1977		20.5
3. Maryon Bony M.L.	1. Project Planning 2. Dam Design Engineer	November 1, 1975	March 16, 1977		20.5
4. Ir. Wisnu Suharto	Hydraulic Structures	November 1, 1975	March 16, 1977		20.5
5. Ir. Soedaryanto Ms.	Geologist	January 1, 1977	March 16, 1977		20.5
6. Drs. Redjiono	Hydrologist	January 1, 1977	March 16, 1977		20.5
7. Susanto B.Sc	Geologist	November 1, 1975	March 16, 1977	March 31, 1977	0.5
8. Ir. Sudarno	Civil Structures Engineer	March 16, 1977	March 16, 1977		20.5
9. Ir. Muhammed Ali	1. Dam Design Engineer 2. Soil Mechanics/Material	January 1, 1978	March 16, 1977		20.5

Engineering Consultants, Inc.

JRAGUNG DAM PROJECT

Monthly Progress Report No. 21
Period: Ending November 1978

Assignment of Counterparts and Technical Personnel

<u>NAME</u>	<u>EXPERTISE</u>	<u>WORK ASSIGNMENT</u>	<u>PROJECT ASSIGNMENT DATES</u>		<u>MAN MONTHS WORKED</u>
			<u>STARTING</u>	<u>ENDING</u>	
10. Djasriansyah Aht	Electrical Engineer	March 16, 1977	March 16, 1977		20.5 (Part Time)
11. Ir. Hartopo	Hydro Power Engineer	March 16, 1977	March 16, 1977		20.5 (Part Time)
12. Harris BME	Mechanical Engineer	March 16, 1977	March 16, 1977		20.5 (Part Time)
13. Ir. Supriyo	Specification Engineer	September 16, 1977	September 16, 1977	October 18, 1978	13.0
<u>Assistant Counterpart</u>					
1. Triyono BE	Geologist	June 1, 1976	March 16, 1977		20.5
2. Sutardjo BE	Geologist	December 1, 1976	March 16, 1977		20.5
3. Bambang Gunadi B.Sc	Hydrologist	January 1, 1976	March 16, 1977	November 1, 1977	7.5

Engineering Consultants, Inc.

JRAGUNG DAM PROJECT
Monthly Progress Report No. 21
Period: Ending November 1978

Assignment of Counterparts and Technical Personnel

<u>NAME</u>	<u>EXPERTISE</u>	<u>WORK ASSIGNMENT</u>	<u>PROJECT ASSIGNMENT DATES</u>		<u>MAN MONTHS WORKED</u>
			<u>STARTING</u>	<u>ENDING</u>	
4. Ir. Tri Hardono	Dam Design Engineer	March 16, 1977	March 16, 1977		20.5
5. Ir. Rustiyanti	Hydraulics Structures	March 16, 1977	March 16, 1977		20.5
6. Buang Sukardjono	Hydrologist	January 1, 1977	March 16, 1977		20.5
7. Edy Arifin Aht	Civil Structures	April 1, 1976	March 16, 1977		20.5
8. Ir. Diah Kusumawati	Hydro Power Engineer	December 1, 1976	June 30, 1978	September 30, 1978	3.0
<u>Draftsmen</u>					
1. Mukiyat	Draftsman	March 1, 1976	March 16, 1977		20.5
2. S.V. Barleyanto	Draftsman	November 1, 1975	March 16, 1977		20.5
3. Bambang Prayitno	Draftsman	February 1, 1976	March 16, 1977		20.5
4. Aris Mudjiyanto	Draftsman	December 16, 1977	December 16, 1977		11.5

JRAGUNG DAM PROJECT

Engineering Consultants, Inc.

Monthly Progress Report No. 21
Period: Ending November 1978Direct-hire Indonesian Personnel

<u>NAME</u>	<u>POSITION</u>	<u>PERIOD OF SERVICE</u>		<u>MAN/WOMAN MONTHS</u>	
		<u>DATE STARTED</u>	<u>DATE ENDED</u>	<u>PROVIDED</u>	<u>SPENT</u>
1. Mrs. Tan Ik Goen	Interpreter/Translator I	March 16, 1977		24	20.5
2. Miss Dra. Djoa Sioe Lan	Interpreter/Translator II	May 16, 1977		24	18.5
3. Mrs. Ariati Haryono	Secretary I	March 16, 1977	July 31, 1977	24	4.5
4. Miss Dra. L. Murtianingsih	Clerk/Typist	March 16, 1977	April 30, 1977	24	1.5
	Secretary	May 1, 1977			19.0
5. Mrs. Sri Moenasih Soetikno	Clerk/Typist	March 16, 1977	July 31, 1977	24	4.5
	Secretary	August 1, 1977	September 20, 1978	19.5	14.0
6. Miss Sri Anon	Clerk/Typist	March 16, 1977		24	20.5
7. Mr. Suhandi	Messenger	March 16, 1977		24	20.5

JRAGUNG DAM PROJECT

Monthly Progress Report No. 21

Period: Ending November 1978

Summary of U.S. Dollar Expenditures

<u>COST ITEMS</u>	<u>AMOUNT AVAILABLE</u> US \$	<u>EXPENDITURE</u>			<u>PERCENTAGE</u>	
		<u>PRIOR</u>	<u>DURING PERIOD</u>	<u>UP TO DATE</u>	<u>EXPENDITURE</u>	<u>TIME ELAPSED</u>
1. Resident Staff Base Salaries	181,360.00	135,244.98	7,473.28	142,718.26	78.69	81.25
2. Overseas Differential	45,340.00	36,759.80	1,868.32	38,628.12	71.68	
27 3. Overhead Resident Staff (75% base salaries)	136,020.00	101,542.13	5,604.96	107,147.09	78.77	
4. TDY & Denver Staff Salaries Including Overseas Differential	215,250.00	228,199.25	6,676.14	234,875.39	113.63	
5. Overhead TDY & Denver (95% base salaries)	196,365.00	216,789.25	6,342.33	223,131.58	113.63	
6. Fixed Fee	138,000.00	101,200.-	5,175.-	106,375.-	77.08	
7. Travel and Per Diem	73,120.00	43,919.20	4,579.10	48,498.30	66.33	
8. Transportation (Relocation)	12,000.00	11,150.-	-	11,150.-	92.92	
9. Other Direct Costs & Miscellaneous Expenses	53,800.00	63,173.50	4,872.22	68,045.72	126.48	

Annexure IV
Continued

JRAGUNG DAM PROJECT

Monthly Progress Report No. 21

Period: Ending November 1978

<u>COST ITEMS</u>	<u>AMOUNT AVAILABLE</u> US \$	<u>EXPENDITURE</u>		<u>UP TO DATE</u>	<u>PERCENTAGE</u>	
		<u>PRIOR</u>	<u>DURING PERIOD</u> <u>REPORTED</u>		<u>EXPENDITURE</u>	<u>TIME</u> <u>ELAPSED</u>
10. Ministry Personnel	60,000.00	53,855.51	-	53,855.51	89.76	
11. Special Purchases	190,000.00	143,314.49	-	143,314.49	75.43	
12. Contingencies	70,000.00	26,142.77	1,885.76	28,028.53	40.04	
Total Dollar Costs	1,371,255.00	1,161,290.88	44,477.11	1,205,767.99	87.93	81.25

JRAGUNG DAM PROJECT

Monthly Progress Report No. 21
 Period: Ending November 1978

Summary of Rupiah Expenses

<u>COST ITEMS</u>	<u>BUDGET ALLOCATION</u> (Rp.)	<u>EXPENDITURE</u>			<u>PERCENTAGE</u>	
		<u>PRIOR</u>	<u>PERIOD REPORTED</u>	<u>TO DATE</u>	<u>EXPENDITURE</u>	<u>TIME ELAPSED</u>
<u>I. PER DIEM</u>						
Jakarta	3,300,000.-	2,137,000	107,250	2,244,250	68.01	85.42
Bandung & Semarang	18,000,000.-	5,755,000	200,000	5,955,000	33.08	
Other	1,800,000.-	633,650	-	633,650	35.20	
Family	230,000.-	80,000	-	80,000	34.78	
Sub Total	23,330,000.-	8,605,650	307,250	8,912,900	38.20	
<u>II. OTHER DIRECT COSTS</u>						
Cable & Telephone	2,000,000.-	1,250,613	86,025	1,336,638	66.83	
Postage	1,500,000.-	515,530	40,250	555,780	37.05	
Reproduction & Printing	15,000,000.-	5,489,694	298,704	5,788,398	38.59	
In Country Transportation	2,700,000.-	2,133,351	193,425	2,326,776	86.18	
Supplies & Materials	6,000,000.-	1,651,115	44,545	1,695,660	28.26	
Miscellaneous	6,800,000.-	5,308,938	48,788	5,357,726	78.79	
Sub Total	34,000,000.-	16,349,241	711,737	17,060,978	50.18	85.42

JRAGUNG DAM PROJECT

Monthly Progress Report No. 20

Period: Ending October 1978

Summary of Rupiah Expenses

<u>COST ITEMS</u>	<u>BUDGET ALLOCATION</u> (Rp.)	<u>EXPENDITURE</u>			<u>PERCENTAGE</u>	
		<u>PRIOR</u>	<u>PERIOD REPORTED</u>	<u>TO DATE</u>	<u>EXPENDITURE</u>	<u>TIME ELAPSED</u>
<u>III. ADMINISTRATIVE PERSONNEL</u>						
Secretaries	3,610,500.-	2,587,051	94,379	2,681,430	74.27	85.42
Interpreters	6,017,500.-	3,480,840	209,000	3,689,840	61.32	
Clerks/Typists	2,402,000.-	1,633,579	75,480	1,709,059	71.15	
Messenger	373,500.-	230,805	13,472	244,277	65.40	
Severance Pay	1,037,500.-	50,000	-	50,000	4.82	
Sub Total	13,446,000.-	7,982,275	392,331	8,374,606	62.28	
Grand Total	70,776,000.-	32,937,166	1,411,318	34,348,484	48.53	85.42

SUMMARY OF REIMBURSEMENTRupiah Payments Received by Consultant from
Ministry up to the end of Report Period

= 43,695,381

Rupiah Expenditure by Consultant Approved
for Reimbursement

= 34,348,484

Balance

= 9,336,897

