

PERUSAHAAN UMUM LISTRIK NEGARA  
JAKARTA , INDONESIA

WEST JAVA  
ELECTRIC TRANSMISSION PROJECTS

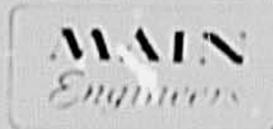
QUARTERLY REPORT

JANUARY - MARCH 1982

WEST JAVA I AND II PROJECTS  
CONTRACTS

Pj. 013/PST/74 and Pj. 023/PST/75

AID LOANS 497-H-028 & 497-W-032



CHAS. T. MAIN INTERNATIONAL, INC.

BOSTON MASSACHUSETTS U S A

BANDUNG , INDONESIA

**MAIN**

**PERUSAHAAN UMUM LISTRIK NEGARA CONSULTANTS**  
**CHAS. T. MAIN INTERNATIONAL, INC.**  
BANDUNG - T R O M O L P O S 6 9, T E L. 5 6 8 6 9, J L. P R O G O 32  
JAKARTA - P.O. BOX 100, KBYT, KEBAYORAN TIMUR, TEL. 774041-2 EXT. 17, 776025 J.L. WIJAYA 1/64  
SEMARANG - P.O. BOX 26, TEL. 312701-311702 J.L. SLAMEY 5

27 April 1982  
Letter No. J - 5119

Ir. R. Semiawan  
Perusahaan Umum Listrik Negara  
Proyek Induk Jaringan Jawa Barat & Jakarta Raya  
Jl. Ciliilitan Besar No. 1  
Jakarta.

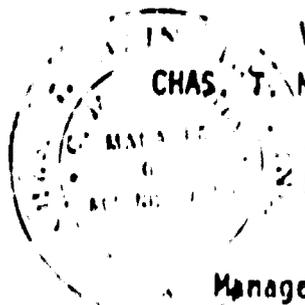
**Subject: West Java I and II Projects  
Quarterly Report**

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Dear Ir. Semiawan:

In accordance with Article 7.1 of the West Java I Contract No. Pj. 013/PST/74 and Appendix V of the West Java II Contract No. Pj. 023/PST/75, enclosed are three (3) copies of Engineer's Quarterly Report for the period 1 January 1982 through 31 March 1982.

Very truly yours,  
CHAS. T. MAIN INTERNATIONAL, INC.



*J. Whitby*  
J. Whitby

Manager of Administration

: DIRBANG - PLN Pusat (1)  
USAID - JKT (4)  
MAIN - BSN (1)

WEST JAVA ELECTRIC TRANSMISSION PROJECTS  
QUARTERLY PROGRESS REPORT  
FOR THE QUARTER 1 JANUARY 1982 - 31 MARCH 1982

SECTION 1  
PROJECT INFORMATION

**A. Objectives of the Projects**

The West Java Electric Transmission Projects were established to provide a reliable and economical electric power system from Tegal to Bandung (West Java I Project) and from Bandung to Jakarta (West Java II Project). The objectives of the Projects include establishing the basic engineering criteria, standards and specifications by which future extensions of the system can be readily coordinated with the newly constructed system. Also included is the training of Perusahaan Umum Listrik Negara (PLN) personnel so that they may continue performance in engineering design and construction management for future extensions of the system. The Projects are closely associated with other electric power projects currently being implemented in West Java.

**B. Description of the Projects**

The Projects cover the engineering design, material and equipment procurement, construction and construction supervision, technical and managerial assistance and training required in connection with :

1. New 150 KV double circuit transmission lines.

- a. West Java I Project - 187 Km connecting Tegal, Cirebon and Bandung.
- b. West Java II Project - 170 Km connecting Bandung, Bogor and Jakarta.

**2. New 150/70/20 KV Substations.**

a. West Java I Project - Unjungberung (Bandung) and switching facilities at Tegal.

b. West Java II Project - Bandung North (Bandung) and Bogor.

**3. Installation of adequate system protection for all transmission lines and substations.**

**4. Provisions of vehicles, tools and service equipment for system operation and maintenance.**

**5. Furnish PLN with a library of technical books and periodicals related to the electric power industry.**

**C. Funding of the Projects**

To finance the reasonable foreign exchange cost of imported capital equipment, related engineering, construction and training services, the United States Agency for International Development (USAID) entered into the following Loan Agreements with the Government of Indonesia for relending to PLN.

1. West Java I Project - USAID loan No. 497-H-028 US \$ 17,200,000.

2. West Java II Project - USAID Loan No. 497-W-032 US \$ 19,700,000.

To meet local currency expenditures, the Government of Indonesia agreed to provide Rupiah in the estimated equivalent of US \$ 5,800,000 for the West Java I Project and US \$ 3,900,000 for the West Java II Project. This total of US \$ 9,700,000 has since been increased to some US \$ 22,700,000 equivalent.

#### D. Consulting Services

In accordance with the above Loan Agreements and with USAID concurrence, PLN and Chas. T. Main International, Inc. (MAIN), Boston, Massachusetts, USA, entered into the following Contracts :

1. West Java I Project - Contract No. Pj. 013/PST/74, dated 16 February 1974. Duration of Contract, as amended, 19 June 1974 to 30 June 1982.
2. West Java II Project - Contract No. Pj. 023/PST/75, dated 27 January 1975. Duration of Contract, as amended, 29 August 1975 to 30 June 1982.

#### E. Scope of Services

The Scope of Services to be provided by MAIN under the Contracts include but are not limited to the following items :

1. General Services
2. Engineering and Design Services
3. Procurement Services
4. Construction Planning and Pre-contracting Services
5. Engineering Supervision and Inspection Services
6. Construction Project Management and Supervision Services
7. Initial Operation and Testing
8. Training

#### F. Project Block Diagram

The following page is the Block Diagram for the West Java I and II Projects. The Diagram shows the major parts of the system being installed and the pertinent parameters. Also included are the Supply and Construction contractors.



SECTION II  
FINANCE AND ADMINISTRATION

**A. FINANCE INFORMATION**

**1. US Dollar Costs**

Invoices in the amount of US \$ 3,821,162.19 (WJ I) and US \$ 2,509,792.89 (WJ II) have been submitted to PLN Pusat. Appended as Exhibits IA and IIA are Financial Plans and Cash Flow by Project Quarters. Categories by Work Item and Cash Flow by Project Quarters are based on the revised Scope of Work embodied in the latest Amendments to the Contracts. These data will be updated as necessary. Statistical data in chart form for the Progress Schedules are appended as Exhibits IB and IIB.

**2. Indonesian Rupiah Costs**

Invoices in the amount of Rp. 332.244.744,40 (WJ I) and Rp. 352.178.289,- (WJ II) for local costs incurred have been submitted to PLN. Exhibits IC and IIC, Financial Plans and Cash Flow, and Exhibits ID and IID, Progress Schedules, are appended. These data are also based on the latest Amendments to the Contracts and will be updated as necessary.

**3. US Dollar Costs to be paid in Rupiah**

Additional invoices in the amount of US \$ 264,522.97 (WJ I) and US \$ 445,927.80 (WJ II) have also been submitted. As authorized in Amendments Number 4 to the PLN/MAIN Engineering Services Contracts, these are costs incurred in US Dollars but payable by PLN in Indonesian Rupiah.

#### 4. Invoices Submitted and Payments Received

These data are appended as Exhibit G.

#### B. ADMINISTRATIVE INFORMATION

1. Extension of the Terminal Disbursement Date - (Last day that payments can be made from USAID Loan Funds) - and for two (2) Letters of Commitment was requested. Because of a relatively recent Contract Amendment and unavoidable delay in supplying and shipping, the PLN/Irby Substation Contract cannot be completed by the existing expiration date of 31 March 1982. We are hopeful that the extensions will be granted.

#### C. TERMINAL DATES

1. TDDA - Terminal Date Disbursement Authorization - (Last day that USAID Loan Funds can be committed) - 30 June 1981.

Final Commitment of USAID Loan Funds :

	<u>West Java I</u>	<u>West Java II</u>
USAID Loan	\$ 17,200,000.00	\$ 19,700,000.00
Commitment	\$ 17,197,632.86	\$ 19,699,990.40

2. TDD - Terminal Disbursement Date - (Last day that payments can be made from USAID Loan Funds) - 31 March 1982. See B.1. above.
3. Scheduled Final Substation Energization - 31 December 1981.
4. Scheduled Completion of Engineering Services - 30 June 1982.

**D. WEST JAVA I CONTRACT DATA**

1.	No. Pj. 013/PST/74 Chas. T. Main International, Inc. Engineering Services	16 Feb. '74	US \$ Rp.	3,824,009.00 555.096.119,-
2.	No. Pj. 153/PST/77 Irby Construction Company Tower Steel, Insulators and Accessories	5 Sep. '77	US \$	2,902,946.03
3.	No. Pj. 202/PST/77 Copperweld Industries Shieldwire	28 Nov. '77	US \$	294,739.06
4.	No. Pj. 203/PST/77 Southwire Company Conductor	28 Nov. '77	US \$	1,991,843.83
5.	No. Pj. 050/PST/78 Tension Stringing Equipment Co. Wire Stringing Equipment	10 Mar. '78	US \$	400,636.37
6.	No. Pj. 051/PST/78 Ohio Brass Company Lightning Arresters	10 Mar. '78	US \$	87,852.00
7.	No. Pj. 052/PST/78 Irby Construction Company Substation Equipment Tools and Equipment	11 Mar. '78	US \$	4,547,414.46
8.	No. Pj. 053/PST/78 General Electric Company Substation Equipment	11 Mar. '78	US \$	2,532,800.59

9.	No. Pj. 087/PST/78 Motorola, Inc. Radio Equipment	11 May '78	US \$	395,819.20
10.	No. Spj. 022/PLN/PI RING/77 P.T. Tikon Abadi Foundations - Section I	22 Oct. '77	Rp.	199.278.000,-
11.	No. Spj. 023/PLN/PI RING/77 P.T. Gunung Kencana Foundations - Section IIA	27 Oct. '77	Rp.	153.445.000,-
12.	No. Spj. 024/PLN/PI RING/77 P.T. Dharma Niaga Foundations - Section IIB	27 Oct. '77	Rp.	164.789.000,-
13.	No. Spj. 010/PLN/PI RING/78-79 P.T. Perfect Circle Tower Erection	8 Dec. '78	Rp.	132.894.300,-
14.	No. Spj. 065A/SPP/PI RING JATENG/78-79 P.T. Santraco Raya Tegal Substation Civil Work	21 Apr. '79	Rp.	50.278.000,-
15.	No. Spj. 072/SPP/PI RING JATENG/78-79 P.T. Sigma Tirta Tegal Substation Structure Erection	17 Oct. '79	Rp.	25.966.000,-
16.	No. Spj. 017/PLN/PI RING/79-80 P.T. Silkar National Conductor Stringing - Section I	22 Jan. '80	Rp.	127.790.850,-
17.	No. Spj. 019/PLN/PI RING/79-80 P.T. Citac Ltd. Conductor Stringing - Section III	2 Feb. '80	Rp.	164.364.000,-

- |     |   |             |                   |
|-----|---|-------------|-------------------|
| 18. | No. Spj. 001/PLN/PI RING/80-81<br>P.T. Erses<br>Ujungberung Substation Civil Work   | 3 Apr. '80  | Rp. 464.500.000,- |
| 19. | No. Spj. 002/PLN/PI RING/80-81<br>P.T. Erses<br>Ujungberung Substation Control House  | 3 Apr. '80  | Rp. 199.989.000,- |
| 20. | No. Spj. 013/PLN/PI RING/80-81<br>P.T. Dharma Niaga<br>Ujungberung Substation Temporary 150 KV<br>Transmission Line By-Pass | 6 Jul. '80  | Rp. 18.860.000,-  |
| 21. | No. Spj. 007/PLN/PI RING/80-81<br>P.T. Citacontrac<br>Caisson for Tower No. 278   | 3 Jun. '80  | Rp. 33.234.000,-  |
| 22. | No. Spk. 003/PLN/PI RING/81<br>P.T. Citacontrac<br>Relocate Towers 317 and 319  | 26 Mar. '81 | Rp. 19.823.000,-  |

**E. WEST JAVA II CONTRACT DATA**

- |    |  |             |   |
|----|--|-------------|---|
| 1. | No. Pj. 023/PST/75<br>Chas. T. Main International, Inc.<br>Engineering Services              | 25 Jan. '75 | US \$ 2,509,793.00<br>Rp. 718.743.035,- |
| 2. | No. Pj. 152/PST/77<br>Irby Construction Company<br>Transmission Line Supply and Construction | 5 Sep. '77  | US \$ 8,199,107.37<br>Rp. 774.481.343,- |

3.	No. Pj. 051/PST/78 Ohio Brass Company Lightning Arresters	10 Mar. '78	US \$	87,852.00
4.	No. Pj. 052/PST/78 Irby Construction Company Substation Equipment	11 Mar. '78	US \$ Rp.	4,981,321.52 135.227.727,-
5.	No. Pj. 053/PST/78 General Electric Company Substation Equipment	11 Mar. '78	US \$	3,974,100.16
6.	No. Spj. 001/PLN/PI RING/77-78 P.T. Citac Ltd. Foundations - Sections II and III	5 Jun. '78	Rp.	329.553.000,-
7.	No. Spj. 002/PLN/PI RING/78-79 P.T. Citac Ltd. Foundations - Ujungberung - Cigereleung	9 Aug. '79	Rp.	175.128.000,-
8.	No. Spj. 022/PLN/PI RING/79-80 P.T. Sahabat Agung Cibinong - Gandul Stub Angles	4 Dec. '79	Rp.	10.618.000,-
9.	No. Spj. 009/PLN/PI RING/79-80 P.T. Citac Ltd. Foundations - Section IV A	30 Nov. '79	Rp.	62.441.000,-
10.	No. Spj. 010/PLN/PI RING/79-80 P.T. Citac Ltd. Foundations - Section IV C	30 Nov. '79	Rp.	36.029.000,-
11.	No. Spj. 018/PLN/PI RING/79-80 P.T. Amarta Karya Foundations - Section IV B	24 Jan. '80	Rp.	64.630.000,-

- |     |  |             |                   |
|-----|--|-------------|-------------------|
| 12. | No. Spj. 008/PLN/PI RING/80-81<br>P.T. Pembangunan Perumahan<br>Bandung Utara Substation Civil Work                    | 5 Jul. '80  | Rp. 334.619.000,- |
| 13. | No. Spj. 006/PLN/PI RING/80-81<br>P.T. Perfect Circle<br>Bandung Utara Substation Control House                        | 31 May '80  | Rp. 230.501.000,- |
| 14. | No. Spj. 009/PLN/PI RING/80-81<br>P.T. Perfect Circle<br>Bogor Substation Civil Work                                   | 31 May '80  | Rp. 475.428.000,- |
| 15. | No. Spj. 007/PLN/PI RING/80-81<br>P.T. Perfect Circle<br>Bogor Substation Control House                                | 31 May '80  | Rp. 212.915.000,- |
| 16. | No. Spj. 020/PLN/PI RING/79-80<br>P.T. Hutama Karya<br>Bandung Utara Substation Access Raod                            | 16 Feb. '80 | Rp. 31.967.000,-  |
| 17. | No. Spj. 009B/PLN/PI RING/81-82<br>P.T. Buana Power<br>Bogor Substation Access Road                                    | 29 May '81  | Rp. 64.700.000,-  |
| 18. | No. Spj. 013/PLN/PI RING/80-81<br>P.T. Dharma Niaga<br>Bogor Substation Temporary 150 KV<br>Transmission Line By-Pass. | 6 Jul. '80  | Rp. 10.608.000,-  |
| 19. | No. Spj. 001J/PLN/PI RING/80-81<br>P.T. Samapta Nusantara<br>Transportation of Power Transformer to Bogor              | 6 May '81   | Rp. 89.843.000,-  |

**F. WEST JAVA I AND II CONTRACT DATA**

- |    |  |             |                   |
|----|--|-------------|-------------------|
| 1. | No. Spj. 016/PLN/PI RING/77<br>P.T. Sumber Jaya<br>Grounding Material                                    | 4 Jul. '77  | Rp. 54.245.000,-  |
| 2. | No. Spj. 017/PLN/PI RING/77<br>P.T. Arcon<br>Stub Angles   | 13 Aug. '77 | Rp. 40.100.000,-  |
| 3. | No. Spj. 001j/OP LOG/79<br>P.T. Keluarga Pradani Veem<br>Transportation of Power Transformers to Bandung | 7 Feb. '79  | Rp. 128.999.492,- |

SECTION III  
GENERAL INFORMATION

**A. CONFERENCES AND EVENTS**

1. On 7 January, Administrative and Clerical personnel from PLN Projects, Cawang, toured the Bogor Substation.
2. Energization of equipment
  - a. Ujungberung Substation 60 MVA, 150/70 KV transformer Energized 24 January 1982.
  - b. Ujungberung Substation 20 KV Bus No. 2 and 2A Energized 5 January 1982.

**B. PROBLEM AREAS AND TENTATIVE SOLUTIONS**

1. The Bandung Utara Switchyard Contractor is several months behind schedule. However, the energization of the Substation was not affected.
2. Failure of the LTC for the 60 MVA, 150/70 KV transformer at Ujungberung will cause delay in final acceptance of the Substation. Replacement parts are on order and it is hoped that the transformer will be energized again in April.
3. During erection of the electrical equipment, material shortages were discovered. Immediately upon discovery, replacement parts were ordered for air shipment. However, all missing parts have not arrived but it is hoped that delivery will be completed in April. The Bandung Utara Substation is the only one affected.

## SECTION IV

### PERSONNEL

#### A. ENGINEER

1. Mr. T.L. Jones, Substation Engineer, completed his work with the Project on 28 January.
2. Mr. N. Hansen, Irby Construction Company (RTE/ASEA) Field Engineer, returned to Indonesia on 17 January to test the 150/70 KV, 60 MVA transformer at Ujungberung Substation and to make repairs as needed on transformers already energized. This work was completed on 21 February. Mr. Hansen will return when replacement parts for the 60 MVA, 150/70 KV transformer LTC at Ujungberung Substation are available.
3. Mr. Andrew Tan, General Electric Field Engineer, returned to Indonesia on 17 February and completed his work on the 150 KV OCB's on 27 February.
4. Mr. R.W. Malchow, Project Manager, and Mr. H. Gunawan, Administrative Assistant, completed their Project assignments on 27 February.
5. Mr. C.J. Whitby, Manager of Administration for the West Java Projects, officially completed his assignment on 31 March and was transferred to another Project in Indonesia. He will, however, continue to work as required on West Java financial and administrative matters until the Projects are formally completed and turned over to PLN.

6. End of the period strength was as follows :

<u>NAME</u>	<u>TITLE</u>	<u>ARRIVAL DATE</u>
J.C. Harkey	Substation Eng. / Constr. Mgr.	15 Oct. 1977

B. PLN

1. As the Projects are nearing completion, a number of the local Staff have been re-assigned to PLN.

Remaining Staff is as follows :

<u>JOB TITLE</u>	<u>NUMBER</u>
Secretaries	2
Draftsmen	4
Reproduction Personnel	2
Drivers	2

2. In addition to the above Staff, approximately 25 PLN Counterpart and field personnel were assigned to the Projects throughout the period.

C. PERSONNEL MANMONTHS

1. MAIN and PLN Personnel Manmonths expended on the Projects to date are shown on the appended Exhibit H.

D. BUDGET

1. Comparison of Budget vs. Actual Manmonths and Salaries expended on the Projects to date are appended as Exhibits IE, IF, IIE and IIF.

**SECTION V**  
**DESIGN AND FIELD PROGRESS**

**A. TRANSMISSION**

1. All property and ROW acquisition, material supply, installation and construction have been completed and accepted.
2. Two (2) towers were originally built in areas which proved unstable. The towers were relocated and now appear stable but it is recommended that the sites be monitored on a periodic basis.

**B. SUBSTATIONS**

1. Tejal Substation

All work is completed and the Substation addition has been energized.

2. Ujungberung Substation

Installation of the Switchyard stone covering remains to be done. The Control House is complete. The load Tap Changer (LTC) on the 60 MVA, 150/70 kV transformer failed during manual operation in the period. All replacement parts have been ordered and the unit should be back in service in April.

### 3. Bandung Utara Substation

Minor civil work remains to be finished. The Control House and Access Road are completed. As yet remaining to be received are one (1) complete trip coil and one (1) anti-pump and lift rod. One (1) OCB on the future Padalarang Line will not be ready for operation and several 20 KV circuit breakers cannot be energized until various parts are received. All of the required parts are on order but receipt is not scheduled until April.

### 4. Bogor Substation

All work with the exception of minor transformer leaks has been completed.

### C. MOBILE RADIO

1. Installation of the Mobile Radio System is complete and the system is in operation.

### D. MATERIAL SHIPMENTS

1. The status of Material Shipments through 31 March 1982 is shown on the following page.

### Status of Material Shipments

<u>Contract Number</u>	<u>Contractor/ Supplier</u>	<u>US \$ Value of Material</u>		
		<u>Total Material</u>	<u>Received Through 31 Mar. '82</u>	<u>Percent of Total</u>
Pj. 152/PST /77	Irby	6,464,590.34	6,464,577.34	100
Pj. 153/PST/77	Irby	2,902,946.03	2,902,946.03	100
Pj. 202/PST/77	Copperweld	294,739.06	294,732.90	100
Pj. 203/PST/77	Southwire	1,991,843.83	1,991,843.83	100
Pj. 050/PST/78	Tension Stringing	400,636.37	400,636.37	100
Pj. 051/PST/78	Ohio Brass	175,704.00	175,704.00	100
Pj. 052/PST/78	Irby	9,528,735.98	9,520,697.47	100
Pj. 053/PST/78	General Electric	6,467,900.75	6,467,900.75	100
Pj. 087/PST/78	Motorola	369,186.55	369,186.55	100

SECTION VI  
TRAINING ACTIVITIES

1. A training course in Substation operation was held in the Bogor Substation in February. Some 20 PLN employees were in attendance.
  
2. A training course in Substation maintenance was held in the Bogor Substation in March. Some 15 PLN employees were in attendance.
  
3. A training course in Substation operation was started in late March at the Ujungberung Substation. Over 20 PLN employees were in attendance.

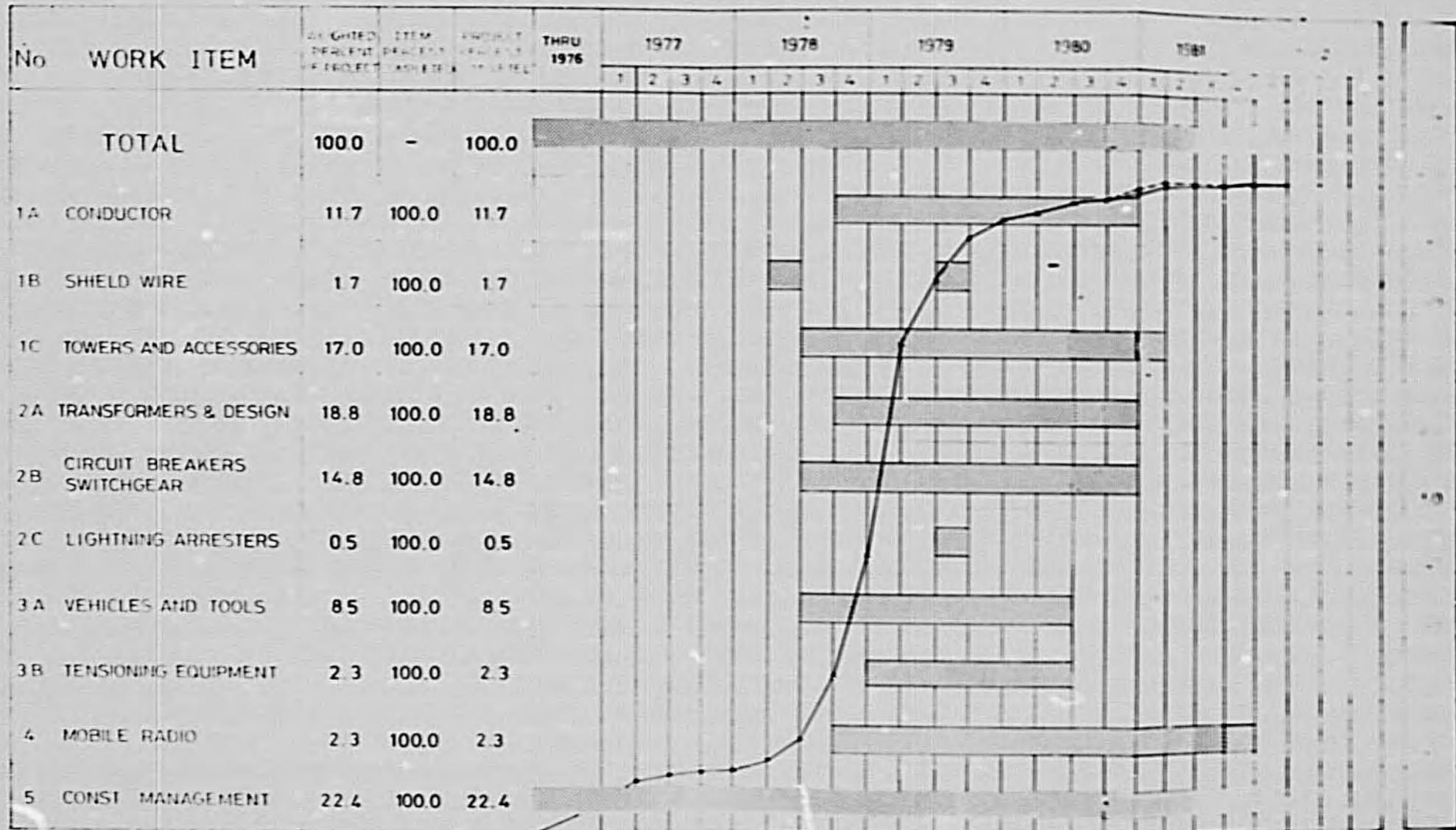
# WEST JAVA I PROJECT FINANCIAL PLAN AND CASH FLOW U.S. DOLLARS (000)

NO	WORK ITEM	(A) ALLOCATION OF FUNDS	FUNDS REQUIRED TO COMPLETE PROJECT																										
			THRU 1976	1977				1978				1979				1980				1981				1982					
				1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4		
	<b>TOTAL</b>	<b>17,198</b>	1088	127	130	128	214	202	553	1611	3165	5450	1708	818	437	362	175	221	372	216	15	-	49	3	-	-	-	-	
1	150 KV TRANSMISSION SUPPLY	-																											
1A	CONDUCTOR	2,004									505	1005	394			88													
1B	SHIELD WIRE	297							292								15												
1C	TOWERS AND ACCESSORIES	2,920									1081	417	992	57	172		15	15			100								
2	150 KV SUBSTATION SUPPLY	-																											
2A	TRANSFORMERS AND DESIGN	3,229									588	1390	828	100				23	50	290									
2B	CIRCUIT BREAKERS AND SWITCHGEAR	2,541									72	1144	1187						40	54	34								
2C	LIGHTNING ARRESTERS	88														88													
3	TOOLS AND EQUIPMENT SUPPLY	-																											
3A	VEHICLES AND TOOLS	1,474									243		293	244	310	215	88	10											
3B	TENSIONING EQUIPMENT	402											317			53	28					4							
4	MOBILE RADIO SUPPLY	397											285	63		24			5					15	2				
5	CONST MANAGEMENT SERVICES	3,846	1088	127	130	128	214	202	271	245	222	187	185	137	148	138	81	121	15	47			47	3	-	-	-	-	

(A) INCLUDES FUNDS COMMITTED IN PROCESS OF BEING COMMITTED	BANK CHARGES \$ 17,198 UNCOMMITTED 2 TOTAL FUNDS \$ 17,200	FUNDS TO DATE \$ 17,198 FUNDS TO COMMITTE \$ 2 TOTAL FUNDS \$ 17,200
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31 MARCH 1982

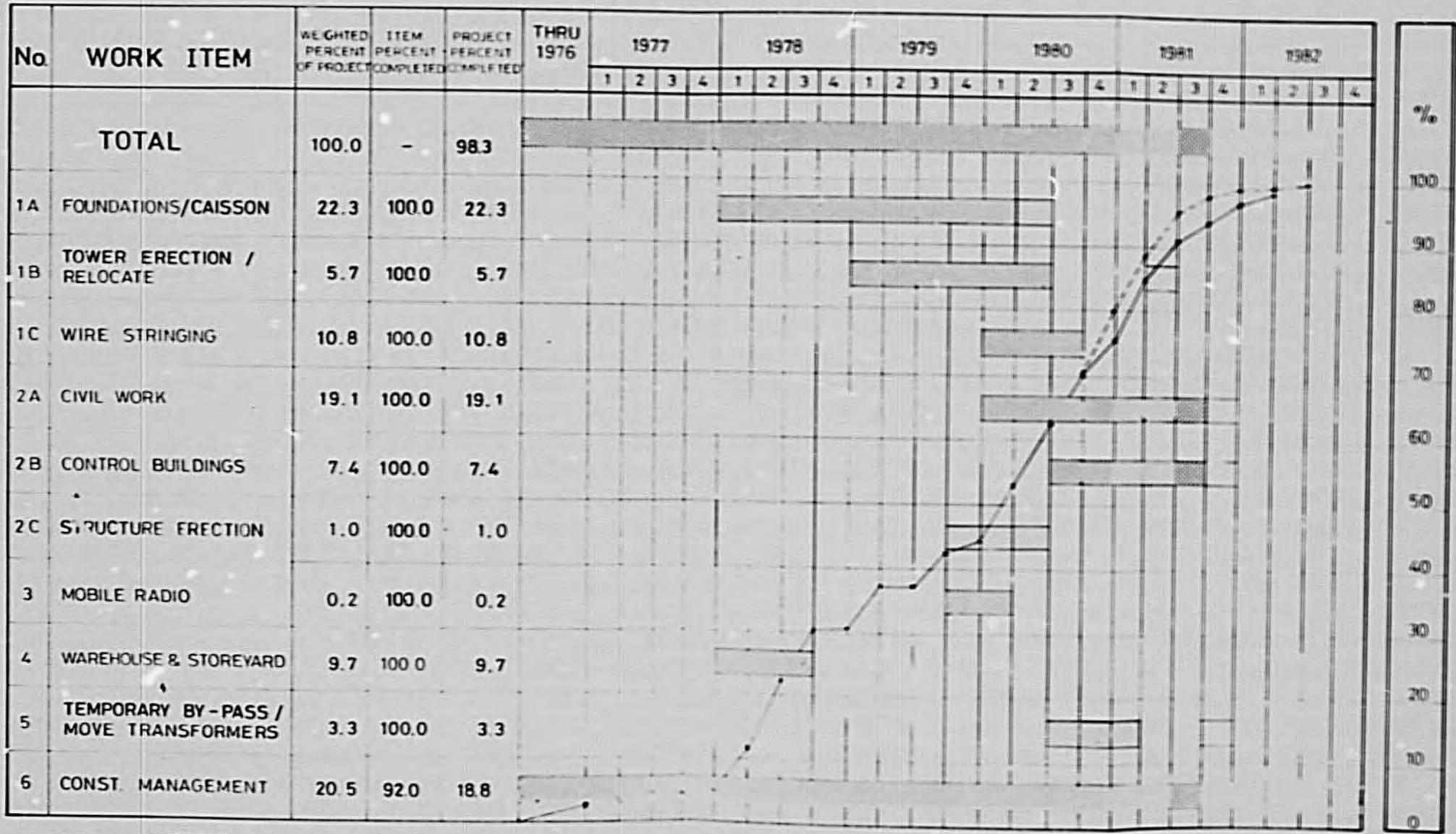
## WEST JAVA I PROJECT PROGRESS SCHEDULE US DOLLARS



**WEST JAVA I PROJECT  
FINANCIAL PLAN AND CASH FLOW  
INDONESIAN RUPIAH (000 000)**

NO	WORK ITEM	ALLOCATION OF FUNDS	FUNDS REQUIRED TO COMPLETE PROJECT																								
			THRU 1976	1977				1978				1979				1980				1981				1982			
				1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
	<b>TOTAL</b>	<b>2.701</b>	78	7	10	9	9	206	237	207	16	171	13	126	42	232	255	209	162	247	160	80	150	30	28	17	
1	150 KV TRANSMISSION	-																									
1A	FOUNDATIONS/CAISSON	603						127	121	101	-	103	-	65	12	41	33										
1B	TOWER ERECTION / RELOCATE	153										53	-	50	3	15	12		1		20						
1C	WIRE STRINGING	292															105	145	42								
2	150 KV SUBSTATIONS	-																									
2A	CIVIL WORK	515															50	50	49	111	144	70	20	17			
2B	CONTROL BUILDINGS	200																	64	24	48	32	25	7			
2C	STRUCTURE ERECTION	26															13	12	1								
3	MOBILE RADIO	5															2	3									
4	WAREHOUSE AND STOREYARD	262						62	100	100																	
5	TEMPORARY - BY-PASS / MOVE TRANSFORMERS	90																	6		13			71			
6	CONSTRUCTION MGT SERVICES	555	78	7	10	9	9	17	16	6	16	15	13	11	12	6	14	48	27	38	38	35	55	30	28	17	

# WEST JAVA I PROJECT PROGRESS SCHEDULE INDONESIAN RUPIAH



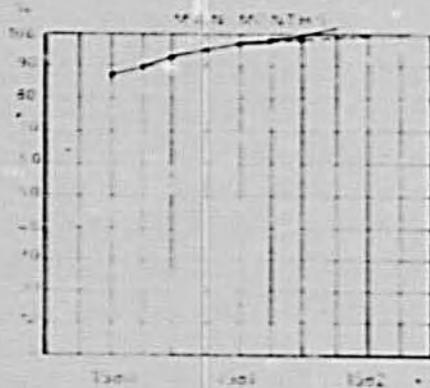
- - - - - SCHEDULED  
 \_\_\_\_\_ ACTUAL  
 [Legend for Gantt bars: SCHEDULED, ACTUAL]

# WEST JAVA I FIELD STAFF MAN MONTHS & SALARIES BUDGET VS ACTUAL

PAGE 1, 1E

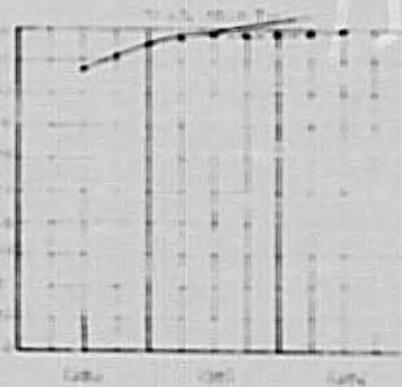
AS OF 25 MARCH 1982

## TOTAL FIELD STAFF



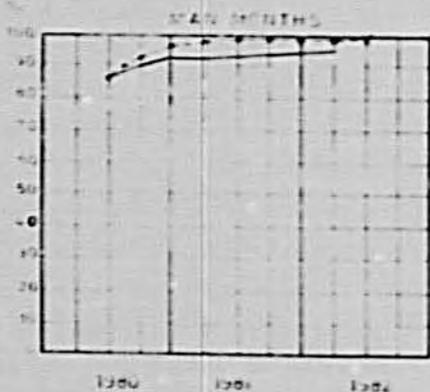
	MAN MONTHS			SALARIES (\$000)		
	BUD	ACT	%	BUD	ACT	%
PREV PERIOD	477	482	101	1072	1067	99
THIS PERIOD	2	5	250	7	14	200
TOTAL TO DATE	479	487	102	1079	1081	100
TOTAL CONTRACT	480	487	101	1083	1081	100

## CONSTRUCTION



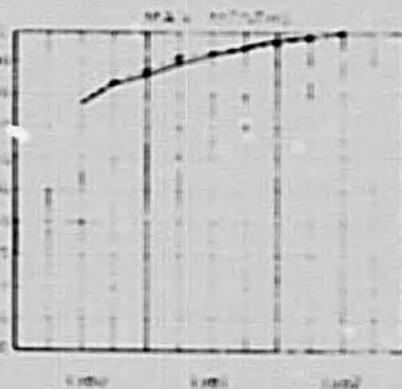
	MAN MONTHS			SALARIES (\$000)		
	BUD	ACT	%	BUD	ACT	%
PREV PERIOD	200	200	100	400	400	100
THIS PERIOD	2	5	250	7	14	200
TOTAL TO DATE	202	205	102	407	414	102
TOTAL CONTRACT	200	205	102	400	414	104

## ENGINEERING ONLY



	MAN MONTHS			SALARIES (\$000)		
	BUD	ACT	%	BUD	ACT	%
PREVIOUS	118	112	95	269	253	94
THIS PERIOD	-	1	-	-	3	-
TOTAL TO DATE	118	113	96	269	256	95
TOTAL CONTRACT	118	113	96	269	256	95

## ADMINISTRATIVE



	MAN MONTHS			SALARIES (\$000)		
	BUD	ACT	%	BUD	ACT	%
PREV PERIOD	200	200	100	400	400	100
THIS PERIOD	2	5	250	7	14	200
TOTAL TO DATE	202	205	102	407	414	102
TOTAL CONTRACT	200	205	102	400	414	104

• BUDGET DATA REVERSED JULY 1 1980

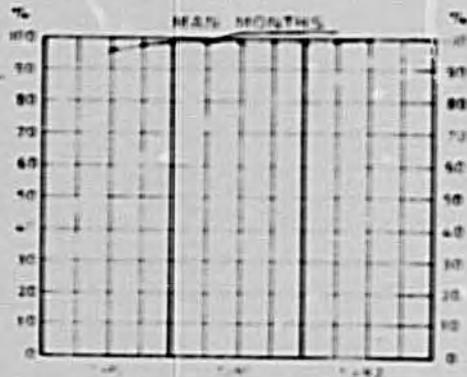
(WEST J. MAN MONTHS & SALARIES) DMC

# WEST JAVA I HOME OFFICE MAN MONTHS & SALARIES BUDGET VS ACTUAL

EXHIBIT 1 F

AS OF 25 MARCH 1982

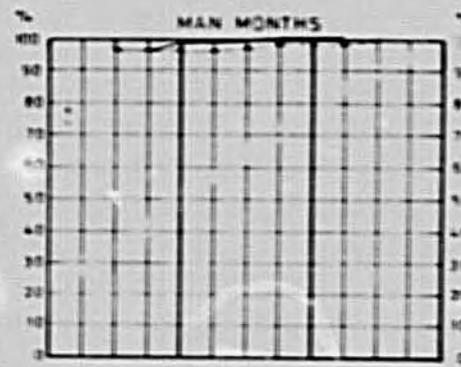
## TOTAL HOME OFFICE



	MAN MONTHS			SALARIES		
	BUD	ACT	%	BUD	ACT	%
PREVIOUS	282	286	101	476	486	102
THIS PERIOD	-	1	-	-	4	-
TOTAL TO DATE	282	287	102	476	490	103
TOTAL CONTRACT	283	287	101	479	490	102

--- BUDGET ●  
— ACTUAL

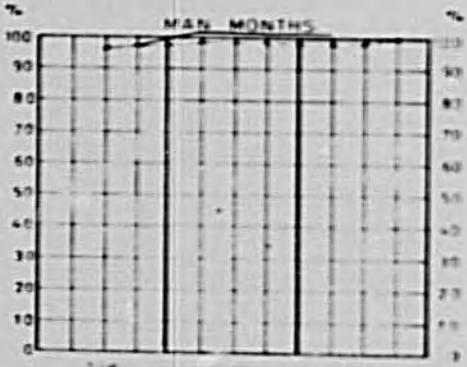
## SUPERVISION ONLY



	MAN MONTHS			SALARIES		
	BUD	ACT	%	BUD	ACT	%
PREVIOUS	32	32	100	69	70	101
THIS PERIOD	-	-	-	-	-	-
TOTAL TO DATE	32	32	100	69	70	101
TOTAL CONTRACT	32	32	100	69	70	101

--- BUDGET ●  
— ACTUAL

## ENGINEERING ONLY



	MAN MONTHS			SALARIES		
	BUD	ACT	%	BUD	ACT	%
PREVIOUS	141	142	101	261	264	101
THIS PERIOD	-	-	-	-	-	-
TOTAL TO DATE	141	142	101	261	264	101
TOTAL CONTRACT	141	142	101	261	264	101

--- BUDGET ●  
— ACTUAL

## ADMINISTRATION ONLY



	MAN MONTHS			SALARIES		
	BUD	ACT	%	BUD	ACT	%
PREVIOUS	109	112	103	144	152	106
THIS PERIOD	-	1	-	-	4	-
TOTAL TO DATE	109	113	104	144	156	107
TOTAL CONTRACT	110	113	103	143	156	109

--- BUDGET ●  
— ACTUAL

● BUDGET DATA REVERSED JULY 1 1980

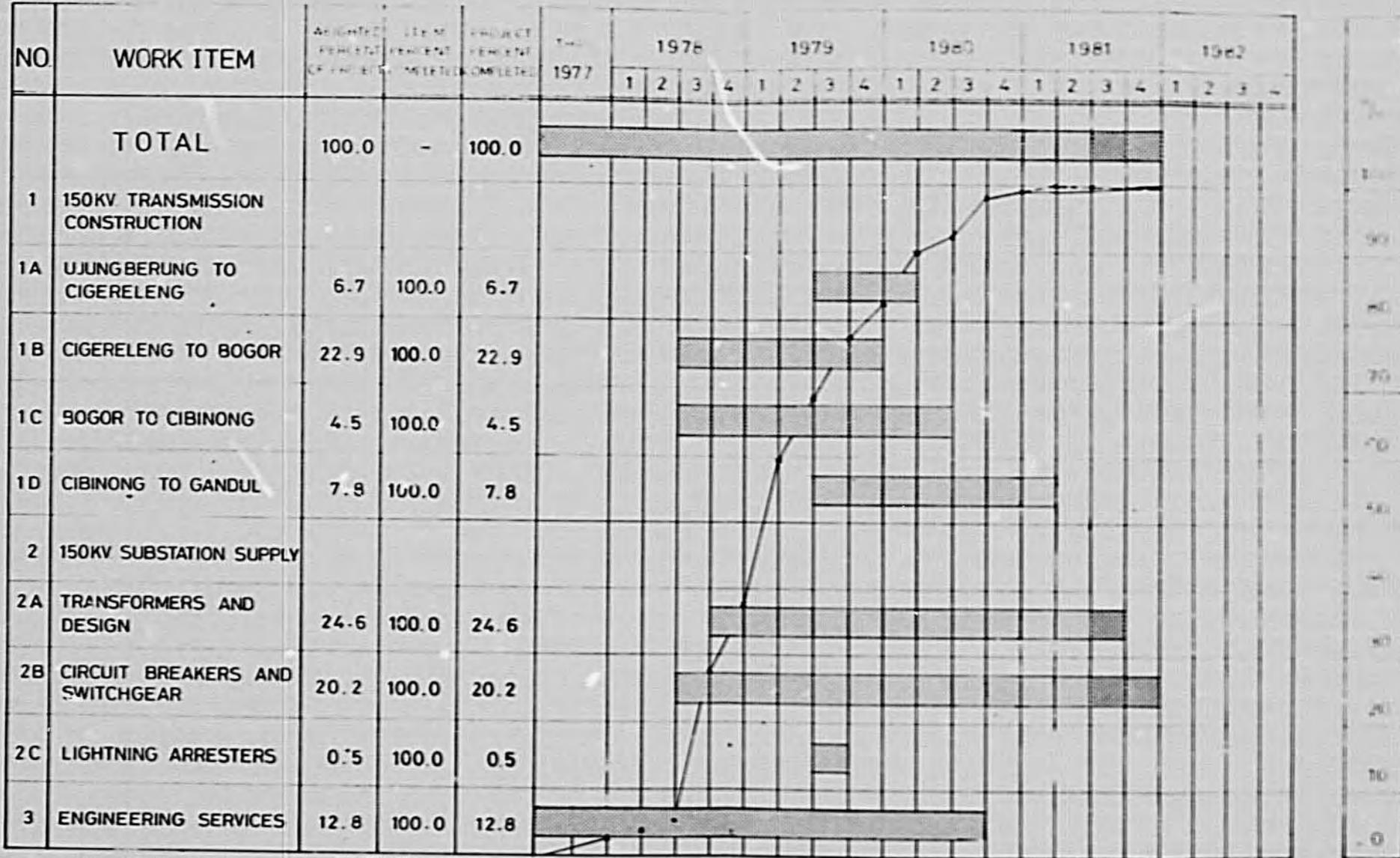
## WEST JAVA II PROJECT FINANCIAL PLAN AND CASH FLOW U.S. DOLLARS ( 000 )

NO.	WORK ITEM	( A ) ALLOCATION OF FUNDS	THRU 1977	FUNDS REQUIRED TO COMPLETE PROJECT																THRU 1982	
				1978				1979				1980				1981					
				1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4		
	<b>TOTAL</b>	<b>19,700</b>	<b>948</b>	178	264	4108	1822	4462	1781	1712	1158	3444	458	390	280	3	45	26	19		
1	150 KV TRANSMISSION CONSTRUCTION																				
1A	LIUNG-BERUNG TO CIGERELENG	1,323								512	358	453									
1B	CIGERELENG TO BOGOR	4,511				3202	344	770	28	90	77										
1C	BOGOR TO CIBINONG	877				622	57	50	-	23	40	30	45								
1D	CIBINONG TO GANDUL	1,537								593	416	296	126	53	47	3					
2	150 KV SUBSTATION SUPPLY																				
2A	TRANSFORMERS AND DESIGN	4,855				153	263	530	254	129	122	263	505	207			45	6			
2B	CIRCUIT BREAKERS AND SWITCHGEAR	3,986				97	1049	869	1077	-	14	437	-	379	25				20	19	
2C	LIGHTNING ARRESTERS	88								88											
3	ENGINEERING SERVICES	2,523	9.8	178	264	187	210	330	348	332	324	303	26	13							

(A) INCLUDES FUNDS COMMITTED IN PROCESS OF RECEIVING CONTRACTS FROM THE GOVERNMENT

WEST JAVA II PROJECT	\$ 19,700	TOTAL TO DATE	\$ 19,700
LESS FUNDS COMMITTED	-	TOTAL FUNDS COMMITTED	-
TOTAL LOAN	\$ 19,700	TOTAL LOAN	\$ 19,700

## WEST JAVA II PROJECT PROGRESS SCHEDULE US DOLLARS



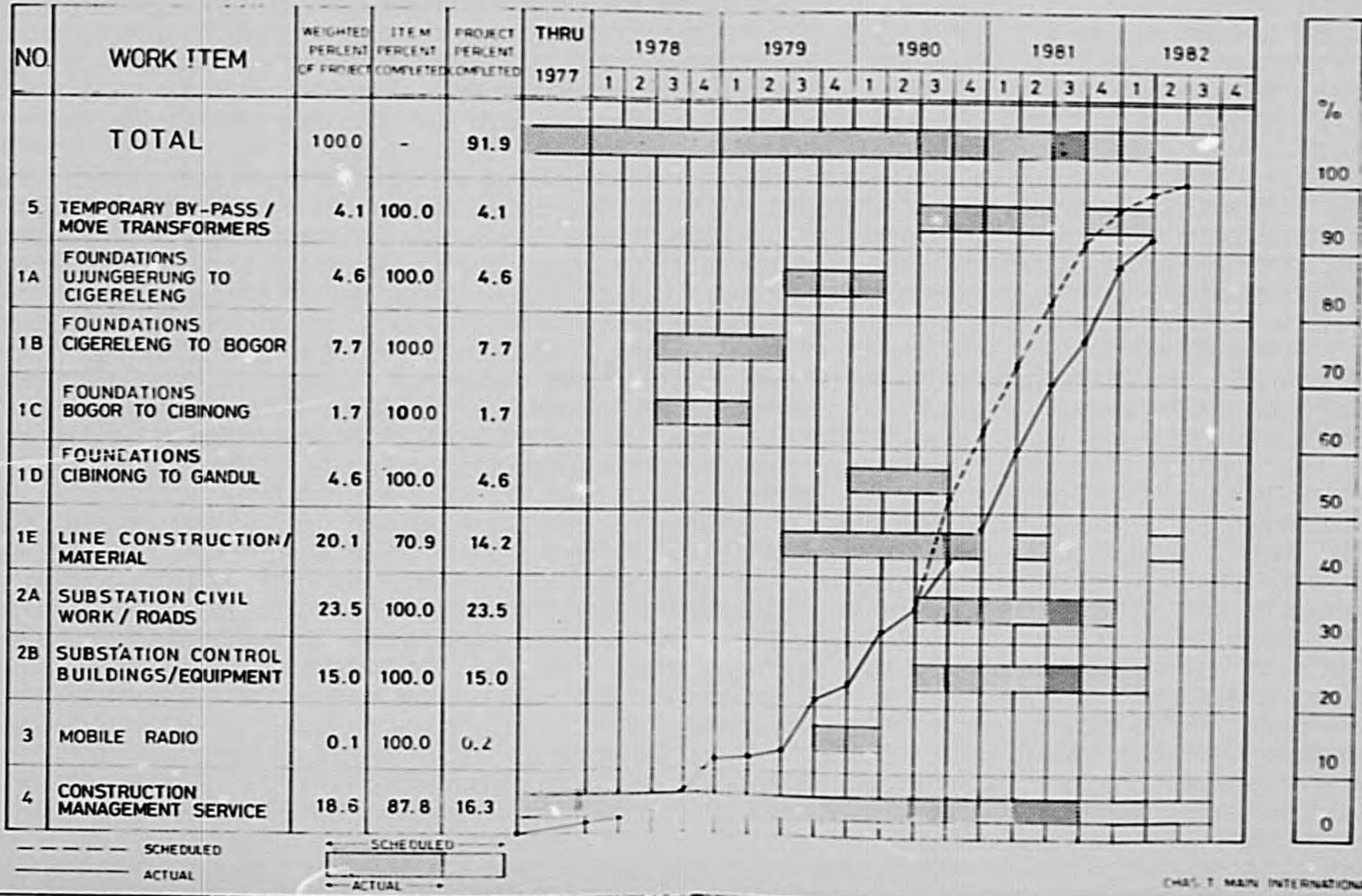
- - - - - SCHEDULED  
 ——— ACTUAL

### WEST JAVA II PROJECT FINANCIAL PLAN AND CASH FLOW INDONESIAN RUPIAH (000,000)

EXHIBIT IIC

NO	WORK ITEM	ALLOCATION OF FUNDS	FUND YEARLY TOTAL PROJECT																				
			THRU 1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	TOTAL				
	<b>TOTAL</b>	<b>3,862</b>	63	13	13	133	185	75	37	307	64	319	121	324	137	494	365	278	425	162	241	24	
1	150 KV TRANSMISSION																						
1A	FOUNDATIONS UJUNG BERUNG TO CIGERELENG	179								166	4	9											
1B	FOUNDATIONS CIGERELENG TO BOGOR	297				72	169	40	16														
1C	FOUNDATIONS BOGOR TO CIBINONG	67				33	7	27															
1D	FOUNDATIONS CIBINONG TO GANDUL	177										139	27	11									
1E	LINE CONSTRUCTION/MATERIAL	774								164	43	153	84	16	3		80						225
2	150 KV SUBSTATIONS																						
2A	CIVIL WORK/ROADS	907													164	52	333	170	130	125			
2B	CONTROL BUILDINGS/EQUIP.	578													89	-	75	130	105	144	95		
3	MOBILE RADIO	5										2	3										
4	CONSTRUCTION MANAGEMENT SERVICES	719	63	13	13	26	3	8	14	17	9	15	10	37	82	41	50	38	82	53	60	24	
5	TEMPORARY BY-PASS / MOVE TRANSFORMERS	159													9		2		74	74			

# WEST JAVA II PROJECT PROGRESS SCHEDULE INDONESIAN RUPIAH

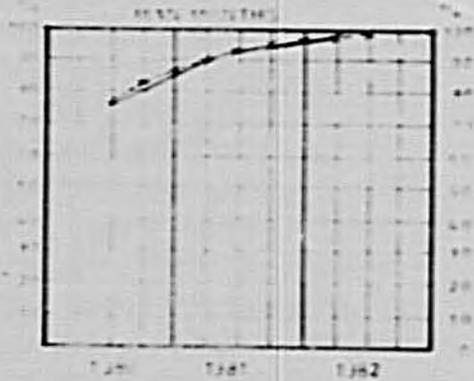


# WEST JAVA II FIELD STAFF MAN MONTHS & SALARIES BUDGET VS ACTUAL

EXHIBIT III E

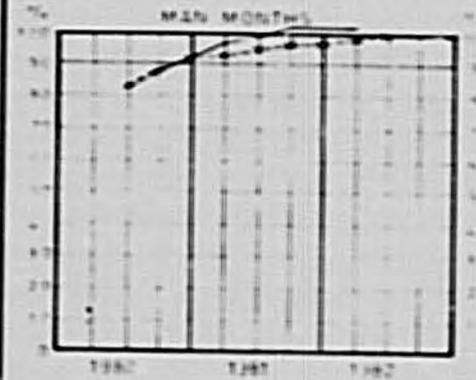
AS OF 25 MARCH 1982

## TOTAL FIELD STAFF



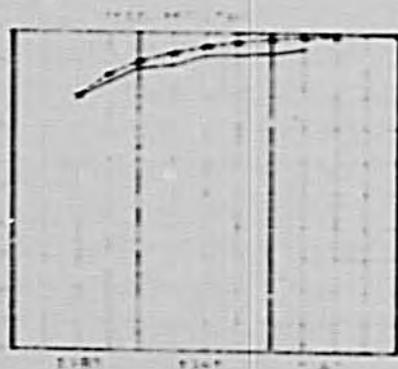
	MAN MONTHS			SALARIES (\$K)		
	BUD	ACT	%	BUD	ACT	%
TOTAL	325	325	100	770	746	97
PAID	5	4	80	16	12	75
UNPAID	330	329	100	786	758	96
TOTAL	335	329	98	801	754	94

## CONSTRUCTION ONLY



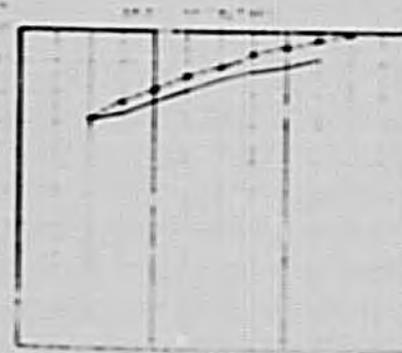
	MAN MONTHS			SALARIES (\$K)		
	BUD	ACT	%	BUD	ACT	%
TOTAL	154	166	108	334	353	106
PAID	2	1	50	6	4	67
UNPAID	158	167	106	340	357	105
TOTAL	160	167	104	341	357	102

## ENGINEERING ONLY



	MAN MONTHS			SALARIES (\$K)		
	BUD	ACT	%	BUD	ACT	%
TOTAL	74	70	95	180	168	93
PAID	-	1	-	-	3	-
UNPAID	74	71	96	180	171	95
TOTAL	75	71	95	180	171	93

## ADMINISTRATION ONLY



	MAN MONTHS			SALARIES (\$K)		
	BUD	ACT	%	BUD	ACT	%
TOTAL	35	39	114	215	225	105
PAID	3	2	67	10	5	50
UNPAID	38	37	93	205	230	115
TOTAL	100	91	91	272	230	85

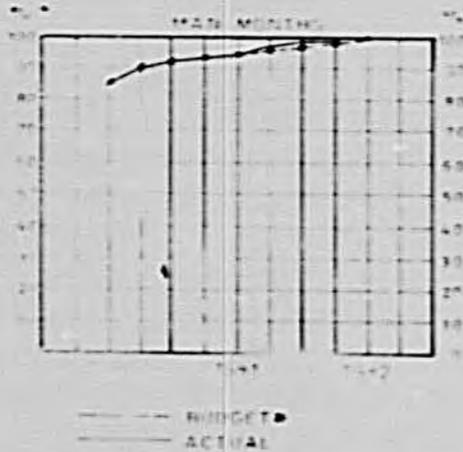
• Budget Data revised 1 July 1980

• Actual Data as of 25 March 1982

# WEST JAVA II HOME OFFICE MAN MONTHS & SALARIES BUDGET VS ACTUAL

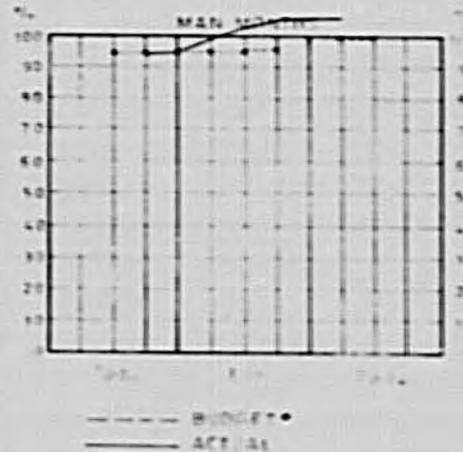
AS OF 25 MARCH 1982

## TOTAL HOME OFFICE



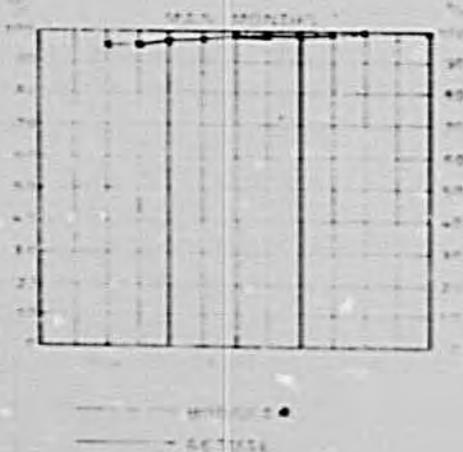
	MAN MONTHS			SALARIES (\$K)		
	BUD	ACT	%	BUD	ACT	%
PREVIOUS	168	168	100	311	310	99
THIS PERIOD	1	1	100	3	1	33
TOTAL TO DATE	169	169	100	314	311	99
TOTAL CONTRACT	170	169	99	317	311	98

## SUPERVISION ONLY



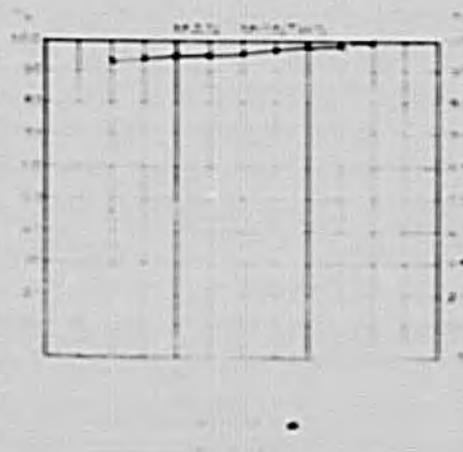
	MAN MONTHS			SALARIES (\$K)		
	BUD	ACT	%	BUD	ACT	%
PREVIOUS	22	25	114	57	64	112
THIS PERIOD	-	-	-	-	-	-
TOTAL TO DATE	22	25	114	57	64	112
TOTAL CONTRACT	22	25	114	57	64	112

## ENGINEERING ONLY



	MAN MONTHS			SALARIES (\$K)		
	BUD	ACT	%	BUD	ACT	%
PREVIOUS	77	74	96	155	153	98
THIS PERIOD	-	-	-	-	-	-
TOTAL TO DATE	77	74	96	155	153	98
TOTAL CONTRACT	77	74	96	155	153	98

## ADMINISTRATION ONLY



	MAN MONTHS			SALARIES (\$K)		
	BUD	ACT	%	BUD	ACT	%
PREVIOUS	69	69	100	83	87	98
THIS PERIOD	1	1	100	3	1	33
TOTAL TO DATE	70	70	100	86	88	96
TOTAL CONTRACT	71	70	99	89	88	93

• Budget (1980) revised 1 July 1980

INVOICES SUBMITTED AND  
PAYMENTS RECEIVED

QUARTER ENDED : 31 MARCH 1982

	WEST JAVA I		WEST JAVA II	
U S D O L L A R S				
	INVOICES SUBMITTED	PAYMENTS RECEIVED	INVOICES SUBMITTED	PAYMENTS RECEIVED
PREVIOUS	\$ 3,821,162.19	\$ 3,774,016.14	\$ 2,509,792.89	\$ 2,509,792.89
REPORT PERIOD	—	\$ 47,146.05	—	—
TOTAL	\$ 3,821,162.19	\$ 3,821,162.19	\$ 2,509,792.89	\$ 2,509,792.89
I N D O N E S I A N R U P I A H				
	INVOICES SUBMITTED	PAYMENTS RECEIVED	INVOICES SUBMITTED	PAYMENTS RECEIVED
PREVIOUS	Rp 325,219,711	Rp 322,222,042	Rp 315,707,622	Rp 313,584,903
REPORT PERIOD	Rp. 7,025,033	Rp. 6,962,547	Rp. 36,470,667	Rp. 35,253,264
TOTAL	Rp 332,244,744	Rp 329,184,589	Rp 352,178,289	Rp 348,838,167
I N V O I C E D I N U S D O L L A R S - P A Y M E N T S I N R U P I A H				
	INVOICES SUBMITTED	PAYMENTS RECEIVED	INVOICES SUBMITTED	PAYMENTS RECEIVED
PREVIOUS	\$ 248,124.87	\$ 219,100.32	\$ 420,432.22	\$ 382,058.46
REPORT PERIOD	\$ 36,398.10	\$ 51,239.88	\$ 25,495.58	\$ 53,423.40
TOTAL	\$ 284,522.97	\$ 270,340.20	\$ 445,927.80	\$ 435,481.86

PERSONNEL MAN MONTHS  
AS OF 25 MARCH 1982

WEST JAVA I PROJECT

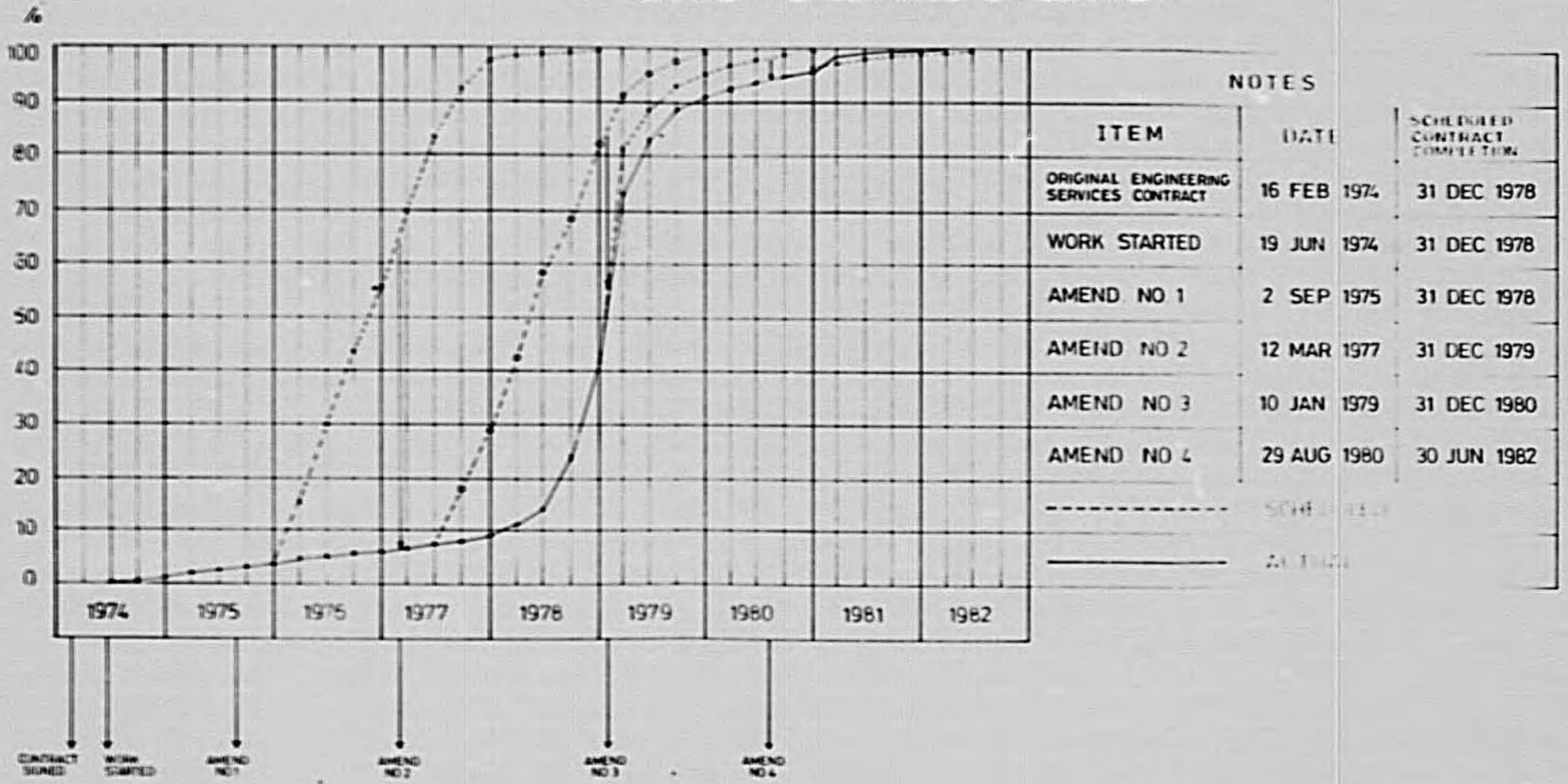
COMPANY	U S	INDONESIAN	THIRD COUNTRY
CHAS T MAIN	704.1	34.1	35.7
P L N	—	8,187.0	—
OTHER	—	—	—
TOTAL	704.1	8,221.1	35.7

WEST JAVA II PROJECT

CHAS T MAIN	442.5	36.3	16.2
P L N	—	6,106.0	—
OTHER	—	—	—
TOTAL	442.5	6,142.3	16.2

CHAS T MAIN INTERNATIONAL INC

**WEST JAVA I TRANSMISSION AND SUBSTATION PROJECT**  
**U.S. \$ CASH FLOW**  
 ( TOTAL LOAN FUNDS )  
**SCHEDULED VS. ACTUAL**  
**CUMULATIVE PERCENTAGE BY QUARTER**



NOTES		
ITEM	DATE	SCHEDULED CONTRACT COMPLETION
ORIGINAL ENGINEERING SERVICES CONTRACT	16 FEB 1974	31 DEC 1978
WORK STARTED	19 JUN 1974	31 DEC 1978
AMEND NO 1	2 SEP 1975	31 DEC 1978
AMEND NO 2	12 MAR 1977	31 DEC 1979
AMEND NO 3	10 JAN 1979	31 DEC 1980
AMEND NO 4	29 AUG 1980	30 JUN 1982
-----	SCHEDULED	
_____	ACTUAL	

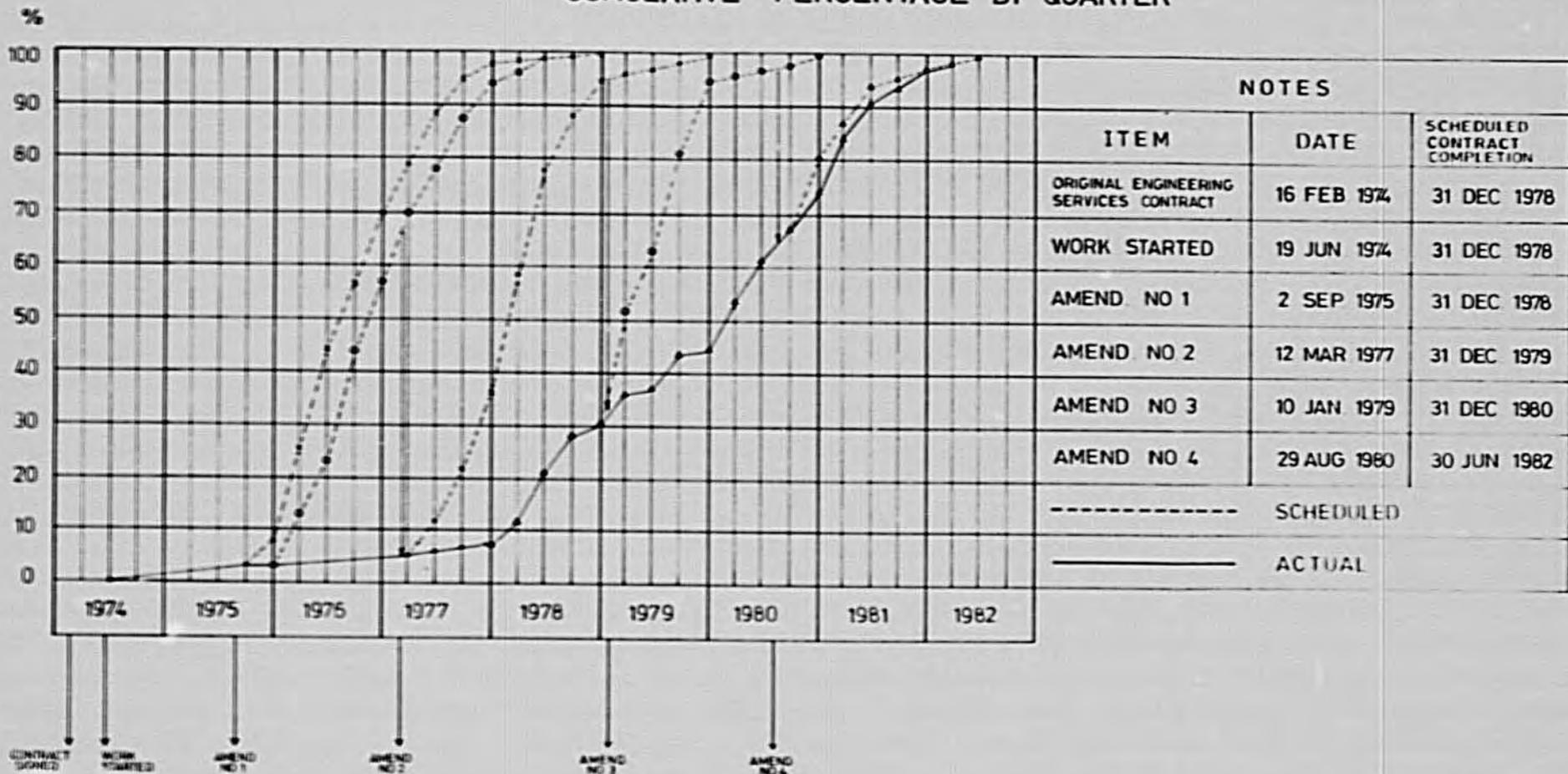
# WEST JAVA I TRANSMISSION AND SUBSTATION PROJECT

## RUPIAH CASH FLOW

( TOTAL PROJECT RUPIAH EXPENDITURES )

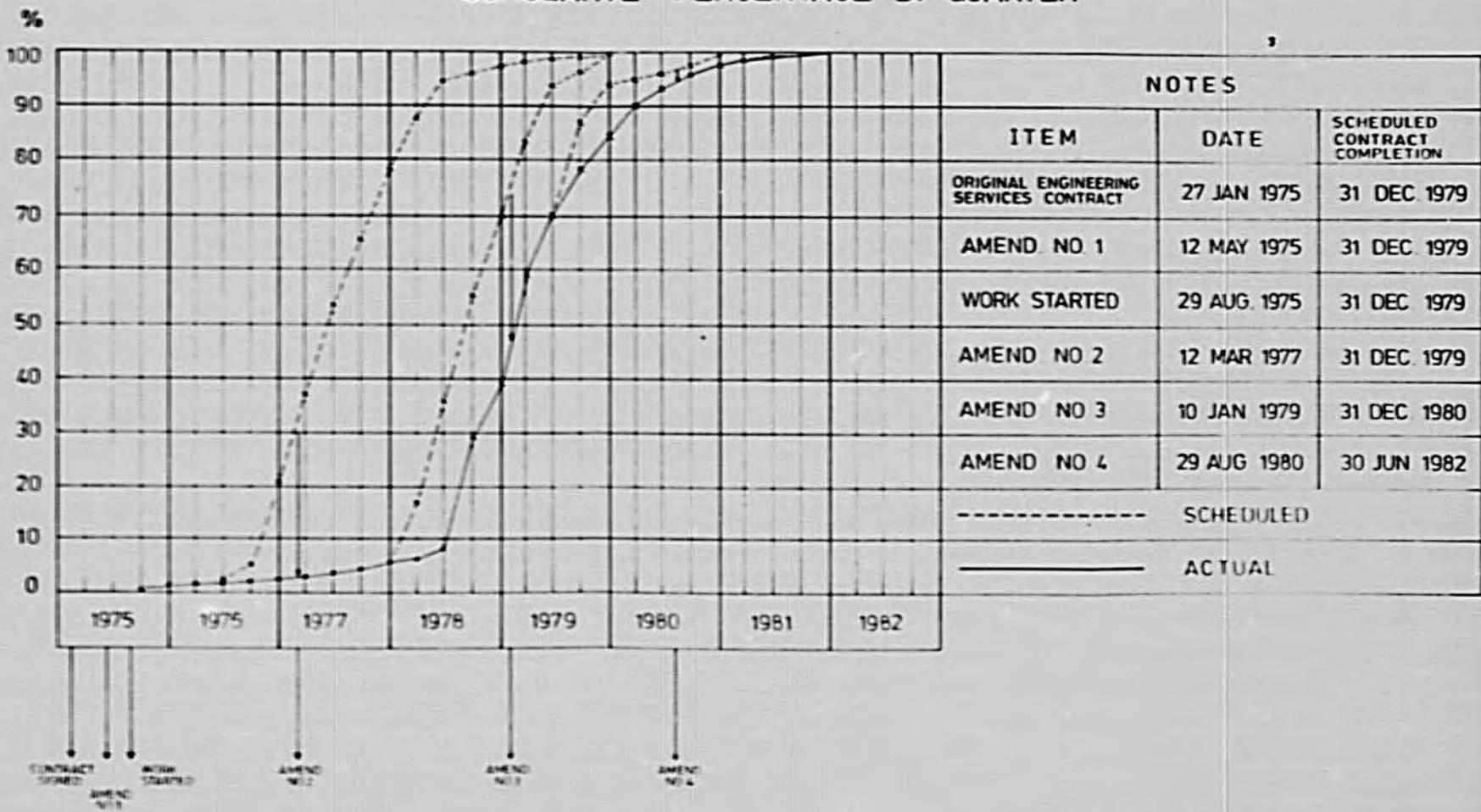
### SCHEDULED VS. ACTUAL

#### CUMULATIVE PERCENTAGE BY QUARTER



NOTES		
ITEM	DATE	SCHEDULED CONTRACT COMPLETION
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-----	SCHEDULED	
—————	ACTUAL	

**WEST JAVA II TRANSMISSION AND SUBSTATION PROJECT**  
**US. \$ CASH FLOW**  
 ( TOTAL LOAN FUNDS )  
**SCHEDULED VS. ACTUAL**  
**CUMULATIVE PERCENTAGE BY QUARTER**



**WEST JAVA II TRANSMISSION AND SUBSTATION PROJECT**  
**RUPIAH CASH FLOW**  
 ( TOTAL PROJECT RUPIAH EXPENDITURES )  
**SCHEDULED VS. ACTUAL**  
**CUMULATIVE PERCENTAGE BY QUARTER**

