

**RURAL ELECTRIFICATION PROJECTS
INDONESIA**



NATIONAL RURAL ELECTRIC COOPERATIVE ASSOCIATION

JAKARTA, INDONESIA

NRECA TEAM REPORT

PLN

INDONESIA

(JANUARY 1982)

MONTHLY REPORT

NRECA INDONESIAN TEAM REPORT

UNITED STATES AGENCY FOR
INTERNATIONAL DEVELOPMENT

Contract No. AID/ASIA C1347

Loan No. 497-T-052

IMPLEMENTING AGENCIES:

DIREKTORAT JENDERAL KOPERASI
Directorate General of Cooperatives

PERUSAHAAN UMUM LISTRIK NEGARA
National Electric Power Agency

CONSULTANTS:

National Rural Electric Cooperative Association
Management, Organization and Training

C.T. Main International, Inc.
Architect and Engineering

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NRECA TEAM MEMBERS AS OF SEPTEMBER, 1981

<u>NAME</u>	<u>TITLE</u>	<u>ADDRESS</u>
Peter McNeill	Team Leader	Pondok Indah Bukit Hijau VIII/31 PH: 761132
Louie Sansing	Sr. RE Specialist	Ratu Plaza Apartment #1103 Jl. Jenderal Sudirman PH: 712209 ext. 2020
*Sam Adkins	Sr. RE Specialist	c/o C.T. Main Inc. Box 26 Semarang PH: 024-311832
Paul Swanson	Sr. RE Specialist	Kotak Pos 43 Ampenan, Lombok PH: 0364-23517
John DeFoor	RE Specialist	c/o Bina Marga Office Jl. Imam Bonjol 8 Palopo, S. Sulawesi
Ray Shoff	Administrative/Finance Officer	Ratu Plaza Apartment #1002 Jl. Jenderal Sudirman PH: 712209 ext. 2015
Claude Franke	RE Specialist	P.O. Box 88 Tanjungkarang Lampung PH: 0721-53701

* PLN Advisor

I. DESCRIPTION AND OBJECTIVES OF PROJECT (PLN)

The Government of Indonesia is vitally interested in the electrification of rural Indonesia, and has taken steps with the assistance of the United States Government (USAID) to implement pilot rural electrification programs. Fewer than 1% of the rural people in Indonesia presently enjoy the benefits of electric service. Rural electrification is essential in developing the wealth of forest and agricultural land, minerals, and water resources. The "area coverage" concept of electrification will bring better living conditions to millions of rural residents and will spread benefits to all of Indonesia.

Ten Pilot Rural Electrification Project areas have been selected. Seven of the projects are in Central Java and are to be constructed and developed by the state owned national power company (PLN) who will own and operate these systems. The source of power for these systems will be the existing PLN transmission grid in Central Java.

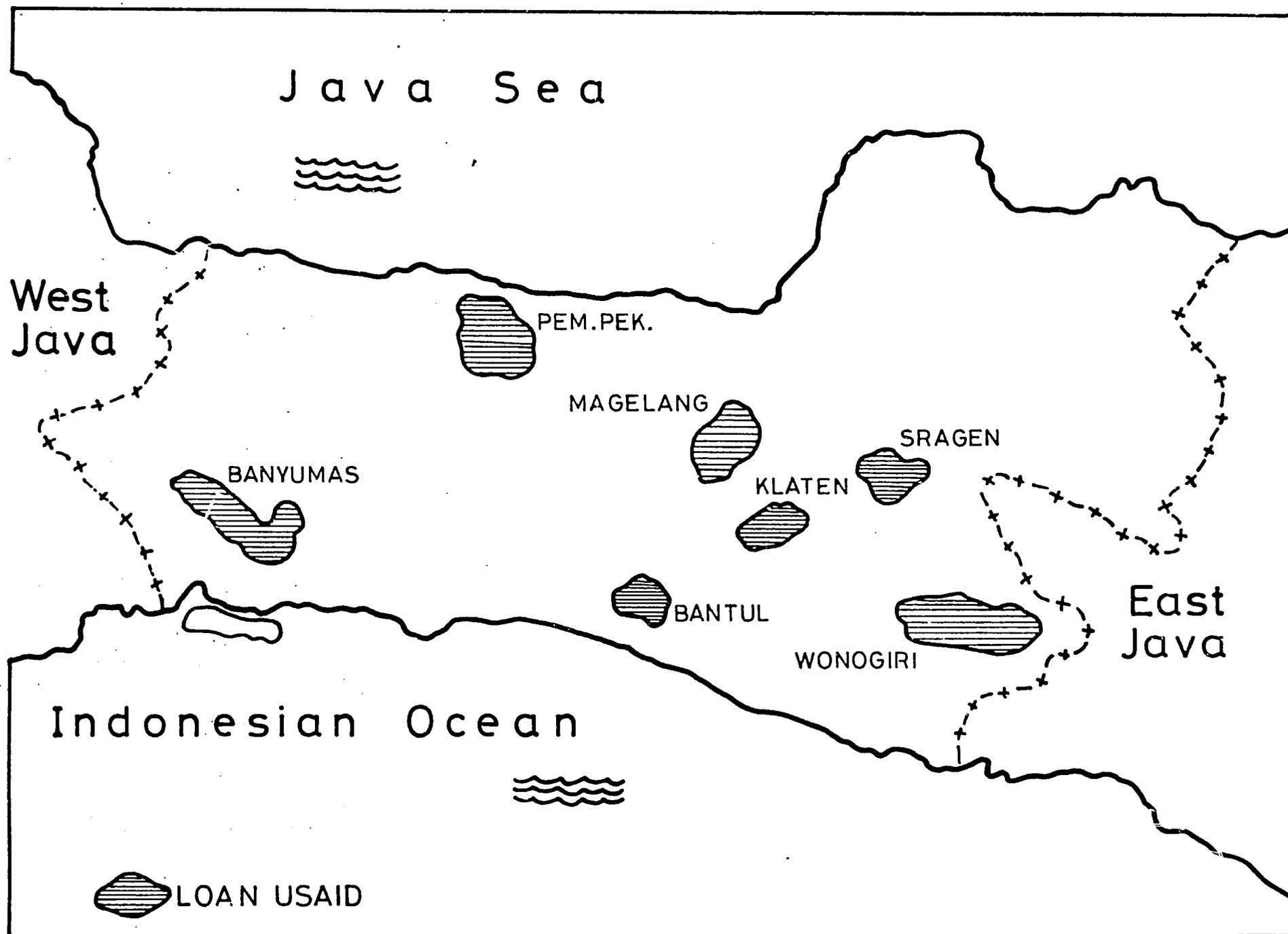
The National Rural Electric Cooperative Association through their International Programs Division is serving as consultant to PLN in organization, management and technical areas. Services for PLN includes providing assistance in organization of staffs to operate the systems in Central Java, as well as in cost accounting, O&M methods, housewiring and training.

SEVEN PLN PROJECTS

<u>SERVICE AREA</u>	<u>VILLAGES TO BE SERVED</u>	<u>APPROXIMATE NO. OF CONNECTIONS</u>	<u>ESTIMATED NO. OF RECEIPIENTS</u>
Klaten	95	25,000	225,000
Pem/Pek	103	20,000	180,000
Bantul	21	20,000	180,000
Wonogiri	54	15,000	135,000
Sragen	49	15,000	135,000
Magelang	83	20,000	180,000
Banyumas	<u>35</u>	<u>15,000</u>	<u>135,000</u>
TOTALS	440	130,000	1,170,000

The above tabulations are estimates for the end of the third year of commercial operation.

CENTRAL JAVA



NRECA-Jakarta Activities

General --- The bi-monthly NRECA Team Meeting was held in Jakarta this month. The NRECA advisor to PLN was in attendance and reported on the status of the R.E. Projects in Central Java.

--- The NRECA team leader met with PLN-RE officials in their Jakarta offices on three occasions this period. Discussions centered on NRECA input in PLN's construction program now in progress in Central Java, referred to as "Crash Program 37". The training requirements for this effort to energize 37 desa in the first part of 1982 was a major consideration in the discussions.

--- NRECA-Jakarta team members provided additional information to the NRECA/Washington office relating to a proposed seminar on R.E. Project Feasibility Studies. This seminar, requested by PLN-RE officials and their counterparts in other east Asian countries, is tentatively scheduled to be held in Manila in the first half of 1982.

--- At the request of Ir. John Rumondor, Deputy Director for R.E., PLN-Pusat, NRECA team members gathered data on R.E. in Central Java which could be included in a paper being prepared by Ir. Rumondor. This paper, to be presented at a conference of Asian Utilities, will include references to the Klaten R.E. Demonstration Project, more precisely, the economic benefits of the customer "connection-package" applicable to R.E. customers.

--- A PLN Coordination Meeting was held in Jakarta this month with officials from PLN, USAID-PTE, and consulting firms in attendance. An in-depth review of R.E. Project status was conducted, and construction schedules defined in relation to material-equipment delivery schedules.

NRECA Central Java Activities

A. Organization & Management

--- PLN activities relating to "Crash Program 37" increased substantially during this reporting period. This program involves extension of electrical distribution lines to 37 of the 441 desa included in the PLN/USAID Rural Electrification Program in Central Java.

Construction materials from PLN's present stock are being used for this program. This was necessary since materials being procured through the USAID-loan have not arrived. It is planned that replacement in-kind will occur when loan-procured materials arrive in late 1982 or early 1983.

The original estimate of consumers connections in the crash program has been lowered from 13,000 to 6,500 connections. Secondary-line locations are the limiting factor. Although the potential consumers number approximately 13,000, only one-half this number are adjacent to secondary lines being constructed.

P.I. Ring (Project Induk Jaringan), PLN construction branch in Central Java, has installed 22,409 poles in the 37 desa as of the end of January. Spun-concrete poles are being installed for three-phase circuits, wood poles for single-phase circuits, and steel poles for secondary circuits. At the end of January, thirty-seven (37) kilometers of conductor had been installed in the R.E. Project areas.

Wilayah XIII, the operations branch of PLN in Central Java, is preparing for the crash-program by organizing for customer-application processing and housewiring. In November of 1981, PLN Wilayah XIII conducted a Training Seminar for selected PLN employees who will be "trainors" in these activities. It is planned that training of local workers will be completed by early March and that customer signup and housewiring will be coordinated with primary and secondary line completion, area by area.

--- Headquarter-complex (administrative and warehouse buildings) construction in each of the seven Rural Electrification Project areas nears completion. It is expected that all seven Headquarters facilities will be finished in time for storage of the large quantities of construction materials scheduled to arrive in 1982. (Approximately 21% of the USAID-loan procurement has arrived in-country and is presently stored in PLN warehouses in Semarang.)

B. Training

--- NRECA continued preparation of teaching plans for the R.E. Training Course, "Meter Reading". Activities were coordinated with PLN's training staff and PLN management personnel who are responsible for approving training materials. This training course will be scheduled for completion in 1982.

--- As of this month, a total of thirteen (13) training courses on Rural Electrification Program in Central Java subjects have been held in Central Java. Two hundred ninety-two (292) PLN employees participated. (Training course schedule on page 9 .)

C. PLN Rural Electrification Demonstration Project - Klaten

--- After thirty-three (33) months of operation of the Rural Electrification Project at Klaten, billing statistics continue to indicate that electricity is becoming a natural part of the life-style of the area. Energy consumption in the project area, located near the city of Klaten, averaged 42 kilowatt-hours per customer in January 1982.

The Demonstration Project, which was built in mid-1979 by PLN, is now serving 1,990 customers. The distribution facilities were installed for a potential of 2,000 customers.

E. Meetings & Trips

- Jan. 5 - Semarang: Meeting with deputy director of PLN Wilayah XIII in Central Java to discuss assignment of Mr. Butar Butar, one of 21 PLN Rural Electrification Management Trainees, as NRECA advisor's counterpart.
- Jan. 7 - Semarang: Meeting with training coordinator at PLN P.I. Ring, to discuss Rural Electrification Training Courses in Central Java.
- Jan. 7 - Semarang: Meeting with PLN/R.E. Productive-use consultant in Central Java to review "Crash Program 37".
- Jan. 11 & 12 - Field trip to Klaten and Jogjakarta in Central Java. Met with representatives from U.S. Senate Foreign AID Committee, USAID/Jakarta and the PLN productive-use advisor. Reviewed Klaten Demonstration Project and productive-use promotions. Met with Dr. Anton Soedjarwo in Jogjakarta to discuss Mini-hydro Conference which will be held in 1982.
- Jan. 13 - Semarang: Meeting with deputy director of PLN Wilayah XIII. Discussed training of individuals in the desa who will be wiring the houses.
- Jan. 16 - Semarang: Meeting with chief of Rural Electrification, PLN-Wilayah XIII, Central Java, to discuss procedure for notifying PLN-Central Java when visits are made to PLN projects (by consultants or other persons).
- Jan. 18, 19 & 20 - Traveled to Jakarta to attend NRECA Team Meeting.
- Jan. 27, 28 & 29 - Traveled to Jakarta: Meeting at PDO and PLN. Also attended PLN Coordination Meeting.

KLATEN RE DEMONSTRATION UNIT

BILLING STATISTICS 13 MONTH PERIOD

COLUMN NUMBER									
1	2	3	4	5	6	7	8	9	10
JAN. 1981	63,133	1927	33	5,488,030	2848	1610	1238	49	87
FEBRUARY	64,127	1927	34	5,424,930	2815	1624	1189	48	85
MARCH	77,843	1932	40	5,753,450	2978	1816	1162	45	74
APRIL	67,780	1932	35	5,411,825	2810	1655	1147	47	80
MAY	77,873	1946	40	5,753,855	2856	1808	1148	45	74
JUNE	75,153	1950	39	5,652,455	2899	1770	1129	45	75
JULY	81,678	1955	42	5,825,330	2980	1864	1116	44	71
AUGUST	76,004	1960	39	5,712,755	2915	1781	1134	46	69
SEPTEMBER	86,202	1960	43	5,932,410	3027	1919	1108	45	69
OCTOBER	83,335	1964	42	5,806,480	2956	1880	1076	45	70
NOVEMBER	84,129	1972	43	5,820,160	2952	1886	1066	44	69
DECEMBER	81,762	1982	41	5,711,000	2912	1854	1058	45	70
JAN. 1982	83,545	1990	42	5,820,840	2925	1867	1058	44	70

COLUMN NUMBER

1. MONTH

2. TOTAL KWH BILLED

3. TOTAL CUSTOMERS BILLED

4. AVERAGE KWH PER CUSTOMER

5. TOTAL RUPIAH BILLED

6. AVERAGE RUPIAH PER CUSTOMER (TOTAL)

7. AVERAGE ENERGY CHARGE PER CUSTOMER

8. INSTALLATION & HOUSEWIRING CHARGE

9. COST PER KWH (RUPIAH) ENERGY ONLY

10. COST PER KWH (RUPIAH) TOTAL

- 9 -
**PLN-CENTRAL JAVA RURAL
 TRAINING CO**

COURSE	TITLE	1979				1980			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
	LANGUAGE TR.-MANAGEMENT		25	101			11		
	OUT-OF-COUNTRY TRAINING						12		13
I	INTRODUCTION SUPERVISION		25						
II	ORIENTATION-CUSTOMER CONTACT								
III	CONSTRUCTION SUPERVISION								
IV	TRAINERS TRAINING-HOUSEWIRING								
V	DISTRIBUTION PLAN-DESIGN								
VI	APPRENTICE LINEMAN								
VII	HOUSEWIRING								
VIII	MATERIAL LOGISTICS								
IX	ACCNT. REPORTING-CONST.								
X	ELECTRIC APPARATUS								
XI	METER READING								
XII	PRODUCTIVE USE-OJT								
XIII	ENGINEERING DIST. SYSTEM								
XIV	MATERIAL WAREHOUSE								
XV	ACCNT. REPORTING-OPERATIONS								
XVI	SECTIONALIZING-PROTECTION								
XVII	OPERATIONS-MAINTENANCE								
XVIII	SUPERVISION								
XIX	SAFETY								
XX	EMPLOYEE INFO. SEMINAR								
XXI	COMM. SYSTEMS OPERATIONS								
XXII	LINE MAINT. TECHNIQUES								

COURSES COMPLETED — ■
 COURSES SCHEDULED — ▨

PARTICIPANTS — ■

INDICATES PERIOD OF PERFORMANCE

INDICATES PERIOD OF EVALUATION

ORGANIZATION MANAGEMENT RURAL ELE

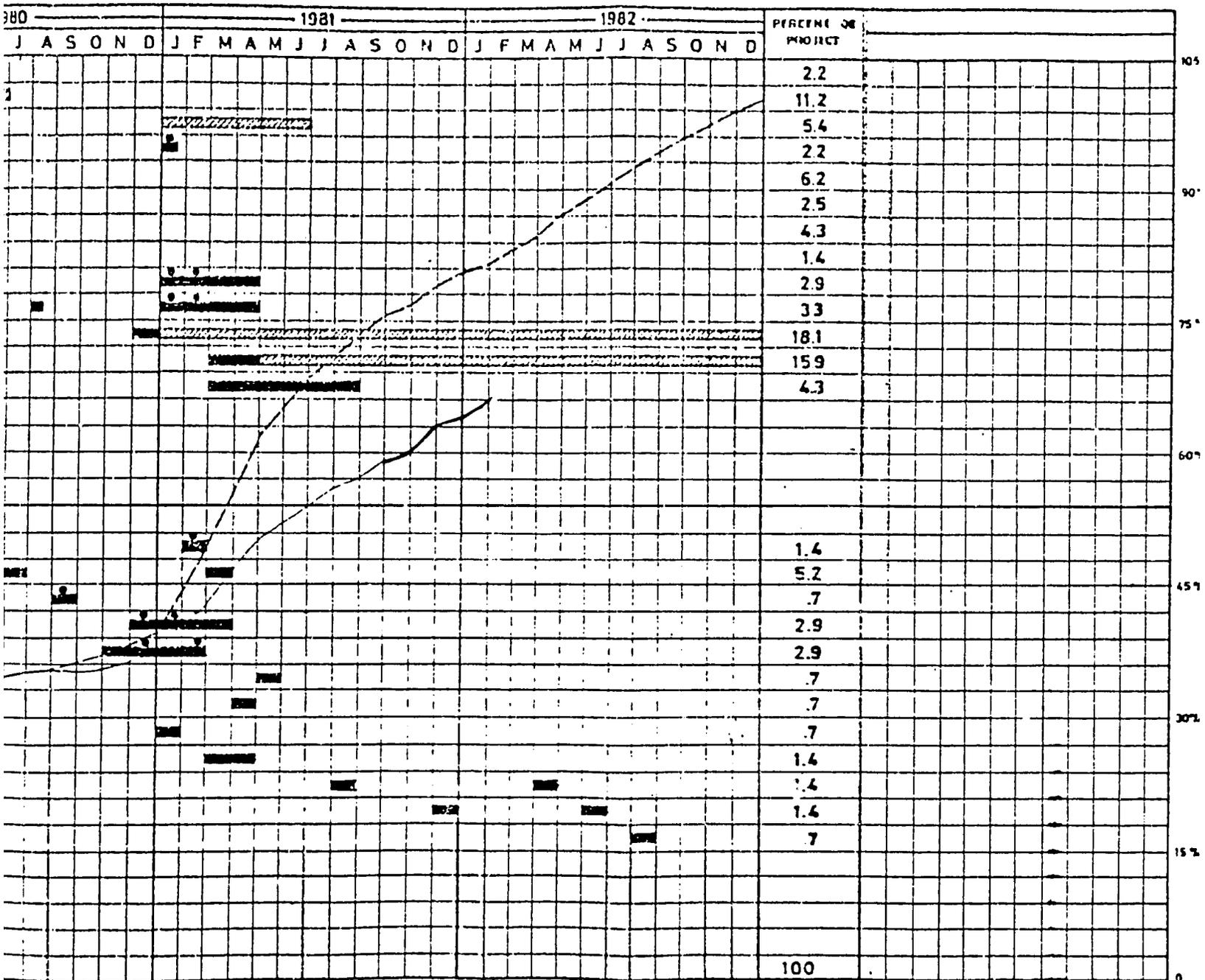
DESCRIPTION		- 1979 -															
		J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A
ORGANIZATION & MANAGEMENT	PROJECT IMPLEMENTATION PLAN - PREPARATION	-----															
	MANPOWER REQUIREMENTS - CONST. - PLANNING	-----															
	MANPOWER REQUIREMENTS - OPERATING - PLANNING	-----															
	SELECTION OF MANAGEMENT PERSONNEL - ADVISING	-----															
	HEADQUARTERS COMPLEX REQUIREMENT - ADVISING	-----															
	TOOLS - WORK EQUIPT. REQUIREMENTS - ADVISING	-----															
	BILLING - ACCOUNTING REQUIREMENTS - ADVISING	-----															
	SELECTION OF SERVICE / HOUSEWIRING DESIGN - PERFORMING	-----															
	SELECTION OF SERVICE / HOUSEWIRING PERSONNEL - ADVISING	-----															
	SELECTION OF CONSUMER - CONTACT PERSONNEL - ADVISING	-----															
	PRODUCTIVE USE PROGRAM - ADVISING	-----															
	REPORTING & MONITORING SYSTEMS - PREPARATION	-----															
	SELECTION OF R.E. SYSTEM EMPLOYEES - ADVISING	-----															
TRAINING COURSES	MANAGEMENT PERSONNEL - IN COUNTRY	-----															
	MANAGEMENT PERSONNEL - OUT OF COUNTRY	-----															
	CONSUMER CONTACT PERSONNEL	-----															
	SERVICE / HOUSEWIRING PERSONNEL	-----															
	ENGINEERING / CONSTRUCTION PERSONNEL	-----															
	METER READING / BILLING PERSONNEL	-----															
	PRODUCTIVE - USE DEPT. PERSONNEL	-----															
	MATERIALS / EQUIPMENT PERSONNEL	-----															
	ACCOUNTING DEPT. PERSONNEL	-----															
	OPERATIONS AND MAINTENANCE PERSONNEL	-----															
	SAFETY AND TRAINING INFORMATION	-----															
	EMPLOYEE INFORMATION SEMINAR	-----															

LEGEND: ----- WORK SCHEDULED - 32%

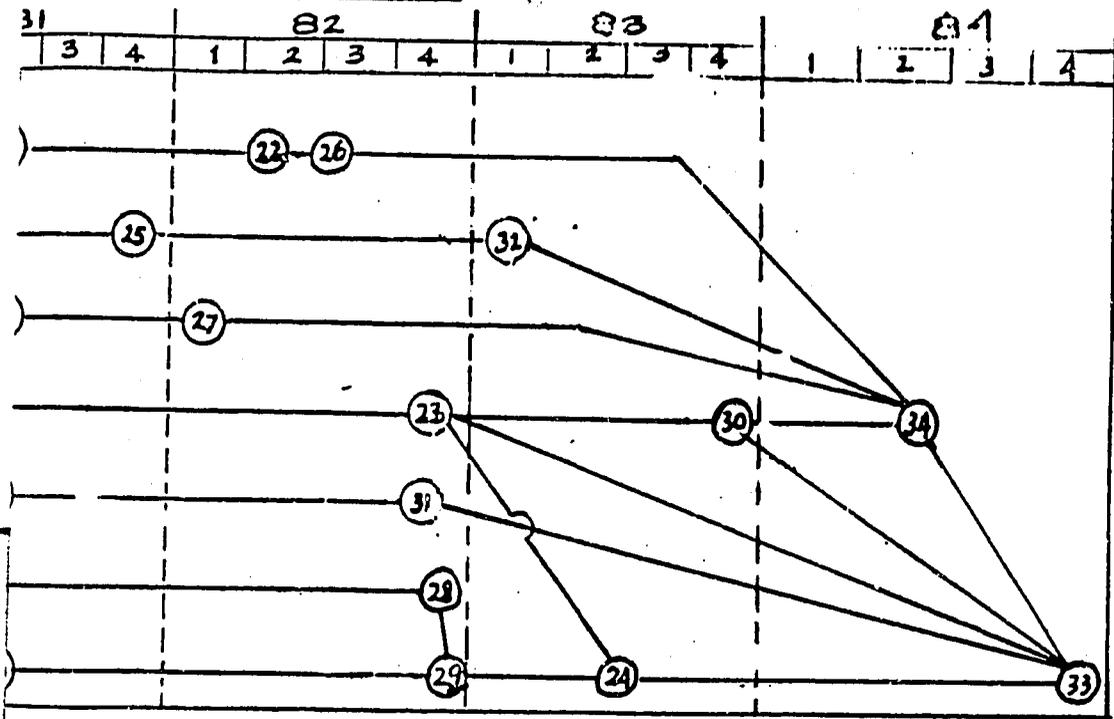
----- WORK COMPLETED - 66%

NT TRAINING PROGRAM PROGRESS SCHEDULE CENTRIFICATION-I-PLN.

NRECA



IMPLEMENTATION PLAN



Summary of Expenditures

National Rural Electrification Cooperative Association
 1800 Massachusetts Ave., N.W.
 Washington, D.C. 20036

AID/ASIA - C 1347
 Date: December 1981
 Period of contract: 8/25/78 - 8/25/82

	Budget	Total Expense To Date	Prior Billings	Current Billings
Salaries - Field	\$ 1,095,000	\$ 793,036.00	\$ 769,154.26	\$ 23,881.74
Salaries - Home	187,000	126,599.90	121,474.59	5,125.31
Fringe Benefits	415,000	298,532.68	291,678.00	6,854.68
Consultant Fees	34,706	33,906.25	33,906.25	-
Allowances	398,000	277,369.91	271,634.58	5,735.33
Travel and Transportation	386,470	271,089.01	267,850.30	3,238.71
Other Direct Costs	140,000	83,654.73	82,131.85	1,522.88
Overhead	292,000	210,705.31	204,033.68	6,671.63
Equipment and Materials	28,000	17,952.23	18,292.46	(340.23)
TOTAL	\$ 2,977,176	\$2,112,846.02	\$2,060,155.97	\$ 52,690.05

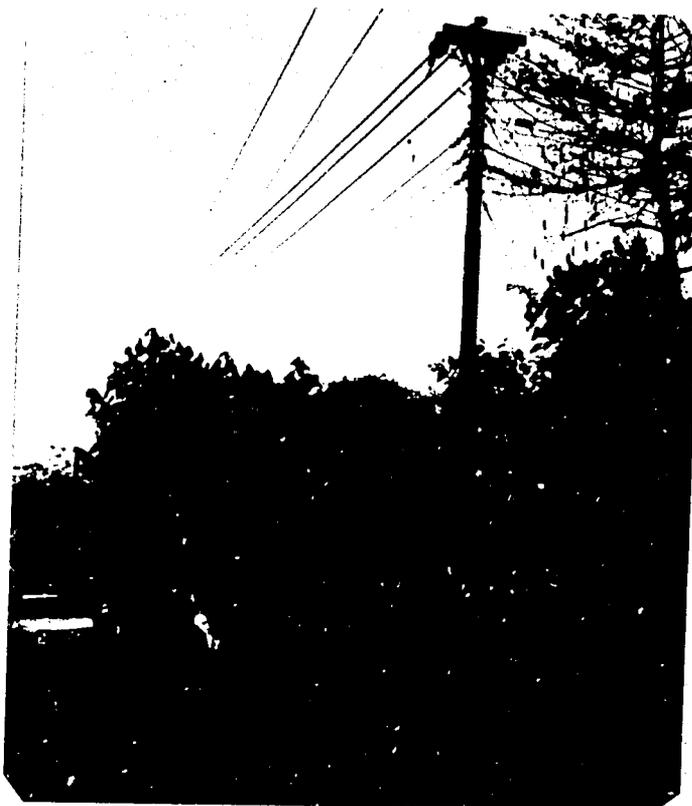
PERSON-MONTHS BY POSITION, NRECA CONSULTANT TEAM

POSITION	PRESENTLY FILLED BY	CONTRACT PERSON-MONTHS	EXPENDED THIS PERIOD	EXPENDED THROUGH JAN.		PERCENT OF CONTRACT
				PLN	PDO	
Team Leader	Peter McNeill	54	1	7.5	32.5	74
Training Officer	Louie Sansing	45	1	7	29	80
Administrative Officer	Ray Shoff	33	1	4	23	82
PLN Advisor	Sam Adkins	42	1	34.5	.5	83
Lampung Advisor	Claude Franke	54	1	.5	39.5	74
Lombok Advisor	Paul Swanson	50	1	0	36	72
Luwu Advisor	John DeFoor	49	1	0	35	71
Short-term Advisors		19	0	14	3	89
Consultants		8	0	7.5	.5	100
		354	7	75	199	77

CENTRAL JAVA



PLN's neatly-arranged pole-storage area at the Klaten Project Headquarters-site.



Concrete poles are being installed for primary, 3Ø lines, (Klaten Project).