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NRECA TEAM REPORT
P L N
INDONESIA

(FEBRUARY - MARCH 1983)

R E P O R T

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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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

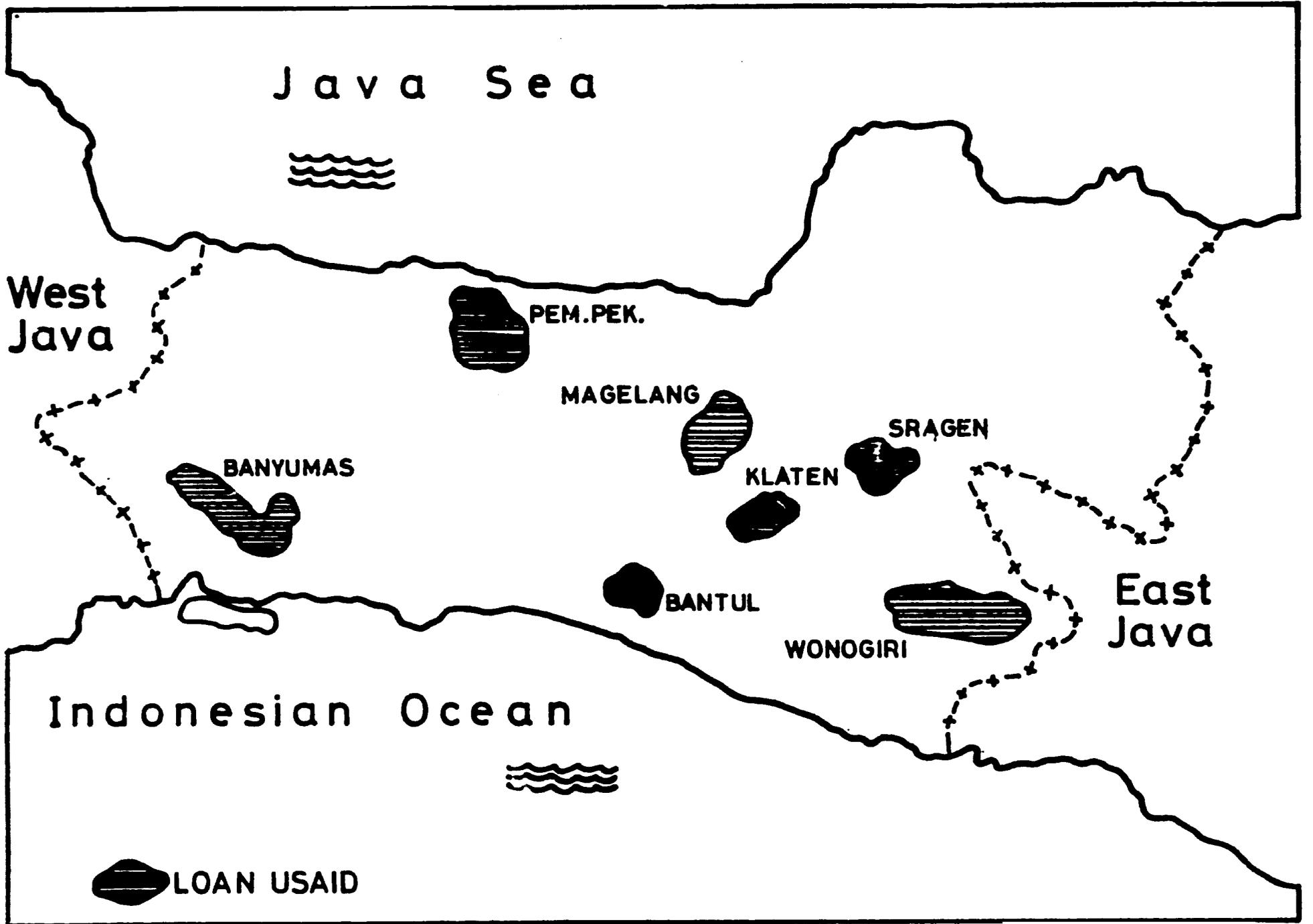
<u>SERVICE AREA</u>	<u>VILLAGES TO BE SERVED</u>	<u>APPROXIMATE NO. OF CONNECTIONS</u>	<u>ESTIMATED NO. OF RECEIPIENTS</u>
Klaten	95	25,000	225,000
Pem/Pek	103	20,000	180,000
Bantul	21	20,000	180,000
Wonogiri	54	15,000	135,000
Sragen	49	15,000	135,000
Magelang	83	20,000	180,000
Banyumas	35	15,000	135,000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

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

The personnel which NRECA is furnishing for the performance of this contract are as follows :

<u>NAME</u>	<u>TITLE</u>	<u>ADDRESS</u>
Ray Shoff	Team Leader/ Administrative/ Finance Officer	Ratu Plaza Apartment #1002 Jl. Jenderal Sudirman PH : 712209 ext. 2015
Louie Sansing	RE Project Advisor & PDO/Cooperative Training Coordinator	Jl. Galuh I/4A Kebayoran Baru PH : 735478
Sam Adkins	PLN Project Advisor, Central Java, and REC Project Advisor	c/o C.T. Main Inc. Box. 26 Semarang PH : 024-312701
John DeFoor	REC Project Advisor, Luwu	KLP Samabotuna Desa Minna - Bone Bone Kabupaten Luwu South Sulawesi

CENTRAL JAVA



CENTRAL JAVA ACTIVITIES

I. ORGANIZATION & MANAGEMENT

PLN Wilayah XIII and PLN P. I. Ring continued activities in preparation for the implementation of the Rural Electrification Program in Central Java.

Speculation relative to the arrival of sufficient items of material to begin major construction of the R.E. Projects indicates that construction should start the first part of June, 1983.

It has been estimated by the Construction Department of PLN in Central Java that the Distribution Systems in the seven Project Areas can be installed and energized in eighteen months. PLN - P. I. Ring. will complete the work by force account.

PLN Distribution Central Java, formerly PLN-Wilayah XIII, has indicated that during this construction period, in excess of seventy-thousand homes will be wired & connected to the system. The housewiring and service entrance responsibilities will be contracted to the local KUD (community cooperative) in each Kecamatan. PLN Distribution Central Java Service Crews will install the Kilowatt hour meters and make the service connection to the PLN System.

At the close of the reporting period approx. 12,938 customers were being served in the seven R.E. Service Areas.

Material for the construction of the overhead electrical distribution system in the seven R.E. Areas of Central Java continues to arrive in Semarang. Presently, eighty percent (80%) of the required material is in the PLN - P. I. Ring warehouse or already transferred to the project sites. The other twenty percent (20%) is in route or in the process of being shipped.

The arrival of the material for wiring the houses in the R.E. Project areas is approx. 95% complete. The other five (5%) is in-route and

will be available as the overhead construction begins. Approx. thirty five percent (35%) of the housewiring material that has arrived has been transferred to the Seven R.E. Project Storage areas.

It is expected that PLN Distribution Central Java will transfer the twenty one (21) Management Trainees to the Seven Project Sites for coordination of the Housewiring Program. These twenty one trainees were selected in 1979 from different areas of the PLN System. Through out 1979 & 1980 they attended Seminars and training sessions on management & operations of electrical distribution systems, English Language Sessions in Semarang and Jakarta, and proceeded to the United States and the Philippines for on-the-job orientation in Rural Electrification Concepts.

Their expertise of the PLN organization and operations, coupled with their exposure to Rural Electrification concepts, will provide valuable experience for coordinating the Housewiring Program in each R.E. area and later, the operation of the systems.

During the reporting period "PLN-Wilayah XIII" title was changed to "PLN-Distribusi Jawa Tengah". Their responsibility will now major on distribution of electrical energy, beginning at the distribution side of the step-down sub-station.

II. TRAINING

Training in Distribution Engineering was completed in February 1983 at the PLN - P. I. Ring Training Facility in Semarang. Three of the Engineering/Technical type R.E. Training courses were combined into one course, "Distribution Engineering & Design" and presented February 7 - 19. Twenty-seven participants from PLN-Pusat, PLN-Distribution Central Java & PLN-P.I. Ring attended the Training Course. The course content and reference material (REA Bulletins) were provided by NRECA-Central Java. The instructors for the course were from : PLN-Pusat, PLN-Pusdiklat, PLN-DMK, PLN-P.I.Ring, PLN-Distribution Central Java & NRECA. The course was designed for mid-level engineers and technicians who will be responsible for the engineering of the

RE Systems during the operations period.

Three meetings was held in Central Java during the reporting period with representatives from PLN-Pusat, PLN-Pusdiklat, PLN-P.I.Ring., PLN-Distribution Central Java and NRECA attending. Major subjects for discussion were, the budget for the remainder of 1983, & the revised training schedule. (revised training schedule attached).

The NRECA Team Leader from Jakarta attended evaluation sessions and closing ceremonies of the R.E. Training Course, "Distribution Engineering & Design".

PLN-Pusat, PLN-Central Java & NRECA completed a revision of the RE Training Course Schedule. A copy is made a part of this report showing courses completed, date, and number of participants. The Schedule also indicates the training to be completed in 1983 and proposed dates.

Reference to the Training Course Schedule will reveal that eighteen (18) PLN-RE Training Courses have been completed involving 436 participants.

Six courses are scheduled for the remainder of 1983. These courses will complete the PLN RE Training Program in Central Java which were proposed in the Plan of Implementation.

III. PLN RURAL ELECTRIFICATION DEMONSTRATION PROJECT

In May of 1979, PLN made electric service available in the villages of Jonggrangan, Karangasom, and Gergunung as a Demonstration Project. These villages are located within the Klaten R.E. Project Area, one of the locations that make up the PLN/USAID RE Program in Central Java.

At the close of March 1983, the Demonstration Project was serving 2069 customers. Each customer consumed on average of 45 KWH for the month. The average KWH per month per customer for the year 1982 was 45.4. The average for the first three month of 1983 is 53 KWH.

MEETINGS & TRIPS

- FEBRUARY 1. Semarang : Meeting with PLN-Productive use Consultant from Klaten and Business Manager for C. T. Main, Inc. Discussed location of potential three-phase customers in the Klaten RE Area.
3. Semarang : Meeting at PLN Distribution Central Java with the Deputy Director, discuss assignment of topics for the RE Training Course "Distribution Engineering & Design"
- 4 & 5. NRECA RE Advisor in Central Java traveled to Jakarta. Met with Team Leader & Representative from RE Section, PLN Pusat. Assisted with correspondence relative to NRECA Services & use of Training Funds.
7. Semarang : Meeting at PLN-P.I.Ring with Representative of PLN-Pusat, discuss training schedule for remainder of 1983.
11. Semarang : Accompany representatives from PLN-P.I.Ring and C. T. Main, Inc. to material warehouse area. Perform stress test on cross-arm braces.
18. Semarang : Meeting at NRECA office in Semarang with Team Leader. Discuss PLN RE Training Program in Central Java.
19. Semarang : Meeting at office of the Central Java Rural Electrification Coordinator with NRECA Team Leader.
21. Semarang : Meeting with Chief of RE at PLN Distribution Central Java, discuss the RE Distribution Construction Schedule.
26. Semarang : Meeting at PLN Distribution Central Java with Technical Section - Discuss electrical loss on 20 KV circuit serving the Klaten RE Demonstration Project.

- MARCH 10 - 18. Travel to Jakarta, Luwu, South Sulawesi and return to Semarang. Meeting with Team Leader.
- 22 - 23. Travel to Yogyakarta with representatives from PLN-RE Jakarta & PLN, RE - P.I. Ring. Meet with representative from Asian Development Bank (ADB), provide Billing - Statistics from the PLN Klaten RE Demonstration Project.
25. Semarang : Meeting with representative from PLN - P. I. Ring. request schedule of construction of the distribution facilities of the R.E. Projects in Central Java.
- 29 - 31. Travel to Lombok & return.

KLATEN RE DEMONSTRATION UNIT

BILLING STATISTICS 13 MONTH PERIOD

COLUMN NUMBER									
1	2	3	4	5	6	7	8	9	10
MARCH - 1982	93.313	1996	47	7.064,230	3559	2494	1045	53	76
APRIL	92.115	1999	46	7.012,820	3508	2472	1035	54	76
MAY	111.327	1999	56	7.766,885	3585	2877	1008	52	70
JUNE	83.880	2002	42	6.624,385	3309	2312	997	55	79
JULY	90.763	2003	45	6.851,790	3421	2439	982	54	75
AUGUST	90.789	2017	45	6.925.820	3433	2436	996	54	76
SEPTEMBER	91.035	2023	45	6.932.821	3427	2430	997	54	76
OCTOBER	89.944	2039	44	6.973,715	3420	2045	1014	54	78
NOVEMBER	81.429	2043	41	6.799,980	3328	2299	1028	56	81
DECEMBER	97.623	2057	47	7.370,830	3583	2533	1048	53	76
JANUARY 1983	116.113	2057	56	8.109,610	3942	2885	1058	51	70
FEBRUARY	118.870	2062	58	8.286,905	5045	4019	1026	70	88
MARCH 1983	94.206	2069	45	6.855,631	4334	3313	1021	73	95

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

**PLN
CENTRAL JAVA RE PROJECTS
BILLING STATISTICS MARCH, 1983**

1	2	3	4	5	6	7	8	9	10
KLATEN	223.454	4139	54	23,339,325	4334	3313	1822	71	104
SRAGEN	113.360	2274	50	10,758,405	4731	3678	1049	74	95
MONOGIRI	16.206	270	60	1,293,815	4791	4095	490	68	80
BANTUL	162.630	2563	63	13,399,364	5228	4896	796	77	82
MAGELANG	29.395	1135	25	7,950,482	7004	2420	4550	93	270
PEJAYEK	115.609	2286	50	16,465,825	7202	3819	3382	76	142
BANYUMAS	9838	271	36	2,231,475	8234	2764	5468	76	227
Total/ Average	670,492	12.938	52	75,438,691	5830	3868	2042	75	113

Column Number

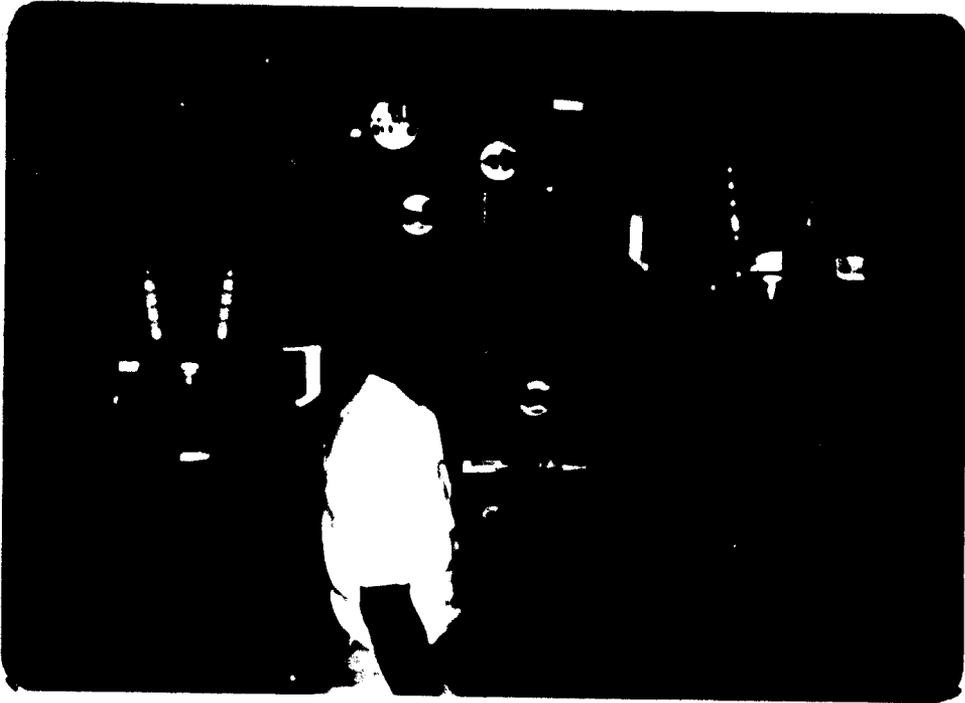
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|-----------------------------|--|
| 1. Project | 6. Average Rupiah Per Customer (Total) |
| 2. Total KWH Billed | 7. Average Energy Charge Per Customer |
| 3. Total Customers Billed | 8. Installation & Housewiring Charge |
| 4. Average KWH Per Customer | 9. Cost Per KWH, Energy only (Rupiah) |
| 5. Total Rupiah Billed | 10. Cost Per KWH, Total (Rupiah) |

PLN-RE CENTRAL JAVA ACTIVITIES

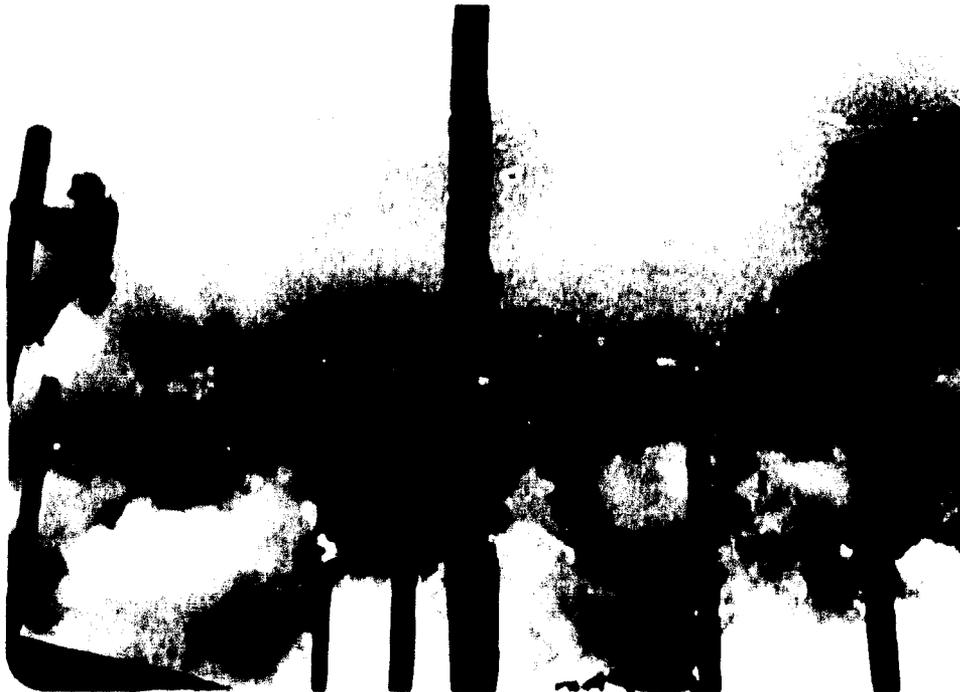
Representatives of PLN-RE Jakarta, and PLN Central Java, at the opening ceremony of a training course "Distribution System Design and Engineering" held in Semarang, February 7 - 19th, 1983.



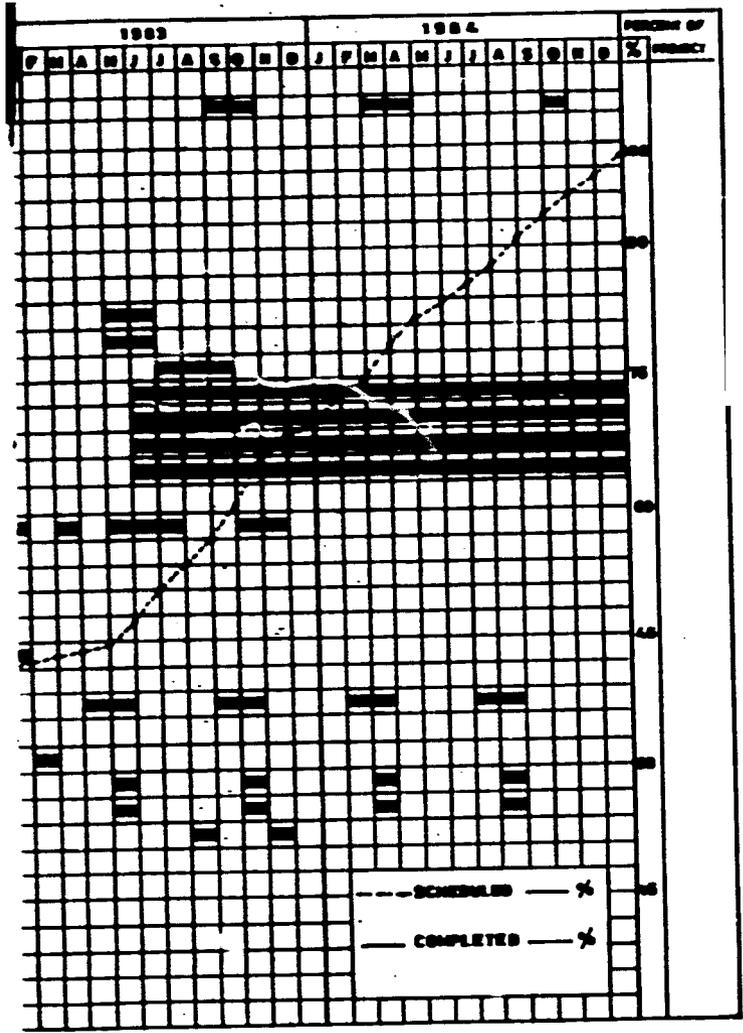
PLN-RE Chief John Rumondor appraising training-course "effectiveness" with participants of the course.

PLN-RE CENTRAL JAVA ACTIVITIES

Mr. Sumarsono, PLN-PI Ring, serving as one of the "trainors" at the "Distribution System Design and Engineering" training course. (Central Java February 7 - 19th)



PLN-PI Ring linemen-trainees during "practice-climbing" sessions, Semarang, in preparation for their duties in the PLN/USAID RE program.



Summary of Expenditures

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

AID/ASIA - C 1347
 Date: January 1983
 Period of contract: 8/25/78 - 8/31/83

	Budget	Total Expense To Date	Prior Billings	Current Billings
Salaries - Field	\$ 1,205,000	\$ 1,071,607.42	\$ 1,054,261.44	\$ 17,345.98
Salaries - Home	216,000	182,180.33	178,709.85	3,470.48
Fringe Benefits	448,000	398,183.01	391,754.88	6,428.13
Consultant Fees	34,706	33,906.25	33,906.25	-
Allowances	418,000	343,404.53	340,068.01	3,336.52
Travel and Transportation	396,470	335,451.21	323,762.55	11,688.65
Other Direct Costs	148,824	98,368.06	98,263.08	104.98
Overhead	603,000	531,815.76	523,072.85	8,742.91
Equipment and Materials	30,000	20,901.49	20,901.49	-
TOTAL	\$ 3,500,000	\$ 3,015,818.06	\$ 2,964,700.41	\$ 51,117.65

PERSON-MONTHS BY POSITION, NRECA CONSULTANT TEAM

(Contract as amended March 14, 1983)

POSITION	PRESENTLY FILLED BY	CONTRACT PERSON-MONTHS	EXPENDED THIS PERIOD	EXPENDED THROUGH MAR. '83		PERSON- MONTHS REMAINING	PERCENT OF CONTRACT EXPENDED
				PLN	PDO		
Team Leader (Administrative Finance Officer)	Ray Shoff	69	2	12.5	41.5	15	78 %
Senior RE Specialist/ Training Officer	Louie Sansing	63	2	7	43	13	79 %
Senior RE Specialist/ PLN - Advisor REC - Advisor	Sam Adkins	53	2	46	3	4	92 %
**RE Specialist Luwu-project Advisor	John DeFoor	47	-	-	47	-	100 %
*Administrative Officer	-	33	0	5.5	27.5	-	100 %
*Lombok Advisor	-	42	0	-	42	-	100 %
*Lampung Advisor	-	46	0	.5	45.5	-	100 %
Short Term Advisors	-	19	0	14	3	2	89 %
Consultants	-	8	0	7.5	.5	-	100 %
		380	6	93	253	34	91 %

* Positions vacated, July 31, 1982

** Position vacated February 2, 1983