

PD-AAI-018

497-0267 *Library*
4970267005302

3

RURAL ELECTRIFICATION PROJECTS

INDONESIA



NATIONAL RURAL ELECTRIC COOPERATIVE ASSOCIATION

JAKARTA, INDONESIA

NRECA TEAM REPORT

PDO

INDONESIA

JULY 1981

MONTHLY REPORT

NRECA INDONESIAN TEAM REPORT

UNITED STATES AGENCY FOR
INTERNATIONAL DEVELOPMENT

Contract No. AID/ASIA CI347
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

TABLE OF CONTENTS

Description and Objectives of Project (DGC)	page 1
NRECA Jakarta Team Activities	3
Outer Island Projects	5
Lombok Electric Cooperative, Operating Statistics	15
Pictures	16
Person-months by Position	18
Summary of Expenditures	19
Outer Islands CPM	20
Cooperative Training Course Schedule	21
Map	22

DESCRIPTION AND OBJECTIVES OF PROJECT (DGC)

The Government of Indonesia (GOI) has initiated a demonstration rural electrification program which is planned to provide areawide electric power distribution in ten specified areas within the next four or five years. The objective of this program is to demonstrate conclusively that reliable electric service and the social and economic benefits that accrue therefrom can be made available to the very poor people at a price they are able to pay.

Three of the electrical distribution systems will be located on separate islands outside of Java and will be implemented through rural electric cooperatives organized by the Directorate General of Cooperatives (DGC). The National Electric Power Agency (PLN) operates an extensive electric system in Central Java, and is responsible for constructing, operating and maintaining the seven systems located on that island.

The U.S. Agency for International Development (USAID) is assisting the GOI in this demonstration by making available AID grant funds to provide organizational, management and technical advisory services. The National Rural Electric Cooperative Association (NRECA), through its International Programs Division, was contracted by AID to provide these services because of its demonstrated capability and experience in assisting rural electric cooperatives in developing nations throughout the world.

NRECA is working with the two separate agencies charged with implementing the project. Because of the different organization, management, training and experience of these two agencies, the services provided by NRECA differ in scope and location. The services for DGC include complete assistance in the organization of the individual cooperatives; including staffing patterns, job descriptions, cost accounting, O&M methods, training, planning, policies and procedures, housewiring and etc. The NRECA services and progress to date for the seven systems in Central Java are the subject of a separate report.

The three outer island projects are located on Central Lampung (South Sumatra), East Lombok, and Luwu (South Sulawesi) and are to be constructed and developed

by the member-consumers themselves through the organization of rural electric cooperatives. Each cooperative will construct, own and operate a diesel generating plant to provide power for the distribution system. (The Canadian Government is assisting with the generating project.) A special agency known as the Project Development Office (PDO) under the Directorate General for Cooperatives (DGC) is the GOI implementing agency for the Cooperatives.

The key personnel which NRECA has agreed to furnish for the performance of this contract are as follows:

<u>NAME</u>	<u>TITLE</u>	<u>ADDRESS</u>
Peter McNeill	Team Leader	Pondok Indah Bukit Hijau VIII/31 PH: 761132
Lloyd Lake	Sr. RE Specialist	P.O. Box 88 Tanjungkarang Lampung PH: 0721-52058
Louie Sansing	Sr. RE Specialist	Jl. Dukuh Patra II/73 Jakarta Selatan PH: 824308 ext 394
*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 Snoff	Administrative/Finance Officer	Ratu Plaza Jl. Jenderal Sudirman PH: 712034
* PLN Advisor		

NRECA Jakarta Team Activities

I. General

The NRECA team leader visited the Lampung project area and attended the energization ceremony on July 13th. The NRECA training officer and the NRECA administrative-finance officer spent a total of six man-days working at the Lombok Cooperative.

Mr & Mrs Claude Franke arrived in Jakarta on July 22nd to join the NRECA team. Briefings were conducted at USAID and the Project Development Office for Rural Electrification (PDO-RE). Mr. Franke, accompanied by his wife, journeyed to the Lampung Cooperative project area, where he will be stationed, on July 29th.

II. PDO-RE Activities

--- At the request of the Director General of Cooperatives, NRECA team members prepared a report on team activities in order to conform to a GOI requirement. This report, which covered a six-month period January through June 1981, was submitted to DGC during this reporting period.

--- Eighteen position-descriptions were drafted by NRECA team members. These position-descriptions, which related to various employment positions within the rural electric cooperative organizations, were reviewed with PDO-RE staff members and placed in final form. Suggestions from the AID project officer were incorporated,

--- Team members participated in a joint coordination meeting held at PDO-RE this month. USAID-PTE, C.T. Main, CIDA, Sandwell and PDO-RE were represented at this meeting. Agenda items included: delivery schedule of generators being procured through Canadian loan fund; status of the three rural electric cooperatives; material procurement progress; IFBs'; headquarters site development and pole procurement.

--- Material requirements for housewiring, service drops and meter entrances for the demonstration electrification project at the Luwu project were reviewed by C.T. Main, PDO-RE and NRECA. Agreement was reached on quantities of material items and types of metering equipment to be procured.

---- Preparation of training-course materials was a continuing activity for NRECA team members this month. Of particular significance were training materials for a course on service-drop, meter entrance installation, held at the Lombok Cooperative during this period. Revisions were made in flow charts and translations were completed.

III. Problem Areas

"A" PDO-RE must act on the selection of permanent managers for the three cooperatives. At present, three PDO-RE employees are serving as managers in an "acting" capacity. If these men are to become permanent managers, this should now be known. If they are to return to their respective positions in the PDO-RE, applications for managers should be solicited.

It is expected that a lull in construction activities will occur at the cooperative's between completion of the demonstration electrification projects and arrival of materials for construction of the main project. This is the period when both in-country and overseas training for managers should occur. Therefore, action is needed now to select permanent managers.

"B" Two of the rural electric cooperatives are now collecting money from the sale of electric energy and the third electric cooperative will soon follow. To-date, there is no approved policy or guideline on the disposition of these funds.

DGC-DIP funds are being used to defray operating expenses at each cooperative. As a result, revenues from energy sales (general funds) are left on-deposit at local banks drawing interest at the low rate of 1.8% P.A.

The cooperatives will continue to need some outside funding to pay operating expenses which exceed their operating revenues. The fact that DIP funds are now being used to pay all operating expenses dictates that a PDO-RE guideline on money-management be issued to the cooperatives.

OUTER ISLAND PROJECTS

LAMPUNG - Sinar Siwomego Electric Cooperative

I. General

The demonstration electrification project was officially energized in July. A crowd of more than two thousand (2000) people were present to hear Mr. Arifin, Jr. Minister of Trade and Cooperatives, and other persons who spoke at the ceremony. (See picture on page 16.)

Approximately seven hundred (700) families were receiving electric service in the demonstration area at the time of official energization. Within a few months, this number should approach two thousand (2000).

II. Operations

--- The cooperative now has seventeen hundred (1700) members. Memberships fees have been received and deposited in a restricted bank account at BRI's Metro branch.

--- Housewiring continues throughout the demonstration project area. Ten contract electricians have wired more than fourteen hundred (1400) homes in a five-month period.

--- The first reading of kWh meters began in July. At the time of meter reading, the Rural Member Service Specialists (RMSS) are collecting three thousand two hundred rupiah (Rp 3,200) from each member. This sum equals two months minimum billing and is reflected on the cooperatives' records as a consumer-deposit.

--- From the kWh meter readings obtained to-date, it appears that the average monthly kWh consumption may approximate 25 kWh. This is noteworthy since presently, electric service is only available for six hours per day.

--- During July, accounting department employees prepared a financial and operating report for the period ending June 30th 1981. Since meter reading did not begin until July, the June 30th operating statement reflects only operating expenses. (See pages 7 & 8.)

III. Problem Areas

A problem listed in the NRECA June Report (no approved retail electric rate) was partially solved during July. PDO-RE approved a retail electric rate which is applicable to residential service.

Unfortunately, the cooperative has not executed agreements with desa officials for street lighting service. Fifteen street lights have been installed but responsibility for payment of energy billing has not been defined.

Solution --- PDO-RE should issue a general guideline to the cooperatives on the subject of "Electric Energy Sales". Criterion for providing lighting service and service to community/public buildings should be established in this guideline.

BALANCE SHEET REPORT
Lampung Electric Cooperative
period ending, June 30, 1981

ASSETS

A - Utility Plant in Service			
- organizational expense	Rp	600,000	
- general plant		38,630,995	
less: depreciation		(581,115)	
T O T A L			Rp 38,649,880
B - Construction Work in Progress			241,556,805
C - Cash: Membership		1,706,992	
- loan funds		24,687,805	
- housewiring income		13,364,676	
T O T A L			39,759,473
D - Receivables: - housewiring		1,948,398	
- employees & directors		1,029,125	
- other		750,000	
T O T A L			3,727,523
E - Inventory: - fuel		196,315	
- materials, electric		91,704,813	
- materials, housewiring		13,223,282	
- office supplies		25,000	
T O T A L			105,149,410
F - Loan Funds Available: - GOI loan		2,112,135,340	
- U.S. \$ loan		2,338,580,675	
- Canadian \$ loan		5,000,000,000	
T O T A L			9,450,716,015
<u>GRAND TOTAL ASSETS</u>			Rp <u>9,879,559,106</u>

LIABILITIES

G - Members Equity: - Membership fees		1,685,000	
- interest on fee deposit		21,992	
- non-operation gain/loss		(385,898)	
- operations gain/loss		(2,421,550)	(1,100,457)
H - Long Term Debt: - GOI loan		2,369,625,000	
- U.S. \$ loan		2,500,000,000	
- Canadian \$ loan		5,000,000,000	
T O T A L			9,869,625,000
I - Accounts payable: - contractors		709,290	
- other		25,000	
T O T A L			734,290
J - Interest Accrual: - GOI loan			2,716,298
K - Accrued Payroll			30,000
L - Contributions DIP fund			7,553,975
<u>GRAND TOTAL LIABILITIES</u>			Rp <u>9,879,559,106</u>

OPERATING REPORT

Lampung Electric Cooperative

June 1981

Operating Revenue

Energy sales	Rp	_____	
Other	Rp	_____	
Total revenue			Rp <u>_____</u>

Operating Expenses

Power Plant

Fuel	Rp	<u>544,660</u>	
Labor, operation	Rp	<u>8,215</u>	
Total power plant expense			Rp <u>552,875</u>

Distribution System

Rp _____

Billing-Collecting

Rp _____

General & Administrative

Rp 1,868,675

Total operating

expenses Rp 2,421,558

Net gain/loss Rp _____

Non-operating (housewiring)

period ending June 30th 1981

Revenue Rp 15,461,668

Expenses

Material Rp 12,015,492

Labor Rp 2,271,950

Other Rp 1,329,644

Total expenses Rp 15,617,086

Net gain/loss Rp (155,418)

LUWU - Samabotuna Rural Electric Cooperative

I. General

The cooperative continued to prepare for constructing and operating a demonstration electrification project in Bone Bone. Meetings were held to plan for receipt of construction materials and generating equipment. The officials of the cooperative, C.T. Main and NRECA who were in attendance at this meeting developed plans for receiving, warehousing and issuing materials and equipment.

II. Organization/Management

--- The cooperative continued to accept membership applications during the month of July. In the micro-REIL area, one hundred and sixty (160) applications have been received and one hundred twenty-one (121) applications were received in adjacent areas. Membership fees (Rp 1000 each) have been collected and deposited in the BRI branch in Bone Bone.

--- Twenty-seven (27) houses were wired during this month, bringing the total completed installations to two hundred fifteen (215). One hundred fifty-nine (159) houses are in the micro-REIL area. Of the total wiring installations, thirty-three (33) members paid cash at the time of installation and twenty-four (24) paid 50% of the installed cost. The minimum required downpayment of 25% was collected for the balance of the wiring installations.

The subject of housewiring for the Luwu Cooperative was discussed at a joint meeting, NRECA/PDO-RE/MAIN, held in Jakarta. It was agreed that the number of completed housewiring installations (reported above) was sufficient at present. As a result, the housewiring program was temporarily stopped at the end of this reporting period.

III. Training

--- There were no formal training courses held in Luwu during the month of

July. However, on-the-job training continued as NRECA assisted employees of the cooperative in warehousing procedures, timekeeping/payroll functions and preparations for meter-reading, billing-collecting.

--- PDO-RE and NRECA trained employees in the accounting department in financial-report preparation following the PDO-approved format. This report is included on page 12.

IV. Problem Areas

"A" A major problem at the Luwu Cooperative relates to electric service and water supply at the headquarters compound in Minna. The situation is serious as the NRECA advisor is forced to spend considerable time on maintenance activities.

Electric Service --- Two 12.5 kw gen-sets are the source of electric power in the Minna compound providing service to the homes of the NRECA advisor, C.T. Main advisor, the acting manager and the cooperative's temporary office. Voltage output is unstable and wide fluctuations occur. As a result, the motor on the NRECA advisor's refrigerator and a motor on an electric fan burned-out.

A 35 kw generator was sent to the Luwu project in January of 1981. This unit arrived in an unserviceable condition and many months were lost trying to locate maintenance parts. When the unit was made operational during this month, the generator burned-out and is now in Ujungpandang being rewound.

Water System --- Water supply from a temporary well is inadequate. Also, the well location in relation to sewer facilities makes the quality of the water questionable.

Solution --- PDO-RE and DGC-Palopo officials should exert greater efforts to solve these utility problem. Requests have been continuous and promises made but remedial measures are still awaited.

Additional "reliable" generators are needed in the Minna compound. The deep well, to be a part of the permanent compound facilities, should be started at the earliest possible date.

BALANCE SHEET REPORT
Luwu Electric Cooperative
period ending June 30, 1981

<u>ASSETS</u>		
A -	Utility Plant in Service	
	- organizational expense	Rp 626,800
	- general plant	1,731,500
	T O T A L	Rp 2,358,300
B -	Construction Work in Progress	6,017,790
C -	Cash:	
	- membership fees	278,000
	- loan funds	144,238,030
	- housewiring income	824,855
	T O T A L	145,340,885
D -	Receivables:	
	- housewiring loans	1,186,777
	- employees & directors	250,000
	- other	7,000,000
	T O T A L	8,436,777
E -	Inventory:	
	- materials, electric	1,300,600
	- materials, housewiring	16,938,668
	T O T A L	18,239,268
F -	Loan Funds Available	
	- GOI Loan	1,690,535,750
	- U.S. \$ Loan	1,625,000,000
	- Canadian \$ Loan	3,750,000,000
	T O T A L	7,065,535,750
	<u>GRAND TOTAL ASSETS</u>	Rp <u>7,245,928,770</u>
 <u>LIABILITIES</u>		
G -	Members Equity	
	- membership fees	278,000
	- non-operating gain/loss	(262,730)
	T O T A L	15,270
H -	Long Term Debt	
	- GOI Loan	1,370,037,500
	- U.S. \$ Loan	1,625,000,000
	- Canadian \$ Loan	3,750,000,000
	T O T A L	7,245,087,500
I -	Accounts Payable	
	- suppliers	826,000
	<u>GRAND TOTAL LIABILITIES</u>	Rp <u>7,245,928,770</u>

LOMBOK - Sinar Rinjani Electric Cooperative

I. General

The NRECA project advisor for this cooperative returned from home-leave the first week of July. Upon arrival at Lombok, the local DGC office provided him with a vehicle to replace the jeep which was wrecked during his absence.

II. Organization/Management

--- Electric distribution facilities to the desa of Kalijaga were test-energized during this month. Approximately eighty (80) consumers were added bringing the total connections to 1570 at months end.

--- Service drop installations and housewiring continued in the Kalijaga area. When the present member-applicants are served the consumer-base will approach two thousand (2000).

--- Rural Member Service Specialists from the cooperative began assigning consumer account numbers and stenciling the numbers on homes. Meter-reading route books were prepared.

--- Accounting department personnel continued their "catch-up" activity. With NRECA assistance, general ledger entries were made for the months of February through June, 1981. At the end of this reporting period, information was being obtained to facilitate the preparation of financial reports covering the period ending June 30, 1981.

--- The chief accountant and the cashier, both new employees of the cooperative, revised cash-disbursement records and procedures. A functional cash disbursement register is now in use and expenses are being recorded to the proper expenses account. Check-vouchers are being prepared for every check written. The imprest system for petty cash disbursement is being followed.

III. Operations

--- kWh generation and sales increased approximately 6%, June versus May 1981. Thirty-four thousand five hundred ninety-six (34596) kWhs were

billed to one thousand four hundred eighty-five (1485) consumers in June, an average usage of 23.3 kWh/consumer. (July statistics were not available due to billing cutoff dates.)

--- Collection efficiency is gradually improving and now approximates 95%. The cooperative has nearly twenty-six million rupiah (Rp 26,000,000) on deposit representing collections from energy sales and housewiring activities.

IV. Training

--- NRECA conducted a two-day workshop on service drops/kWh meter entrance installations for personnel of the cooperative. On-the-job training was conducted in Kalijaga and classroom presentations were made at the cooperatives' headquarters. Thirteen employees and the PDO-RE acting manager participated in the workshop.

V. Problem Areas

Personnel problems remain in the forefront. Improvements in the accounting department hinge upon the performance of the newly hired chief accountant. He has now been with the cooperative two months of his three-month probationary period. Although progress is visual, improvements have not reached expectations.

Another key employee functions in the dual capacity of stock clerk and payroll clerk. This employee is well qualified and experienced since he has been with the cooperative since it was organized. Unfortunately he is seriously ill and has been away from his work for one month.

Solutions --- The overall staffing problem for this cooperative is being given serious attention by the acting manager and top-level PDO-RE officials.

LOMBOK ELECTRIC COOPERATIVE
OPERATING STATISTICS
February - June 1981

	FEB	MAR	APR	MAY	JUN
Number consumers billed	1401	1424	1430	1459	1485
Total revenue	Rp 2,048,545	Rp 2,175,465	Rp 2,145,785	Rp 2,339,065	Rp 2,435,925
Total kWh billed	28,704	27,518	28,106	32,349	34,596
Average revenue per consumer	Rp 1,462	Rp 1,528	Rp 1,501	Rp 1,603	Rp 1,640
Average number kWh per consumer	20.5	19.3	19.7	22.2	23.3
kWh generated	30,270	38,302	38,377	41,849	44,286
Liters diesel fuel consumed	9,182	14,740	14,545	16,970	14,985
kWh's generated per liter	3.3	2.6	2.6	2.5	2.9
Fuel and lube oil cost	Rp 486,000	Rp 883,000	Rp 858,000	Rp 898,000	Rp 830,702
Fuel cost per kWh generated	Rp 16	Rp 23	Rp 22	Rp 21	Rp 19
% system losses	5%	28%	27%	23%	22%
Peak kw demand	-	-	-	181	183

TRAINING

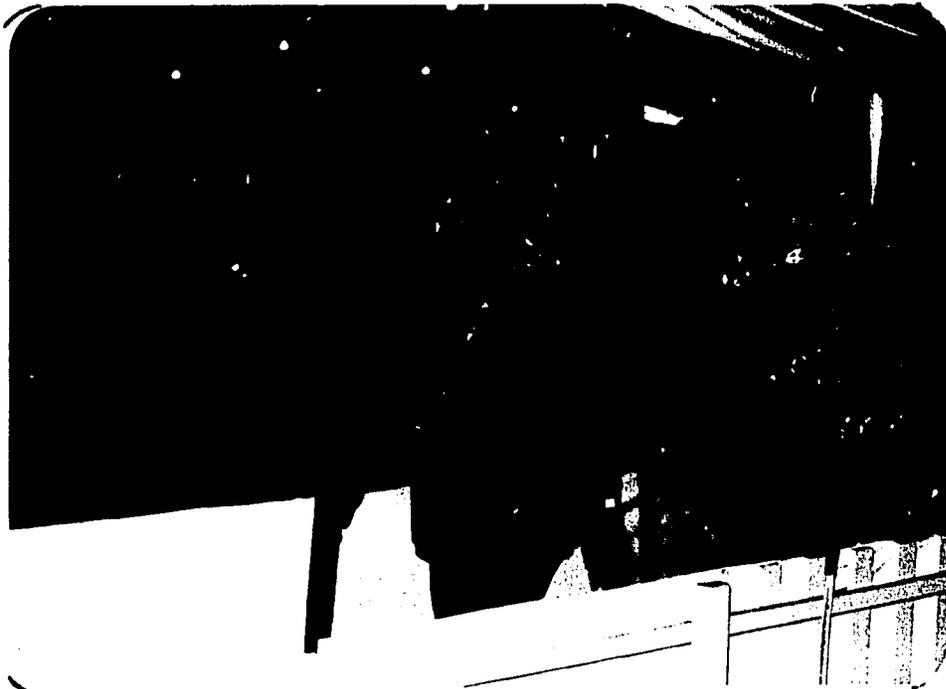


LAMPUNG - Employees of the cooperative attending a PDO/NRECA-sponsored seminar on the subjects of "Log-sheet, Report Requirements and Preparations", temporary power-plant site near Metro, Lampung.



LUWU - A member of the Board of Directors (with glasses), PDO-RE accounting department employee (grey shirt), and employees of the cooperative attending a seminar on "Construction-cost Accounting" conducted by PDO and NRECA in the cooperative's temporary office in Bone Bone.

LAMPUNG
Energization Ceremony



Mr. Bustanil Arifin, Junior Minister for Cooperatives, and Yasir Hadibroto, Governor of Lampung at the energization ceremony.



Five USAID-furnished generator sets and temporary power-plant facilities, the electric power service for the demonstration electrification project, Metro Lampung.

PERSON-MONTHS BY POSITION, NRECA CONSULTANT TEAM

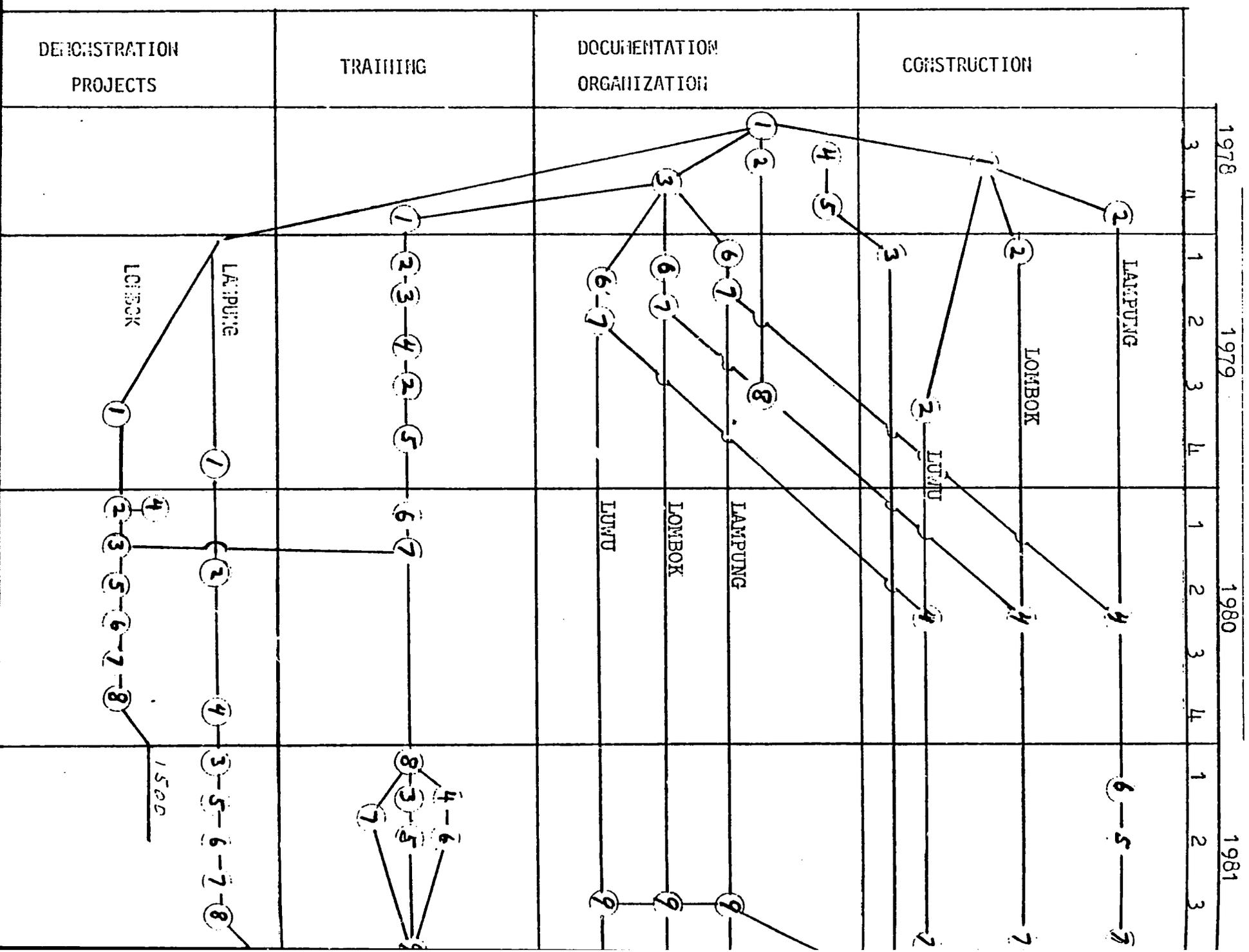
POSITION	PRESENTLY FILLED BY	CONTRACT PERSON-MONTHS	EXPENDED THIS PERIOD	EXPENDED THROUGH JULY	PERCENT OF CONTRACT
Team Leader	Peter McNeill	36	1	34	94
Training Officer	Louie Sansing	36	1	30	83
Administrative Officer	Ray Shoff	19	1	21	111
PLN Advisor	Sam Adkins	42	1	29	69
Lampung Advisor	Lloyd Lake	44	1	34	77
Lombok Advisor	Paul Swanson	44	1	30	68
Luwu Advisor	John DeFoor	44	1	29	66
Short-term Advisors		27	0	18	67
Consultants		31	0	0	0
		323	7	225	70

Summary of Expenditures

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

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

	Budget	Total Expense To Date	Prior Billings	Current Billings
Salaries - Field	\$ 874,520	\$ 643,099.80	\$ 620,895.82	\$ 22,203.78
Salaries - Home	140,050	108,017.35	105,819.24	2,198.11
Fringe Benefits	256,664	240,184.83	233,852.54	6,322.29
Consultant Fees	95,800	35,906.25	33,966.25	
Allowances	366,145	244,523.91	235,718.23	8,805.68
Travel and Transportation	310,000	221,262.25	213,220.37	8,041.88
Other Direct Costs	125,900	74,511.56	70,773.79	3,737.77
Overhead	225,000	171,946.01	166,333.52	5,612.49
Equipment and Materials	15,000	18,392.51	15,705.27	2,687.24
TOTAL	\$ 2,410,000	\$ 1,755,844.47	\$ 696,225.03	\$ 59,619.44



RURAL ELECTRIC COOPERATIVE ASSOCIATION

5 Avenue, N.W.
0036/202-857-9500

1982				1983			
1	2	3	4	1	2		
						1985	<ol style="list-style-type: none"> 1. A/E CONTRACT SIGNED 2. A/E STARTS DESIGN WORK 3. CIDA CONSULTANT STARTS DESIGN 4. MAJOR PROCUREMENT & OBLIGATION DOCUMENTS PROCESSED 5. START HEADQUARTERS CONSTRUCTION 6. START SYSTEM CONSTRUCTION 7. COMPLETE HEADQUARTERS CONSTRUCTION 8. INTERIM GENERATORS INSTALLED 9. MEMBER ENERGIZATION 10. CANADIAN GENERATOR INSTALLED 11. CUSTOMER CONNECTIONS
9				10-9		11	21000
9				10-9		11	21000
9				10-9		11	14000
						1984	<ol style="list-style-type: none"> 1. GRANT AGREEMENT SIGNED 2. LOAN AGREEMENT SIGNED 3. NRECA CONTRACT SIGNED 4. CIDA LOAN FOR GENERATORS SIGNED 5. CIDA GRANT SIGNED 6. START ORGANIZING COOPS 7. INTERIM BOARD APPOINTED 8. CONDITIONS PRECEDENT MET 9. INTERIM AREA MEMBERSHIP DRIVE 10. MAJOR MEMBERSHIP DRIVE INITIATED 11. PERMANENT COOPERATIVE BOARD ELECTED
				10		11	
				10		11	
				10		11	
							<ol style="list-style-type: none"> 1. PDO ADMINISTRATION 2. COOPERATIVE MANAGEMENT 3. RURAL MEMBER SERVICE SPECIALIST 4. ACCOUNTING 5. HOUSEWIRING 6. MATERIAL LOGISTICS & CONTROL 7. OPERATIONS - MAINTENANCE - CONSTRUCTION 8. START TRAINING PHASE 9. COMPLETE TRAINING PHASE
							<ol style="list-style-type: none"> 1. DESIGN BEGINS 2. IFB ISSUED 3. CONSTRUCTION BEGINS 4. HOUSEWIRING STARTS 5. GENERATORS INSTALLED 6. PROJECT ENERGIZED 7. CONSTRUCTION ENDS 8. CUSTOMER CONNECTIONS



PDO - R E OUTER ISLANDS
COOPERATIVE TRAINING COURSE SCHEDULE

NRECA NATIONAL RURAL ELECTRIC COOPERATIVE ASSOCIATION
1800 Massachusetts Avenue, N.W.
Washington, D.C. 20036/202-857-9500

NO.	TITLE	TARGET DATE IMPLEMENTATION PLAN	COURSE DURATION	1979				1980				1981				1982			
				1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
200	COOPERATIVE MANAGEMENT	MAY 1979	30 hrs.	⑤	②	②	⑤	③	②	①									
205	RMSS TRAINING	JUNE 1979	30 hrs.		⑤														
206	ACCOUNTING - REPORTING	JUNE 1979	40 hrs.				⑬			⑩		⑫	⑫	⑧					
210	STAFF ORIENTATION	AUGUST 1979	20 hrs.						⑰	⑳									
220	TRAINERS TRAINING (CONSTRUCTION)	OCT/NOV 1979	200 hrs.				○						○						
230	TRAINERS TRAINING (HOUSEWIRING)	NOV/DEC 1979	40 hrs.				⑫												
240	LINEMAN'S TRAINING	JAN/FEB 1980	200 hrs.					⑪			⑳	⑫							
250	ELECTRICIAN TRAINING	JAN/FEB 1980	40 hrs.				⑭			⑭	⑨	⑭							
260	PRODUCTIVE USE SPECIALIST	MARCH 1980	60 hrs.																○
300	MATERIAL LOGISTICS	JANUARY 1980	40 hrs.					⑨			⑦	⑩	⑫						
310	ACCOUNTING - REPORTING	FEBRUARY 1980	40 hrs.													○		○	
320	ELECTRICAL APPARATUS	MARCH 1980	60 hrs.													○		○	
330	ENGINEERING	MAR/APR 1980	40 hrs.															○	
340	METER READING	JULY 1980	40 hrs.						⑩				⑪	○					
350	OPERATIONS MAINTENANCE	SEPTEMBER 1980	60 hrs.							⑭		⑮	○						
360	ACCOUNTING - REPORTING	NOVEMBER 1980	40 hrs.													○			○
370	WORK ORDER CONTROL	JANUARY 1981	40 hrs.													○			
380	SUPERVISORY SKILL	FEBRUARY 1981	15 hrs.													○			
390	SAFETY TRAINING	MARCH 1981	15 hrs.						⑭							○		○	
400	INFORMATION SEMINAR	MARCH 1981	16 hrs.																○
410	LINE MAINTENANCE	APRIL 1981	16 hrs.																○
	POWER PLANT OPERATORS**						⑥			⑥	⑥		⑥						
	SERVICE DROPS**												⑪						
320*	REPEAT COURSE																		
330*	REPEAT COURSE																		
380*	REPEAT COURSE																		
390*	REPEAT COURSE																		

* Repeat courses as needed

** Course added

Course completed and number of people trained ○

Courses scheduled ○



RURAL ELECTRIFICATION COOPERATIVE PROJECT SITES

