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**RURAL ELECTRIFICATION PROJECTS  
INDONESIA**



**NATIONAL RURAL ELECTRIC COOPERATIVE ASSOCIATION  
JAKARTA, INDONESIA**

NRECA TEAM REPORT

PDO

INDONESIA

NOVEMBER 1981

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PERSON-MONTHS BY POSITION, NRECA CONSULTANT TEAM

POSITION	PRESENTLY FILLED BY	CONTRACT PERSON-MONTHS	EXPENDED THIS PERIOD	EXPENDED THROUGH NOV.		PERCENT OF CONTRACT
				PLN	PDO	
Team Leader	Peter McNeill	54	1	7	31	70
Training Officer	Louie Sansing	45	1	7	27	76
Administrative Officer	Ray Shoff	33	1	3.5	21.5	76
PLN Advisor	Sam Adkins	42	1	32.5	.5	79
Lampung Advisor	Lloyd Lake	54	1	.5	37.5	70
Lombok Advisor	Paul Swanson	50	1	0	34	68
Luwu Advisor	John DeFoor	49	1	0	33	67
Short-term Advisors		19	0	14	3	
Consultants		8	0	7.5	.5	
		354	7	72	188	73

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

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

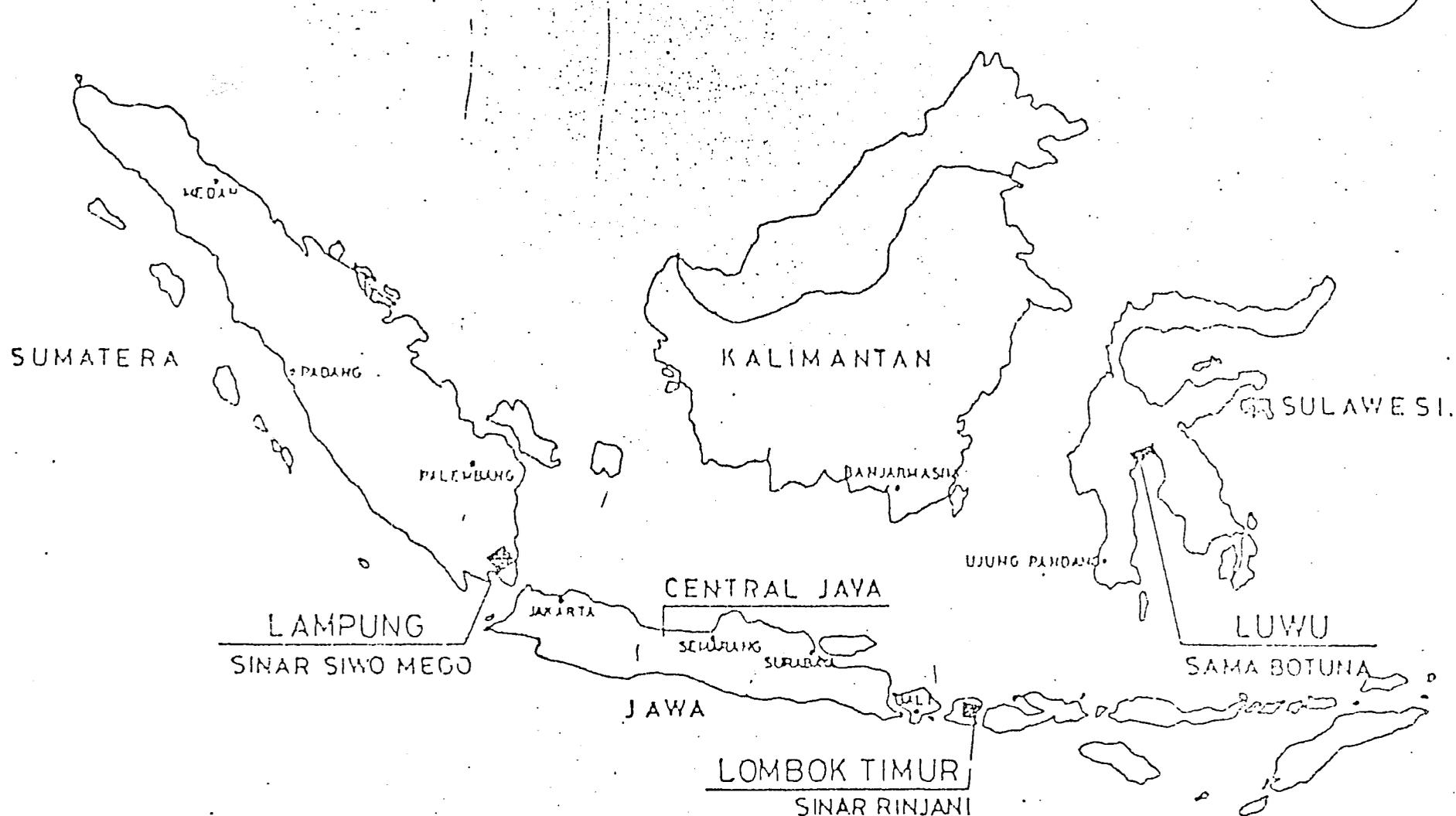
by the member-consumers themselves through the organization of rural electric cooperatives. Each cooperative will construct, own and operate a diesel generating plant to provide power for the distribution system. (The Canadian Government is assisting with the generating project.) A special agency known 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
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: 0721-52058

\* PLN Advisor

# RURAL ELECTRIFICATION COOPERATIVE PROJECT SITES



## NRECA Jakarta Team Activities

### I. General

--- The NRECA team leader and the team administrative-finance officer were both in-country throughout this reporting period, and the training officer returned from R&R and resumed his duties in the first half of this month. Three trips were made to outer-island projects, one trip by each of the three Jakarta-based team members.

--- A regularly scheduled team meeting was held in Jakarta with the three outer-island project advisors in attendance. In connection with this meeting, the team toured the agriculture equipment production-center of the International Rice Research Institute (IRRI) in Jakarta. Rice production, harvesting, threshing and dryer equipment was observed and information obtained on availability and cost. Electrically operated equipment can be made available at all RE project sites as one means of using electric service productively.

--- The NRECA team leader met with USAID-PTE officials on various subjects including; (1) plans for a team from USAID/Washington to come to Indonesia in the near future to evaluate the cooperatives; (2) statistical information from the demonstration RE projects on kWh consumption and kw demand; (3) and the NRECA team man-power requirements through 1984, the year in which the RE construction program is scheduled for completion.

--- NRECA was represented at a meeting called by the Director of Energy, Dr. Samaun Samadikun. Officials from the Director General of Cooperatives office joined representatives from PLN, Ministry of Finance, and the Department of Home Affairs to discuss the role of mini-hydro in rural electrification. DGC and PLN presented reports and results of surveys conducted by their respective organizations.

As a follow-up on this subject, a meeting was held at DGC with PLN, DGC, Ministry of Finance officials, and NRECA in attendance. It was agreed that

PLN and DGC will work together on pre-feasibility mini-hydro site selections. Representatives of the Department of Finance expressed interest in the project and requested additional information on the financial assistance proposed by USAID.

## II. PDO-RE Activities

--- NRECA team members continued daily coordination with PDO-RE staff members and co-consultants C.T. Main. Joint-meetings were held to review project status and the projected construction schedules.

--- NRECA team members reviewed kw load projections for each of the RE projects. Projections were compared with statistical data from the RE demonstration projects and revised projections made available to the Canadian consulting firm responsible for the installation of generating equipment, Sandwell Inc.

--- At the request of PDO-RE, NRECA team members studied personnel requirements for the three cooperatives through the 1983-84 construction period and to the operating year 1990. Estimates were made of the number of employees required in each department for respective years. Information provided to PDO-RE will be used in financial-budget preparation and for long-range forecasts of funding requirements.

--- PDO-RE and NRECA staff members met to review financial reports received from the cooperatives on demonstration-project operations. Recommendations were developed for assignment of operating expenses in the cooperative's accounting system which will more accurately reflect demonstration project operating margins or losses.

--- NRECA team members began the preparation of a coding system for general-plant and inventory items procured, or to be procured, by the RE cooperatives. Each classification of material and equipment was assigned a code LETTER

followed by NUMBERS which identify each particular item. This uniform coding system, to be used for inventory control, will be forwarded to the RE cooperatives in the form of a PDO-RE GUIDELINE with instructions for implementing the use thereof.

--- Assistance was given to PDO-RE in the procurement of electrical meters and diesel fuel flow-meters needed in the power-plants at all three RE projects. Specifications were prepared and presented to PDO's procurement section for this equipment which, when installed, will improve statistical-data reporting on power-plant operation.

--- NRECA staff members assisted PDO-RE in planning for construction to another desa in the Lombok service area. Construction to Suralaga, the fifth desa which will receive electric service, is scheduled to begin in December 1981. PDO-RE will coordinate material procurement efforts and monitor construction activities.

--- Training - Workshops on construction-cost accounting and operating-period accounting continued to completion during November. Eighty (80) hours of instruction and practice sessions was included in this NRECA-sponsored training, held at the PDO-RE office for eight (8) PDO-RE staff members. (Course outline and contents was included in NRECA's October report.)

--- In addition to scheduled training, NRECA staff prepared training materials for future courses to be held at the RE cooperatives. Training-course materials for completed courses were duplicated and filed in permanent binders to become a part of PDO-RE library.

### III. Problem Areas

--- The finance department of PDO-RE is now preparing a budget for fiscal year 1982-83 for funding the operations of the Project Development Office for Rural Electrification. Prior to finalizing budget inclusions, the

organizational structure and staffing requirements for PDO-RE should be reviewed. It is evident that some departments of PDO-RE are overstaffed while other departments may be understaffed. NRECA is encouraging action on this subject.

--- The selection of permanent managers for the three RE cooperatives is still listed as a "problem area". The target date for selection has already past and unfortunately, no plan has been formulated.

OUTER ISLAND PROJECTS

LOMBOK - Sinar Rinjani Rural Electric Cooperative

I. General

--- The NRECA project advisor attended the NRECA team meeting held in Jakarta on November 3, 4. The balance of the month, he was at his assigned location providing assistance to the East Lombok R.E. Cooperative.

--- The Director General of Cooperatives, Prof. Ir. Sudjanadi and the Lombok Provincial Governor, Mr. Gatot Suherman, visited the cooperative's service area this month. These dignitaries met with officials of the cooperative and the NRECA advisor, and toured the headquarters facilities and power plant. They also visited locations where consumers are using electric service for productive uses. (Pictures on page 18)

II. Organization/Management

--- Members of the Board of Directors and the acting manager traveled to Jakarta this month to meet with PDO-RE officials. At this meeting, PDO-RE approved the cooperative's request to begin extension of electrical distribution lines to the desa of Suralaga. It is estimated that a minimum of four hundred (400) consumers will be connected initially to the three-kilometer extension of primary distribution line.

--- The NRECA advisor assisted the cooperative staff in updating stock record cards prices. Average-prices were established for numerous material items which are used for similar purposes. This average-price system will simplify pricing of items on material-charge-tickets without loss of financial control.

--- Billing for all outstanding housewiring loans was completed during the last reporting period. This month, the NRECA advisor assisted accounting department personnel in the enforcement of collection policies and proper accounting for housewiring collections.

### III. Operations

--- NRECA staff continued assistance to the cooperative in their efforts to utilize the USAID-furnished 50 kw genset at the Aikmel power-plant. In addition to assistance by Jakarta-based personnel (referred to earlier in this report) the project advisor worked with C.T. Main field representatives and power-plant personnel on genset placement and connection plans.

--- The peak load at the power-plant this month was 250 kilowatts, occurring on Friday, November 6. Normal peak load reflected on other days of the month approximates 225 kws.

--- The average number of consumers receiving service this month approached one thousand eight hundred and fifty (1850). Peak demand per consumer calculates at .122 kw or 122 watts.

--- The NRECA project advisor made a study of consumer kWh usage as related to percentage of total consumer connections. The results are as follows:

<u>kWh usage</u>	<u>% of total consumer</u>
0 - 10 kWhs	33.5%
11 - 19 kWhs	34.5%
20 - 24 kWhs	10.4%
25 - 29 kWhs	4.9%
30 - 34 kWhs	4.2%
35 - 40 kWhs	3.5%
41 - 50 kWhs	3.4%
51 - 75 kWhs	3.2%
76 - 150 kWhs	1.4%
over 150 kWhs	1.0%
	<hr/>
	100%

The average kWh consumption per consumer for the total number of consumers billed was 22 kWhs. This can be seen in the above usage study since 83% of the consumers use less than 30 kWhs per month. As a note of interest, the feasibility study for this project included an estimate of 20 kWhs per month for the first four years of operation.

#### IV. Problem Areas

--- The major portion of operating expenses, such as diesel fuel for the power-plant and direct labor costs, are still being paid from GOI-DGC DIP funds. This is of great benefit to the cooperative since most of the revenue from sale of electric energy can be retained on short-term interest bearing deposits at a local bank. However, the cooperative is experiencing difficulty in obtaining complete information on expenses paid from DIP funds since this fund is controlled by the local DGC office, following their own accounting system. As a result, preparation of income and expense reports by the cooperative, for each respective month, is usually delayed.

PDO-RE and NRECA staff are assisting the cooperative in finding a solution to the problem. Hopefully, monthly reports for 1982 can be submitted to PDO-RE on a current basis.

--- Two of the 100 kw gensets in the Akme1 power-plant have mechanical problems. As a result, the peak load of 250 kws has been carried by the three remaining 100 kw gensets with no reserve capacity available.

The power-plant Superintendent and the manager are making every attempt to initiate repairs of the two gensets but, at the end of this reporting period, the situation remains unchanged. It is necessary for PDO-RE to provide assistance to the cooperative in locating the required expertize for genset repairs.

LAMPUNG - Sinar Siwomego Rural Electric Cooperative

I. General

--- The NRECA project advisor to this cooperative traveled to Jakarta during the first week of November to attend an NRECA team meeting. The balance of the month, he was fulfilling his regular assignment in Lampung.

--- At the cooperative, activities centered on operation and maintenance of the generation and distribution-system facilities which comprise the R.E. demonstration project.

II. Organization/Management

--- NRECA team members assisted the acting manager in selecting an accountant to fill the dual positions of stock record clerk and work order clerk. After screening and testing applicants, this position was filled. The NRECA project advisor and the administrative-finance officer provided on-the-job training for the new employee.

--- The NRECA advisor conducted a review of kWh-meter handling and internal control of meters installed or removed from consumer locations. The advisor and employees of the Rural Member Services Department met to discuss results of the review and to devise a means of improving kWh meter-flow.

--- The accounting staff continued to assign costs associated with the construction of the demonstration project to the respective utility-plant accounts. Completed costs of the generating plant totaled at Rp 18,000,000 (\$28,600); costs of the step-up substation at Rp 15,000,000 (\$23,800); and costs of the distribution system at Rp 183,000,000 (\$290,500).

--- The NRECA advisor and employees in the Member Services Department visited potential large-power users this month to evaluate kilowatt load and hours-use. One ice plant, located adjacent to the cooperative's

distribution lines, has a peak load in excess of 100 kws and a load-factor (hours-use factor) of approximate 80%. The possibility of serving this electric load off-peak is now being explored and later, when the cooperative has sufficient power available, 24-hour service would be possible.

--- The cooperative has been reading kWh meters and billing consumers for a period of five months by following a "trial" meter-reading/billing (MRB) procedure. In this MRB method, employees of the cooperative read meters to determine kWh usage for the past month and, during the same trip, collect for energy consumed during the previous month. (Read meters for month #2 and collect for month #1 etc.)

NRECA team members and the cooperative's management have been monitoring this MRB system and during November, meetings were held to document pro's and con's. Comparisons were made with the MRB systems in use at the Lombok and Luwu Cooperatives and the results are still being studied.

### III. Operations

--- The power-plant began operation at 5 P.M. each day and continued until 6 A.M. throughout this reporting period. An improvement was made in operating practices and only three gensets were operated for three hours over peak-load period; two gensets for the two hours that follow; and one genset served the load thereafter. With this improvement, fuel costs per kWh generated in November were estimated at Rp 18, a substantial decrease from the previous months estimate of Rp 27.

--- PDO-RE representatives and NRECA team members studied the equipment requirements for measuring diesel-fuel receipt and usage for the temporary power-plant. Flow-meters were located in Jakarta, procurement completed, and metering of fuel usage had been completed by the end of November. When all flow-meter installations are completed, generation cost-data will be reliable and greater controls of diesel fuel will be possible.

IV. Problem Areas

--- As included in previous NRECA monthly reports, the major problem at this cooperative is activities and status of the Board of Directors. The strained relationship between the PDO-RE acting manager and Board members has caused a feeling of insecurity among employees. Two employees have resigned in recent months and other key employees are applying for employment elsewhere.

NRECA has documented our concern and discussed the problem in-depth with PDO-RE officials. Hopefully a solution can be found at the annual meeting of members, scheduled for March 1982.

LUWU - Samabotuna Rural Electric Cooperative

I. General

--- Management of the cooperative and the NRECA project advisor received several visitors during November. Included were; Mr. Scott Ramsden, Vice President of Bechtel International; Mr. Reddy from International Rice Research Institute (IRRI); and Mr. Ferris Owen from the Cooperative League of the U.S.A. Briefing sessions were followed by a tour of electrical facilities installed in the R.E. demonstration project in Bone Bone.

--- The NRECA team leader and a representative of C.T. Main, Jakarta-office, spent several days at the project site. Problems with the water system at the cooperative's Headquarters site at Minna were investigated and conferences held with project advisors, the manager and key employees of the cooperative.

II. Organization/Management

--- The NRECA project advisor continued coordination with the PDO-RE acting manager, the DGC project coordinator and the Board of Directors. Major areas of coordination related to operation and maintenance of the R.E. demonstration project.

--- The cooperative received an additional supply of kWh meters and mini-circuit-breakers (MCB) this month. Assistance was given to warehouse personnel in the proper recording of equipment received and the preparation of kWh meter record cards. Inspection and spot-testing of kWh meters was also completed.

--- Employees of the cooperative moved the two spare 100 kw USAID-furnished generator sets into the temporary power plant during November. Electrical connections for interconnection and synchronization are in process.

--- Meter-reading, billing and collecting activities were monitored by the NRECA advisor. Suggestions were made for minor changes to improve controls and expedite these monthly activities.

### III. Operations

--- The number of consumer-connections approached four hundred (400) at months end with three hundred and seven (307) consumers included in the November billing. Average kWh consumption was listed at 22 kWh per consumer for November.

--- kWh generation reached 8,760 kWhs with a total sales of 6,790 kWhs. System losses were approximately 23%, a figure that may be realistic since the distribution system voltage throughout Bone Bone is 220/380 volts with no primary high-voltage line.

--- Fuel costs per kWh generated were relatively high at Rp 47 in November. One reason relates to the inefficient use of a 100 kw genset to serve a peak load of 38 kws, average load of less than 25 kws during the 12-hour service period. A second reason relates to the high cost of diesel fuel, transported to Bone Bone, which ranges near Rp 80 per liter (compared with Rp 53 at the other two R.E. projects).

### IV. Problem Areas

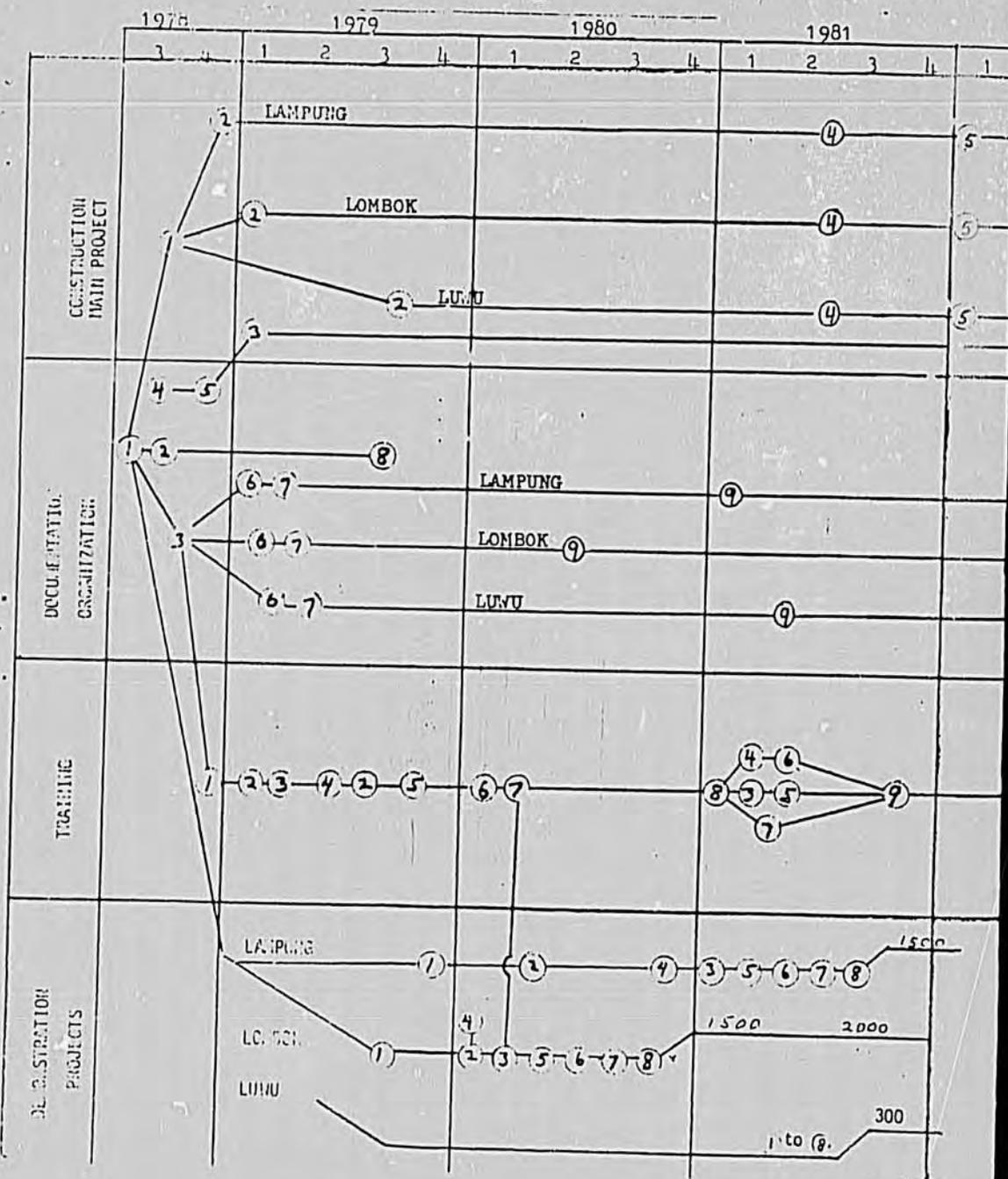
--- The major problem at this cooperative still relates to management. The acting manager assigned by PDO-RE and the DGC project coordinator each accept segments of management responsibilities but the responsibility for major decision-making is not defined. Three members of the Board of Directors still function as employees.

PDO-RE and NRECA officials met to discuss the various alternatives for solving the problem. One solution was proposed and implementation is now in process.

16

P.D.O - R.F. OUTER ISLANDS CPM

**NAEPF** NATIONAL PURA  
 1800 Massachusetts Avenue  
 Washington, D.C. 20036/20





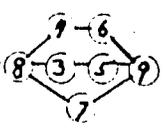
# ELECTRIC COOPERATIVE ASSOCIATION

N.W.  
857-9500

1982

1983

1982			1983		1984	<ol style="list-style-type: none"> <li>1. A/E CONTRACT SIGNED</li> <li>2. A/E STARTS DESIGN WORK</li> <li>3. CIDA CONSULTANT STARTS DESIGN</li> <li>4. MAJOR PROCUREMENT &amp; OBLIGATION DOCUMENTS PROCESSED</li> <li>5. START HEADQUARTERS CONSTRUCTION</li> <li>6. START SYSTEM CONSTRUCTION</li> <li>7. COMPLETE HEADQUARTERS CONSTRUCTION</li> <li>8. INTERIM GENERATORS INSTALLED</li> <li>9. MEMBER ENERGIZATION</li> <li>10. CANADIAN GENERATOR INSTALLED</li> <li>11. CUSTOMER CONNECTIONS</li> </ol>
2	3	4	1	2		
	(67)		(89)		10-11 \$12,500	
	(67)		(89)		10-11 \$12,000	
	(67)		(89)		10-11 \$11,000	
					1984	<ol style="list-style-type: none"> <li>1. GRANT AGREEMENT SIGNED</li> <li>2. LOAN AGREEMENT SIGNED</li> <li>3. NRECA CONTRACT SIGNED</li> <li>4. CIDA LOAN FOR GENERATORS SIGNED</li> <li>5. CIDA GRANT SIGNED</li> <li>6. START ORGANIZING COOPS</li> <li>7. INTERIM BOARD APPOINTED</li> <li>8. CONDITIONS PRECEDENT MET</li> <li>9. INTERIM AREA MEMBERSHIP DRIVE</li> <li>10. MAJOR MEMBERSHIP DRIVE INITIATED</li> <li>11. PERMANENT COOPERATIVE BOARD ELECTED</li> </ol>
		(10)		(11)		
		(10)		(11)		
		(10)		(11)		
						<ol style="list-style-type: none"> <li>1. PDO ADMINISTRATION</li> <li>2. COOPERATIVE MANAGEMENT</li> <li>3. RURAL MEMBER SERVICE SPECIALIST</li> <li>4. ACCOUNTING</li> <li>5. HOUSEWITING</li> <li>6. MATERIAL LOGISTICS &amp; CONTROL</li> <li>7. OPERATIONS - MAINTENANCE - CONSTRUCTION</li> <li>8. START TRAINING PHASE</li> <li>9. COMPLETE TRAINING PHASE</li> </ol>
						<ol style="list-style-type: none"> <li>1. DESIGN BEGINS</li> <li>2. IFB ISSUED</li> <li>3. CONSTRUCTION BEGINS</li> <li>4. HOUSEWIRING STARTS</li> <li>5. GENERATORS INSTALLED</li> <li>6. PROJECT ENERGIZED</li> <li>7. CONSTRUCTION ENDS</li> <li>8. CUSTOMER CONNECTIONS</li> </ol>



From the

PDC - R E OUTER ISLANDS  
COOPERATIVE TRAINING COURSE SCHEDULE

**NEED**

NO	TITLE	TARGET DATE IMPLEMENTATION PLAN	COURSE DURATION	1979	
				1	2
200	COOPERATIVE MANAGEMENT	MAY 1979	30 hrs.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
205	RMS TRAINING	JUNE 1979	30 hrs.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
206	ACCOUNTING - REPORTING	JUNE 1979	40 hrs.	<input type="checkbox"/>	<input type="checkbox"/>
210	STAFF ORIENTATION	AUGUST 1979	20 hrs.	<input type="checkbox"/>	<input type="checkbox"/>
220	TRAINERS TRAINING (CONSTRUCTION)	OCT/NOV 1979	200 hrs.	<input type="checkbox"/>	<input type="checkbox"/>
230	TRAINERS TRAINING (HOUSEWIRING)	NOV/DEC 1979	40 hrs.	<input type="checkbox"/>	<input type="checkbox"/>
240	LINEMAN'S TRAINING	JAN/FEB 1980	200 hrs.	<input type="checkbox"/>	<input type="checkbox"/>
250	ELECTRICIAN TRAINING	JAN/FEB 1980	40 hrs.	<input type="checkbox"/>	<input type="checkbox"/>
260	PRODUCTIVE USE SPECIALIST	MARCH 1980	60 hrs.	<input type="checkbox"/>	<input type="checkbox"/>
300	MATERIAL LOGISTICS	JANUARY 1980	40 hrs.	<input type="checkbox"/>	<input type="checkbox"/>
310	ACCOUNTING - REPORTING	FEBRUARY 1980	40 hrs.	<input type="checkbox"/>	<input type="checkbox"/>
320	ELECTRICAL APPARATUS	MARCH 1980	80 hrs.	<input type="checkbox"/>	<input type="checkbox"/>
350	ENGINEERING	MAR/APR 1980	40 hrs.	<input type="checkbox"/>	<input type="checkbox"/>
340	METER READING	JULY 1980	40 hrs.	<input type="checkbox"/>	<input type="checkbox"/>
350	OPERATIONS MAINTENANCE	SEPTEMBER 1980	60 hrs.	<input type="checkbox"/>	<input type="checkbox"/>
360	ACCOUNTING - REPORTING	NOVEMBER 1980	40 hrs.	<input type="checkbox"/>	<input type="checkbox"/>
370	WORK ORDER CONTROL	JANUARY 1981	40 hrs.	<input type="checkbox"/>	<input type="checkbox"/>
380	SUPERVISORY SKILL	FEBRUARY 1981	15 hrs.	<input type="checkbox"/>	<input type="checkbox"/>
390	SAFETY TRAINING	MARCH 1981	15 hrs.	<input type="checkbox"/>	<input type="checkbox"/>
400	INFORMATION SEMINAR	MARCH 1981	16 hrs.	<input type="checkbox"/>	<input type="checkbox"/>
410	LINE MAINTENANCE	APRIL 1981	16 hrs.	<input type="checkbox"/>	<input type="checkbox"/>
	POWER PLANT OPERATORS**				
	SERVICE DROPS**				
320*	REPEAT COURSE				
330*	REPEAT COURSE				
380*	REPEAT COURSE				
390*	REPEAT COURSE				

- \* Repeat courses as needed
- \*\* Courses added
- Courses completed and number of people trained
- Courses scheduled

From th

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

TARGET DATE IMPLEMENTATION PLAN	COURSE DURATION	1979				1980				1981				
		1	2	3	4	1	2	3	4	1	2	3	4	
MAY 1979	30 hrs.	(3)	(2)	(2)	(18)	(4)	(2)	(11)					(8)	(4)
JUNE 1979	30 hrs.		(15)											
JUNE 1979	40 hrs.				(16)				(10)		(12)	(2)	(8)	
AUGUST 1979	20 hrs.						(17)	(28)						
OCT/NOV 1979	200 hrs.				(6)									
NOV/DEC 1979	40 hrs.				(2)									
JAN/FEB 1980	200 hrs.						(11)			(21)	(12)			
JAN/FEB 1980	40 hrs.				(14)				(14)	(9)	(14)			
MARCH 1980	60 hrs.													
JANUARY 1980	40 hrs.					(9)			(7)	(10)	(12)			
FEBRUARY 1980	40 hrs.													
MARCH 1980	80 hrs.													
MAR/APR 1980	40 hrs.													
JULY 1980	40 hrs.						(10)				(11)	(15)		
SEPTEMBER 1980	60 hrs.						(14)				(24)	(23)		
NOVEMBER 1980	40 hrs.												(3)	
JANUARY 1981	40 hrs.													
FEBRUARY 1981	15 hrs.												(8)	
MARCH 1981	15 hrs.						(14)						(23)	
MARCH 1981	16 hrs.													
APRIL 1981	16 hrs.													
					(6)		(8)	(8)			(6)			
										(11)	(14)	(9)		

Trained ○



LOMBOK RE COOPERATIVE

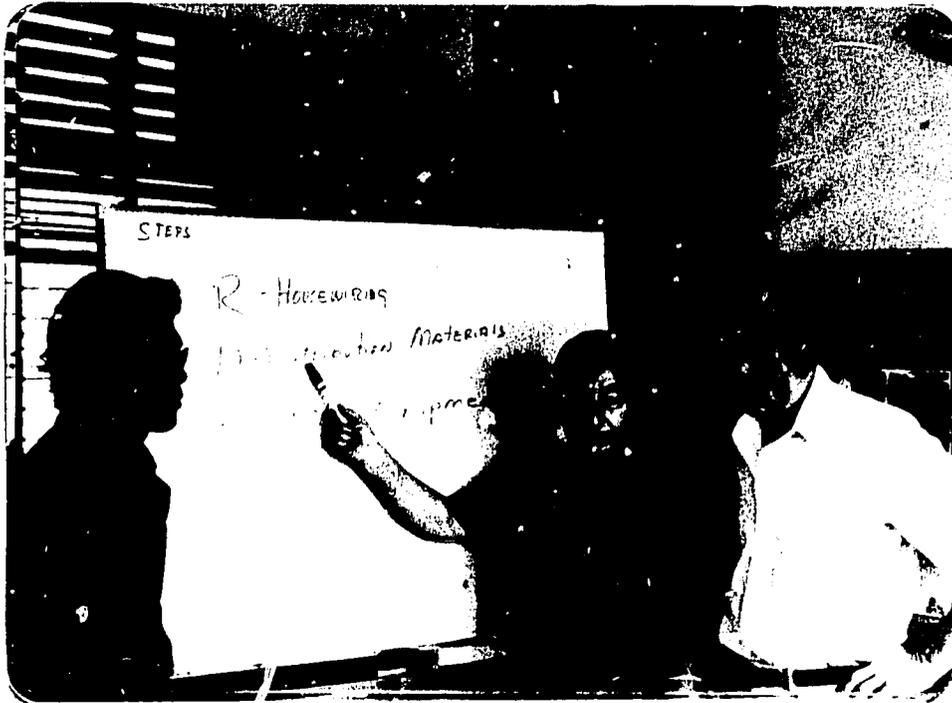


Dr. Ir. Sudjanadi, Director General of Cooperatives, and Mr. Gatot Suherman, Governor of West Nusa Tenggara (Lombok), observing power-plant personnel performing their duties in the cooperative's power-plant, Aikmel, Lombok.



Governor Suherman presenting a certificate to a member of the cooperative for productive-use of electric service. Acting manager of the cooperative, Mr. Ridwan, assists the governor.

LAMPUNG RE COOPERATIVE

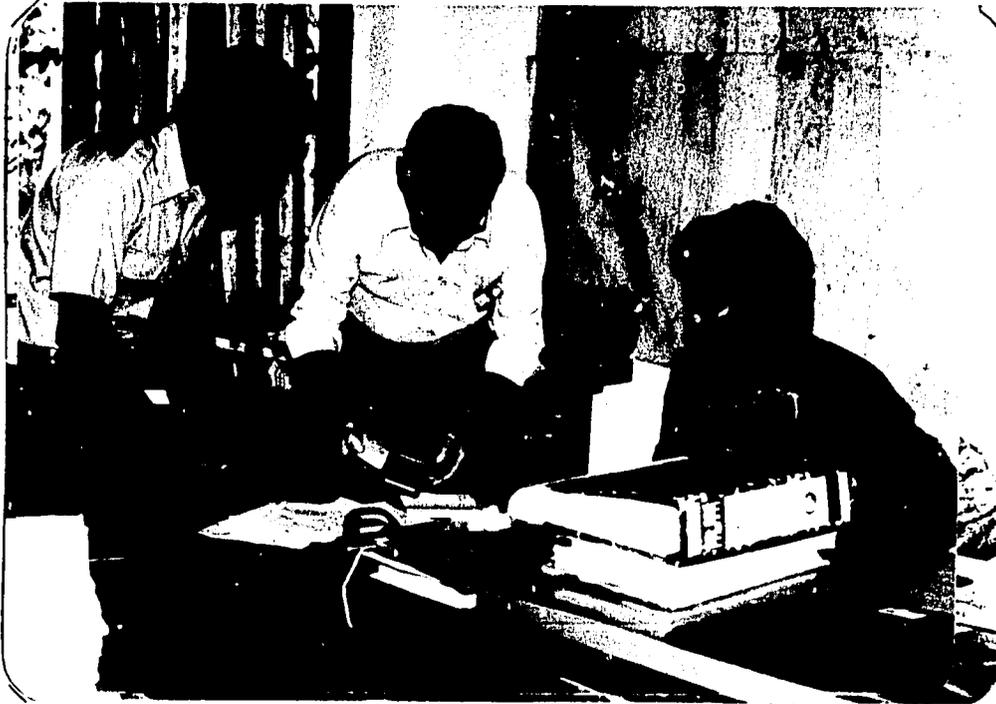


NRECA Training Officer Louie Sansing and the NRECA Project Advisor Claude Franke explaining the material-equipment code letters and numbers to employees of the cooperative. Mr. Alfian Nuralay, PDO-RE Training Officer, provides interpretation services.

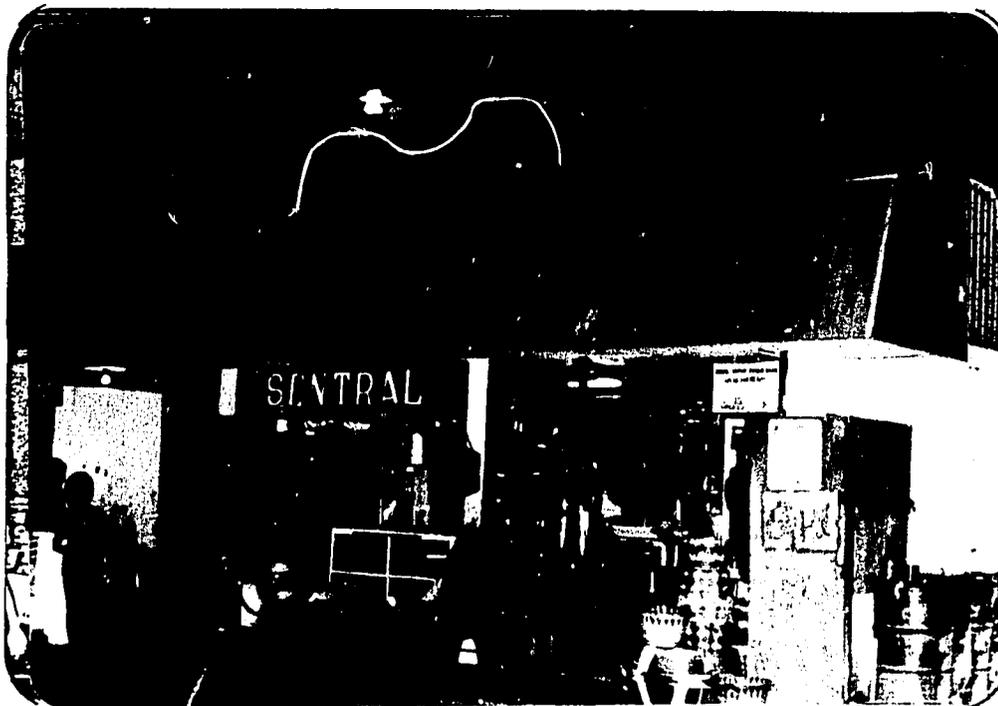


Claude Franke and the manager of the cooperative, Ir. Ibrahim Sanusi, discussing bulletins on personnel changes at the cooperative's temporary office in Metro.

LWU RE COOPERATIVE



Personnel from the cooperative's billing/collecting department receiving assistance from the NRECA Project Advisor, John DeFoor, on billing-summary computations.



A store on the main-street of Bone Bone, open for business during evening hours after electric service was made available.

Summary of Expenditures

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

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

	Budget	Total Expense To Date	Prior Billings	Current Billings
Salaries - Field	\$ 1,095,000	\$ 745,272.52	\$ 721,061.02	\$ 24,211.50
Salaries - Home	187,000	118,902.83	116,465.10	2,437.73
Fringe Benefits	416,000	271,789.88	264,754.01	7,035.87
Consultant Fees	34,706	33,906.25	33,906.25	
Allowances	398,000	264,973.34	254,814.46	10,158.88
Travel and Transportation	386,470	258,725.52	250,683.15	8,042.37
Other Direct Costs	140,000	80,978.35	78,956.50	2,021.85
Overhead	292,000	197,949.38	191,819.60	6,129.78
Equipment and Materials	28,000	18,292.46	18,292.46	
TOTAL	\$ 2,977,176	\$ 1,990,790.53	\$1,930,752.55	\$ 60,037.98