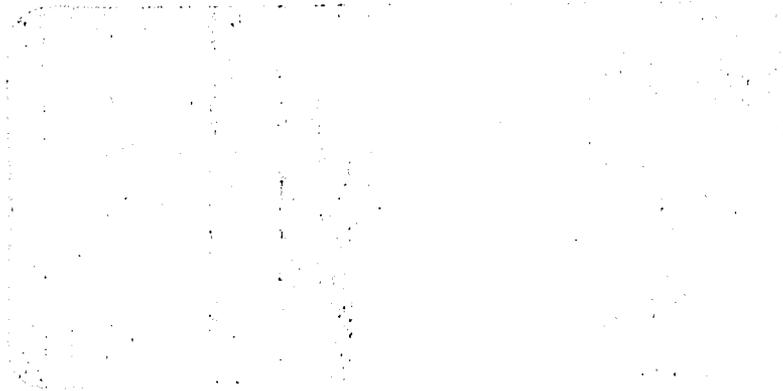


**RURAL ELECTRIFICATION PROJECTS
INDONESIA**



NATIONAL RURAL ELECTRIC COOPERATIVE ASSOCIATION

JAKARTA, INDONESIA

NRECA TEAM REPORT

PDO

INDONESIA

(JANUARY 1982)

M O N T H L Y 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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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: 0721-53701

* PLN Advisor

RURAL ELECTRIFICATION COOPERATIVE PROJECT SITES



NRECA Jakarta Team Activities

I. General

--- The NRECA team leader was on R&R in Bangladesh for eight days in January. Two visitations were made by Jakarta-based team members to the outer island projects. Aside from these trips, NRECA-Jakarta activities centered at the Project Development Office for Rural Electrification (PDO-RE), Sarinah Building.

--- The bi-monthly NRECA team meeting was held in Jakarta this month with all seven team members in attendance. Representatives of PDO-RE, co-consultants C.T. Main and Sandwell Inc. were also present. In addition to status reports from individual project advisors, subject matter included; pole-procurement status; permanent-generation installation schedules; retail-rate adjustments; permanent-manager selection and staffing level, outer island projects; and planning for 1982 team activities.

--- The NRECA team leader met with USAID officials on several occasions this month. One of the major topics for discussion was a proposal to amend the USAID-NRECA contract. If approved, two team-positions will be extended into calendar year 1984.

--- Team members coordinated with C.T. Main staff on a regular basis. Expediting the installation of a shallow-well at the Luwu Project; designation of storage areas for construction materials at the project sites; and construction-standards manual preparation were key areas of coordination.

II. PDO-RE Activities

--- Meetings were held with PDO-RE to review their staffing requirements for fiscal year 1982-83. Position-descriptions for key positions were prepared by NRECA. The objective of this joint activity was to clearly identify counterparts to NRECA staff and to improve consultant/PDO-RE effectiveness at the Cooperative's level.

--- An operations-cost-study, R.E. Demonstration Projects, was prepared by NRECA and submitted to PDO-RE this month. 1980-81 operating data was summarized and projected for the 1982-83 operating period. Information included in the study will be used by PDO-RE officials in evaluating retail-rates presently in effect and to determine required adjustments.

--- NRECA team members assisted PDO-RE in preparation of a brochure on the rural electrification program in Indonesia. This brochure will serve as a handout at the Lombok Cooperative during the forthcoming visit of the senior vice-president of Canadian International Development Agency (CIDA).

--- USAID-PTE and NRECA staff met to review power-supply at the Lampung Cooperative. Problem areas in the operation of the five USAID-procured gensets were defined, and equipment-requirements to improve operation were determined. NRECA is assisting in procurement through their Washington D.C. office.

--- C.T. Main and NRECA staff prepared construction-assembly-unit standards for service line and kwh meter entrances which will be included in a Construction Standards publication. Construction material items, to be included in the assemblies were identified and material code numbers assigned

--- PDO-RE and NRECA training staff continued daily coordination and preparation of training materials. Examination papers from participants in a construction-cost accounting seminar were graded. (Information on training courses held at the Cooperatives is included in other sections of this report.)

OUTER ISLAND PROJECTS

LOMBOK - Sinar Rinjani Rural Electric Cooperative

I. General

--- This month the cooperative began construction of distribution lines to serve another desa. Approximately two hundred and fifty (250) members will be connected initially in the desa of Suralaga, the fifth desa in the cooperative's service area to be provided with electric service.

--- Aside from construction, operation and maintenance of the generation and distribution facilities was the major activity for the period. Twenty-four hour service continues with a day-load that approaches 30 kws and an evening peak of almost 250 kws.

II. Organization/Management

--- The cooperative has collected Rp 1000 membership-fee from more than two hundred (200) applicants in Suralaga. Approximately one-half of this total paid Rp 5000 advance for their housewiring installation.

--- NRECA staff participated in three meetings held at the cooperative's Headquarters to discuss the construction program for the desa of Suralaga. The mutual goal of PDO-RE and the cooperative is to enforce proper construction-cost-accounting procedures and to obtain data that will be valuable for long-range construction-cost projections. PDO-RE has assigned an accountant to work with the cooperative during the construction period to assist in achieving this goal.

The NRECA project advisor coordinated with the manager and staff of the Cooperative in a review of 1981 operating expenses. The expense totals were related to revenue produced by existing retail rates. Proposals for retail rate adjustments were submitted to PDO-RE and NRECA-Jakarta for their appraisal.

--- The manager and NRECA advisor reviewed the labor requirements and the quality of work being performed in housewiring activities. The benefits of licensing electricians, as a means of improvement, were explored and documented. A proposal will be made to PDO-RE and NRECA/Jakarta which, if adopted, could apply in all R.E. Cooperative areas.

--- NRECA assisted in improving housewiring collection-procedures. By the end of this reporting period, nearly 40% of the payment-requests, that were presented to members in November 1981, had been processed and money on deposit.

--- The Cooperative continued to develop productive-use projects which will increase the off-peak use of electric-service. A central water-system installation for one desa is under study. Electric requirements to serve a rice-mill were determined and cost-data collected.

III. Training

--- A formal training course was held at the Cooperative's Aikmel Headquarters this month. Thirteen employees, plus the manager and DGC coordinator, attended this five-day course on the subject of construction-cost accounting. NRECA and PDO-staff served as resource speakers (pictures on page 20).

IV. Operations

--- Operating statistics for the last quarter of 1981 are included on page 14 of this report. Unfortunately, complete January 1982 statistics were not available at the time this report was prepared.

V. Problem Areas

--- A major problem area still relates to an insufficient number of qualified employees in the Cooperative's Accounting Department. Two employees who had

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NO. 8

served in key accounting positions, and who had attended all training courses associated with accounting, have been transferred to accounting-clerk positions. Major accounting functions are now performed by one person. As a result, financial and statistical report preparation is delayed.

It is hoped that improvement will now be noted since, this month, PDO-RE assigned an accountant to assist the Cooperative.

LAMPUNG - Sinar Siwo Mego Rural Electric Cooperative

I: General

--- The Cooperative was visited this month by three staff members of the U.S. Foreign Relations congressional committee. Representative of the U.S. Embassy and USAID-Jakarta accompanied the staff members. The group viewed generation and distribution-system facilities and visited consumer locations.

--- Operation and maintenance of R.E. Demonstration Project facilities were the major activities at the Cooperative in January. Due to limited power-supply, construction activities and new consumer-connections were at a stand-still.

--- Additional construction materials for the main distribution system arrived this month. These materials, procured through the USAID-loan, were transferred from dock to the Cooperative's permanent Headquarters/power-plant site near Kota Gajah, Lampung.

II. Organization/Management

--- The Board of Directors closed their office in Kota Gajah and are now occupying office space in the Cooperative's temporary office in Metro. This has permitted improved-communications between the manager, Board members and the NRECA consultant.

The advisor met with officers of the Board on four occasions during January. Major subjects discussed included; power-supply problems; construction plans and schedules; retail-rate structure; the Board of Director's responsibility in project-viability; and the need for greater emphasis on productive-use of electric service during daytime hours (to justify 24-hour service).

--- The NRECA advisor evaluated 1981 operations of the demo-project and documented comparisons of revenue and expense. Information was supplied to PDO-RE and NRECA-Jakarta for use in retail electric rate analysis.

--- The Cooperative implemented a new energy-billing collection system this month. Members are now required to pay their electric bills at the temporary office in Metro or at a designated collection point near the temporary power-plant. Initial results indicate that collection-efficiency has improved and that the procedure is receiving member-support. (Pictures page 22.)

III. Operations

--- Power-plant operations remained at the 12-hour daily level this month. The number of consumer-connections for billing purposes dropped slightly as a result of temporary disconnects for non-payment of electric bills. This was anticipated since the Cooperative has been billing and collecting for seven months and enforcement of disconnect policies was lagging behind. (Statistical report is on page 14.)

--- From a financial viewpoint, the Cooperative is progressing admirably. One thousand three hundred thirty-seven (1337) members have deposited Rp 3200 each as a consumer-deposit for electric service. This total represents 99% of the month-end consumer connections. The consumer-deposits and energy revenues now on bank-deposit, exceed fifteen million rupiah (Rp 15,000,000).

The ratio of housewiring accounts receivable to housewiring cash collections is much lower than forecast. At the end of January, sixteen million rupiah (Rp 16,000,000) had been collected and deposited, an amount which represents 96% of the total cost of all housewiring installations to-date.

IV. Training

--- Although no formal training courses were held at this Cooperative this month, on-the-job training was a continuing activity for NRECA team members. Additional training in operations and maintenance of distribution systems is planned. Schedules are difficult to establish however since several of the line-crew employees are presently assisting in C.T. Main's field-staking activities.

V. Problem Areas

--- As referred to earlier in this report, power-supply is a major problem area. Although the peak demand is only in the 150 kw range, partial or complete system-blackouts occurred on occasions in January. Improper operation of voltage regulators on the gensets has been identified as a contributing factor. Replacement units are being sought from U.S. source.

LUWU - Samabotuna Rural Electric Cooperative

I. General

--- The NRECA advisor for this project returned from R&R mid-January. He attended the bi-monthly NRECA team meeting held in Jakarta January 18-19, and thereafter, returned to his assignment in Luwu.

--- At the Cooperative, power-plant operation continued on a 12-hour basis. Operations and maintenance were the major activities since construction of

the initial demonstration project in Bone Bone is basically complete. System expansion will resume at a later date when construction materials are available.

II. Organization/Management

--- During January, the newly appointed PDO-RE Acting Manager, Mr. Waluyan, made numerous personnel changes at the Cooperative. Some of the employees returned to the DGC-Palopo office while others were switched from position to position within the Cooperative organizational structure. After a trial period, the effectiveness of this action will be evaluated.

--- The NRECA advisor assisted the cooperative power-plant personnel in kw/kwh generation calculations. Power-plant reports and reporting procedures were reviewed (pictures on page 18).

--- Warehouse operation improved this month when additional storage-bins were constructed. Warehousing is presently limited to the temporary facility rented in Bone Bone. As materials for the main project begin arriving, larger construction materials items will be stored at the Cooperative's Headquarters at Minna, 7 km east of Bone Bone (pictures on page 18).

III. Operations

--- Members continue to pay their electric bills at the temporary office of the Cooperative in Bone Bone. Collection efficiency is average (90 - 95% range) and field-collection requirements minimal.

--- Consumer-connection level is stabilizing at approximately four hundred (400), the original target. kw peak demand is still within the capabilities of one 100-kw genset. (Statistics are on page 15.)

IV. Problem Areas

--- Fuel deliveries and cost during this rainy season is included in problem areas. Overland travel is difficult and expensive. As a result of this factor, and the recently implemented fuel-price increase by the GOI, the Luwu Cooperative is paying in excess of Rp 110 per liter of diesel fuel for power-plant operation. This computes at 30% higher than fuel costs for the other two outer island projects.

--- Included in the personnel changes, referred to earlier, were accounting department positions. Accounting and reporting procedures are now lagging behind. Special attention must be given by PDO-RE and NRECA with additional training implemented.

COMPARATIVE OPERATING STATISTICS
Two Outer-island Cooperatives

	LOMBOK October 1981	LOMBOK November 1981	LOMBOK December 1981	LAMPUNG November 1981	LAMPUNG December 1981	LAMPUNG January 1982
Number consumers billed	1771	1829	1843	1382	1363	1346
Temporary disconnects (non payment) (accumulative)	-	-	120	15	20	35
Total revenue	Rp2,764,000	Rp2,919,100	Rp 2,968,000	Rp3,624,124	Rp3,202,755	Rp3,107,890
Total kwh billed	36013*	38820*	40834*	42120	30498	28475
Average revenue per consumer	Rp1,561	Rp1,596	Rp1,610	Rp2,622	Rp2,349	Rp2,308
Average number kwh per consumer	20.3	21.2	22.2	30.5	22.4	21.16
kwh generated	54368	53246	54050	29264	28174	29753
Liters diesel fuel consumed	-	21546	20034	11747	12020	10980
kwh's generated per liter	2.84	2.47	2.4	2.49	2.34	2.71
Fuel and lube oil cost	-	Rp1,243,338	Rp1,145,802	Rp 709,942	Rp 734,875	Rp 778,370
Fuel cost per kwh generated	-	Rp 23.4	Rp 21.2	Rp 24.25	Rp 26	Rp 26.17
% system losses	30	23.2	20.1	-	-	4.5
Peak kw demand	234	248	239	145	145	143

* Coop kwh consumption not included in billing.

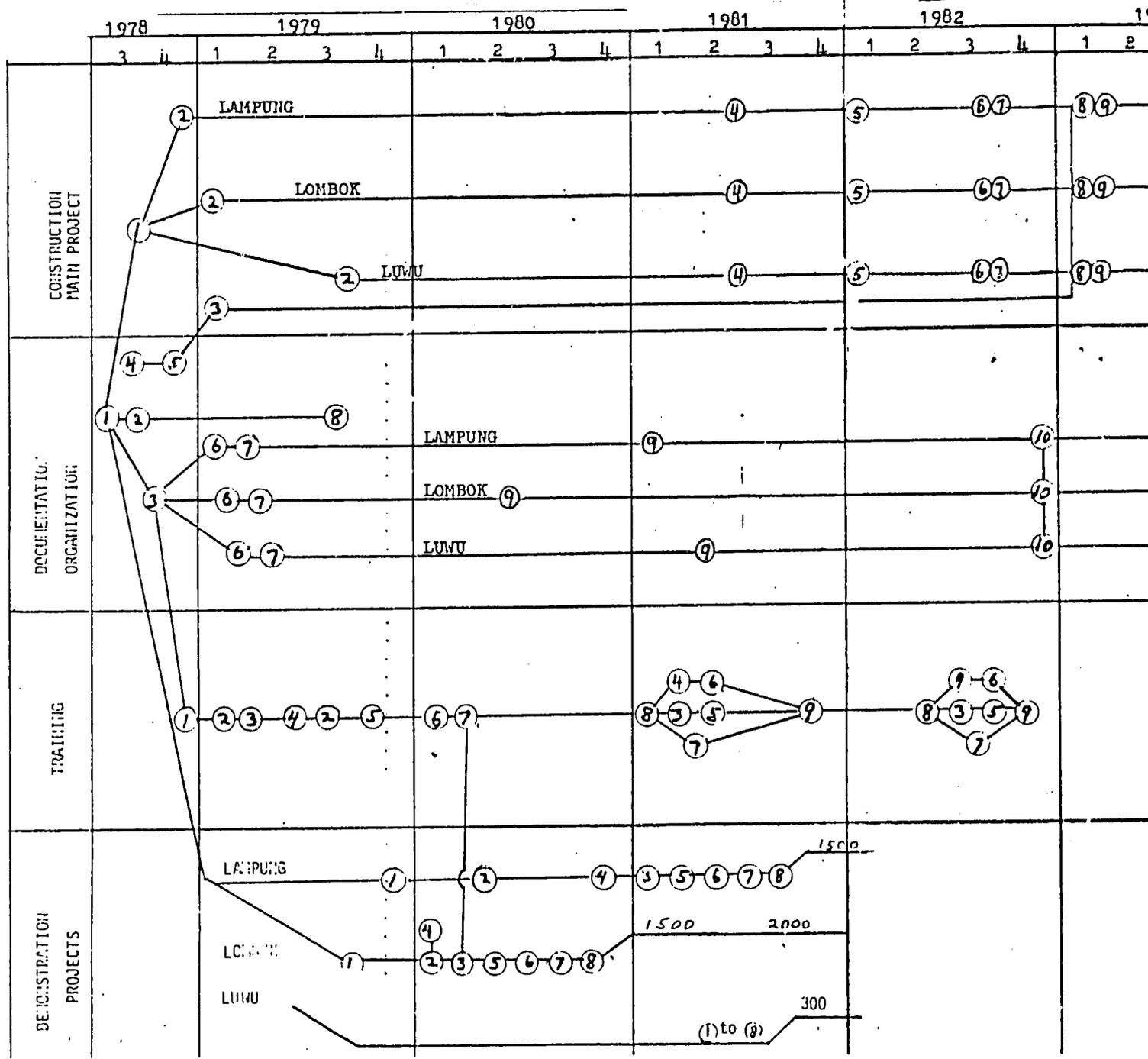
OPERATING STATISTICS

LUWU ELECTRIC COOPERATIVE

	1981 NOVEMBER	1981 DECEMBER				
Number consumers billed	307	384				
Temporary disconnect (non payment) (accumulative)	4	6				
Total revenue	Rp 831,345	Rp 819,305				
Total kwhs billed	6,790	9,825				
kwhs office use	270	364				
Average revenue per consumer	Rp 2,707	Rp 2,558				
Average number kwh per consumer	22	25				
kwh generated	8,760	12,641				
Liters diesel fuel consumed	5,460	5,742				
kwh's generated per liter	1.93	2.20				
Fuel and lube oil cost	494,550	590,610				
Fuel cost per kwh generated	Rp 56	Rp 46				
% system losses	19.4	19.4				
Peak kw demand	38	69				

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

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





Personnel of the Cooperative receive assistance from NRECA Project Advisor, John DeFoor, in computing kw load during the evening-peak (Bone Bone power-plant).

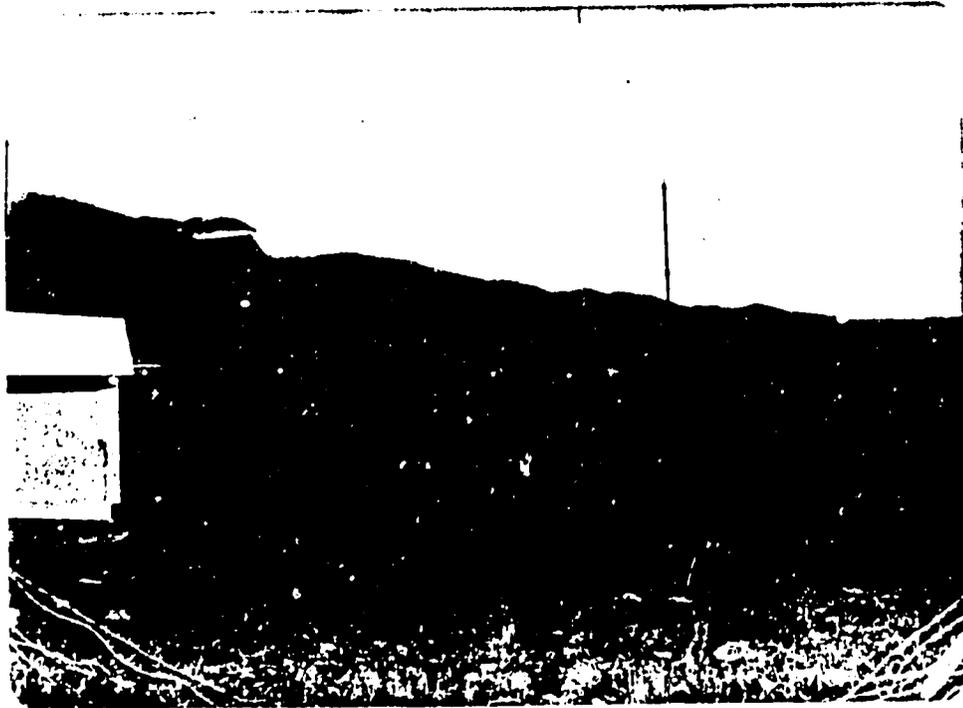


Construction material items, neatly arranged in storage bins, temporary warehouse, Bone Bone.

LWU ELECTRIC COOPERATIVE



A member pays his electric-energy billing to the cashier, temporary office in Bone Bone --- a new experience for the membership.



A night scene in Bone Bone --- man-made outdoor-lighting offering friendly and welcome competition to the "light" above.

LOMBOK ELECTRIC COOPERATIVE
TRAINING ACTIVITIES

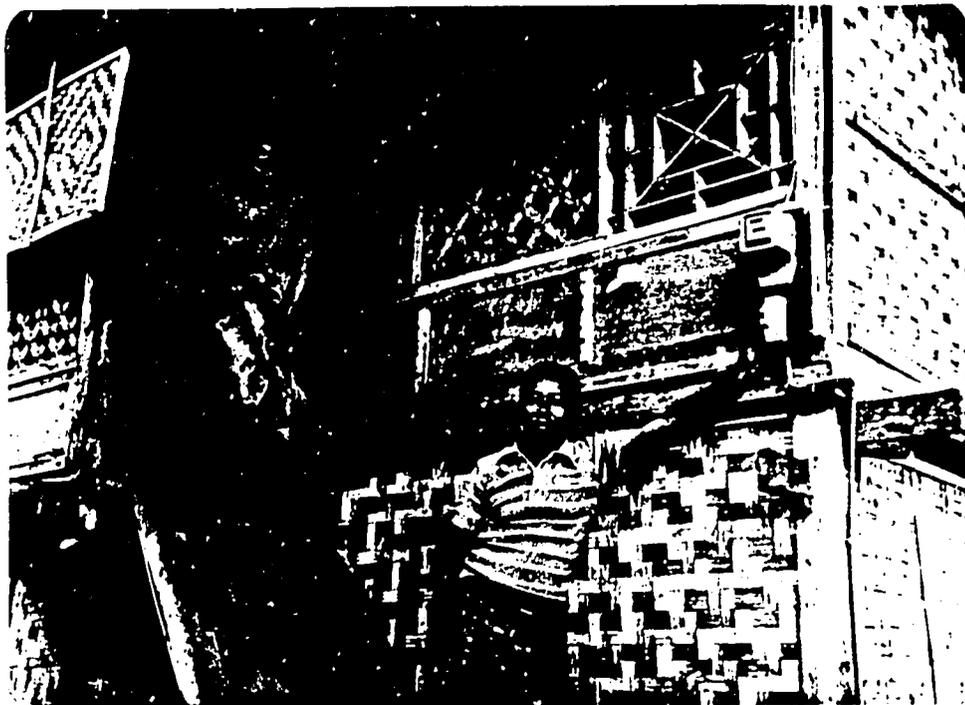


PDO-RE Training Officer, Alfian Nurmalay (standing, right-side) and NRECA Training Officer, Louie Sansing, presenting a "refresher course" on consumer-connections, kwh meter controls, at Aikmel, Lombok.



Employees of the Lombok Cooperative in attendance at a construction-cost accounting training course, Aikmel, Lombok. The DGC Project Coordinator, Mr Usman Sidiki (lower-left) and the Acting Manager of the Cooperative, Mr. Ridwan (rear-center) attended all sessions of this five-day course.

LOMBOK ELECTRIC COOPERATIVE



A "happy-housewife and husband" whose home was recently connected to the Cooperative's electrical distribution system, and kwh meter installed.



It is "bill-paying" time at the Sinar Rinjani Electric Cooperative --- employees receive payment from a member for his monthly energy consumption.

LAMPUNG ELECTRIC COOPERATIVE



A member of the Cooperative "digs-deep" to find the rupiah necessary to pay his electric energy billing (cashier's window at the temporary office in Metro).



One of numerous new-homes constructed in the R.E. Demonstration Project area after electric service was made available. Electrical wiring has become an intrigal part of new construction.

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	USD	
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