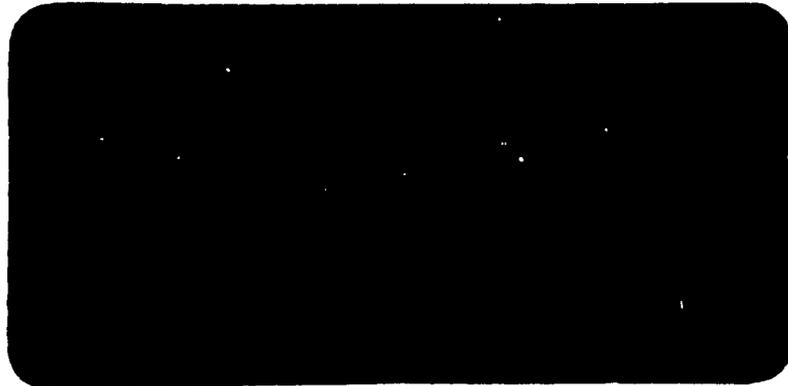


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RURAL ELECTRIFICATION PROJECTS
INDONESIA



NATIONAL RURAL ELECTRIC COOPERATIVE ASSOCIATION
JAKARTA, INDONESIA

NRECA TEAM REPORT

PDO

INDONESIA

(APRIL & MAY 1982)

MONTHLY REPORT

NRECA INDONESIAN TEAM REPORT

UNITED STATES AGENCY FOR
INTERNATIONAL DEVELOPMENT

Contract No. AID/ASIA C1347
Loan No. 497-T-052

IMPLEMENTING AGENCIES:

DIREKTORAT JENDERAL KOPERASI
Directorate General of Cooperatives

PERUSAHAAN UMUM LISTRIK NEGARA
National Electric Power Agency

CONSULTANTS:

National Rural Electric Cooperative Association
Management, Organization and Training

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

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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

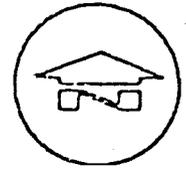
by the member-consumers themselves through the organization of rural electric cooperatives. Each cooperative will construct, own and operate a diesel generating plant to provide power for the distribution system. (The Canadian Government is assisting with the generating project.) A special agency known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



Note: Amendment #5 to the USAID/NRECA contract changed reporting requirements from monthly to bi-monthly reports. Therefore the activities of the NRECA team for the months of April and May are combined in this report.

NRECA Jakarta Team Activities

I. General

--- NRECA Jakarta-based team members made a total of six trips to the outer-island projects this period. The team leader assisted the Lampung Cooperative staff; the training officer conducted training courses at Lampung and at the Lombok Cooperative; and the administrative/finance officer visited each of the projects to assist in various operating-period functions.

--- Coordination continued with staff of co-consultant C.T. Main. Major areas of coordination were; finalization of distribution-system construction standards; review of material-equipment quantities in IFBs as related to current estimated requirements; training course schedules and contents for engineering-related training courses; and bid openings for Headquarters-site construction at the three projects.

--- NRECA staff assisted Sandwell Inc. personnel from their Canada office who spent several days in Indonesia this period. In addition to providing load forecasts for the three projects, NRECA assisted in planning for training power-plant personnel. NRECA team members accompanied Sandwell personnel to PLN's training center at Ciawi to evaluate training facilities (which were offered by PLN for this training endeavor).

--- On three occasions this period, the NRECA team leader met with Dr. Lalit Sen who is assisting the GOI in rural electrification planning. Coordination was maintained in areas of mutual interest.

--- Meetings were held with USAID officials to review the role of the NRECA team in the RE program of PDO and PLN during calendar years 1983 and 1984. It was generally agreed that NRECA representation would continue beyond the present March 30, 1982 contract termination date. The number of staff members, their locations and functions, were the subjects for discussion.

--- Staff members from the office of the Directorate General of Energy, PDO/RE, PLN, and NRECA, met to discuss long-range plans for rural electrification in Indonesia. Of major importance was RE planning for GOI PELITA IV, years 1984 to 1989.

II. PDO/RE Activities

--- The project development office for RE reorganized their staff and their operations at the Jakarta PDO/RE office, Sarinah Building. Col. Sugiyartono replaced Ir. Sudarto as Assistant Chief and Al Sjahrial was appointed to head the technical department. NRECA staff and PDO/RE counterparts are now in adjacent offices in the eleventh-floor office which we share.

--- Single Mid-Band radio equipment was installed in the PDO/RE office in the month of May. Radio communication is now possible with personnel of the cooperatives and NRECA field personnel.

--- NRECA staff continued drafting guidelines to be forwarded to the cooperatives by the PDO/RE. Included were guidelines on; depreciation rate schedules for physical plant; power plant operation and parallel operation of generators; labor-cost assignment to proper operation expense accounts; and construction cost-accounting guidelines.

--- Additional FORMS were designed by NRECA staff, translated to bahasa Indonesia and made available to PDO/RE for distribution to the cooperatives. This forms included; outage report form; accident report form; and service envelope/form for use by linemen.

--- At the request of the chief of PDO/RE, NRECA staff provided guidance on areas where KUD (local agriculture cooperatives) members could assist the RE cooperatives. This resource will be used in consumer-signup, meter-reading, and housewiring activities.

--- In an effort to improve power supply at the three RE projects, NRECA procured electrical apparatus from the United States for installation in the USAID-furnished excess property generators. PDO/RE and NRECA staff canvassed the local market to obtain metering equipment to supplement the USA procurement. Maximum coordination has been established to insure continuity of electric service from the temporary power plants.

--- From information obtained during trips by NRECA staff to the project sites, RE demonstration-project construction costs were accumulated and construction close-out performed. Results of these efforts are reflected on page 22 of this report.

--- From C.T. Main's construction material/equipment cost estimates for the projects, construction-costs were projected to anticipated consumer-levels at completion of the basic distribution systems. These projections, computed for the purpose of estimating tariff requirements, revealed that fixed costs (depreciation and interest on capital investment) would approximate one thousand three hundred rupiah (Rp 1,300) (US\$2) per consumer-connection per month. NRECA projections and retail-rate recommendations were forwarded to PDO-RE staff for review.

III. Training

--- One formal training course was conducted at the PDO/RE office this period. This course, titled "Engineering Procedures - Rural Distribution Systems" was presented in a four-day period for five employees of the PDO/RE technical department. C.T. Main and NRECA staff made the presentations with the assistance of the PDO/RE training officer.

--- Schedules for additional training courses were prepared by the PDO/RE and NRECA training officers. The above mentioned engineering course will be conducted for personnel of the cooperatives during the month of June 1982; a training course titled "Supervisory Skills" will be conducted at the three project sites in the third quarter of 1982; a "Line Maintenance-Trouble Shooting" course will be conducted by September 1982 and a "Management Training" course is planned for Board members and managers of the three cooperatives.

--- Meetings were held with the chief of PDO/RE and his staff to plan for overseas-training (the Philippines) of PDO/RE personnel. The personnel to receive this training, the time-frame, and funding requirements are understudy.

IV. Problem Areas

--- Improvements have been noted in the one-on-one assignment of PDO/RE counterparts to the NRECA/Jakarta staff. Their training officer and technical department staff members coordinate with NRECA as a matter of daily routine. However, effective coordination with other departments needs improvement.

In the accounting and reporting functions, PDO/RE has only one accountant who serves as an NRECA counterpart. This employee, although

well-qualified for his position, is unable to provide the assistance needed by the three cooperatives. During this critical period when the cooperatives are "growing" as operating utilities, and concurrently receiving millions of dollars worth of construction materials and equipment, accurate record keeping and monthly reporting is an absolute necessity. NRECA is urging PDO/RE to increase their support level in this important area.

Efficient and productive-use of electric service is an important integral part of the total RE program. The cooperatives are in need of major assistance in this field. Unfortunately, PDO/RE has not provided the needed assistance. NRECA encourages an early selection of PDO/RE staff to work in productive-use efforts.

OUTER ISLAND PROJECTS

LAMPUNG - Sinar Siwomego Rural Electric Cooperative

I. General

--- The NRECA project advisor was on-site during April and May assisting the cooperative in various activities. In addition to project functions, the advisor accompanied officials of the cooperative on an inspection trip of the proposed wood-pole procurement area near Palembang. (A distance of approximately 200 kilometers from the cooperative's Headquarters in Metro.)

--- During the reporting period, this cooperative began adding additional consumers in the RE demonstration area, near Metro, Lampung. Construction materials, procured through the USAID loan, continued to arrive and were transported to storage areas in the project site. Improvements were made in operating procedures.

--- Electric service was maintained in the RE demonstration area on a 12-hour per day basis. Planning is in progress to provide 24-hour service, which may begin in our next reporting period.

--- Major improvements were made in office facilities this period. The Engineering Department staff moved from the temporary office in Metro to C.T. Main's office (located 150 meters apart). The DGC coordinators staff transferred to another office. This allowed expansion of work-areas for accounting and member-services department personnel which was very beneficial.

II. Organization/Management

--- The NRECA advisor participated in the regular monthly meetings of the Board of Directors. Key discussion areas were; storage of con-

struction materials; procurement and treatment of wood poles; operating income/expense; retail electric rates; and training/educational requirements for Board members.

--- Meter reading procedures were improved to permit completion of this monthly activity in three days. Transfer of collection responsibilities from the member services department to the accounting departments cashier was finalized this period.

--- At the request of the NRECA advisor, the acting manager of the cooperative began holding bi-weekly staff meetings with the four departments supervisors. Assistance was rendered in agenda preparation and methods of obtaining maximum benefits from these meetings.

--- To facilitate storage of construction materials, the overhang was expanded on the building used to store materials at the cooperative's permanent office site near Kotagadjah. An additional area of approximately 1,200 square meters will soon be available for under-cover storage. Construction materials are being transferred from the Metro office to consolidate all material storage/control functions at the Kotagadjah location.

--- Bid opening for construction of Headquarters facilities at Kotagadjah was conducted this period. The apparent low bid was presented by a Lampung-based contractor in the rupiah dollar equivalent of \$489,000.

--- Considerable study was given to the possibility of constructing an electrical distribution system in the northeast sector of the Lampung project area. Officials of the GOI have requested this action since an international agriculture exposition will be held there in early 1983. It is hoped that sufficient poles and construction materials for the main distribution system will be available for this construction.

III. Operation

--- The cooperative continued to prove project viability in the financial operations of their RE demonstration project. On the operating report shown on page 23 of this report, it may be noted on line #14 that cash operating expenses are approximately 73% of revenue billing, on line #3. (Computations for interest and depreciation are somewhat understated and NRECA is assisting in revising computations.)

The accounting staff has mastered the Uniform System of Accounts which was proposed by NRECA and adopted by the PDO/RE. Financial and statistics reports are prepared and submitted on a current basis.

--- The distribution system for the RE demonstration project requires minimal maintenance since it was constructed to recommended standards. Occasional fuse replacement and tree trimming are the only maintenance functions.

--- Operating capabilities of the USAID-furnished gensets, in the temporary power plant near Metro, were improved this period. A new voltage regulator was installed on one of the gensets by NRECA staff and their PDO/RE technical department counterpart. All five gensets were operational at the end of this reporting period.

C.T. Main's project manager and NRECA staff evaluated genset performance over peak-load period. It was determined that the desired 2,000 consumer-connection level can be served from this power plant.

Major efforts were exerted by the NRECA project advisor to improve operating procedures and lower production costs at the power plant. This effort was prompted when statistical reports began reflecting an undesirable reduction of kwh production per liter of fuel. (Statistical report is on page 23.)

IV. Training

--- The NRECA advisor and NRECA Jakarta staff presented a refresher course on "Work Flow Procedures." This six-day course began in our last reporting period and was completed during the first week of April. Eleven employees of the cooperative were in attendance.

--- The NRECA administrative/finance officer and the project advisor presented a one-day refresher course for accounting staff. Other training related to daily on-the-job coordination between advisor and employees.

V. Problem Areas

"A" --- Several street lights were installed in 1981 along the main highway between Metro and the temporary power plant. Although NRECA has consistently urged the cooperative to arrange a payment procedure with local government officials, as of May 31st 1982, no energy billing has been made. This problem exists at all three cooperatives and needs the attention of PDO/RE.

Numerous street-lighting fixtures are included in IFB procurement. When installed, this investment and the energy consumption must be recovered by the cooperative. A decision must now be reached on billing rates and procedures.

"B" --- GOI DIP funds for fiscal year 1982-83 for the RE projects have been reduced substantially from previous levels. Salaries for some employees have actually been reduced. Key employees have indicated a desire to leave their positions.

This is a serious matter and requires coordination between PDO/RE and the local DGC project staff. Wage and salary plans

must be adopted which will provide incentives for employees to remain with the cooperative. Salaries which are limited to a fixed-figure from DIP funds should be topped-off from the cooperative's general revenue.

LOMBOK - Sinar Rinjani Electric Cooperative

I. General

--- The NRECA project advisor was at Lombok all of this reporting period. He was handicapped in his assistance efforts however, since his interpreter/translator was a candidate for a political office and was absent from work for an extended period.

--- Distribution system construction in Suralaga was completed this period. The official energization occurred on April 19th. By the end of May, consumer-connections approached the 300 mark in this desa, the fifth desa to be served in the RE demonstration project.

--- Bids for received for construction of Headquarters for the cooperative. The apparent low bid was received from a Lombok-based contractor in the rupiah equivalent of \$585,000.

II. Organization/Management

--- Identification of consumers by account numbers was completed in the new desa of Suralaga. Maps were prepared, meter-reading routes established, and account numbers painted on the members' houses.

--- Housewiring activities in Suralaga were controlled in accordance with proper procedures. The sum of five thousand rupiah (Rp 5,000)

was collected in advance for each housewiring installation, an amount equal to nearly one-half of the average housewiring cost. Electricians averaged one completed installation per man per day.

--- The manager and Board members responded to the advisor's request for up-grading membership records. Official acceptance of members by action of the Board of Directors was accomplished, and membership certificates were prepared for issuing to all members.

--- Some personnel changes occurred this period. C.T. Main's project engineer left Indonesia. As a result, several of the cooperative's employees, who had been assigned to staking crews, have found outside employment.

Due to internal problems in the power plant staff, the chief mechanic was terminated. Recruiting a replacement is in progress.

--- The NRECA advisor and the manager evaluated billing and collection procedures. The collection period was changed from the 11th-25th days per month to the 11th-19th. It is hoped that the shorter collection period will expedite posting and reporting activities.

--- Additional operating policies were drafted by the advisor and submitted to the manager. Position descriptions were reviewed and updated. Improvements in these important management tools is noticeable, and an understanding of their importance is now recognized.

--- NRECA Jakarta staff and the project advisor spent several days assisting the cooperative's accounting staff in construction closeout. Costs of all construction for calendar year 1981, in four separate work-orders, were accumulated and transferred from construction work-in-progress accounts to respective utility-plant accounts. (Information is on page 22.)

III. Operations

--- The cooperative is still attempting to provide 24-hour service to the membership. Efforts were handicapped in April however when three of the 100 kw gensets were inoperative for a ten-day period. It was necessary to brown-out desa on a rotating basis during peak load period.

--- A 50 kw genset, proccurred through USAID, is now operational and is used to serve the daytime load. A substantial savings in fuel consumption is being noted.

--- NRECA staff assisted power plant personnel in determining connection-errors on the newly installed kwh meter in the output circuit of the power plant. Total generation is now recorded properly on one master kwh meter.

Assistance was also provided in the installation of metering for the 50 kw genset. The kw demand can now be noted and the kwh output recorded.

--- GOI DIP funds are no longer available to purchase fuel for the power plant. This major expense item must now be paid from revenue. Greater attention is now being given to budgeting and cash-flow.

--- With the addition of desa Suralaga, consumer-connections now exceed the two thousand (2,000) level. This may be noted on page 24 of this report, Lombok Operating Statistics.

It may also be noted that the consumer-billing level dropped in the month of May. This is a result of stricter enforcement of disconnect policies for late payment of energy billing.

IV. Training

--- NRECA staff and the PDO/RE training officer conducted a training course at the cooperative's Headquarters in Aikmel during April. This three-day course, titled "Work Flow Procedures", was attended by thirteen (13) employees of the cooperative, plus representation from the local offices of DGC and BRI.

Other training activities related to routine on-the-job training performed by the advisor and NRECA/Jakarta staff.

V. Problem Areas

"A" --- GOI DIP fund reductions creates a serious problem for this cooperative. In addition to the need to procure diesel fuel from revenues, a major portion of the monthly payroll must now come from revenues.

For several months, NRECA has urged PDO/RE to permit this cooperative to increase retail-rates. Recently, in view of the DIP fund limitation, we again documented our concern. PDO/RE must act promptly to assure that a positive cash-flow is maintained at the Lombok Electric Cooperative.

"B" --- Power-supply remains in the "problem area." As of May 31st, only three of the five 100 kw gensets were operational to serve the peak load. Unfortunately, one of these three is badly in need of overhaul.

The actual peak load may reach 280 kw's at present if normal generating voltage was maintained. In actual practice, power plant operators lower the genset output voltage by approximately 10% over peak load to stay within the generating capabilities

of three gensets. This is certainly an undesirable situation.

NRECA is procuring electrical apparatus necessary to restore service from one of the gensets. However, this is only a stop-gap effort. Maximum coordination between PDO/RE and management of the cooperative is essential to solve this major problem.

LUWU - Samabotuna Electric Cooperative

I. General

--- This period an electrical distribution system was constructed in Mangkutana, the second village in the cooperative's service area to receive electric service. Initial energization of this secondary-voltage system (220/380 volts) occurred in early May. The power source is one USAID-furnished 100 kw genset.

Employees of the cooperative constructed the distribution system and installed the power source. By the end of May, two hundred (200) consumers were receiving electric service on a 12-hour basis.

--- The existing distribution system in Bone Bone was also extended to serve a newly constructed market area. Nearly fifty (50) market stalls will be served, plus other residential consumers in the adjacent area.

--- Construction materials/equipment for the main project continued to arrive at the cooperative's Headquarters near Bone Bone. The NRECA advisor assisted in identification and testing equipment items which, among others, included line-type transformers and oil circuit reclosures.

--- A single side-band radio was installed this period. Direct contact with the PDO/RE Jakarta office, and offices of the other two electric cooperatives, can now be made.

--- Continuing rainfall has added to transportation problems. The road from Bone Bone to Soroako was impassable during this period. Bridge washouts on the Bone Bone-Palopo road periodically isolated the cooperative's service area from the nearest cities.

II. Organization/Management

--- The NRECA advisor spent considerable time this period with line-crew, electricians and member services department personnel who were involved in construction activities. It was encouraging to note favorable results from training courses held previously at the cooperative.

Line crew personnel connected a minimum of fifteen (15) consumers per day. Electricians averaged one and one-half housewiring installations per day per man. Member service personnel completed membership-application solicitation at a rapid rate.

--- Maps were prepared of the areas where distribution lines were extended. Meter-reading routes were established and consumer-account numbers assigned.

--- Power plant operators/mechanics positions were changed in April. At present, four employees man the Bone Bone power plant and two employees operate the Mangkutana power plant (about 50 km distance between sites).

--- The NRECA advisor drafted several operating policies and made these available to the manager and Board members. Subjects ranged from employees working hours/pay periods, to member-consumer policies relating to receipt of electric service.

--- The advisor monitored a physical inventory of construction materials, performed on the first week of April. This activity was performed in connection with close-out of 1981-1982 construction work-orders.

NRECA team members assisted the accounting staff in close-out of 1981 construction. (See page 22.) Procedures were outlined for close-out and capitalization of January-March 1982 construction costs.

--- Assistant was also provided in updating operating-period accounting and reporting. Income and expense accounting for 1981 was completed and operating reports prepared. Basic data was provided for the co-operatives accounting staff to update accounting for 1982 operations to date.

III. Operations

--- The advisor assisted power plant personnel in correction of mechanical problems on gensets in the Bone Bone power plant. NRECA staff prepared gensets electrically to permit synchronization of two of the 100 kw units. Power supply is now considered sufficient in this Bone Bone plant to permit additional consumer-connections in the general area.

--- Since the electrical distribution system is secondary voltage only, a low-voltage condition exists in the western area of Bone Bone (about 1½ kilometers from the power plant) over peak-load period. The advisor assisted the line-crew in utilizing two of the newly-received line-type transformers to serve as a voltage step-up bank. A voltage increase of about 10% was realized.

--- The cooperative billed approximately six hundred (600) consumers during the month of May. This total should increase by nearly 15% during the next reporting period. (Operating statistics are on page 25.)

IV. Training

--- Although PDO/RE/NRECA did not hold formal training courses at this project in April/May, workshops were conducted for specialized functions. NRECA staff conducted a workshop for power plant personnel on PARALLEL operation of gensets. Also, a workshop was conducted on the subject of FINANCIAL/STATISTICAL reports and reporting requirements.

V. Problem Areas

"A" --- A major problem still exists within the personnel complement. Absenteeism is common and employee dedication within the office staff is seemingly non-existent.

NRECA staff spent considerable time training a newly-selected accountant and a stock record clerk. The accountant is considered capable of fulfilling his assignment, however, he was absent from work six weeks of this two-month reporting period. The stock record clerk reports about half-time.

The acting-manager, a PDO/RE employee, needs the complete assistance of PDO/RE, and the local DGC officials, to solve this perpetual problem. This cooperative is months behind in accounting and reporting. Internal control of cash is difficult when key employees are absent.

NRECA has documented the problem areas and provided information to PDO/RE. The chief of PDO/RE has written the manager and Board members. However, to date, the situation remains unchanged.

"B" --- A problem of a personal nature for NRECA is COMMUNICATIONS between NRECA staff and employees/directors of the cooperative. Unfortunately there is no translator/interpreter assigned to the advisor.

The manager and two other employees have a reasonably good understanding of the English language. Other employees and directors are fluent only in their native language.

NRECA has requested that a translator/interpreter be assigned to the project advisor. Both PDO/RE and the cooperative acknowledge the need. However, there is no apparent attempt to solve the problem.

Construction Cost Data
RE Demonstration Projects
Period ending December 31st 1981

	<u>LOMBOK</u>	<u>LAMPUNG</u>	<u>LUWU**</u>
Primary/secondary materials	112,725,298	122,720,186	-
Transformers & kwh meters	58,451,000	37,751,600	-
Services & meter entrances	84,459,399	43,724,025	-
Sub-total	255,635,697	204,195,811	18,570,000
Direct labor cost	65,699,079	17,588,344	2,200,000
Overhead	255,635,697	18,981,517	2,887,026
Grand total cost rupiah	321,334,776	240,705,672	23,657,026
Grand total U.S. dollar	494,000	370,000	36,350
Consumer services installed	2,015	*1,420	382
Average cost per consumer (rupiah)	159,471	169,553	61,929
Average cost per consumer (dollar)	245	261	95
Construction costs as % of total:			
Material/equipment	79.9	84.8	78.5
Direct labor	20.1	7.3	9.3
Overhead		7.9	12.2

* The Lampung RE demonstration project is designed to serve 2,000 consumers. When this level is reached the average cost per consumer-connection should decrease to Rp 131,952 (US\$203).

** Secondary and service lines only (no primary-voltage lines).

LAMPUNG OPERATING STATISTICS (1982)

	January	February	March	April	May
Numbers consumers billed	1,346	1,325	1,317	1,323	1,339
Temporary disconnects (non payment) (accumulative)	35	108	122	119	131
Total revenue	Rp 3,107,890	Rp 3,063,215	Rp 3,126,730	Rp 3,065,455	Rp 3,438,925
Total kwh billed	28,475	27,339	30,427	28,409	38,691
Average revenue per consumer	Rp 2,308	Rp 2,291	Rp 2,374	Rp 2,317	Rp 2,568
Average number kwh per consumer	21.16	21	23	21.5	28.9
kwh generated	29,174	23,214	25,754	29,795	32,003
Liters diesel fuel consumed	10,980	9,782	11,485	14,212	15,093
kwh's generated per liter	2.71	2.37	2.24	2.09	2.1
Fuel and lube oil cost	Rp 778,370	Rp 924,096	Rp 1,078,981	Rp 1,326,902	Rp 1,410,071
Fuel cost per kwh generated	Rp 26.17	Rp 40	Rp 42	Rp 44.5	Rp 44
% system losses	4.5	-	-	4.5	-
Peak kw demand	143	145	145	148	156

LOMBOK OPERATING STATISTICS (1982)

	January	February	March	April	May
Numbers consumers billed	1,876		1,859	2,101	2,037
Temporary disconnects	145				
Total revenue from members	Rp 2,968,000		Rp 3,056,220	Rp 3,115,595	Rp 3,150,825
Total kwh billed	39,942		42,926	38,464	39,682
Coop street light kwh consumption	2,500		2,458	1,915	2,217
Average revenue per consumer	Rp 1,582		Rp 1,644	Rp 1,644	Rp 1,547
Average number kwh consumed	21.3		23	18.3	19.5
kwh generated	58,176		57,541	50,784	59,219
Liters diesel fuel consumed	21,240	20,412	22,440	22,506	23,503
kwh generated per liter	2.73		2.56	2.26	2.52
Fuel and lube oil cost					
Fixed cost per kwh generated					
% system loss	25		21.1	20.5	29
Peak demand	238			253	255

LUWU OPERATING STATISTICS (1982)

Bone Bone	January	February	March	April	May	Mangkutana May
Number consumers billed	383	396	405	403	405	196
Services disconnected, months-end	8	2	2	5	3	-
Total revenue	Rp 830,775	Rp 875,545	Rp 873,730	Rp 884,650	Rp 808,390	Rp 295,655
Total kwh billed	9,765	11,316	10,840	10,755	9,960	3,066
Office use	203	207	200	176	124	-
Average revenue per consumer	Rp 2,169	Rp 2,211	Rp 2,157	Rp 2,195	Rp 1,995	Rp 1,508
Average number kwh per consumer	26	29	27	27	25	16
kwh generated	12,133	12,091	13,414	11,991	12,501	-
Liters diesel fuel consumed	5,512	4,857	5,615	5,540	5,825	3,000
kwh's generated per liter	2.20	2.49	2.39	2.16	2.15	1
Fuel and lube oil cost	Rp 634,505	Rp 508,791	Rp 605,225	Rp 643,850	Rp 666,125	Rp 390,750
Fuel cost per kwh generated	Rp 52	Rp 42	Rp 45	Rp 54	Rp 53	Rp 125
% system losses	18	5	18	9	20	-
Peak kw demand	68	72	73	68	65	-

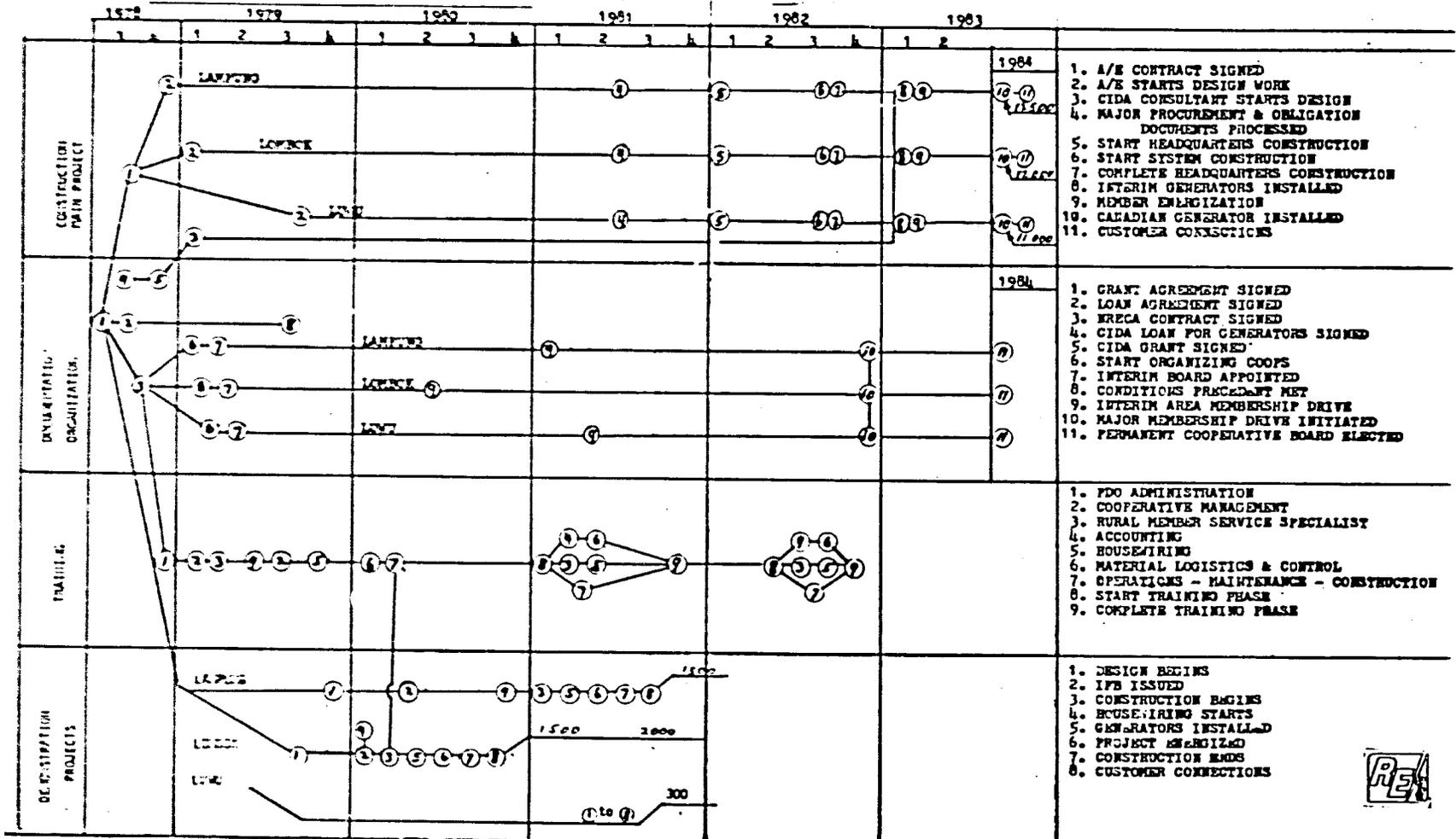
MONTHLY FINANCIAL AND STATISTICAL REPORT To : Project Development Office For Rural Electrification	"SINAR SIWO MEGO" Name of Cooperative For the month of: <u>APRIL</u> , 19 <u>82</u>
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Section A : Statement of Operations

	This month Last Year	This month This Year	This Year - To Date
REVENUE :			
1. Operating revenue		3,065,455	12,334,690
2. Miscellaneous Revenue		4,000	14,750
3. TOTAL REVENUE		3,069,455	12,349,440
EXPENSES			
4. Power Plant - Fuel		1,326,902	4,100,969
5. - Operations		431,855	1,580,389
6. - Maintenance		-	59,847
7. TOTAL PRODUCTION EXPENSES		1,758,757	5,741,205
8. Distribution - Operations		74,656	112,637
9. - Maintenance		116,211	391,357
10. TOTAL DISTRIBUTION EXPENSES		190,867	503,994
11. Consumer-accounts expense		517,461	1,290,006
12. General and Administrative		501,500	1,510,747
13. Sales expense		-	-
14. TOTAL OPERATING EXPENSES		2,968,585	9,041,252
15. Gross operating Margin (3 minus 14)		100,870	3,303,488
16. Interest expense		-	687,628
17. Cash Operating Margin (15 minus 16)		100,870	2,615,860
18. Depreciation/Amortization		566,158	566,158
19. Net Operating Margin (17 minus 18)		(465,288)	2,049,702
NON-OPERATING - REVENUES			
20. Housewiring income		155,240	479,598
21. Other income		-	315,529
22. TOTAL NON-OPERATING REVENUE		155,240	795,127
NON-OPERATING EXPENSE			
23. Housewiring expense - Material		92,329	291,793
24. - Labor		19,400	48,225
25. - Other		125,762	143,512
26. TOTAL NON-OPERATING EXPENSE		237,491	483,530
27. Non Operating Margin (22 minus 26)		(122,251)	311,597
28. TOTAL MARGIN (19 plus 27)		(587,539)	2,361,299
29. Contribution from DIP Fund		2,124,167	8,723,276
TOTAL MARGIN INCLUDING DIP (28+29)		1,546,628	11,084,575

Section B : Consumers sales and Revenue Data

	This Month This Year			This Month Last Year		
	# Rec. Service	KWH's Billed	Rp. Amount	# Rec. Service	KWH's Billed	Rp. Amount
1. Residential	1,323	28,309	3,065,455			
2. Commercial	-	-	-			
3. Industrial	-	-	-			
4. Public Buildings	-	250	8,375			
5. Irrigation	-	-	-			
6. Street Lights	18	1,476	49,446			
7. Other	-	-	-			
TOTAL	1,323	30,035	3,123,276			
Average Revenue per Consumer			Rp. 2,317			
Average Revenue per kwh billed			Rp. 108			
Average kwh consumption per consumer			21			



LUWU PROJECT ACTIVITIES

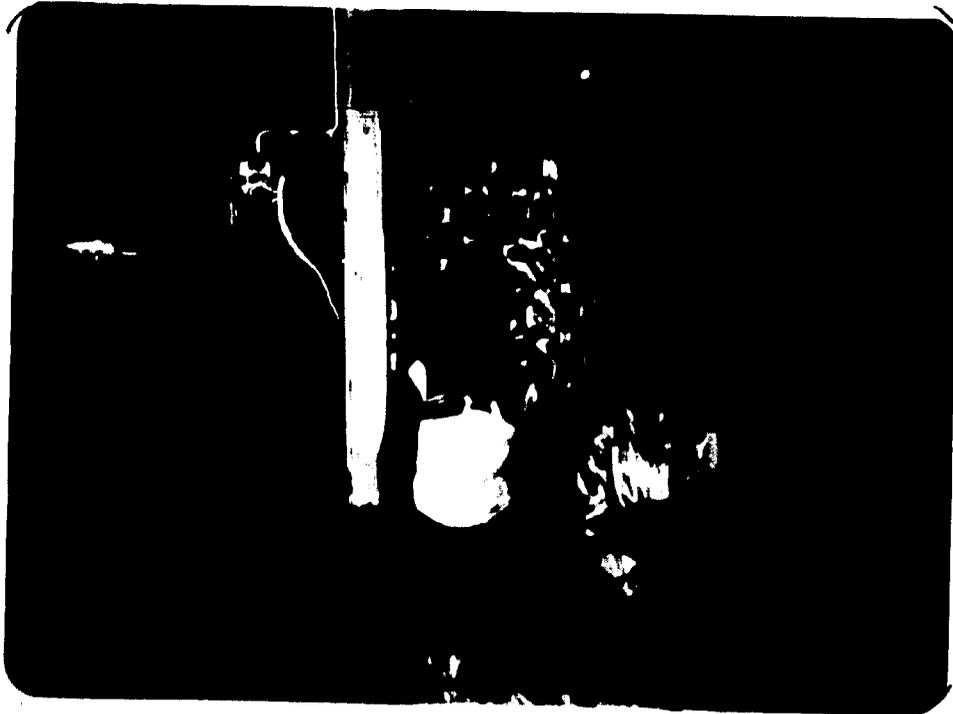


Employees setting a pole in the cooperative's Headquarters compound at Minna, near Bone Bone.

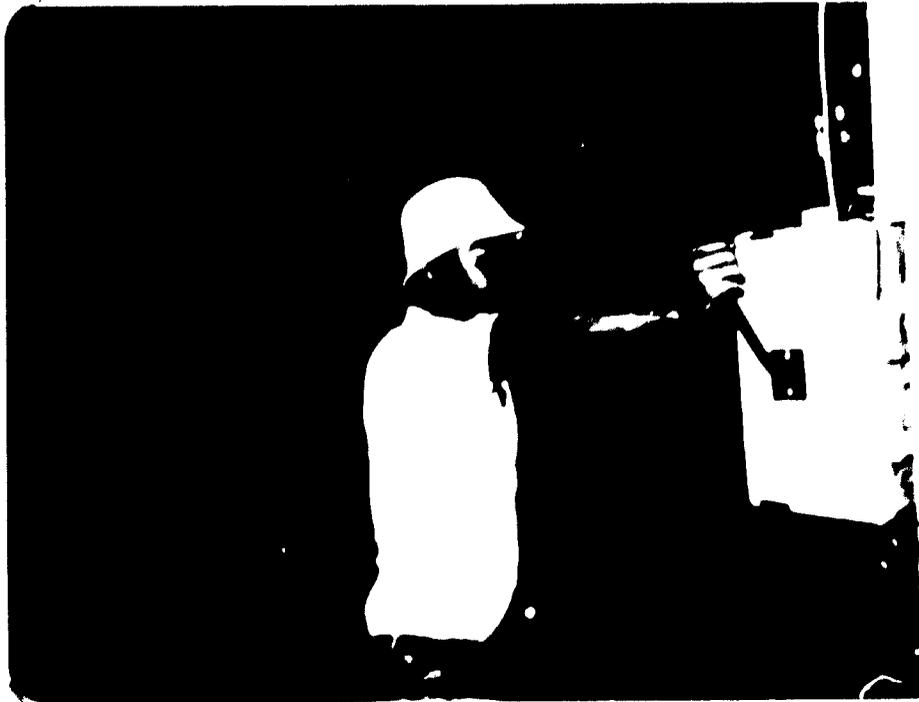


Line-crew members constructing the electrical distribution-system in Manqutana.

LWU PROJECT ACTIVITIES



The manager of the cooperative, Mr. Waluyan, "throws the switch" to energize the Mangkutana distribution system (USAID-furnished genset in the background).



The end result --- happy consumer-members when electric service begins (the consumer account number may be seen next to the kWh meter).

LOMBOK PROJECT ACTIVITIES



The warehouseman, Mr. Muhammad, and his newly-constructed material display board.



Productive-use of electric service --- a coconut grinder in Aineel, Lombok.

LOMBOK PROJECT ACTIVITIES



The Chief of PDO/RE, Mr. Sjoufjan Awal, addresses the crowd at the energization ceremony in Suralaga, Lombok.



Official energization of Suralaga, April 18th, "a celebration when electricity enters the desa of Suralaga".

LAMPUNG PROJECT ACTIVITIES

"The search for wood-poles for the Electrical Distribution System."



P.T. Great Andalus Timber Company, North Lampung, Sumatra.



The C.I. Main consultant, manager, and president of the Board viewing the circular-saws used at this timber company.

Summary of Expenditures

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

AID/ASIA - C 1347
Date: March 1982
Period of contract: 8/25/78 - 8/25/82

	Budget	Total Expense To Date	Prior Billings	Current Billings
Salaries - Field	\$ 1,095,000	\$ 868,185.68	\$ 844,303.94	\$ 23,881.74
Salaries - Home	187,000	136,282.23	132,018.27	4,263.96
Fringe Benefits	416,000	321,676.10	314,643.42	7,032.68
Consultant Fees	34,706	33,906.25	33,906.25	-
Allowances	398,000	296,172.12	288,764.09	7,408.03
Travel and Transportation	386,470	283,071.73	278,601.54	4,470.19
Other Direct Costs	140,000	87,094.83	85,731.75	1,363.08
Overhead	292,000	229,410.65	222,937.14	6,473.51
Equipment and Materials	28,000	17,999.14	17,999.14	-
TOTAL	\$ 2,977,176	\$ 2,273,798.73	\$ 2,218,905.54	\$ 54,893.19

PERSON-MONTHS BY POSITION, NRECA CONSULTANT TEAM
(Contract as amended September 11, 1981)

POSITION	PRESENTLY FILLED BY	CONTRACT PERSON-MONTHS	EXPENDED THIS PERIOD	EXPENDED THROUGH APRIL		PERCENT OF CONTRACT
				PLN	PDO	
Team Leader	Peter McNeill	54	1	9	35	81
Training Officer	Louie Sansing	45	1	7	33	89
Administrative Officer	Ray Shoff	33	1	5	26	94
PLN Advisor	Sam Adkins	42	1	38.5	.5	93
Lampung Advisor	Claude Franke	54	1	.5	43.5	81
Lombok Advisor	Paul Swanson	50	1	0	40	80
Luwu Advisor	John DeFoor	49	1	0	39	80
Short-term Advisors		19	0	14	3	89
Consultants		8	0	.5	.5	100
		357	7	81.5	220.5	85