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PROJECT ASSISTANCE COMPLETION REPORT

AID Project No. : 497-0267

AID Loan & Grant No: 498-T-052 (G/L)

Project Tile : Rural Electrification

Date of Agreement : Grant March 30, 1978
Loan May 6, 1978

PACD :		Original	Revised
	Grant	March 30, 1983	December 31, 1984
	Loan	May 6, 1983	December 31, 1984

USAID FUNDS : Grant $11.000.000
Loan $30.000.000

PROJECT ASSISTANCE COMPLETION REPORT

PROJECT NO: 497-0267

LOAN NO: 497-T-052

RURAL ELECTRIFICATION

I. PROJECT DESCRIPTION:

The purpose of the project was to demonstrate that reliable electric power can be provided to the rural areas of Indonesia at a price which the majority of people can afford through systems which are technically sound and financially viable, and that introduction of electricity will bring about a significant increase in production and improve the quality of life of the rural poor.

The purpose was to be achieved by the design, installation and operation of ten separate rural electrification systems, seven in Central Java under the State Power Company (PLN), and one each in rural areas outside Java, in the district of Central Lampung, Sumatra; Luwu, Sulawesi; and East Lombok owned and operated by Rural Electric Cooperatives (REC). The PLN systems will be fed from the PLN grid while the RECs will have their own generation capacity.

The main components of the project were the provision of technical assistance in organization, management and training; engineering and construction supervision; and a productive uses of electricity program funded with grant funds ($11 millions); and provision of training, electric distribution line and house wiring material and equipment, and part of general plant costs, funded from the loan ($30 million).

The main contractors under this project were the National Rural Electric Cooperative Association (NRECA) who provided the technical assistance for the organization, management and training component; Charles T. Main International (MAIN) who undertook the design, engineering, procurement assistance and construction supervision for the electric distribution system and headquarters complexes and Dr. Aziz P. Pabaney for the productive uses of electricity program for PLN.

II. OUTPUT

A. EXPECTATIONS

The expected outputs by the PACD were: 1) ten separate operating rural electric systems, serving areas with a total population of about two million, of which 50% of the total households in the area or 180,000 households were expected to be electrified and 2) training of a sufficient cadre of Indonesians who will be able to design, construct, operate, maintain and expand the rural electric systems. The ten rural electric systems were as follows:

Service Area	No. Villages Serve	No. Consumers	Kms of Distr Line
A.1. PLN Systems			
1. Klaten	194	25,000	637
2. Pemalang	143	20,000	743
3. Bantul	29	20,000	419
4. Wonogiri	54	15,000	665
5. Sragen	55	15,000	498
6. Magelang	88	20,000	424
7. Banyumas	38	15,000	306
Sub Total A.1	511	130,000	3692
A.2. Cooperatives System			
1. Lampung	109	25,000	1405
2. Lombok	29	14,000	155
3. Luwu	51	14,500	611
Sub Total A.2	189	53,000	2171
Grand total	700	183,000	5863

Each system will have a headquarters complex which consists of two buildings, one for administration and the other a combined warehouse and workshop.

B. STATUS:

As of the PACD, all ten rural electric systems were in operation. All headquarter complexes have been completed and utilized. More than 948 persons from both PLN and RECs have been trained in all aspects of electric system operations. All materials and equipment procured by the AID loan had been delivered to the project sites. However only a part has been put in use.

The status of the numbers of consumers served and the construction of electric distribution system are as follows:

Service Area	No. Villages Serves	No. Consumers	Kms of Distr Line
B.1. PLN Systems			
1. Klaten	87	16,538	484
2. Pemalang	41	7,420	182
3. Bantul	29	13,232	419
4. Wonogiri	29	3,407	392
5. Sragen	53	4,709	392
6. Magelang	60	4,741	368
7. Banyumas	38	9,420	306
Sub Total B.1	337	59,467	2543

B.2. Cooperatives System			
1. Lampung	6	2,000	110
2. Lombok	29	4,000	150
3. Luwu	15	4,000	150
Sub Total B.2	50	10,000	410
Grand total	387	69,467	2953

As indicated above, the actual output did not match the planned output in terms of the amount of construction of electric distribution systems or the number of beneficiaries reached. PLN reached approximately 69% of the target of distribution line construction, and has connected to its system about 45.7% of the targeted consumers. In the rural electric cooperative areas, only 18.9% of distribution line planned were completed serving 18.7% of targeted households.

Because the project had not reached its objectives, the GOI requested an extension of the PACD. USAID refused because most of the AID contribution had been already delivered to the project. However, since only a portion of the AID funded commodities were in use, USAID agreed to provide funds from another source to retain the service of a NRECA consultant for an additional year to monitor the AID funded commodities and to assist the GOI in continuing their efforts to complete this project.

C. PROBLEMS:

There were a number of reasons for the slow achievement of the outputs, some are discussed below:

1. One cause for delay was the lengthy process of procurement through international tender. This process was compounded by the establishment of SEGNEG as an organization which controls all GOI procurement, which lengthened the approval chain. In some cases the time to approve a contract went beyond the time of bid validity as specified in the IFB. As a result some equipment and materials had to be rebid because the successful bidder refused to sign the contract without a price escalation. The extent of the paper work for this project further added to the delay since AID funded 43 supply contracts for PLN and 76 for the RECs. As a result of delays much of the material and equipment required for the construction of distribution lines and for housewiring were not available until 1983.

2. The availability of wood poles locally was another factor that contributed to the delay. Wood poles were selected to be used in this project to keep the system cost low. After several attempts to secure a supply of 66,000 wood poles for this project were unsuccessful, PLN proposed the use of a combination of wood, steel and concrete poles for this project, to which USAID agreed. A new IFB had to be issued for additional hardware which was needed for use with the steel and concrete poles. The REC decided to stick to the wood poles. As a result the PLN moved faster in the construction of their system, while the REC was faced with the problem of continued unavailability of wood poles. Consequently, by the PACD, construction had not started in Lampung, and only a small portion of construction in Luwu was completed.

D. CONTINUING ACTIVITY:

The GOI committed themselves to complete the project and to reach the original objectives. Through occasional contacts with counterparts and visits to the project sites, the Project Officer continued to monitor the GOI efforts.

By the end of 1986, PLN had reached more than 130,000 costumers, the original objective, and at the same time, the RECs have more than 25,000 customers, the total load their current generating capacity can handle. To provide adequate generating capacity for the RECs to handle the original number of 50,000 customers, the GOI and USAID agreed to provide $5.4 million from the proceeds of PL-480 Title I commodities to procure diesel generator sets for the three rural electric cooperatives. It is estimated that some of these diesel generator sets will be on line by the end of 1987.

IV. SUMMARY OF CONTRIBUTIONS.

The following is the comparison of planned vs actual input for this project by the PACD:

		Planned	Actual
A I D	Grant	$11,000,000	$10,976,950
	Loan	$30,000,000	$29,114,524
G O I	Grant	$ 5,296,000	Rp.5,045 millions (*)
	Loan	$17,404,000	Rp.21,464 millions(*)
Netherland's Loan		NFL 8.7 Millions	NFL 8.7 millions

(*) It was difficult to calculate dollar equivalent due to changes in the rupiah to dollar conversion between 1978 and 1984. However it was estimated that GOI contribution exceeded the planned contributions.

AID funds were used as indicated earlier in the report.

GOI grant funds in the form of DIP, were used for consultant support and training both in PLN and RECs, development and operation of the Project Development Office of the Department of Cooperatives as the Implementing Agency for the REC, and development of the RECs and training. GOI loan funds in the form of goverment equity to PLN and loan bearing 6.6% interest for 15 years periods and 5 years grace periods, were used for the procurement of poles, construction of distribution systems, construction of headquarter complexes and operation start-up.

The Netherland government loan funds were used for procurement of electrical conductors for the seven PLN systems in Central Java.

Originally CIDA of Canada provided a loan and grant totaling C$ 24.2 million for financing the diesel generators and substations for the three REC. However this grant and loan was cancelled. To provide an interim generating capacity, AID financed from the loan, 15 small excess property diesel gensets with a capacity of 100 KVA each and 6 new diesel gensets

with a total capacity of 3,200 KW for the three RECs. Later support was also provided under the PL-480 Title I.

V. COVENANTS

There were several special covenants in the grant and in the loan agreement. The borrower has met all covenants in the loan and grant agreement, except to some degree, the project evaluation covenant to which the borrower has not been able to conduct all the evaluations required in this covenant due to the delay in the completion of the project.

The Project Evaluation covenant stated that Parties agree to establish an evaluation program as an integral part of the Project. During the implementation of this project, Project Evaluation Reviews (PER) were conducted annually to evaluate the progress toward attainment of the objective, identification and evaluation of problem areas or constraints which might inhibit such attainment, and an assessment of how such information might be used to help overcome such problems. In addition PLN has conducted two surveys, with the assistance of BUCEN, in Central Java to collect base line data. PLN has planned to conduct another survey in 1987 to collect data for impact evaluation.

VI. AFFORDABILITY

The capability of rural households to pay for electric service was one of the issues during the preparation of this project. To assure that the majority of the people would be able to receive the service, a housewiring program was introduced for both cooperatives and PLN. Through this program, rural households were offered low interest loan to pay the initial cost of wiring their house.

In addition the loan was also offered to PLN consumers to cover the up front payment, the connection charge and a consumer's deposit. (In the cooperatives service area, there are no connection charges and hence such a loan was not required).

The number of consumers connected as of PACD did not reflect the true affordability for electric services since most of the system was completed just before the PACD. In the follow up monitoring of this project, it was found that the level of connection reached 132,000 consumers by December 1986. This indicates that the majority of people in the rural areas could afford and did connect to the electric system. The level of connections in the REC system has not reached its target level, but this is due to unavailability of sufficient generating capacity rather than affordability. In all REC areas there were thousands of people on the waiting list to get electric service.

VI. IMPACT

A. PROJECT SPECIFIC

As indicated earlier in the report, only a few systems were completed by PACD. Therefore at this time, the social and economic

impacts of providing electricity to the rural areas have not been significant. However, an evaluation study conducted by PLN with the assistance of the Bureau of Census, US. Department of Commerce in early 1984 in Central Java, found that changes were evident due to the provision of electricity. The provision of electricity has resulted in longer night activity, allowing more working hours, improved lighting, greater village security for households and an increase in productivity and increased profits for businesses. A similar study will be conducted by PLN in 1987 which will allow the measurement of changes over a period of time.

B. NATIONAL

This rural electrification project was the first major rural electrification program carried out by the GOI. Despite its problems and delays, this project has successfully triggered a nationwide rural electrification program, mostly using the GOI's own resources. There were almost no rural electric systems in existence at the time this project were developed. A rural electrification program was first specified as an objective for implementation in REPELITA III, the Indonesian third five year development plan (1979/80-1983/84). By the end of REPELITA III there were more than 1.2 million connected customers in rural areas, or about 6% of the total rural households. Rural electrification has become an important program for the GOI.

VII. LESSONS LEARNED

Under the lessons learned category are the following:

1. In designing a project, reasonable time should be provided for the procurement process, especially if it is through international tender. In the Project Paper only 8 months was allocated for procurement time, which was from the preparation of IFB thru the delivery of equipment and material to the sites. It turned out that at least 4 months was required from the preparation of IFB to it's issuance, and another 24 months for the evaluation of bids, contract award and the delivery to the sites.

2. The temptation to show progress by fully staffing the consultant team before they are actually needed should be avoided. The project spent all the funds for the consultants before commodities were in place and they were actually needed. This left a gap in T.A. during the critical installation period.

cc: PPS, FIN, LO
DD, DIR, ANE/PD
S&T/DIU, PPC/CDIE
PPS/DES
C&R-3

Clearances:
PPS/DES:DO'Riordan
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