PROJECT PAPER (PP)

RURAL ELECTRIC COOPERATIVES MANAGEMENT

524-0121

USAID/Nicaragua
August 26, 1976

RURAL ELECTRIC COOPERATIVES MANAGEMENT

PP OUTLINE

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AGENCY FOR INTERNATIONAL DEVELOPMENT

PROJECT PAPER FACESHEET

TO BE COMPLETED BY ORIGINATING OFFICE

1. TRANSACTION CODE ("X" appropriate box) — [X] Original [ ] Change [ ] Add [ ] Delete — PP — DOCUMENT CODE 5

2. COUNTRY/ENTITY: NICARAGUA

3. PROJECT NUMBER: 524-0121

4. BUREAU: a. Symbol: LA; b. Code: 3

5. PROJECT TITLE - SHORT (stay within brackets): Rural Electric Cooperative Management

6. ESTIMATED FY OF PROJECT COMPLETION: FY 78

7. ESTIMATED FY OF AUTHORIZATION/OBLIGATION: a. INITIAL mo. 09 yr. 76; b. FINAL FY 77

8. DOCUMENT REVISION NUMBER:

9. ESTIMATED TOTAL COST ($000 or equivalent, $1 =)

a. FUNDING SOURCE	FIRST YEAR FY___ b. FX	c. L/C	d. Total	ALL YEARS e. FX	f. L/C	g. Total
AID APPROPRIATED TOTAL						
(Grant)	(160.0)	(10)	(170.0)	(294.0)	(25.0)	(319.0)
(Loan)	( )	( )	( )	( )	( )	( )
Other U.S. 1.						
Other U.S. 2.						
HOST GOVERNMENT		45.5	45.5		106.0	106.0
OTHER DONOR(S)						
TOTALS	160.0	55.5	215.5	294.0	131.0	425.0

10. ESTIMATED COSTS/AID APPROPRIATED FUNDS ($000)

a. Appropriation (Alpha Code)	b. Primary Purpose Code	c. Primary Tech. Code	FY 10 d. Grant	FY 10 e. Loan	FY 77 f. Grant	FY 77 g. Loan	FY 78 h. Grant	FY 78 i. Loan	ALL YEARS j. Grant	ALL YEARS k. Loan
			170.0		149.0				319.0	
TOTALS			170.0		149.0				319.0	
11. ESTIMATED EXPENDITURES			00		140.0		125.0			

12. PROJECT PURPOSE(S) (stay within brackets) [ ] Check if different from PID/PRP

To enable the Rural Electric Department of the National Electric Utility (ENALUF) and the National Institute for Electric Energy (INEE) to provide increased support to the rural electric cooperatives.

13. WERE CHANGES MADE IN BLOCKS 12, 13, 14, or 15 OF THE PID FACESHEET? IF YES, ATTACH CHANGED PID FACESHEET. [X] Yes [ ] No

14. ORIGINATING OFFICE CLEARANCE

Signature: Thomas J. McIver

Title: Acting Director, USAID

Date Signed: mo. 08 day 31 yr. 76

15. Date Received in AID/W, or For AID/W Documents, Date of Distribution: mo. ___ day ___ yr. ___

AID 1330-4 (7-75)

Part I PROJECT SUMMARY AND RECOMMENDATIONS

A. Face Sheet (see next page)

B. Recommendations

Grant	$319,000
Total New AID Obligation	$319,000

Part I. C. Description of the Project

The Government of Nicaragua, after a thorough analysis of the rural sector, set as the goal for the 1975/80 Rural Development Plan "the improvement of the standard of living of the rural population." Broad instrumental objectives and strategies were also set to guide implementation of the over-all plan. The major objectives of the plan are to achieve a more equitable distribution of income to rural people and to expand opportunities for productive employment. To this end, USAID/Nicaragua is assisting the GON in mounting a major integrated rural development program with loans and grants in agriculture, nutrition, health and education. The Mission's goal, consistent with the planned objective of the Government of Nicaragua and the Congressional Mandate, is to improve the standard of living and quality of life of the rural poor. This project will contribute to this goal by strengthening the rural electric cooperative movement in Nicaragua.

As early as 1962, USAID/Nicaragua recognized the importance of rural electrification as a means of improving the economic well-being of the rural poor and as a means of indirectly generating productive employment opportunities. Feasibility studies were conducted which in turn led to a series of loans to finance rural electrification. The Mission also believed that the best model to follow in expanding the distribution of rural electrification was that of the cooperative structure. This model is also valid for this project.

The Mission has, however, by virtue of events recognized that small rural electric distribution cooperatives require a sustained basis of support - support which can provide them both technical and managerial assistance which they independently cannot obtain. This basis of support is necessary to overcome the disadvantages which normally face a cooperative structure.

In Nicaragua, the basis of support for the cooperatives is and will continue to be the Rural Electric Department (RED) of the National Electric Utility (ENALUF) and the National Institute of Electric Energy (INEE). The RED was established in 1969 to implement the electrification loans for the rural areas as well as to provide support in engineering, organization and administration of cooperative projects. Although RED has had adequate performance in this area, two major problems remain. First, RED has emphasized

construction of new facilities. While this is not an altogether surprising emphasis, it has been one which has resulted in an insufficient amount of support allocated to solving the administrative, managerial and the simple day-to-day technical operational problems that confront these young cooperatives. Secondly, although the rural electric department supports all rural electrification operations, all of these cooperatives are not under the cooperative structure. Thus, the particular types of problems confronting cooperatives such as service to its membership are not fully appreciated. As a result, the cooperatives have been lagging in their rates of penetration with secondary lines and drops.

This project will effectively resolve these problems by instituting a cooperative section within the Rural Electric Department of the National Electric Utility (ENALUF). This section will, with advisory assistance, identify the training needs of the cooperatives' staffs and, to the extent possible, carry out those training functions identified as priorities. The cooperative section also, and again with advisory assistance, will analyze the problems confronting the cooperatives in their efforts to more rapidly expand electric service with emphasis on both improved and reliable services to current consumers as well as greater penetration in rural areas. Given the GON's emphasis on electricity as a source of energy for increased agricultural production, special emphasis will be given to the electrical needs of small-scale farm operations. In short, the Rural Electric Department has recognized these two general areas of weakness in their support capability and by virtue of their request for USAID assistance hopes to resolve the difficulties as soon as possible.

The second basis of support for the rural electric cooperatives is that which is provided by the National Institute of Electrical Energy (INEE). It also was created in 1969 and is charged with inspection and regulation of all electrical installations as well as the establishment of energy rates for private and public enterprises in the country (see Appendix F for a brief review of the INEE). The relationship with INEE poses a serious challenge to any efforts to support expansion of rural cooperatives. This problem involves the near term capacity of three of the five cooperatives to meet principal and interest payments due in 1979. Several rate studies conducted on this question indicate that the current difficulties facing each of the three cooperatives is due to the cost of transmitting power and what appears to be a situation of non-compensatory rates for production-oriented blocks of usage (irrigation primarily but may also include the commercial and industrial rates). Yet, other analyses conducted by the Rural Electric Department have indicated that this deficit status facing these three cooperatives is due largely to their high start-up costs and low start-up revenues. Their projections in these two areas (i.e., costs and revenues) indicate that financial viability should be achieved early in the 1980's for these cooperatives.

The problem of financial viability of the cooperatives is serious and must be resolved if the cooperatives are to achieve increased efficiency and expansion. This project proposes to resolve this issue through the development of a financial plan which will enable the cooperatives to become financially viable by the early 1980's.

The advisors to be provided under the project will work with the INEE staff and the Rural Electric Department to produce a plan which will resolve this short run situation. However, more importantly, by working through the problem in a sound manner which entails examining all of the alternatives, including differential regional rates which reflect the costs to the cooperatives more accurately, the cooperatives' position in rural electrification distribution will become clearer to the INEE. Together, the INEE and Rural Electric Department will then be in a better position to support cooperatives in their efforts to set rates which will provide the cooperative with a regular flow of funds to both expand and improve their services to rural inhabitants.

The purpose of this project then is to enable the Rural Electric Department of ENALUF and the INEE to improve their support of the five electric cooperatives previously established under AID loans as well as other rural electric cooperatives to be set up in the future. In fact, this project will have a major impact on assuring that the rural electric distribution coops to be financed by the two-step fund account in the recent IDB loan to ENALUF will be in an immediate position to deliver rural electric services to their constituencies at a more efficient and more rapid rate. These are the major problems which have hampered the prior cooperatives and which can be resolved with a systematic analysis of the particular problems confronting present cooperatives and specific plans of action to remove the identified constraints.

Part 1. D. Summary Findings

1. It is the conclusion of the USAID/N Mission that rural electric cooperatives have a direct and important impact on the total rural development program. For this reason the Mission believes an unacceptable delay (18 months or more) would be involved in having the IDB finance and implement the project. See Appendix K: Inter-American Development Bank letter to ENALUF). Because of AID's considerable investment in the rural electric cooperatives, it is strongly recommended that the project be carried out under AID's coordination and financing. The rationale for the project has been outlined in a series of eveluation reports, the first of which was prepared in 1974. Some of the problems and management need of rural cooperatives are as follows:

a. Sales of electric power have been weak because qualified promotion specialists are not available.

b. Procurement, warehousing procedures, inventory practices, maintenance, in-service training, management consultation service and consumer accouning for the cooperatives need to be improved.

c. Rate studies are needed for sound financial planning and long-range planning.

d. Management of the cooperatives is weak, with almost no programs available for training managerial personnel. Two of the five cooperative managers are not trained.

e. Technicians for such operations as transformer repair, "hot stick" use, systems mapping, testing, warehousing, maintenance, calibration and materials issue are urgently needed.

f. Board member education program do not exist.

g. Operating costs should be reduced and promotion of sales emphasized.

h. Energy conservation by users and training in preventive maintenance are needed.

i. The cooperatives need adequate accounting and financial reporting procedures in order to accurately determine the costs of services and develop projections of capital outlays required for expansion to new areas.

j. Improved management is required for the further development of rural electrification in two geographic areas.

The above conclusions were reached on the basis of the following:

(1) evaluations of AID loans 021 and 025 which provided funds for construction of the five cooperatives, (2) a report prepared by a cooperative consultant from the Kit Carson Rural Electric Cooperative of Taos, New Mexico, and (3) a National Rural Electric Cooperatives Association (NRECA) management consultant report, (4) a report prepared by a rural electric rate specialist from Sanderson and Porter Inc. of New York, and (5) a USAID/Nicaragua audit report (1-524-75-66) covering all rural electrification loans in Nicaragua.

These reports are on file and available for review.

2. The project meets all applicable statutory criteria.

Part 1. E. Project Issues:

The discussion of the project will address certain issues that are recognized as important to the attainment of the project purpose. These are identified as follows: (1) The rates of wholesale and retail electric power; (2) the rationale for the project; (3) the proposed IDB loan; (4) the project strategy including the clarification of the target group; (5) previous technical assistance, (6) Cooperative federation; and (7) host country contribution.

(1) One of the issues that has caused a great deal of concern has been that the cooperatives have to purchase electric power from the National Electric Utility (ENALUF) for resale to their consumers. Financial reports, analyses and studies have indicated that the rates set by the National Institute of Electric Energy are causing financial hardship to the cooperatives. Certain blocks of power sales appear to be non-compensatory and to cause disproportionately higher rates to fall on the smaller users. Three of the five rural cooperatives are not doing as well as might be expected and could fall short of long-range plans because of the rate question. Some of the reasons given for the high wholesale rates have been the increasing costs of imported fuel needed to generate electric power and worldwide inflation. Concern has been expressed that under these circumstances the three cooperatives may fail. The result of this failure would be a take-over of the facilities with serious consequences for other rural cooperatives. "Transmission burdens" of the cooperatives - the costs borne by some cooperatives to transmit large volumes of purchased power long distances - is also a matter which will have to be resolved in the near future. The transmission costs of electricity should not be passed on to the cooperative since these costs reduce profit margins and affect the continued viability of the cooperative. These costs were assigned to the cooperatives at the time of their formation. They have had the effect of adding to the operating costs of the cooperatives without compensatory increases in revenue.

(2) The rationale of the project is based on the objective (sub-goal) of strengthening the rural electric cooperatives to enable them to be financially viable, well managed, well maintained and able to provide reliable and reasonably priced electric service to their consumers.

The purpose of the project will be to enable the Rural Electric Department of ENALUF and the National Institute of Electric Energy (INEE) to provide increased support to the cooperatives. The project will achieve the purpose by focusing on two major areas: training and specialized analysis and plans for the cooperatives, the Rural Electric Department and the INEE. The training will assist the two institutions in the areas of management, administration and operations. During the first year of the project a management analysis will be carried out to determine training needs. This study will be followed by a training program based on the result of the management analysis.

The rates and transmission questions will be examined in the broad context of operational efficiencies, revenues , costs and expansion. Bearing in mind that the cooperatives serve only 14% of the present rural population and that recruitment of new members is far behind schedule, thestudywill give strong emphasis to training for promotional programs. The advisory services to be provided by INEE in the areas of rates administration and regulation will give more support to the cooperatives through the strengthening of their capacity to provide rates analyses to public electric enterprises, particularly rural cooperatives.

(3) The IDB loan has been discussed and examined in terms of its use as a funding source for theproject. An advance of funds to the RED to develop and/or establish new rural cooperatives to be generated from the two-step repayment procuedrue by ENALUF was proposed in a letter from ENALUF to the IDB. The subsequent IDB response, thought not excluding the possibility of technical assistance to ENALUF, did not promise funding in the near future and encouraged ENALUF to seek financing from other sources. It also indicated that the project would not be assigned the high priority status of other activities already agreed upon.

(4) Rural Electricfication throughout Nicaragua has reached approximately 152,000 persons or only 14% of the total estimated rural population (900,000). With the completion of the activities to be financed by the Inter-American Development Bank loan to ENALUF for construction of electrical transmission and distribution systems in two new areas, an estimated 108,000 additional people (approximately 26% of the rural population) will be served (See Appendix G for cooperatives sales by or to blocks of consumers).

The strategy of this project is to enable the RED and the INEE to improve their support system for five rural electric cooperatives concerned with expansion of their outreach capabilities to rural areas. This strategy will be achieved through the provision of technical advisory services, training and commodity support to these regulatory and energy supply agencies to enable them to provide rural cooperatives with the technical, managerial and other support needed for rural expansion. The construction design of each cooperative is based on facilities that can be greatly expanded over the present systems. Previous demand studies have projected the potential number of consumers for each cooperative and, in each case, the number of potential consumers is large, consisting mostly of poor rural inhabitants. Expansion thus becomes a real possibility, especially in view of the Mission and GON rural development objectives. The responsibility of the cooperatives for providing systematic maintenance and reliable service will be a crucial element in all of the areas served and will become more important as the demand for electric power increases. Under existing conditions, the cooperatives are not in a position to meet the challenges of greatly expanded operations on a timely and effective basis.

Although no reliable data is available to show the exact income levels of the target group in the present cooperative service areas, approximately 77% of the rural population has an annual per capital income of $120 or less, as compared to the national average of $480; 10% of the land is occupied by squatters and 42% of all farms are less than 10 manzanas (1 mz - 1.7 acres). Therefore, the five rural electric systems are serving areas typical of rural Nicaragua and the rural poor in these areas can be expected to benefit from the program. Systematic data on the economic status of the target group will be collected during the course of this project.

The total USAID rural development program in Nicaragua consists of grant and loan assistance in the areas of food production, nutrition, family planning and rural community health services. The expansion of electrification activities to rural areas will be an important means of reinforcing the positive aspects of these programs, of providing some of the amenities to rural inhabitants and of stimulating rural employment opportunities.

(5) Technical assistance for the development of rural electric cooperatives began in Nicaragua in 1962. At that time the National Commission of Electric Energy prepared a feasibility study with the assistance of the National Rural Electric Cooperatives Association (NRECA) to develop a project for rural electrification in the Tisma zone, Department of Masaya. This study was used as justification for an AID loan of $483,300, authorized in May 1964, to construct and equip a pilot rural electric distribution cooperative in Tisma. AID loan funds plus an in-kind contribution of $83,000 from National Energy Commission of the GON, were used to construct approximately 150.8 miles of distribution line and a headquarters building.

With technical assistance from NRECA, the Tisma project as originally planned was successfully completed in mid-1968. It initially served approximately 800 rural customers. As a result of this pilot rural electrification experience, ENALUF began negotiations with USAID to finance a series of programs to expand the distribution of electricity to rural Nicaragua utilizing rural electric cooperatives. ENALUF's interest in utilizing rural electric cooperatives to promote economic and social integration in rural Nicaragua prompted AID to support a feasibility study that would serve as the basis for initiation of a large-scale plan of rural electrification. Four geographic areas, determined to be most appropriate for rural electric cooperatives were intensively studied: Zone A, Nueva Segovia-Madriz; Zone B, Chinandega; Zone C, Rivas-Ometepe; and Zone D, Boaco-Chontales-San Juan River. Cost estimates and socio-economic analyses were prepared for these four areas with the information presented to AID/W as a loan request in December 1967.

Following a favorable review of the in-depth feasibility study prepared by ENALUF, AID Loan 524-L-021 of $10.2 million was approved in August 1968 to finance the foreign exchange costs of construction of three rural electric cooperative systems in Zone B, Zone C and Zone D.

Although the whole project area was found feasible, Zone A (Nueva Segovia-Madriz) was dropped in order to decrease the scope of the project, shorten the implementation period and reduce counterpart costs.

The physical facilities developed for the three cooperative systems financed under AID Loan 524-L-021, identified as Rural Electrification II, were the following:

125 miles of 138 KV transmission lines,
80 miles of 69 KV transmission lines,
7 sub-stations with a combined capacity of 45,000 KVA,
1,700 miles of 14.4/24.9 KV primary lines,
300 miles of 120/240 volt secondary lines and service, installations to supply power to approximately 25,000 customers.

In February 1971, after construction had been well underway on the three cooperatives financed with AID Loan 524-L-021, ENALUF prepared an engineering feasibility study for rural electrification in Zone E, Nueva Segovia-Madriz (Zone A in the pre-feasibility study of 1968). This study also provided the basis for provision of additional materials for the rural electrifications systems of the four cooperatives previously organized with AID loan funds.

AID authorized Loan 524-L-025 in September 1971 to finance rural electrification activities in the fifth zone. This loan of $4.3 million was used to defray the dollar costs of organizing and constructing the required facilities for a new cooperative distribution system. In addition, $1.0 million in loan funds were authorized to finance the foreign exchange cost of materials and equipment to enable the four previously organized cooperatives to extend their distribution facilities to service an additional 4,700 residential, commercial and irrigation customers.

Physical facilities for the fifth cooperative financed under AID Loan 524-L-025, identified as Rural Electrification III, were as follows:

30 miles of 69 KV transmission line
1 5,000 KVA sub-station
410 miles of 14.4/24.9 KV primary lines
280 miles of 120/249 volts secondary lines, and service installations to serve approximately 9,000 consumers.

Appendix H includes a descriptive systems map of the cooperative (CODERSE) located in the fifth zone, showing sub-stations, reclosures, various types of lines communities served and the network of secondary lines.

All AID loans included funds for NRECA technical assistance to ENALUF throughout the periods of construction and engineering consultants for the design and supervision of the construction of the 138 KV transmission lines.

Total inputs by the Government of Nicaragua, ENALUF and the individual cooperatives for local engineering services, labor costs for construction of transmission lines, distribution and sub-station facilities, administration and organization costs, and office headquarter and warehouse facilities constructed are estimated to have been the equivalent of $7,640,000.

For purposes of clarification, designations, names of cooperatives and areas served by ENALUF are as follows:

Designation	Name	Areas Served
COOP A	CAEER No.1	Masaya, Tisma, Tipitapa
COOP B	CONODER	El Viejo, Somotillo, El Sauce, Cosiguina
COOP C	COERDRI	Rivas Department
COOP D	COERAM	Boaco, Chontales, Rio San Juan
COOP E	CODERSE	Madriz, Nueva Segovia, Esteli

The purpose of the rural electrification projects was to provide electricity to five rural areas in the Pacific, Central and Northern areas of Nicaragua through the construction of power networks and to assist in the establishment of cooperatives for each area under the sponsorship and with the support of ENALUF. It was estimated that with the construction of the five cooperatives, about 363,000 rural inhabitants or 40% of the projected rural population would be served in the 10th year of operation and that agricultural production facilities such as irrigation, dairy machinery, food and fiber processing plants would thereby have access to economical electrical power needed to make them profitable operations.

(6) The idea of a Federation of Cooperatives as called for in the PRP

has been discarded because it is not considered to be appropriate for the project at this time. At this particular time, substantial emphasis needs to be placed on correcting the internal deficiencies of the individual cooperatives. Organization of a federation at this point would only divert the attention of the managerial staff from this objective. The merits of a cooperatives' federation will be considered at some point in the future after the cooperatives have corrected most of their financial managerial and organizational problems.

(7) For the present project the contribution of ENALUF to the project will consist of $106,000 in technical and administrative and logistical support, including in-kind costs such as salaries.

Part 2. Project Background and Detailed Description

A. Background

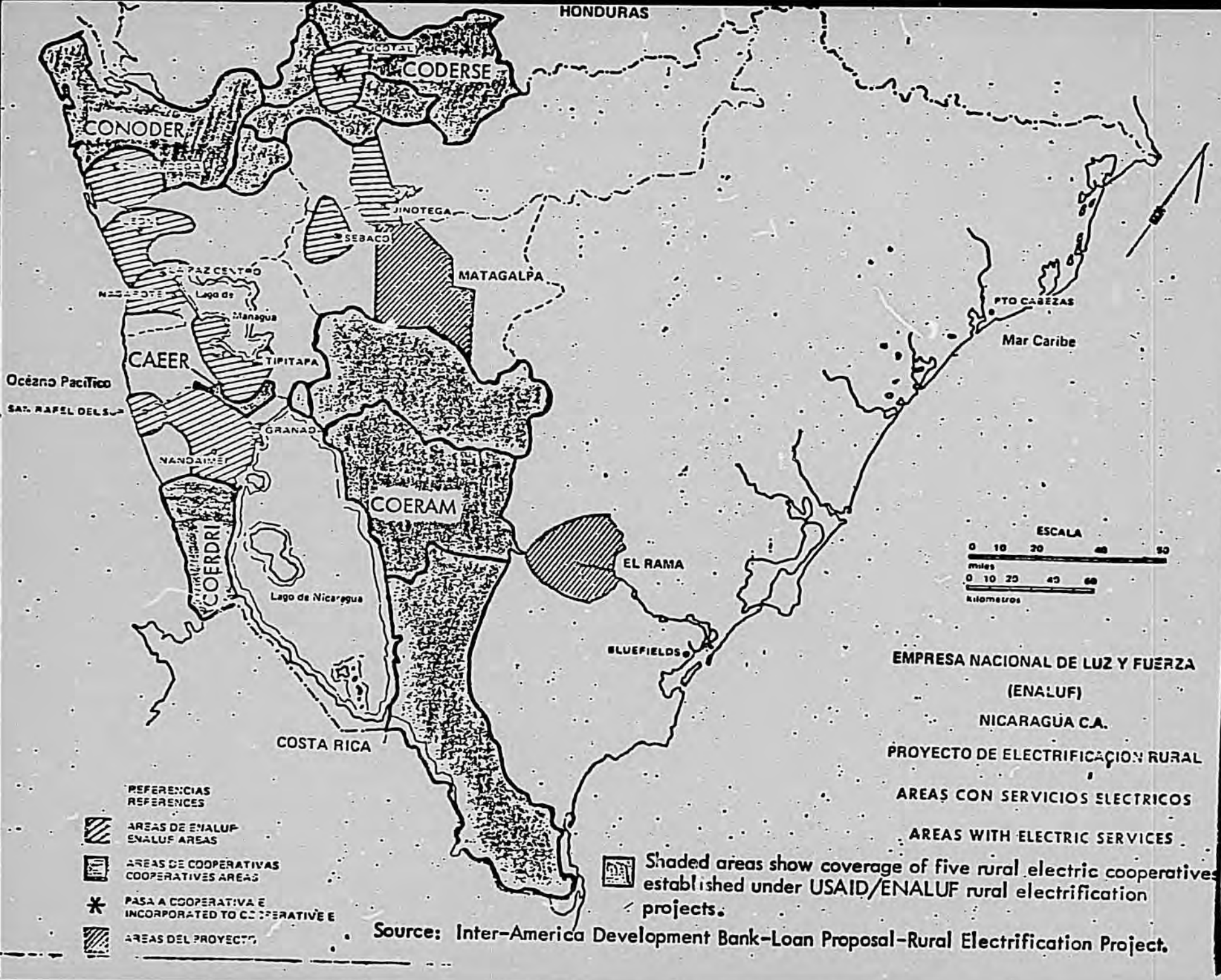
1. As previously described, ENALUF completed a feasibility study in 1968 upon which AID loans 524-L-021/025 are based. At that time ENALUF assigned eight specialists from different departments to work as a group on rural electrification within its financial department. With the assistance of a NRECA rural electric specialist, this small group conducted the feasibility study to support the AID loan applications.

In early 1969 ENALUF established the Rural Electric Department to implement AID-financed electrification loans. This department was originally organized to provide a staff of engineers, organization and administration specialists, accountants and other personnel capable of advising and assisting the cooperative projects.

To assist the Rural Electric Department, ENALUF contracted with the National Rural Electrification Association (NRECA) for advisory services. Under an AID-funded contract with ENALUF, NRECA provided one full-time specialist to assist and advise the Rural Electric Department in implementing cooperative projects. In addition, the NRECA provided short-term advisory services in management, public relations and accounting to the individual cooperatives.

The NRECA advisory services contract ended on June 30, 1975 due to loan budget problems. (There had been delays in construction of Cooperative CODERSE due to a shortage of poles which led to heavy price increases and limited funds available for other purposes).

Although the Rural Electric Department has provided the cooperatives with adequate services in organization, selection of managers and promotional ceremonies, there are many weaknesses in the department itself which need improvement. The Rural Electric Department has never been completely



Source: Inter-America Development Bank-Loan Proposal-Rural Electrification Project.

staffed or fully qualified to provide the support needed by the cooperatives. Experience gained in the development of rural electric cooperatives indicates that the need for advanced specialized training and consulting services for cooperative managers, directors and technical personnel increases as the cooperatives themselves increase in size. Three former staff members of the RED have been employed as cooperative managers. While this was generally good for the individual cooperatives, it left the Rural Electric Department of ENALUF short of qualified people to assist the cooperatives with management and operating problems. Progress of the cooperatives has been fair but new problems now exist which will require continuous expert attention.

The earthquake which devastated Managua in December 1972 caused a major loss of revenues to ENALUF. These losses were magnified by increases in fuel prices resulting from the world energy crisis. ENALUF's returns from power sales were reduced, thus this precipitating a financial crisis that resulted in an increase in wholesale rates to the cooperatives of more than 220%. As of this time, the cooperatives have not been allowed commensurate increases in their retail rates for sale of electricity to irrigation and large industrial blocks.

The cooperative rate dilemma has put a financial squeeze on the cooperatives, placing greater burdens on their management at a time when they need to be most concerned about extensions of service and improving management training and employee skills.

B. Detailed Description

The technical assistance, training inputs and outputs of the project as expressed in sequential form are as follows:

1. The first action to be taken following the approval of the project will be the recruitment of two management analysts whose objective would be to determine the managerial requirements of the RED, the Cooperatives and the INEE. The results of their investigations will provide the data necessary to design the in-country pilot training course and to confirm or modify the results of previous studies pointing to the need for certain types of foreign training for managers and assistant managers. Since the Cooperatives Section will be staffed with trained personnel, these requirements would also be addressed. Completion of job descriptions and definition of staffing requirements will be urgent requirements to complete establishment of this section.

The Mission has available a listing of suggested training courses requested by ENALUF (see Appendix J, Grantee's Application for Assistance). The management analysis will incorporate these suggestions into the design of the in-country pilot training program. The installation of a permanent in-country capability will result from this project.

2. The long-term advisor will be provided for a period of eighteen months. His role is considered to be a key element for the success of the project. He will coordinate and monitor a broad range of day-to-day activities among all entities of the project, the in-coming technicians, the participants and the AID Mission. He will also contribute to the training program for the staff of the electric cooperatives. The selection of a qualified individual will be very rigorous in order to select the most qualified candidate.

3. The training proposed in the project will be of two types. The foreign training will provide on-the-job experience at various cooperatives in the U.S. and third countries. This system of training for periods of three to four months has already proven successful in the training of three of the five present cooperative managers. Organizations such as the NRECA have permanent on-going programs in various U.S. cooperatives. The training of five assistant managers will greatly strengthen the management of the cooperatives. This need is expected to be confirmed by the management plan. Training of a section and an assistant section chief for the establishment of the Cooperatives section will be highly specialized since these key individuals will be the major advocates of cooperatives affair in the RED. They will act in the interests of the cooperatives as well as rural electrification. They will link the support of RED to the cooperatives in all matters of mutual concern such as technical services, training and planning.

In-country training will deal with training needs as determined by the management analysis and is expected to cover administrative, operational and specialized skills. A well designed program will begin on a pilot basis since it will be a new effort and must be flexible. Based on evaluation results and further study, a permanent program will be expected to be established. To provide specialized skills, trainers will be brought in on a short-term basis in areas such as transformer repairs, "hot stick" usage and inventory control. Other short-term specialists in such areas as rates analysis or statistics may also be required.

4. The provision of a team of experts is proposed as the third major thrust of the project. The team will arrive during the second year to conduct studies and prepare the following: (1) a 5 year plan for cooperative promotion and expansion, (2) a 5 year plan for training in various managerial and technical operations of cooperatives and (3) a plan for cooperative financial viability by the early 1980's. Implementation of these plans will provide a solid basis for strengthened cooperatives supported by the RED of ENALUF and the INEE.

C. Transformation from Outputs to Purpose

At the purpose level, primary emphasis will be placed on enabling the RED, as part of ENALUF, and the INEE to provide increased support to the cooperatives. Through training and technical assistance, the purpose can be achieved if ENALUF continues to support the cooperatives and

if INEE can strengthen its role in rural electrification (These points were previously discussed in part I.C., Description of the Project). The NRECA has developed numerous specific measures that can be used to determine the strength of a rural electric cooperative institution and the agencies connected with it. The advisers and experts who will be attached to the project will apply these standards to the relationships between the recipient agencies and the various cooperatives. (See Appendix E for description of Key Performance Areas, Key Indicators and Standards). Page 2 of this Appendix gives a brief description of several examples of key indicators.

D. Transformation from Purpose to Sub-Goal

The sub-goal will be achieved through the strengthening of the cooperatives as financially viable, well managed, maintained and providing reliable and reasonably priced electric service to their consumers. The support of ENALUF, the RED and INEE will be vital elements for achievement of the sub-goal.

E. Transformation of Goal

By increasing the availability of electricity at reasonable prices and in an efficient manner, the target group will benefit by an improved standard of living. The continued recognition by the GON of the integral part rural electrification plays in rural development, especially as it impacts on the rural poor, is an important condition for achievement of the project goal. There is no doubt that strong, viable rural electric cooperatives serving large numbers of member/consumers will have a positive effect on the standard of living of the rural population.

No specific data exist at present regarding percentage of the rural poor which will be affected by expansion of cooperatives. Extensive observations in the project areas, however, indicate that a large percentage of the cooperative members are the rural poor and that low income families are willing to subscribe to electrical services when power distribution facilities are extended to the areas in which they reside. Appendix G shows the increase in user blocks between 1974 and 1975 numerically and by percentage. "General Service" categories would include the minimum service rural poor consumers.

The rural electric cooperatives, properly managed and operated, can be the catalyst for a successful rural development program. They provide direct and indirect benefits in agriculture, public health, education, social development, communication and government-citizen relations (See Appendix E for a sample list of indicators at the Goal level).

Part 3. Project Analysis (Appraisal)

A. Technical Analysis Including Environmental Assessment

The initial GON effort to electrify five rural areas in the Pacific, Central and Northern zones of Nicaragua through organizing and constructing rural electric cooperatives, was virtually completed with the final installations of Coop E (CODERSE) in 1975.

The five cooperatives are now organized and providing a reliable source of electric energy to some 25,000 rural members or approximately 150,000 people for household use, irrigation, small and large industry, and public service lighting in isolated villages. It is projected that the services of the five cooperatives will directly or indirectly affect over 363,000 rural inhabitants or approximately 40% of the projected rural population by the tenth year of operation. Rural electrification is basic to the GON's development policy for effective promotion of farm production, agro-industrial and small industry, development and social improvement of the rural zones. In addition to electrical distribution, the cooperatives are expected to become centers of other community development activities, and to act as catalytic agents for public and private rural development programs.

The cooperatives' distribution and transmission facilities were designed to service anticipated requirements for a 10 year period and it is believed that the electrical systems now in place have ample capacity to allow for expansion and development of consumer loads without expensive rebuilding within a period of 20 years.

The extent to which cooperative growth develops as predicted may depend in part on rate policies as determined by the INEE and adopted by ENALUF to provide the cooperatives the ability to increase revenues necessary to meet future obligations. Rate and financial analyses will help make this determination. The rates will have to provide a reasonable level of operating margins within a 5 year development period.

Nevertheless, the growth of the cooperatives will have to continue, and the margins must be earned in two ways. First the cooperatives' revenues are derived from the sales of electrical energy. Each cooperative must develop an active program aimed at the promotion of the use of electrical energy not only to provide greater living comfort, but also for increasing personal income. Secondly, the cooperative management will need to examine maintenance costs, inventory procedures, warehousing, meter reading, billing and collection expenses, sales expense, and general and administrative expenses. There are numerous ways of reducing costs and perhaps some of them are in such operational functions as repair of installations and equipment, purchase and inventories of materials and developing and maintaining a high level of business management effectiveness.

Although progress of the cooperatives has been generally fair, new problems have arisen as a result of inflationary pressures and as the energy crisis. Recent increases in the price of purchased power has forced the cooperatives into a financial squeeze, placing greater burdens on their management. This comes at a time when the cooperatives are concerned about extensions of service and additonal sales, improving management training and developing service employee skills, and promoting power use and member education.

In a period of rising costs and rates policies that appear to favor large producers and in the absence of additional technical assistance and training, it may prove difficult for the rural electric cooperatives to accomplish their objective of providing reliable and reasonably priced electric services. The timing is critical for the cooperatives to receive management advisory services, skills training and other technical assistance.

Principal loan payments to ENALUF come due in May 1979 and management and finances should be improved before that time. The utility business is one of long-term actions and results. Results expected 2-5 years hence dictate the decisions to be made today or this year. At present the debt service earnings may not be sufficient to meet payments and yet give an adequate margin for regularized growth. See Part 3. B. Financial Analysis and Plan.

1. Rates

Prior examination of the financial conditions of the five cooperatives by an AID contracted specialist on rural electrification rates concluded that three of the five cooperatives (B, C and D) are faced with financial conditions which may have a negative impact on their viability for an extended period of time and effectivly curb their ability to finance extensions and improvements from earnings.

The consultant recommended that: (1) the irrigation rate be changed to a demand and energy type rate with a ratchet clause* on demand, (2) the fuel adjustment clause be included in all rate schedules, to become effective when ENALUF invokes a similar clause in its rates to the cooperatives and (3) the rate changes for ENALUF and the cooperatives be made effective concurrently.

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1 Thieman, Vincent, Rural Electrification Rate Reviews in Nicaragua, Contract No. AID/OTR-C-1305, Sanderson and Porter, Inc., New York, New York J/Q 4958, November 1975

* Charges for power varies with the amount of power used.

The technical advisors to be provided under this project will utilize this and other studies that focus on the question of rates and will take the following course of action:

1. Determine the alternatives available to the cooperatives to achieve viability.

2. Conduct further analysis and produce technical assistance plans within the context of the Purpose of this project.

3. Focus on the role of the INEE as the key factor to bring about changes ... the benefits which would accrue to cooperatives under a modified rate structure.

4. Produce a plan for the cooperatives to reach financial viability by 1979.

2. Irrigation Rates

In developing a rate structure that will result in cooperative viability, the irrigation problem has to be rationalized. CODERSE and CAEER do not have to face this problem since irrigation is neglible in their areas. However, certain statements have to be examined in CONODER (B) where approximately 57% of energy sales were to irrigation customers, but produced only about 37.5% of the revenues in 1974. This situation also prevails in the COERDRI (C) area where 15.8% of total energy sales were for irrigation which produced only 4.2% of the revenue. In COERAM (D) 47.8% of total energy sold was for irrigation, but only 21.5% of the revenues was derived from irrigation.[2] Projections indicate the percentage of energy sold for irrigation purpose in relation to total energy will decrease, and the ratio of revenue from irrigation to total revenue will also be less. If the rates are not made compensatory or if some form of subsidy is not worked out, however, then the cooperatives would have to absorb the losses resulting from irrigation sales. This means other cooperative members and the industrial customers would have to provide the additional revenue required to pay for this deficit created by the provision of electric service to irrigation systems.

The "General Service Rate" customers which includes the small user cannot make up for this deficit. Therefore, it appears that either a subsidy has to be provided by the GON or the present policy concerning power rates for irrigation has to be modified.

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2 Thieman, Vincent

3. Transmission Ownership

Usually transmission lines, sub-stations and other facilities are owned by the supplier of power to the cooperatives. This ownership is usually jealously insisted upon by the supplier for control purposes, for integration into the national transmission grid, and for freedom to tap or extend to serve the supplier's needs.

In the case of Loan 021, the transmission lines and related sub-stations were specifically scheduled to belong to those cooperatives requiring the facilities for power supply. The investment, as previously mentioned, is in each case greater than the revenue can support under present consumer demands and rate structures. ENALUF does not pick up the cost of power losses nor pay for wheeling charges while using the transmission facilities for their own purposes.

In the context of the project, the question of the transmission burden will be examined. Previous studies and recommendations will be used in this examination. The courses of action to be adopted will be similar to those discussed concerning the rates question. As the INEE is legally authorized to consider the transmission problem, the technical assistance will seek to provide the INEE with the capacity to go forward with the recommended changes.

4. Expansion

It is natural for all utilities to endeavor to expand. Normally, this would be healthy, if fixed charges are sufficiently low, percentage-wise, to show a reasonable profit from established rates. The capital borrowed for expansion under those conditons should also give a satisfactory rate of return.

If such a situation can be developed for CONODER, COERDRI and COERAM, the over-all picture would be very good. CAEER is in good condition, (the model coop), as explained before. CODERSE is apparently going to be viable for similar reasons, with minimal irrigation and only a short low transmission line. CODERSE was also able to raise its rates to customers coinciding with ENALUF rate increases to the coop. This was due to a fortunate circumstance of timing. The cooperative was under construction during the energy crisis and during 1974 and 1975 when ENALUF had to increase their rates by roughly 130% above the 1973 rates. Because the CODERSE project was not complete, fixed rates had not been established by the National Institute of Electrical Energy and percentage increases corresponding to those of ENALUF were given to CODERSE customers. CODERSE has an excellent opportunity to expand. Both of these cooperatives point up the conclusion that lack of large-scale irrigation is an asset and lack of transmission is a blessing. Unfortunately, a contrary set of circumstances will tend to inhibit the other three from encouraging irrigation without compensatory arrangements. Through the results derived from the management project and normal growth, it is hoped that those cooperatives operating at a deficit will begin to show sufficient margin to enable them to expand their systems in order to connect all the homes and agro-industries within their territories. An output of the project will be a 5-year expansion and promotion plan.

5.. Planning

The cooperatives have done well but not as well as expected in their expansion of line construction and customer additions. At this point experienced advisers and analysts can save the cooperatives from short-sighted line extension construction which could be very expensive through lack of engineering feasibility studies, planning or coordination. This project will provide planning guidance, methodology and training for the cooperatives so that future construction will be coordinated with system planning and losses minimized. It is timely that the project will be launched at the early stages of development of the cooperatives; thus providing them with guidance and advice in laying out system designs and goals according to sound engineering practice and avoiding costly investment mistakes as much as possible. The project will have as an output, a 5-year plan for training in managerial and technical operations.

6. Coordination

It is anticipated that the project through the efforts of the advisers, USAID, ENALUF, the Cooperatives and the National Institute of Electrical Energy will bring about the coordination necessary to develop a smooth, efficient and healthy relationship among all these organizations. The project will have an excellent opportunity to establish a permanent working relationship and stimulate a two-way flow of communications between ENALUF, INEE and the cooperatives.

7. Role of National Institute of Electrical Energy

The INEE has an assigend role of rate regulation but needs to be strengthened. When attempting to arrive at equitable rates for a rural electric syste, different factors have to be taken into consideration other than those used in determining rates in the urban areas. One of the important factors involved in the building of a rural electric cooperatives is institutional development. The objective of the cooperative as an institution is to provide service to its member-owners. This service cannot be provided unless the revenue received coers all the costs involved supplying that service.

The determination of electric rates in a rural context is extremely complecated and requires specialized analysis. This project will provide technical assistance to INEE in regulatory administration, particulary in the setting or rates and rates analysis as applies to rural electric cooperatives (see Appendix F).

The full time advisor will work with the professional staff and will help them to understand better the functions and problems of the rural electric cooperatives as distinct from the problems encountered in an urban setting.

The project also provides for a short-term advisor (one-two person months) to advise INEE on the specialized problem of determining rates and in financial analysis.

It is felt that by intergrating the INEE into the project with the cooperatives and ENALUF, progress can be made in solving any outstanding rate problem.

9. Environmental Effects Analysis

The Environmental effect of organizing and constructing the five rural electric cooperatives were previously appraised in AID Loan 524-L-007, 021, and 025. Due to the remoteness and topography of the five areas involved it was diffilut to assess the impact of construction activities. Nevertheless, ENALUF's Engineering Department believes that because of the type of construction performed (placement of power line poles, transformers and sub-stations), the overall adverse impact on the environment has been minimal. Since this technical assistance project, no adverse environmental effects are anticipated.

Pursuant to Section 611 of the Foreign Assistance Act, preliminary analysis, design, specifications and cost estimates were prepared by ENALUF's rural Electrification Department with the assistance of NRECA advisors and were the basis of the data in this paper. Estimates on which the project is based reasonably represent maximu level of U.S. assistance. No legislation is required in order to execute this project as planned. The project agreement will require ratification and approval by the Executive President of ENALUF. FAA 611 (b) is not applicable to this project.

Part 3. B. Financial Analysis and Plan

1. Financial Rate of Return/Viability

The cooperatives' financial position and operating results for the years 1973 to 1975 together with financial projections for the years 1976 to 1979 are presented in Annex I and discussed in greater detail below in this section.

The results of the financial analysis show that three of the cooperatives are now experiencing financial difficulties. These three cooperatives are COERAM, COERDRI and CONODER. The other two cooperatives, CAEER and CODERSE, are in much better financial shape. The primary reason for the poor financial condition of the three former cooperatives is the large investment in transmission system representing for COERAM, ₵27.6 million ($3.8 million), or 54% of plant in service; for COERDRI, ₵11.7 million ($1.6 million) or 37% of plant in service; and for CONODER, ₵3.6 million ($500,000) or a 13% of plant in service. These large investments, up to the present, have not generated sufficient revenues to cover the heavy fixed costs (interest and depreciation) associated with these investments.

Additionally two of these three cooperatives (COERAM and CONODER) are burdened with a high mix of irrigation power sales to total power sales in the face of an existing non-compensatory irrigation power rate. Although this rate allows for recovery of the wholesaled purchased power and line losses, it does not appear sufficient to allow full cost recovery of the additional costs associated with irrigation power. Irrigation power is purchased by the cooperatives at ₵0.15/KWH and retailed at ₵0.21/KWH.

The other two cooperatives are not saddled with transmission system investments. All five of the cooperatives have been faced with tremendous increases in the cost of purchased energy which, for the most part, have been passed on to the consumer.

Cooperative management has essentially no control over depreciation, interest and purchased energy costs. The two areas where cooperative management can increase their effectiveness are sales and operating costs. These areas are basic to the survival of the cooperatives. Increased demand to lower the burden of heavy fixed costs and reduction in operating costs are necessary to generate margins to finance expansion and to keep utility costs in the " affordable" range for the ultimate consumers.

The cooperatives' financial projections for the years 1976 to 1979 are also presented as a part of this paper and have been prepared by ENALUF (see appendix I). The Mission considers these projections to be somewhat optimistic, especially regarding assumptions showing substantial increases in demand, the ratio of purchased energy costs to revenues (resolution of the rate issue) and effective control of operating costs. Implicit in two of these

assumptions is the key factor which this project will address, i.e., effective sales and cost management..

a. Detailed analysis.

(1) COERAM, COERDRI, CONODER

(i) Actual

The long term financial positions of COERAM, COERDRI, and CONODER have deteriorated over the past three years due to net losses incurred, as follows:

	NET LOSSES C$000s		
	1973	1974	1975
COERAM	2,200	2,000	1,900
COERDRI	1,100	1,200	600
CONODER	1,300	800	200

The short term conditions of COERDRI and CONODER have improved through generations of net cash flows from operations over the three years 1973-1975 of C$300,000 for COERDRI and C$1,000,000 for CONODER. COERAM's short term position has been affected by a negative cash flow from operations of C$500,000 over the period 1973 to 1975, with only 1975 showing a positive result of C$100,000.

Revenues as a percentage of total assets have increased as follows for each of the cooperatives:

	1973	1975
COERAM	5%	11%
COERDRI	10%	19%
CONODER	14%	28%

The above percentages, although showing substantial increases, represent less than adequate asset turnovers, reflecting the large investment in transmission systems carried by each of the cooperatives.

Profit margins have all been negative, again primarily due to heavy transmission systems investment, increasing cost pressures on purchased energy, and the irrigation load. The percentage of purchased energy cost to revenues has increased for the three cooperatives as shown in the table below. Also note that for the 1975 energy costs as a percent of revenues for these three cooperatives are all greater than the standard measure of 45% used by the NRECA. (See Appendix E for list of key indicators and standards).

	1973	1975
COERAM	22%	46%
COERDRI	44%	55%
CONODER	63%	66%

The increasing cost of purchased power is due to changes in sales mix and a regulatory lag which in the past has allowed a time lapse between ENALUF rate increases and cooperative rate changes.

Irrigation power sales volumes and amounts are presented in the following table. While it of course would be better to compare the percent of revenue from irrigation to the percent of actual costs, the cost data are not presently available. The Table does indicate the nature of problem.

	1973 Irrigation		1975 Irrigation	
	KWH %	Revenue %	KWH %	Revenue %
COERAM	4	1	46	19
COERDRI	16	4	2	1
CONODER	61	44	53	34

As can be seen in the above table, COERAM's irrigation sales base greatly increased to 46% of KWHs sold in 1975. CONODER's irrigation KWH sales slipped 8% from 1973 to 1975 while irrigation revenues fell 10%. The decrease in COERDRI's sales of irrigation KWHs was due to ENALUF direct billing in 1975 to the Rivas Irrigation Co., while in 1973 revenues were billed by the cooperatives.

Times interest earned before depreciation was positive for the first time in 1975 at 1.63 for COERDRI and 1.07 for COERAM. CONODER achieved a positive ratio of 1.30 in 1974. These ratios indicate the beginning of a financial turnaround in the future.

(ii) Projections

Projections for 1976 to 1979 show substantial improvement in operating results for all three cooperatives, with COERAM going from an actual loss of ₡1,900,000 in 1975 to a profit of ₡2,000,000 in 1979; COERDRI from an actual loss of ₡600,000 to a profit of ₡800,000 in 1979; and CONODER from a negative ₡200,000 in 1975 to a profit of ₡1,500,000. The projected improvements are predicated on healthy increases in demand andslight rate increases resulting in a higher estimated total asset turnover in 1979 for each of the cooperatives as opposed to 1975 as shown below.

	1975	1979
COERAM	11%	26%
COERDRI	19%	32%
CONODER	28%	44%

In addition, COERAM recently acquired the Juigalpa Electric Company. A feasibility/profitability study, done by Arthur Anderson & Co., CPAs, indicates that this addition will have a most favorable impact on the cooperative's cash flow and operating results, showing an immediate (1976) profit of $800,000. The effects of this purchase have been included in the projections.

The times interest earned before depreciation computation, a significant factor through 1978 for the cooperatives, changes to times debt service earned in 1979, when the cooperatives start amortization of loan principal. These two calculations are shown below.

	1975 Times Interest Earned Before Depreciation	1979 Times Debt Service Earned Before Depreciation
COERAM	1.07	1.59
COERDRI	1.63	1.50
CONODER	2.00	1.63

These projected ratios show comforable debt safety cushions upon commencement of loan principal repayments. The year 1979 will be a decisive period for these three cooperatives and will portend a healthy cooperative system or one possibly in default.

Operating costs as a percentage of revenue are expected to drop as economies of scale begin to set in as shown in the following schedule:

	1975	1979
COERAM	27%	13%
COERDRI	22%	18%
CONODER	15%	8%

The percentage return on total assets increases from the present negative amounts to 3.8% in 1979 for COERAM; to 1.5% in 1979 for COERDRI; and 3.9 in 1979 for CONODER.

The net worth of each cooperative at the end of 1975 and 1979 is shown below:

(C$000s)

	1975	1979
COERAM	(5,300)	(2,500)
COERDRI	(3,000)	(1,600)
CONODER	(3,600)	700

In each case the financial position is projected to improve, although COERAM and COERDRI will still have negative equity.

As stated earlier, these projections, prepared by ENALUF, are considered optimistic by USAID. This is particularly true in the sales area where COERAM's projected KWH sales are estimated to increase 111%, including the Juigalpa Electric Co. acquisition, over the four year period 1976 through 1979; COERDRI is expected to experience a projected 68% increase during the same period. Projections are also optimistic with respect to energy costs and the spread between wholesale and retail energy and, also in regard to operating costs.

Management assistance under this project is proposed to address each of these areas by supplying cooperatives with their own sales promotion skills, providing for a stronger rate regulating agency, INEE, and helping to develop sound cost effective cooperative management policies and procedures.

b. CAEER and CODERSE.

CAEER in 1964 was the first rural electric cooperative to receive AID financing in Nicaragua. CODERSE in 1972, on the other hand, was the last rural electric cooperative to receive AID financing. As mentioned earlier, neither CAEER nor CODERSE are saddled with large investments in transmission systems nor a heavy mix of irrigation customers. As a consequence, CAEER has a long proven record of commercial viability with excellent prospects for the future and CODERSE, which effectively began operations in 1975, should operate in the black after an initial start-up period of three to four years in accordance with pro forma financials in the AID Loan 025 Capital Assistance Paper and ENALUF projections. Actual and projected financials for these two cooperatives are available in Annex I.

Here again, for these two cooperatives, the essentials for proposed expansion are sales and promotional skills coupled with effective cost management and reasonable rates within the "affordable" range by the ultimate consumer.

2. Recurrent Budget Analysis of ENALUF

An economic and financial analysis of ENALUF was studied in detail. This analysis showed the economic and financial situation in the immediate post and present, as well as future projections through 1979.

The healthy earnings position previously described in AID-DLC/P-732 in 1968 was maintained through 1972 after which ENALUF suffered a decrease in its energy sales as a consequence of the earthquake that destroyed Managua at the end of 1972 and a consequence of world fuel costs. Net profit for 1973 amounted to only $9,714.

The rural electrification program has been fully supported by ENALUF through the provision of all of the necessary local funds and other requirements in connection with AID loans 524-L-021/025. Total contributions equivalent to more than $7.5 million by the GON, ENALUF and the individual cooperatives have funded local engineering and supervision costs, labor costs for construction of all of the transmission, distribution and sub-station facilities, administration and organization costs, and office headquarters and warehouse facilities for each of the last four cooperatives.

Although the ENALUF financial analysis does not incorporate the effect of this project, it does indicate that its financial condition is sufficiently sound to provide the financial support required. It is believed that ENALUF will not have any difficulty in making the required funds and personnel available on a timely basis over the two year project implementation period and has sent USAID/Nicaragua a letter which outlines the host country contribution (see Appendix J).

Based on the analysis set forth in this section and other sections of this paper, the Mission is of the opinion that the over-all financial plan is adequate for accomplishing the project goal.

3. Financial Plan/Budget Tables

The total cost of the project is estimated at US$425,000. Of this amount, AID will contribute US$319,000 which will finance all foreign technical advisory services and third country and/or participant training in the U.S. The AID contribution will also finance other costs such as training materials and aids, including educational materials, printing of seminar and training materials, etc. Calculations have been made based on standard AID costs for technical assistance and training approved by ENALUF's Department of Rural Electrification. The total host country contribution will be U.S.$106,000, or 25% of the total project costs.

A breakdown of the estimated project costs follows (US$000s):

SUMMARY COST ESTIMATE AND FINANCIAL PLAN

	AID Dollars	Host Country Local Currency ENALUF/ INEE	Coops
Contract Services	213.0		
1. (Technical Advisory Service) Resident Coop Advisor (18 pm)	108.0		
Short-term Experts (15 pm)	105.0		
2. Participant Training	13.0	5.0	2.0
US and third Country (23 pm)		7.0	3.0
3. Other Costs Support of in-country training and other miscellaneous costs	33.0		
4. ENALUF/Counterpart Staff		24.0	
5. Technical Support Staff		16.0	
6. Administration		12.0	
7. In-kind Costs 1/		27.0	3.0
8. Contingency 2/	____	5.0	2.0
TOTALS	319.0	96.0	10.0

1/ Allocations for maintenance operations and care of vehicles and other in-country travel costs, office space materials and supplies and other miscellaneous expenditures necessary for efficient operation of the project.

2/ Contingency funds to take care of unforeseen training expenses, travel, per diem, seminar preparation, training materials, etc.

The Nicaragua contribution will be as follows:

ENALUF/INEE - $96,000 in the form of counterpart and technical support staff for the Cooperative Section of the Rural Electric Department. The project contributions include administrative and budgetary support for operation of the Cooperative Section and training programs (e.g., salaries and per diem during training, in-kind logistic and materials support).

Cooperatives -- $10,000 in the form of administrative and logistic support for in-service training programs.

PART 3.C Social Analysis

Beneficiary

Beneficiaries from this project can be generally divided into two groups - direct beneficiaries and indirect. The direct beneficiaries are the organizations that will receive technical advisory services and training - the Rural Electric Department of ENALUF, the INEE, and the five cooperatives. A broader category of beneficiaries includes those living in rural areas who will profit from the reliable and low-cost electrical services provided by the electric cooperatives. The cooperatives are part of the power supply network of Nicaragua and they are the ideal instrument for bringing some of the amenities of modern life to rural people through the potential uses to be made of electric power. Indirectly, this project will contribute toward the efficient continuation and expansion of electrical power uses for rural municipal lighting, residential connections and employment opportunities through increased agricultural production and industrial and commercial development in the rural areas.

The direct target group is, in essence, that part of ENALUF's organization presently organized and willing to accept the responsibility for assisting the rural electric cooperatives to establish sound fiscal practices and effective management. By working closely with the personnel of the cooperatives, the Cooperative Section of the Rural Electric Department will assist them to develop further their capabilities for administration and operation of the cooperative electric system.

When the five rural electric cooperatives are fully developed, they will affect the standards of living and economic livelihood of an estimated 363,000 people living in the cooperatives' service areas. Thus, the indirect target group will include a large part of the small subsistence farmers, agricultural and rural laborers, the rural unemployed and underemployed, and their families that comprise AID's principal target group in Nicaragua. This group is characterized by extremely low productivity resulting in low incomes, impoverished living conditions, poor nutrition and health, and extremely low levels of education. The major portion of the group has had very limited access to public services or resources, making little or no contribution as producers or consumers to the agricultural sector or to the national economy.

In the national context, it is estimated that 60 percent of the economically active population is involved in rural activities (e.g., agriculture, agro-industry, forestry, fishing and livestock). To the extent that the industrial sector depends on the rural sector for its raw products, the importance of the latter sector becomes even more evident. While the relative economic position of the rural sector has been reduced over the past several years, it still plays the single most important role in the Nicaraguan economy. Therefore, it is assumed that its economic advancement will benefit all segments of the country.

The relative position of the rural sector, as exemplified in export statistics has deteriorated since 1970; however, its over-all contribution still remains high. On the other hand, production of non-traditional agricultural products, particularly meat and fish, increased. In general, no matter how the economy is divided and despite the relatively poor showing of certain agricultural products, the output of the rural sector continues to play a major role in the economy. This situation emphasizes the need for a continued and coordinated U.S. input into the rural sector through the electrification program. Few improvements will do more than rural electrification to encourage the indirect beneficiaries of this project to remain in the rural areas and participate in their economic and social development.

The rural electric cooperatives now in operation have demonstrated the importance of this service as responsive to the target groups identified in this paper. Since the initiation of the rural electric cooperatives program, numerous major agro-industries have been established or have expanded their operations. Their production, manufacturing and commercial activities have provided new and stable employment for thousands of men and women. Three major industries being served by the cooperatives alone employ more than 3,000 workers, half of whom are women who are earning more money than they could make as domestic servants or field hands. Additionally, the demand for consumer electric services has expanded steadily since 1971, increasing by 500% as of the end of December, 1974. Ninety one to 95 percent of the total number of cooperative consumers are residential consumers numbering more than 25,000.

In assessing the existence of social impediments that would have an effect on the implementation of this project, one would evaluate the previous loan made to the ENALUF which resulted in the establishment of the rural electric cooperatives as a part of the rural electrification of the countryside.

In view of the previous monetary and technical support given to the development of rural electric cooperatives by ENALUF, and its record of compliance with CPs and covenants set forth in these loans, the probable success of the project proposed in this paper is reasonably assured.

The proposed project will provide the requirements to fill certain needs that now exist in the Rural Electric Department that bear directly on the future operation, expansion and success of the cooperatives themselves. The top management of ENALUF has expressed its recognition of these problems and a willingness to work with the Mission to resolve them. With the strong support given by the GON to rural development, this project takes on greater importance. The position of the Mission is to maintain the integrity, service capability, financial well-being and other qualities of the individual cooperatives as well as to establish the support mechanisms for cooperatives. Were the project to fail, the service functions of the facilities would probably continue but expansion would be significantly delayed because of technical and management shortcomings. If the worst happened and the cooperatives themselves failed, ENALUF could no doubt absorb the facilities and add them to their existing network, but the

work of more than a decade to establish a viable system of rural electric cooperatives would be lost and with it an effective vehicle for encouraging participation of the beneficiaries in the decisions that can affect their economic and social well being.

With regard to the role of women in development, as previously mentioned, the increased employment opportunities as well as the improved standard of living for the rural population will directly benefit the women of the target group. Other ancillary benefits in health and education are apparent as well as the lessening of the drudgery that many women face through such innovations as electric water pumps and simple rice mills.

Part 3. D. Economic Analysis

The economic arguments for this project centered around two points. The projects' costs in relation to its returns and benefits to rural inhabitants and the costs in relation to the potential returns to be gained by the new cooperatives to be set up under the IDB loan.

In the first instance, this project costs little in relation to AID's prior assistance. Yet, it will help to resolve numerous problems facing the cooperatives and enable to direct more attention to the needs of the target group. Without this project one can easily anticipate that while the problems in part will be eventually solved, the solutions will be much slower in coming and electrification would probably be extended at a slower pace to rural areas.

In the second case, this project will have a major impact on assuring that problems which confronted the development of the current cooperatives will not adversely affect the development of future cooperatives. Specifically, this project will impact on the extent and the manner in which two-step funds under the IDB loan will be used. The Mission has reviewed the loan and it appears that a substantial amount of flexibility exists in using these funds and that the Rural Electric Department will be involved in making determinations on their use in the next year. As the funds are tagged to promote cooperatives, the Cooperative Section of the RED to be set up bythis project will have a major involvement in cooperative development. The costs of this project can then be also viewed as a minor fraction but critial part of the much larger future financing available for rural electric cooperative development in Nicaragua.

Part 4. Implementation Arrangements

A. Analysis of the Recipient's and AID's Administrative Arrangments

1. Both ENALUF and the Rural Electric Cooperatives have acquired considerable experience in the implementation of rural electrification projects during the 1968-1975 period, not to mention the lessons learned in organizing and constructing the Masaya Cooperative which is now called Cooperative A. (CAEER No. 1).

Although ENALUF will assume full responsibility for the assistance and guidance to the cooperatives, the project will be administered by its Rural Electric Department, and carried out through the Cooperative Section to be established within this Department. The various inputs consisting of ENALUF funds (budgetary support), technical advice, and training for the cooperatives will be coordinated by the Rural Electric Department of ENALUF.

At the Cooperative Section level, considerable reorganization will be required, with ENALUF assigning full-time cooperative advisers capable of improving their level of expertise through on-the-job training provided by the AID-funded Cooperative Advisers. The roles of these advisers will be augmented by and ultimately assumed by the Cooperative Section staff as rapidly as this section becomes fully trained and pocesses become fully institutionalized.

The Rural Electric Department of ENALUF will provide over-all project and administrative support to the Cooperative Section including making available technical experts (e.g., engineering, accountants, electricians, etc.) who will provide the advice and guidance as required to the five electric cooperatives. The Rural Electric Department acting in a supportive role will perform in other fields such as cooperative organization, management training, safety regulations, procurement, sales and promotion, line maintenance, etc., to assist in developing economically and technically successful cooperatives.

In assessing ENALUF's capacity to carry out its assigned role, there are no visible or known constraints that will adversely affect its performance. ENALUF's administrative capability, as well as the working environment within the utility have proved in the past to be of acceptable standards.

2. AID

The proposed project does not present any unusual problems for AID to effectively monitor and guide its implementation. Additional staff will not be required beyond the staff members already on board in USAID/Nicaragua (Rural Development Assistant). Funds for implementation of the project will be handled through a Project Agreement and standard PIO documentation. The Rural Electric Department of ENALUF will provide office space, local transportation, and the necessary equipment, fuel and vehicle repair services for the long-term coop specialist.

It is expected that ENALUF will agree to permit the AID-funded technical adviser to devote full time to cooperative assistance and training of ENALUF's cooperative staff. This means that he will not be burdened with preparation of special reports or analysis for ENALUF not related to this project. Additionally, he will not be required to monitor residual AID Capital Assistance loan activities.

Part 4. B. Implementation Plan

While the five rural electric cooperatives have already been organized and constructed, and the cooperatives have had an average of two years operating experience, this project encompasses a series of actions necessary for immediate implementation of the technical assistance and training components described in this paper.

Two cooperatives management advisors will prepare a management analysis report covering the Rural Electric Department, the INEE and the five cooperatives within 60 days of their arrival. Based on the report and upon discussions between ENALUF, INEE officials, the advisors and the AID Mission, a plan will be designed to accomplish the following:

1. To assist in the establishment of a Cooperatives Section within the Rural Electric Department of ENALUF and to train managerial personnel such as managers, assistant managers, office managers, accountants, financial analysts, and rate structuring specialists for staffing of the Cooperatives Section and individual cooperatives, depending upon the needs of each.

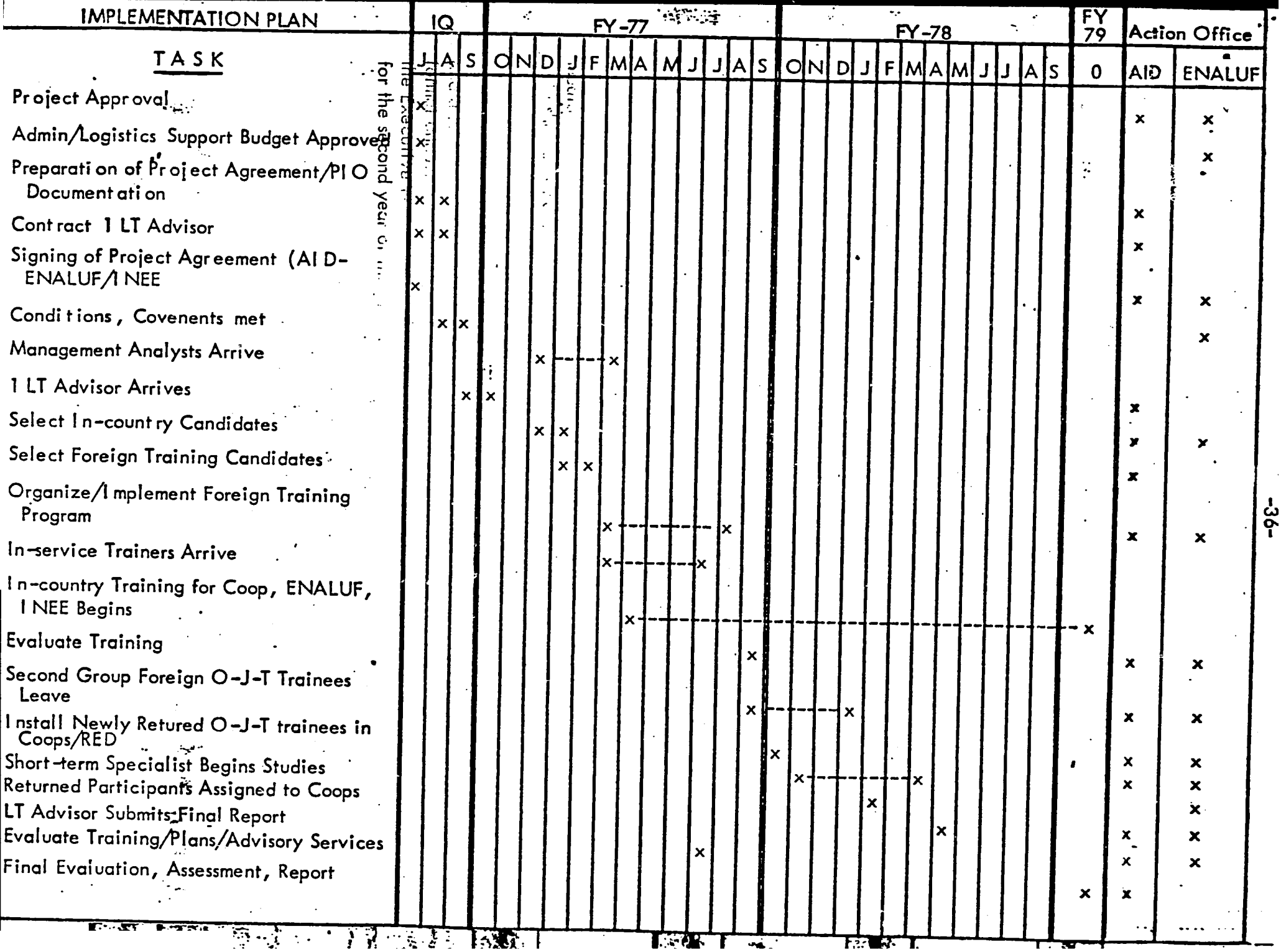
2. Train other personnel in the cooperatives in electric safety, maintenance of systems and equipment and other support activities that will improve the technical operations of the Cooperatives.

3. Strengthen the role of the INEE through technical advisory services and training.

A long-term advisor will be contracted to serve for a period of 18 months advising the cooperative, the Rural Electric Department of ENALUF and the INEE. His primary responsibility will be to design and implement a program of training, to advise the three entities on formal reorganization if this needed, to review position staffing as recommended by analysis, prepare job descriptions and other guidelines for personnel and other standards for maintenance of good management.

In addition to the long-term advisor, other experts will be required for specialized consultancies in financial analysis, planning for expansion, maintenance or technical field operations and other problem areas as needed. The project is expected to require 15 person-months of short-term services.

ENALUF will be expected to assign one full-time specialist as a counterpart and two or more employees to be trained in cooperative management by the long-term advisor. In addition, ENALUF will be expected to supply the necessary participants for training abroad, both from ENALUF and the five cooperatives. the INEE will also supply a counterpart and participants for training.


IMPLEMENTATION PLAN
TASK
IQ
FY-77
FY-78
FY 79
Action Office
J A S O N D J F M A M J J A S O N D J F M A M J J A S 0
AID
ENALUF
Project Approval
Admin/Logistics Support Budget Approved
Preparation of Project Agreement/PIO Documentation
Contract 1 LT Advisor
Signing of Project Agreement (AID-ENALUF/INEE
Conditions, Covenents met
Management Analysts Arrive
1 LT Advisor Arrives
Select In-country Candidates
Select Foreign Training Candidates
Organize/Implement Foreign Training Program
In-service Trainers Arrive
In-country Training for Coop, ENALUF, INEE Begins
Evaluate Training
Second Group Foreign O-J-T Trainees Leave
Install Newly Retured O-J-T trainees in Coops/RED
Short-term Specialist Begins Studies
Returned Participants Assigned to Coops
LT Advisor Submits Final Report
Evaluate Training/Plans/Advisory Services
Final Evaluation, Assessment, Report

C. EVALUATION ARRANGEMENT FOR THE PROJECT

The sub-goal of the project is to strengthen the institutional capability of the five rural electric cooperatives through ENALUF's Rural Electric Department and the National Electrical Energy Institute. This is to be done through analyses, reorganization, advisory services and participant training abroad, on-the-job training in country and the development and implementation of training courses, seminars and workshops. Job descriptions, staffing patterns and formal organization of the institutions are seen as necessary outputs of the project.

The initial phase of the project is to produce within 60 days a management analysis report which will provide baseline data and an inventory of management capabilities, training needs and development requirements. This report should form the basis for future evaluations of the project. It will also document the present personnel capabilities of the two institutions and the cooperatives.

The full-time adviser for the project will be instructed to assist ENALUF and the five cooperatives in obtaining basic data that can be used for determining progress toward the Goal, namely, "Improve the standard of living and the quality of life of the rural poor in areas where rural electric cooperative programs have been implemented."

With guidance and assistance, data on irrigation, new employment opportunities, migration patterns, appliance use, craft production, uses of electricity in schools, clinics, institutions, night lighting, refrigeration and all types of small, medium and large industry can be collected by the cooperatives and ENALUF. These data should not only prove beneficial to this project but also to other USAID projects concerned with the rural poor.

A formal evaluation of the project will be held at the end of the first year and a PAR will be prepared jointly by the USAID and the institutions involved. A formal annual progress review and evaluation will be held under the chairmanship of the Executive President of ENALUF. A PAR and an annual review are also scheduled for the second year of the project.

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