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DEPARTMENT OF STATE  
AGENCY FOR INTERNATIONAL DEVELOPMENT  
Washington, D.C. 20523

CAPITAL ASSISTANCE PAPER

Proposal and Recommendations  
For the Review of the  
Development Loan Committee

PHILIPPINES - RURAL ELECTRIFICATION II

AID-DLC/P-2053

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**DEPARTMENT OF STATE  
AGENCY FOR INTERNATIONAL DEVELOPMENT  
WASHINGTON, D.C. 20523**

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June 14, 1974

**MEMORANDUM FOR THE DEVELOPMENT LOAN COMMITTEE**

**SUBJECT: Philippines - Rural Electrification II**

Attached for your review are recommendations for authorization of a loan to the Government of the Republic of the Philippines in an amount not to exceed Twenty Million Dollars (\$20,000,000): to permit the Beneficiary to finance the foreign exchange costs of certain engineering and other professional services required to continue development of its institutional and managerial capabilities and to permit the Beneficiary to relend the remainder of said proceeds to a number of newly established rural electric cooperatives to finance the foreign exchange costs of certain goods and services required by said cooperatives for the development of their distribution systems.

This loan proposal is scheduled for consideration by the Development Loan Staff Committee Wednesday, June 19, 1974. Also please note your concurrence or objection is due by close of business on Monday, June 24, 1974. If you are a voting member a poll sheet has been enclosed for your response.

Development Loan Committee  
Office of Development  
Program Review

**Attachments:**

Summary and Recommendations  
Project Analysis  
ANNEXES I - XIX

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## Philippines - Rural Electrification II

### Summary and Recommendations

1. Borrower/Beneficiary - The Government of the Republic of the Philippines (GOP) will be the Borrower. The Executing Agencies will be (a) the National Electrification Administration (NEA), an autonomous public corporation created for the purpose of developing and implementing a national plan to bring electric service to all segments of rural Philippines, and (b) up to 15 rural electric cooperatives which will be the ultimate beneficiaries. The exact number of cooperatives will depend on the size of their core systems and the related foreign exchange costs.
2. Amount of Loan: \$20.0 million
3. Terms: Repayment within 40 years, including a ten year grace period; interest at 2% annually during the grace period, and 3% thereafter.
4. Purpose: To assist the GOP in its efforts to improve the economic and social conditions of rural areas by providing continuous, dependable and economical electric service on a self-supporting basis.
5. Project Description: The project consists of the construction of additional power distribution facilities within the framework of the GOP program for rural electrification. It is anticipated that up to 15 new coops systems will be developed as a result of this loan.
6. Project Costs and Financing Arrangements: The \$20.0 million AID loan is being made available as a line of credit to NEA for the foreign exchange costs of necessary commodities and services to develop the coops. The GOP will finance all of the local currency requirements. This contribution is currently estimated to be \$16.2 million equivalent.
7. Other Sources of Financing: This loan is in response to the U.S. Government's pledge, first made on the occasion of the Consultative Group meeting in Paris in April, 1971 to participate in the GOP effort to develop its power sector. The IBRD and ADB are committed to assist with other aspects of the total power program, (i.e., generation and transmission), and are presently negotiating with NPC for additional loans to support this sector.

The Export-Import Bank has advised A.I.D. that it is not interested in financing this project.

8. Country Team Views: The Country Team views this project as being a key element of USAID/Philippine's current program, emphasizing the GOP's efforts to develop the rural/agricultural sector, and accordingly recommends early authorization of the proposed loan.

9. Issues: None

10. Statutory Criteria: All statutory criteria have been satisfied (see Annex XVIII).

11. Recommendations: Authorization of a loan to the Republic of the Philippines to finance the foreign exchange costs of goods and services for the project as set forth in the draft loan authorization attached as Annex XIX.

CAPITAL ASSISTANCE COMMITTEE MEMBERS

USAID

Chairman	William C. Larson
Loan Officer	Arthur J. Thivierge
Engineer	Harrison L. Baker
Program Officer	Raymond Cohen
Economist	Rene R. Ruivivar

AID/W

Chairman	M. Milburn Pehl
Loan Officer	Laurance W. Bond
Engineer	Earl Clark
Attorney	Jay A. Burgess
Desk Officer	Dennis M. Chandler

PHILIPPINES RURAL ELECTRIFICATION II

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## I. Background

### A. General

Today, approximately 11 million people or 25% of the Philippines' population of about 41 million have some sort of electric service. About 4 million of these live in Manila and its adjacent areas. Another 4 million are located in other urban areas. It is in the barrios and rural countryside, where 75% of the population lives, that the benefits of reliable electric service have been almost totally lacking.

Prior to 1966, rural electrification in the Philippines consisted principally of short-line extensions into the countryside from a small number of municipal and private franchise electric utility companies operating in the larger towns. There were a few small cooperative systems in operation, such as the predecessor of VRESCO in Negros Occidental, but they served only a negligible percentage of rural homes and businesses.

An AID-financed "National Electric Power Industry Survey" in 1965 recommended the initiation of a program to determine if the introduction of electricity into rural areas of the Philippines was a practicable undertaking. To develop this program, AID provided funding for a team from the National Rural Electric Cooperative Association (NRECA) to develop feasibility studies for two pilot rural electric cooperatives. NRECA was chosen for this effort because of its extensive background of electric cooperative experience in the United States.

The NRECA/AID Team surveyed 20 possible sites and finally selected for the two pilot project areas, Victorias-Manapla-Cadiz, in Negros Occidental (VRESCO) and Misamis Oriental, on Mindanao Island (MORESCO), for preparation of full feasibility studies. Upon acceptance of the feasibility studies in June 1968, the Government of the Philippines acting through the Electrification Administration made loans totaling ₱ 6.6 million for construction of MORESCO and VRESCO. Two simultaneous AID development loans totaling \$3.4 million were provided to finance the foreign exchange costs of engineering services, design and construction of the two prototype rural electric cooperatives. At the same time AID provided an additional \$350,000 in Feasibility Study loan funds for a team of NRECA consultants to generate feasibility studies as the basis for a follow-on national program of rural electrification through cooperatives.

The two prototype cooperatives were completed in 1972 and are totally energized. Combined they serve 15 towns and approximately 17,000 consumers. As an outgrowth of the availability of power, both cooperatives are in the process of promoting power use projects in irrigation, garment manufacturing, cold storage and ice plants, and cottage industries.

In Fiscal Year 1972, A.I.D. authorized two loans and a grant to assist the Philippines program for rural electrification. Loan 492-H-027, dated November 15, 1971, authorized \$600,000 to provide consulting engineering services to assist NEA in developing its in-house capabilities for reviewing the work of architectural and engineering (A&E) firms, construction work, feasibility studies and the preparation of procurement bid packages. The services of the U.S. A&E were also to be made available to the local A&E firms and to the cooperative as required.

Loan 492-H-028, dated May 2, 1972, provided 19.4 million dollars in foreign exchange for offshore procurement of materials and hardware, for acquisition of excess property and to continue the consulting engineering services beyond the two years funded out of Loan 492-H-027.

PROP No. 492-11-220-248, dated April 14, 1972, programmed \$2.3 million to continue the institutional development assistance of NRECA through Fiscal Year 1976. This grant assistance is being provided to NEA at the national level and to the rural electric cooperatives at the local level.

The immediate objective of this project funding was to assist the GOP in the establishment of electric cooperative systems in up to 36 provinces. The planning concept called for each of the projected systems to bring adequate, reliable twenty-four hour service within reach of the population of five to ten municipalities (administrative districts) per system over a four year period.

Under trying circumstances of escalating costs and a shortage of materials, the National Electrification Administration has made an impressive beginning in its nationwide rural electrification with the assistance of loans 492-H-027 and 492-H-028 and the grant technical assistance.

By March 31, 1974, 51 cooperatives had been registered and loan agreements had been concluded for 46 systems. The loan terms are 3 per cent interest, 5 years grace period on interest and capital and 25 years to repay for cooperatives supplied from the lower cost NPC grids. Self-generating cooperatives' loan terms are 2% interest, 5 year grace period on interest and capital and 30 years for repayment. Seventeen cooperatives have been partially energized serving 103 towns with approximately 100,000 customers being served. See Annex IX for progress in cooperative implementation.

#### B. Progress Under Loan 492-H-028

The original rural electrification project funding plan called for the construction of up to 36 rural electric cooperative systems at locations throughout the Philippines. A.I.D. allocated a total of \$20 million in loan funds for goods and services plus \$5 million in the form of technical assistance and excess property. The Philippine Government was to contribute the balance of the \$92 million program in the form of Japanese Reparations (\$30 M), PL 480 funds (\$20 M) and local currency (\$17 M).

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Contributed

The U.S. loan funds were set up in two parts: \$600,000 for engineering services and the balance (\$19.4 M) for commodities and an extension of the engineering services if required. The development schedule discussed at the time the \$19.4 million loan was authorized listed 30 illustrative, specific cooperatives whose sites had been selected.

As of June 1, 1974, all of the \$19.4 million in loan funds to be used for commodities has been assigned to procurement of line material and related commodities needed for the first 24 cooperatives. Several additional cooperatives are being formed by interconnecting several small franchised operations into a single system using locally procured materials, bringing to 36 the number of electric cooperatives now considered to be fully funded. See Annex IX for a listing of the two groups (B and D) making up the initial 36 electric cooperatives.

### C. Relationship to Philippine and A.I.D. Programs

#### 1. Power Sector Development

Historically the responsibility for supplying electric service in the Philippines has been divided among private, Municipal and Government entities. The National Power Corporation (NPC), a Government corporation, has been functioning since before World War II and today has an extensive generation and transmission system on the islands of Luzon and Mindanao. It also operates a few small isolated diesel and hydro-electric systems at several places throughout the islands. NPC sells power at wholesale to franchise holders and to a few large industrial loads.

Manila Electric Company (MERALCO) is the most significant electric utility effort in the Philippines. This privately-financed company operates large generation and distribution facilities in the Greater Manila area, and accounts for about two-thirds of the Philippine retail sales. Over 500 small municipal and private franchise holders are operating in the Philippines, but most of these are supplying less than 24-hour service. Electric cooperatives, which are just coming into the power scene, make up about 5% of the electric utility business.

Development of the Power Sector prior to 1970 was on a piecemeal basis and poorly coordinated. In 1970 and 1971 a consultative group headed by the World Bank reached agreement with the Philippine Government concerning power sector support. The IBRD agreed to fund an orderly program of generation and transmission facilities for NPC in Luzon while the Asian Development Bank agreed to support similar facilities in Mindanao. AID participated in the plan by allocating funds for a group of cooperatives which would distribute power furnished from the NPC grid to the rural consumers. AID also agreed to support cooperatives in the Visayas and other islands where small generating units would be required until such time as load development was sufficient to warrant large scale generation and transmission installations by NPC.

With the advent of Martial Law in September 1972, the Government elected to shoulder all responsibility for future large scale generation and transmission systems including the MERALCO system. Plans are now underway for NPC to add geothermal power facilities at two locations on Luzon and to investigate similar possibilities in Leyte and other areas. Hydro-electric facilities are being developed and expanded in Luzon and Mindanao. NPC is now in the final stages of plans to place orders for a 600 MW nuclear unit which is scheduled for initial operation in 1984. Several small generating plants of up to 5 MW each will continue to be added by private operators and by cooperatives until loads are developed sufficiently to support the larger efficient installations.

Future power supply efforts in the Philippines will be directed toward full utilization of hydro-electric and geothermal sources with NPC being the implementing agency. The sixth power loan from the World Bank (\$61 million) will finance transmission system expansion and the 100 MW hydro unit at Pantabangan Dam in central Luzon. The Asian Development Bank is discussing further financing of the Agus River hydro-electric complex and accompanying transmission lines in Mindanao.

Studies also are underway with the Japanese Government to determine the desirability of proceeding with generation and transmission systems on some of the larger islands of the Visayas. The most promising at this time is a dual-fueled steam plant and associated transmission lines on Cebu with fuel to be supplied from coal deposits on the island and from imported oil.

Before the fuel crisis, NEA had projected the use of diesel generating units in 18 of the first 36 cooperatives to be established. This was seen as a way of bringing electric power immediately to people in areas where there is no early prospect of connecting to an NPC transmission grid.

With the realization that the cost of fuel oil has escalated greatly, NEA has made its own assessment of power supply for the proposed cooperatives. Fuel and operating economies, for areas not supplied by NPC, will be effected by utilizing a larger, more efficient power source to supply two or more electric cooperatives. Wherever possible, NPC will be the primary source of wholesale power and project completions will be scheduled to coincide with the completion of the NPC grid facilities. With NPC now embarking on an extensive program to develop all non-petroleum fired generation such as hydro, geothermal and nuclear, and with domestic coal reserves for power production, use of the earlier planned 1000-1500 KW diesel generators will be sharply reduced and limited to very high priority areas isolated from other available sources of power.

Domestic inflation has also had its impact on the program and other development efforts of the GOP. From May of 1972, when the first major Philippine Rural Electrification loan was signed, to the end of December, 1973, the general Consumer Price Index in the Philippines registered an increase of 53.6 index points or 31%. The Construction Material Index rose even faster--from 162.5 to 276.7 or an increase of 70%. Headquarters facilities, including office, general purpose and warehouse buildings have been quoted at 100% to 150% above earlier bids for the initial eight cooperatives.

## 2. Place of Project in Philippines Development Program

The GOP has defined priorities for its development projects. Power generating and distribution projects, with the exception of oil-fed generating plants, are of the first priority. It has been specifically stated that the NEA rural electrification project is to be treated as such, especially where it can readily tie into an NPC grid.

## 3. Place of Project in AID Program

The AID goal to which the project will contribute is rural development in the Philippines as defined in the legislative history for Section 103 of the Foreign Assistance Act of 1973. This section is to provide development assistance aimed at "increasing the productivity and improving the quality of life in rural areas ..." and "to slow the rural-urban migration..." through "... the encouragement of local institutions which can foster participation by the general populace." Rural Electrification was specifically mentioned as meeting the objectives of this section.

Through the development of rural electric cooperatives, the project is bringing, and will continue to bring, reliable electric service to people who, heretofore, have had no such service or, at best, unreliable intermittent service--and at a price they can afford.

The beneficiaries of the project--the farmers, the barrio dwellers, the rural people--gain useful social and political experience by organizing themselves into electric cooperatives and other cooperative efforts such as the NEA-supported Barrio Irrigators' Service Associations (BISA) program. The idle rural dweller is encouraged to obtain gainful employment through the promotion of small, power-use industries in the barrios once a cooperative is energized. Low-cost and readily available rural electricity can be an important factor in enabling rural families to secure additional income, and slow the rural-urban migration.

The rural electrification program has become a major component of rural development as electrification has become recognized and accepted as an essential input to national development. Electrification strengthens farm production through irrigation pumping and on-site processing of farm products with low-cost, yet efficient, electrically powered machines. It provides low-cost and efficient power for industries and makes possible the enjoyment of basic modern comforts such as lighting and refrigeration. Electrification can serve to promote national identity through mass communications and provide an incentive for greater individual productivity.

The electric cooperative, since it laces together all the social and economic levels of the community, also acts as a "watering place", or medium, for exchange of ideas leading toward further community efforts. Cooperative sponsorship of communal irrigation already underway is an example of the ancillary benefits of the rural electric cooperative program.

## II. Project Definition, Borrower, and Executing Agencies

### A. The Project

The project consists of designing and constructing additional power distribution facilities within the framework of the GOP program for rural electrification. The goal of this program is to improve the economic and social conditions of inhabitants of rural areas by providing them with continuous, dependable and economical electric service on a self-supporting basis. The GOP program is being implemented through the National Electrification Administration (NEA), an autonomous government corporation. NEA's initial program calls for completion of 75 cooperatively owned core distribution systems\* — one in each province and country. Under previous AID financing two systems have been completed and 24 are in the equipment ordering or actual construction stage. It is anticipated that 23 more coop systems will be ready for construction in the immediate future. (See Annex IX for a listing of all coops and their current stage of development.) It is anticipated that the system to be financed under the proposed loan will be selected from these 23. The names and locations of these planned systems are shown on the map on the following page.

A&E firms are under contract and working on initial designs for 13 of these systems. Nineteen of the proposed coops will be distribution coops based on grid system power, while four will require at least supplemental diesel generation.

Six of these systems are in major rice and corn producing provinces and two are in provincial development priority provinces. An effort has also been made by NEA to cover all the major Muslim areas. After completion of the 23 coops and the earlier 38, the bulk of the major rice and corn producing provinces will have rural electrification projects while 16 of 17 PDAP provinces will contain electric coops.

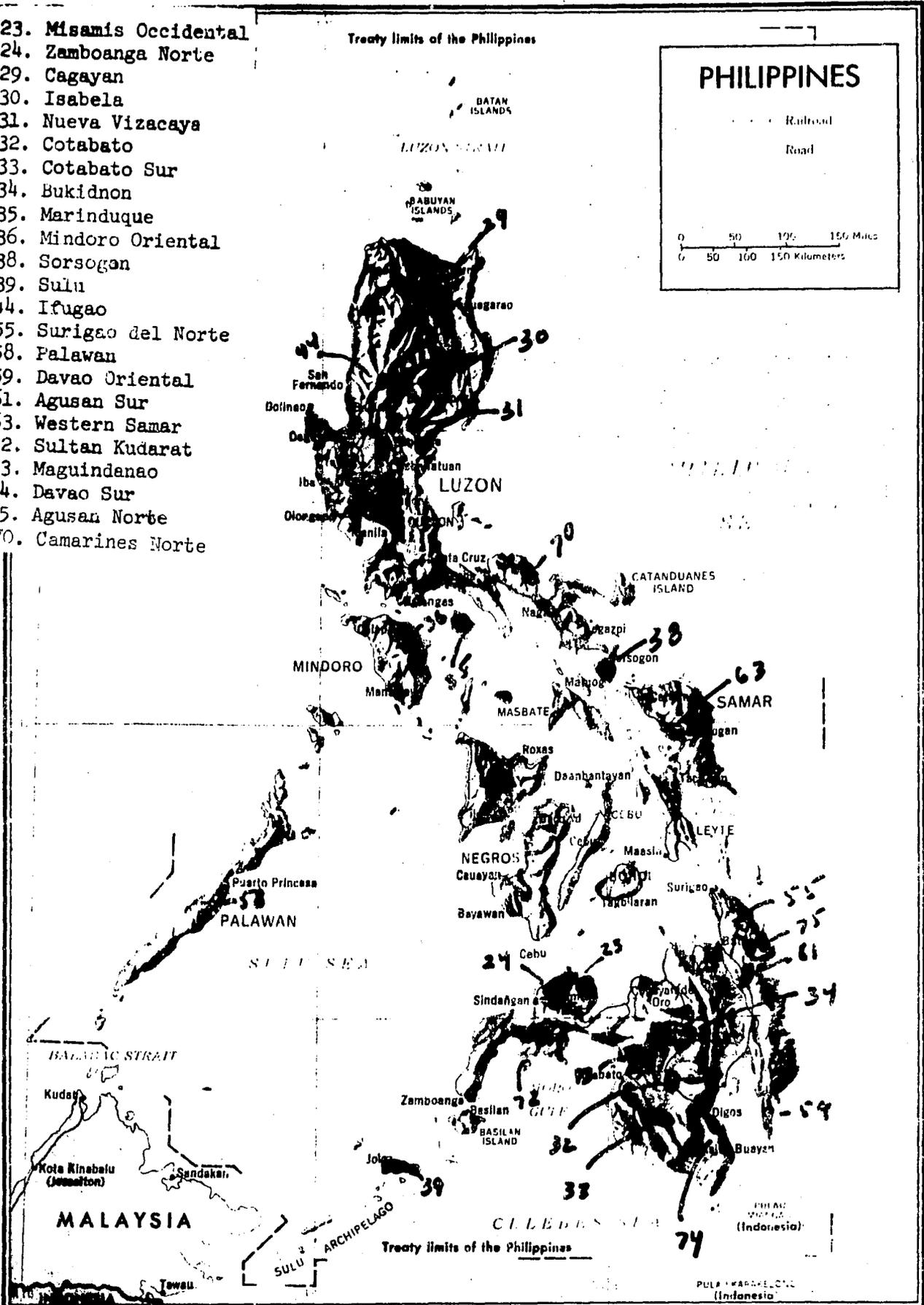
The proposed loan will provide a \$20.0 million line of credit to NEA for the purchase of items of equipment, materials, and services needed for the construction of coop distribution systems. Within this line of credit \$19.5 million will be available for financing the import of equipment and materials. It is estimated that this amount of materials will cover the requirements for up to 15 distribution systems depending on their size. The balance of the AID loan, \$500,000, will be used to retain US engineering services to assist both NEA and the individual coops in this program.

Since NEA will enter into subloan agreements with eligible coops for the financing of cored distribution system construction, NEA will be acting as an intermediary through which the AID loan will be channelled to the eligible coops. This will take the form of allocations of AID financed equipment and materials needed by each coop system after its formal certification by NEA and subsequent acceptance by AID. The value

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\* "Core system" is defined as the distribution lines within the towns and the lines linking the towns with the power source(s). It includes transformers, service lines and meters along these distribution lines.

- 23. Misamis Occidental
- 24. Zamboanga Norte
- 29. Cagayan
- 30. Isabela
- 31. Nueva Vizcaya
- 32. Cotabato
- 33. Cotabato Sur
- 34. Bukidnon
- 35. Marinduque
- 36. Mindoro Oriental
- 38. Sorsogon
- 39. Sulu
- 44. Ifugao
- 55. Surigao del Norte
- 58. Palawan
- 59. Davao Oriental
- 61. Agusan Sur
- 63. Western Samar
- 72. Sultan Kudarat
- 73. Maguindanao
- 74. Davao Sur
- 75. Agusan Norte
- 70. Camarines Norte



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of such equipment will be charged as a disbursement under the sub-loan agreement. NEA will have overall financial and technical responsibility for the project although the new coops will be the owners and operators of the distribution system under NEA guidance and controls.

The short and long term objectives of the NEA program are as follows:

- (1) Provide a backbone distribution system (in areas of population concentration) which will be capable of future expansion;
- (2) Enable the sub-beneficiaries and implementing agencies (Rural Electric Coops) to acquire the technical capability and financial resources necessary for sustained, financially viable operation and future expansion;
- (3) Promote economic development of rural areas by providing energy for (a) more intensive agriculture through electric pump irrigation, (b) agro-industrial use and for (c) small-scale power use industrial development;
- (4) Generally improve the quality of rural life by bringing electric service to individual member homes of the cooperatives, increasing employment opportunities and improving food supplies.

The social/economic benefits of the rural electrification program and the enthusiastic grassroots response to date have added to the determination of the Government of the Philippines to vigorously pursue a national program of electrification. Within this context NEA has set for itself the following schedule:

- (1) Short-term: Establishment of at least one cooperative in each of the 73 Philippine provinces within 4 years or by the end of 1977;
- (2) Medium-term: Completion of "Phase I" --the core networks of 13.8 KV trunklines for 100 cooperatives connecting some 1,400 poblaciones-- by 1980;
- (3) Medium-term: Provision of electric service to 75% of the population within 10 years or by 1984, as enunciated by the President; and
- (4) Long-term: Total national electrification within 20 years or by 1994.

The above schedule is subject to revision depending upon the outcome of a IBRD proposed restudy of power sector development.

B. Borrower

The Borrower for the proposed loan will be the Government of the Philippines through the National Economic and Development Authority. In applying for the loan (see Annex XVII), the following assurances have been given:

1. The GOP will provide local currency and other resources as may be required to enable the National Electrification Administration to implement the electrification program on a timely basis.

2. The GOP will absorb any "maintenance of foreign exchange value" risks in behalf of NEA and the rural electric cooperatives.

The GOP anticipates relending of the proceeds to NEA on the same terms as the aid loan.

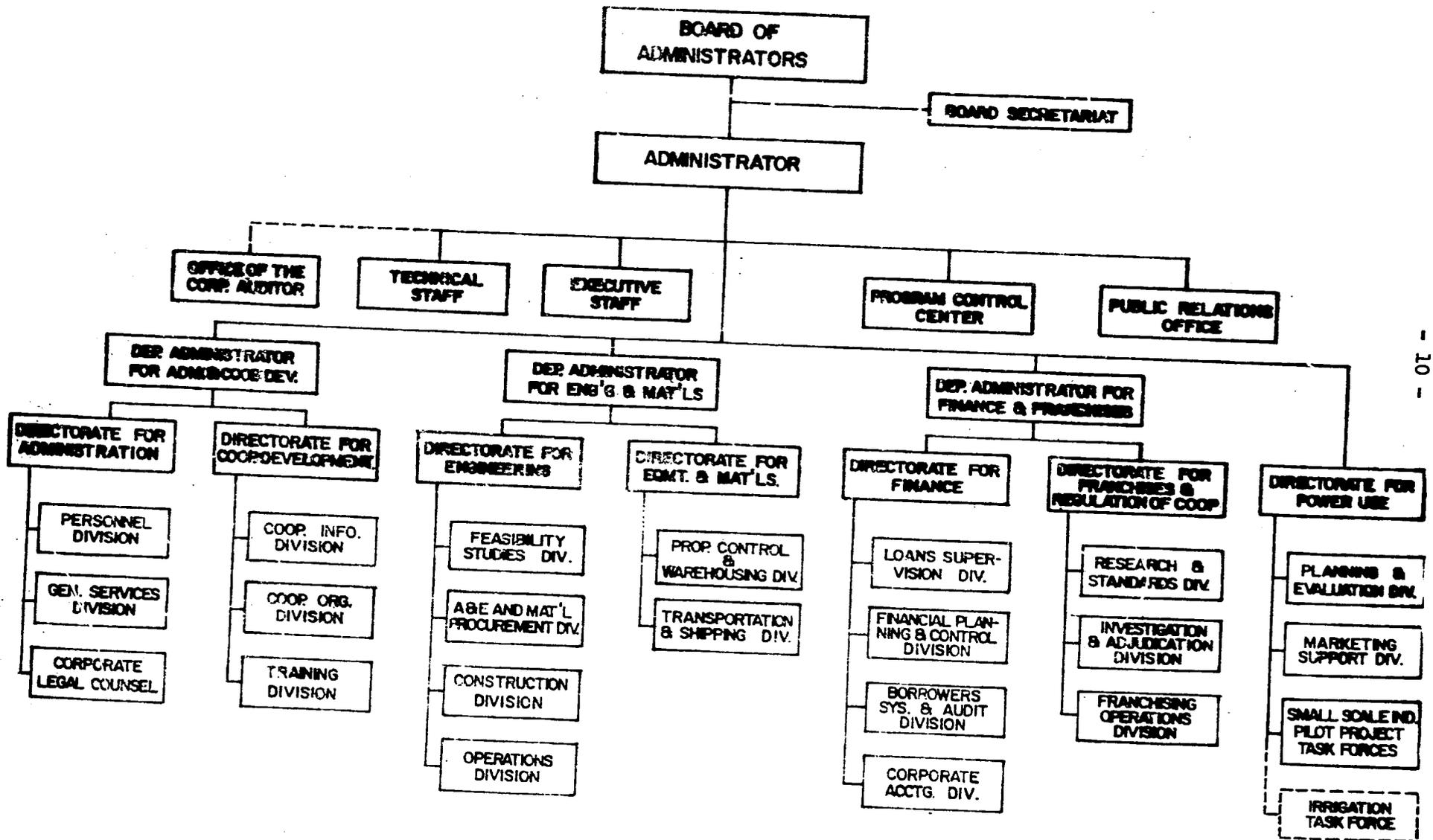
C. National Electrification Administration

The implementing agency for the overall project will be the National Electrification Administration (NEA). NEA was established in 1969 under the provisions of Republic Act. No. 6038 to replace the earlier Electrification Administration. It was given a broad mandate to develop rural electrification as part of a national determination to bring electric power to the entire Philippines on an area coverage basis which calls for electric service facilities for the total population in a specific geographic area.

NEA was reorganized and expanded on December 1, 1973 in accordance with Presidential Decree No. 269 dated August 6, 1973. The decree established NEA as a public corporation with an authorized capital stock of one billion pesos and the necessary powers to make loans and control franchises for retail electric service. The powers of NEA are vested in a Board of Administrators appointed by the President of the Philippines. The Board operates with a Secretariat to maintain its agenda, minutes, Board Resolutions, and other usual information, recording and control activities.

The new reorganization chart for NEA which reflects the December 1973 reorganization is shown on page 11. NEA does not anticipate there will be further reorganization in the near future. Staffing to fill the new organization and to upgrade the overall staff competence will be a continuing concern but is proceeding satisfactorily. As of December 1973, NEA had increased its staff to a level of 350 personnel. This is an upward adjustment from the 159 level in the spring of 1972 when the first loan was approved. In addition, following the imposition of martial law, there were a large number of personnel discharged who had been carried over from the old Electrification Administration. Thus NEA's staff increases reflect both a culling of the old staff as well as addition of new personnel.

# NATIONAL ELECTRIFICATION ADMINISTRATION ORGANIZATION CHART



The Board of Administrators of NEA has been totally changed since the 1972 loan and now is considered by the Project Committee to be an exceptionally strong and diversified Board for its small size.

Ramon Ravanzo, General Manager of the National Power Corporation (NPC) is currently Chairman of NEA's Board. Ravanzo is an experienced government administrator who brings a strong background experience in electric utility operation to NEA and also provides a coordinating link between NEA and NPC. New appointments to the Board also include Alfredo Junio, Dean of the College of Engineering for the University of the Philippines; a former partner in a leading private engineering consulting firm, and for the last seven years, Administrator of National Irrigation Administration. Junio provides the link between NIA and NEA which has resulted in the promising joint electric pump, irrigation projects.

Jayne Laya is one of the new appointees to the Board. He is a former Management Consultant who undertook the first reorganization study on the NEA; Dean of the School of Business Administration at the University of the Philippines and recently appointed Deputy Administrator of the National Economic Development Authority (NEDA), which is the chief economic planning body in the Philippines Government.

The third new Board member is the newly appointed Secretary of the Department of Local Government and Community Development.

The Administrator of NEA, Col. Dumol, has headed the organization since early 1971. He is an able and dynamic administrator who has clearly been the moving force behind NEA to date.

Competence on the Deputy Administrator level is ranked from good to excellent with the work load spread between three key deputies.

Further down the line, e.g., at the division level the competence of NEA becomes somewhat spotty. The strongest divisions reflect for the most part the area where necessity required NEA priority concentration. As such, NEA has developed an exceptionally strong program for cooperative organization and development and particularly in the area of training. This reflects NEA's concentration in cooperative development in the first stage. NEA has also developed good competence in materiel handling, procurement contracting, warehousing, shipping, etc., and is considered to be relatively strong in financial planning and accounting. As discussed elsewhere in the paper, the feasibility study division continues to need assistance albeit there has been substantial improvement in the last two years. The division handling franchises and rate regulations has not been active in this early stage of cooperative organization and construction; however, it is anticipated that rate regulations, in particular, will require close attention as new cooperatives are put into operation and additional operating experience is gained. This is discussed in the section on Financial Analysis.

Overall, the Project Committee concludes that NEA has substantially upgraded its organization in the last two years and is competent to administer the supplemental loan program, providing it continues to receive outside assistance as discussed in section

The March 31, 1974 Balance Sheet of NEA is attached as Annex VIII. As of March 31, NEA had total assets of P226 (\$32.8 million) of which P198 million was paid in capital stock and capital surplus. Subscribed but unpaid capital stock as of March 31 is P917 million of which P379.5 million (\$55.7 million) represents peso proceeds appropriated from general revenues or otherwise provided for and to be paid in against stock subscriptions over the next three years. This is sufficient to meet the requirements of the on-going projects, the projects to be covered by the proposed loan and subsequent projects. These subscriptions will be paid to NEA as project implementation proceeds.

#### D. Rural Electric Cooperatives

The sub-borrowers of NEA and individual implementing agencies will be the rural electric cooperatives themselves. Each of these cooperatives are non-stock, non-profit membership cooperatives organized for the sole and specific purpose of supplying electric service on an area coverage basis. Most of the electric coops are registered under the provisions of Chapter III of P.D. 269, although some coops are conversions of systems established under earlier acts.

Each coop has full corporate powers required to operate as an electric utility and may generate, transmit and distribute electric power to its members and non-members up to ten percent of the number of its membership. These coops, on the average, serve a population area of 100,000 people and an initial consumer load of 7-7,500 customers (4 years).

The electric coops also have the authority to assist and promote power use through relending of NEA peso proceeds. Uses to date have been concentrated on house wiring loans for low-income families and line extensions and related costs for electric irrigation projects.

The rural electric coops are required to pay standard wholesale rates for power acquired from the NPC grid system. However, the coops have exemption from taxes, duties, and fees levied by the GOP or its instrumentalities, including income tax, franchise taxes, import duties, etc.

The development of the cooperatives' management capabilities is still in an early stage. This is to be expected, as most have been in their respective positions for less than a year. NEA provides on-going training seminars in various fields of system operations to strengthen cooperative management. NRECA advisors assist the cooperatives with their operating problems and provide good liaison between the cooperatives and NEA in Manila during these early stages of project development.

While NEA financial records are kept with scrupulous care, the electric cooperatives--other than MORESCO and VRESCO--are just learning to set up bookkeeping procedures and accounting systems. NEA auditing acts as a check on how the cooperatives handle their budgeting and finances.

In response to NEA guidelines, boards of directors of the cooperatives submit copies of minutes of meetings and of policies and procedures adopted directly to NEA. Of the 47 cooperatives with general managers (including MORESCO and VRESKO), seven have permanent appointments, two are acting, thirty have general managers in probationary status and the final eight are NEA staff members on temporary assignment. These latter acting general managers are in recognition of a need to strengthen the cooperative management while, at the same time, giving NEA headquarters people direct exposure to the problems of cooperative management. This assignment of NEA staff to various cooperatives on a temporary basis also prepares them to assume the role now handled for NEA by the NRECA cooperative advisors.

### III. Project Analysis

The original planning concept for the rural electrification program provided for area coverage. Before the price escalations and shortages in fuels, NEA had also projected the use of many power plants using diesel generators. At that time it was felt that equitable allocation of NEA funds required temporary use of internal combustion engines for local generation--even in areas which would be connected to more economical NPC hydro and other large-scale generation at a later date. Both the concept of area coverage and the use of small generating units have been reevaluated and policy changes effected by NEA. USAID agrees that these are logical changes and supports them. The appraisal of the project has been done with these changes considered.

Appendix II provides NEA's revised description of the coop "model" and reflects NEA's current approach.

#### A. Feasibility Studies

In accordance with the advice and guidance of the original NRECA feasibility study team, NEA prepared feasibility studies on an area coverage basis. However, as the program has developed, and costs have skyrocketed, NEA has modified its planning to develop project core 13.2 KV distribution systems (heavy feeder lines). These core systems initially serve the more densely populated areas. Expansion to less dense and outlying areas is planned for later phases of implementation. The first system revision using the core concept was for Ilocos Norte, which is used as an illustration model in the Financial Analysis Section. NEA is preparing additional new studies and project revisions based upon this model. However, to permit timely completion of these studies and insure that project implementation is not delayed, it will be necessary and NEA is planning to increase its feasibility staff and/or arrange for Philippine consulting engineering firms to assist NEA. Stanley Consultants will continue to review these feasibility studies and certify that the projects are economically feasible and technically sound for utilization of AID development loan procured materials.

B. Project Capital Costs: Financial Plan

After analyzing the cost estimates for an illustrative cooperative and considering the negative impact of the recent inflationary spiral on the program, the proposed loan of \$20 million will provide foreign exchange for the following materials and services required for up to 15 rural electric cooperatives:

Conductor	\$10,660,000
Transformers and other Hardware	6,656,000
Freight	2,184,000
Engineering Services	<u>500,000</u>
	\$20,000,000

It is estimated that the GOP, through NEA, must provide ₱108 million or \$16.2 million to pay local A&E costs, construct the cooperatives and procure locally supplied materials such as poles and anchor logs. This amounts to 44% of project costs and it more than adequate meets the requirements of Section 1.10 of the FAA. The financial plan is thus (₱6.65=\$1.00):

*GOP provide*

	Local Cost	In Millions Foreign Exchange	Total(\$)
GOP Capital Appropriations	₱108.0	---	\$16.2
U.S. Development Loan	<u>--</u>	<u>\$20.0</u>	<u>20.0</u>
Total Cost	₱108.0	\$20.0	\$36.2

C. Technical Capabilities

(1) Standards and Specifications of Engineering, Material and Construction

During the first loan NEA, with the help of Stanley Consultants and NRECA advisors, has completed development of its basic standards and specifications essentially patterned after those of the U.S. Rural Electrification Administration (REA). These REA standards and specifications are modified and adapted as required, to meet any unique Philippine conditions. To set forth current construction standards, NEA has recently published "Specifications and Drawings for 7.62/13.2 KV Line Construction."

(2) Resident Engineering Firms

Four Philippine A&E firms have been active in rural electrification projects. These firms (Adrian Wilson International, Trans-Asia, EDCOP and DCCD) all have international experience although they had previously done very little on rural electric distribution systems.

Under NEA guidance each firm completed contracts with individual cooperatives to do design and construction supervision work. They have worked closely with NEA and Stanley Consultants, Inc. (the U.S. engineering firm contracted with under loan 492-H-027) in preparing project designs and related materials. Each firm has also performed field staking and construction inspection, but in some instances the level of performance is not considered up to proper standards.

Since no U.S. materials have arrived on-site to permit construction on a continuing and large scale basis, field work correspondingly has not been on a large scale. Each firm will need to upgrade its capabilities to perform adequately the many field services as the program expands. This will require working closely with Stanley Consultants. To facilitate necessary field training and supervision, the Stanley contract is to be amended by NEA to increase the full-time field engineers staff from two to three.

On April 2, 1974, representatives of NEA, Stanley Consultants, Inc., and AID visited the offices of the Philippine engineering firms. These visits were to determine the firms' preparation to expand, as necessary, to perform the services needed under NEA's presently projected rural electrification program. Each firm indicated it was prepared to expand and discussed special problems which had arisen to date. NEA informed the firms that Stanley Consultants' services would be continuing to assist them in increasing their ability and efficiency to render the technical services needed. A plan for a series of meetings of all interested parties was agreed upon, and the first of these was held April 30, 1974.

(3) US Consulting A and E Firm

Under the on-going program, four Philippine A&E firms have performed all design work. This work is monitored by NEA assisted by Stanley Consultants, Inc.

Stanley Consultants, under contract with NEA pursuant to AID Loan 492-H-027, began work in August, 1972. Under the contract, a 5-man team has assisted NEA, the A&E firms and the cooperatives with a variety of technical matters. At NEA, computerized procurement routines have been established, training sessions have been held for the A&E and

construction sections, and members of the team have participated in construction and engineering seminars. For the A&E firms standard design criteria, in the form of bulletins, have been prepared, and detailed A&E design work is reviewed.

In the field, Stanley has followed closely the performance of both A&E field engineers and construction forces, though it is in this area that much more attention to detail is needed. Material handling also is reaching a critical stage as material procured under the U.S. AID loan 492-H-028 is beginning to arrive in-country. In order to handle the volume and variety of items, and get them properly distributed to the many project sites, a sophisticated warehousing system will be required.

Agreement has been reached between NEA and Stanley to increase the Stanley team to six persons to be composed of three field engineers, one office engineer, one materials and warehousing specialist with computer experience and a team leader who will also perform as an office engineer. The contract will be funded from existing loans as well as the proposed loan.

While NEA has made considerable progress in developing sound technical capabilities, it still requires assistance for continued technical development. In order to assure timely implementation additional engineers will be recruited and training. With the assistance of Stanley Consultants, NEA will continue upgrading and training NEA personnel to assure AID of the technical sufficiency of NEA actions.

Four inspection/training sessions will be held in the field where cooperative construction has proceeded sufficiently to provide good samples of all phases of the work. The cooperatives involved in Ilocos Norte in Luzon, Capiz and Leyte in the Visayas and Lanao Sur in Mindanao, A&E work was performed on the systems by Trans-Asia, DCCD, EDCOP, and Adrian Wilson, respectively. It is planned that each inspection will take at least one week and will involve representatives of the cooperatives and the construction contractor at the site, all four A&E firms, NEA headquarters personnel and members of the two U.S. technical assistance teams of Stanley Consultants and NRECA. AID will also be fully represented. These inspection/training sessions will take the form of a pole by pole survey and all deficiencies will be noted and discussed especially where these involve variations from the Philippine Electric Safety Code. These sessions are to take place late in July or early August, 1974.

#### D. Environmental Considerations

The project, as a rural electrification project limited to the construction of electrical distribution networks and house connections, with no power plants (except as the National Electrification Administration may develop without AID assistance), has limited potential for significant adverse environmental effects. The potential for these effects is addressed below.

Short-term effects are essentially those effects imposed on the environment during the construction stages of the project. Since construction activities will be limited to the installation of poles and wire in rural areas, no significant adverse impact is anticipated other than removal of trees on the 15-20 foot distribution line easements. Existing physical land characteristics and foliage will be little disturbed and there will be little chance of affecting native ecological systems.

To the rural homeowners, the project will bring electric power for better lighting and for permitting use of appliances, such as refrigerators, irons, washing machines, etc., all of which will contribute to a better quality of life for the rural people. Refrigerators, in particular, providing cold storage to prevent spoilage of food as well as providing fly-free storage of food, will assist greatly in protecting the health of rural peoples.

Part of the economic justification of the project is the potential for stimulation of industries and for pumped irrigation.

The industry to be generated is expected to be cottage-type individually small in size and relatively widely dispersed with little potential for adverse pollution of air, land or water. The larger energy consuming and polluting type of industries have located and will continue to locate in areas where there is a large source of cheap hydro-power. Electric rates in the rural electrification zones under this loan will not be attractive to the larger power-consuming industries.

The pumped-irrigation projects that might come into being as a result of this rural electrification do have environmental implications that should be addressed. However, since the environmental impact from these future irrigation projects is so site-specific, each such project should be investigated for environmental impact at that point in future time when the individual project is planned.

National resources irreversibly committed during the implementation of the project are limited to lands in rural areas that will serve as a right-of-way of distribution lines. The land area thus committed will consist of long, narrow strips of land that could be actually exploited for agricultural purposes between poles.

E. Findings of Technical Soundness - Section 611 Criteria

The National Electrification Administration has been evaluated and is considered competent, with the technical assistance provided for under this and prior financing, to implement the proposed program.

An assessment has been made of the local engineering and construction competence and it is considered satisfactory for implementation of the technical aspects of the proposed program with the assistance being provided through Stanley Consultants, Inc. and NRECA.

Financial planning for the project has been completed. The proposed loan is a line of credit to NEA and as such, the cost to the U.S. will not exceed the proposed loan amount. An adequate estimate has been made of the local currency resources required for implementation of the program and the Philippine Government has provided for these resources.

In the context of the above, it is considered that adequate technical, financial and other plans necessary to carry out the proposed program have been completed and the provision of FAA Section 611(a) have been met.

The Mission Director certification to 611(e) is included as Annex XVI.

F. Project Benefits

1. Employment Impact

The proposed electric distribution systems will be constructed by Philippine contractors. It is anticipated that a significant portion of the construction activities will be undertaken by labor intensive methods and utilization of equipment will be minimized. The final blend of equipment and labor however is ultimately decided by the contractors themselves.

In addition to the provision of employment opportunities during the construction phase, the electric cooperatives themselves will become a source of employment in the areas affected. The coops are also expected to provide increased market opportunities for manufacture of materials and commodities, both for construction of the systems involved and for electric appliances and other manufactured commodities that will be required as a direct result of introduction of electricity into the rural areas.

The proposed program, therefore, is expected to have a highly beneficial effect on the generation of employment both directly and indirectly during its construction phase and thereafter during the operating life of the coop's.

2. Power-Use Promotion

It was realized early in the program that the promotion of power use for productive purposes would have three valuable effects: (1) it could significantly enhance the viability of the electric cooperatives; (2) it could provide immediate improvement in the standard of living of the people; and (3) it could develop local resources and slow down the growing locational imbalance between population and resource potential caused by migration to urban areas.

Power-use efforts started in April, 1973 and were formally organized under a single directorate within NEA in December, 1973. At present there are twelve operating power-use projects, including one irrigation and eleven rural industries.

a. Irrigation.

NEA, in coordination with the National Irrigation Administration (NIA) and the Development Academy of the Philippines (DAP), is presently implementing irrigation projects that will irrigate a total of 15,000 hectares of rice land in 11 provinces, namely: Ilocos Norte, Capiz, Pampanga, Abra, Lanao del Sur, Isabela, La Union, Camarines Sur, Cavite, Iloilo and Laguna.

Topographic surveying and mapping of the irrigable areas has been completed, and electric pump-unit requirements specified. The first pumps have been installed in Capiz and Pampanga and similar installations are to take place in all eleven provinces. Construction of the main canals and installation of pumps is being undertaken by NIA personnel with the feeder canals constructed on a self-help basis by the farmer-beneficiaries.

For the electric cooperatives, irrigation loads are relatively profitable. Irrigation contracts are designed to promote off-peak operation on the electric system. Although seasonal, the load is relatively steady day-to-day.

b. Rural Industries.

The other major thrust in power-use promotion by NEA is in the development of rural industries. The general project design includes the following:

- There must be some useful consumption of electricity aside from general residential type consumption.
- The project must be relatively labor-intensive with a low capital-per-worker ratio;
- The project must build on indigenous resources — both local skills and local materials;
- Project personnel must be native to the area;
- The market potential must be large, preferably export, and specific outlets identified at the time of project inception;
- The project must be economically located, which is to say, that proximity to skills and materials must be of sufficient advantage to offset distance from potential urban markets.

The foregoing criteria, not surprisingly, dovetail with the characteristics of the more successful handicrafts and cottage industries in the Philippines.

Five Most Advanced Rural Industry Projects

<u>Province</u>	<u>Industry</u>	<u>Project Cost</u>	<u>Employees</u>	
			<u>Actual</u>	<u>Potential</u>
Albay	Fibercraft	₱ 300,000	75	300
Pampanga	Bamboocraft	250,000	45	212
La Union	Woodcraft	300,000	30	219
Bulacacan	Garments/ Embroidery	250,000	30	179
Capiz	Garments	<u>300,000</u>	<u>36</u>	<u>300</u>
	TOTAL	₱ 1,400,000	216	1,210

Each of the rural industry projects will contribute in some measure to project feasibility and will have significant social and economic benefits. The early effort is already producing certain benefits. Employment has been provided to women and youth who would otherwise be unemployed, and local initiative, cooperativeness and ingenuity has been tapped in support of these projects. In sum, rural industry projects serve as a spur to efforts to maximize local resource utilization and rural development.

3. Effects on the Quality of Rural Life

The first exposure to electric service among rural residents has been greeted by dancing in the streets, parades, and other festivities at various initial energization ceremonies. Less subjective indications of social gains for newly electrified areas can be taken from statistics on the Misamis Oriental Electric Cooperative (MORESCO) for the period from full energization of 10 municipalities in September, 1972, to December, 1973. The following table shows the increase realized during this 15 month period for the items indicated:

	Total Up to 9/72	Additional 9/72 - 12/73
Connections	4,494	1,401
New Houses	443	402
Renovated Houses	392	337
Irrigation Pumps	6	5
Commercial Water Systems	12	4
House Pumps	65	10
Refrigerator/Freezers	479	105
Phonographs	310	103
Electric Irons	384	359
Air Conditioners	14	35
Auto Repair Shops	18	3
Radio and TV Shops	11	4
Hollow Block Manufactures	5	3

As the MORESCO system develops further, similar new appliances, house improvements and investments can be expected. One plywood plant is under construction.

In the opinion of cooperative officials and their advisors, rural electrification is creating an appetite for a better standard of living which is being supported by new ways of earning the necessary money. In the MORESCO area, land under coconut trees which had long been idle or only used for grazing is now being cultivated to fruit, vegetables and similar cash crops. Rice and corn farmers are taking advantage of technical assistance and production-enhancement projects as they, and their families, experience a new felt need for financing appliance or machinery purchases.

#### IV. Financial/Economic Analyses - An Illustration

This section assesses the financial and economic viability of the Rural Electrification program through illustration. The two pilot cooperatives, MORESCO and VRESCO are representative of a distribution and self-generating cooperative respectively. Their financial aspects are considered. The Ilocos Norte Cooperative represents a new cooperative being developed under the new core distribution system concept and is analyzed for both financial and economic viability.

##### A. Rate Structures

The majority of the electric co-ops buy, or will buy, their power in place of self-generation. Their resale rate schedules will thus be influenced materially by their bulk power costs. NPC will supply most if not all of the new co-ops to be financed and NPC does not provide a subsidy rate to electric coops. NPC has three bulk power schedules namely (a) the Luzon Grid and Bicol sub-grid rate, (b) the Agus River (Mindanao) grid rate, and (c) Isolated Plants and Systems rate. Rates for (c) are the highest (₱.116 kwh) and for (b) the lowest (₱.027 kwh). In order to meet IBRD loan covenants NPC must set rates that give it a return of at least 8 percent. NPC in its February 21, 1974 proposal to the National Power Board plans to do this by setting rates for Luzon to yield this return, for Mindanao to slightly exceed it; and for isolated plants to have a zero rate of return. The isolated plants are higher cost operation and are in essence subsidized by the income from the Agus Grid. The Agus Grid, because it is based upon low-cost hydro power, can easily afford to make this subsidy.

While coops do not receive preferential wholesale rates, they do have an important advantage, of course, in access to subsidized capital. Since their service areas are less densely settled than areas supplied by viable private franchise systems, the coops need this subsidy at least in the beginning to compensate for the higher construction cost per customer, e.g., rural system capital costs typically exceed urban system costs by up to 2-1/2 times. The subsidy enables them to set rates that are sufficiently low to encourage rapid load growth to the point of break-even operations but their rates frequently exceed by a substantial margin the prices charged by viable private systems.

An attempt was made to compare the rate schedules of similarly situated coop and private franchise systems.

Comparing the Manila area (private) utility with a rural Coop (first Bulacan) in the general Manila area shows that the Coop residential consumers are paying about 50% more for power than the Manila consumers (except for the 25% who consume over 200 Kwhr/month) while the coop's commercial/industrial users are paying about 1/4th less. The NEA recommended revised rate schedule for Bulacan (see Annex XIII), if adopted, however, contains a higher rate for all classes of consumers than the comparable current provisional (effective 3/4/74) rates for Manila consumers.\*

\*Excluding street lighting since comparative data is not available in AIL/W.

The proposed Bulacan schedules would require most customers to pay at rates three times that of the provisional Manila rates and even at the highest consumption levels the Bulacan consumer would be paying about 50% more than his urban counterpart in Manila.

The difference between Cagayan de Oro City and MORESCO residential initial block rates on Mindanao are insignificant (₱0.20 and ₱0.18 per KWH respectively). Both systems are purchasing their power from the low-cost Agus River hydro-generation. This suggests that MORESCO's rates may be too low and thus partially responsible for its financial difficulties as discussed in subsection E below.

The difference in residential initial block rates for VRESCO and Bacolod City on Negros Island are also insignificant (₱0.458 per KWH respectively). However, it must be pointed out that this is high-cost diesel generation in both cases and the rates may have reached a level beyond which people will not wish (or be able) to avail themselves of electric service.

The above indicates that these coop customers are being charged at rates equal to urban residential consumers.

While the coops in the past have followed the declining block rate system, they, under NEA policy guidance, are now considering rate schedules that would more or less correspond to current philosophy involving social equity and energy conservation. The following is excerpted from the acting NEA Administration's letter of 5/9/74 to the USAID Director.

Rates Policy. Electric rate levels and the internal structure of rates are under study and review by NEA and the various cooperatives in accordance with the following general guidelines:

On rate levels:

a) Feasibility - the cooperative must charge such rates so as to generate a net cash margin equivalent to 1.25 of annual debt service requirements, by the end of the sixth operating year.

b) Feasibility - rates must be set so as to cover the increased power costs for cooperatives connected to the National Power Corporation's Luzon grid, which includes a varying percentage of thermal plant generation in addition to the primarily hydro-electric generation.

c) Social - the cooperative must charge such rates as to minimize the burden on rural consumers and to encourage the use of electricity for productive purposes.

d) Technical-Economic - over the medium term if not immediately, the cooperative should be able to charge rates lower than those of adjoining rural electric utilities, based on access to lower-cost financing, a larger, more economical service area, the non-profit nature of the cooperatives and superior standards of equipment, design, and operating efficiency.

On rate structure:

a) Area coverage - As specified in the NEA charter more distant or thinly settled areas are to be rendered serviceable by margins on rates charged in the more dense or heavy-power-using areas.

b) Residential rates - In general, socialized pricing is to be implemented through increasing rates at higher consumption levels. At the same time, an increase in unit residential consumption to moderate levels, thereby enhancing contribution to cooperative feasibility, may be encouraged through an initial lowering of rates, with the net result a U-shaped rates curve.

c) Commercial rates - In general rates for commercial consumption are to be higher than the corresponding rates for residences at the same levels of consumption.

d) Industrial rates - While costs of service have also to be taken into consideration, the area coverage principle applies particularly to profitable industrial concerns, who should bear a significant share of costs of servicing the entire area.

A C.P. for procurement of equipment and materials will be acceptance by AID of a formal rate policy statement which has the sanction of NEA's Board of Administrators. Presumably, it could be based upon the above NEA statement. In addition, a covenant is planned to assure that AID approval is obtained when the rate policy statement is changed. Another covenant will assure that rate schedules are updated to reflect current costs, both capital and operating, and are based upon NEA's current rate policy. This will occur at the following times: (a) when feasibility study is developed, (b) when allocation of material is approved, (c) when coop goes into commercial operation, and (d) at least annually thereafter.

In the following sections covering financing analysis of the hypothetical (illustrative) Ilocos Norte system the current actual average rate schedule was arbitrarily adjusted upward to cover escalated capital and operating costs. It was also done with an idea of moving toward social equity but obviously it does not get there. The actual rates could be adjusted to yield the same financial returns and provide social equity. (In actual practice it is believed that the Coops will move in this direction -- see copy NEA letter to First Bulacan Coop dated 5/10/74 which is reproduced as Annex VIII.) The comparison of the Ilocos Norte current average rates with those used in this analysis follows:

Average Selling Rates - Ilocos Norte

<u>Class of Load</u>	<u>Current Average</u> (In pesos per kwh)	<u>Assumed Average</u>
Irrigation pumping	0.14	0.17
Security Lighting	0.20	0.30
Large Commercial	0.15	0.23
Domestic	0.25	0.31
Small Commercial	0.23	0.28
Public Buildings	0.22	0.33

## B. The Ilocos Norte Rural Electric Cooperative

The Ilocos Norte Rural Electric Cooperative is a partially energized and operating cooperative. Its core distribution system is approximately fifty percent complete. By updating costs for developing the system at today's prices, it is representative as a hypothetical cooperative to illustrate the financial and economic parameters of a core distribution system.

Ilocos Norte was the first cooperative for which a detailed feasibility study was done using the core distribution system concept and is one of the first being developed under that concept. The cooperative also purchases its power from the Luzon Grid of the National Power Corporation. It is thus, in many ways, useful as an illustration for cooperatives being developed in Luzon. At the same time, Ilocos Norte Province is one of the slowest growing provinces in the Philippines with the inference being that a successful coop in Ilocos Norte is indicative of the viability of the program.

Ilocos Norte Province is located in the northwest tip of Luzon Island and covers an area of 3,400 square kilometers (1,312 square miles). It has an estimated 1974 population of 380,000 with 75 percent of the population living in the rural areas. Cultivated land totals 54,100 hectares of which 60 percent is planted to palay--rice. Other important crops are garlic, tobacco (the province is one of the major producers of Virginia tobacco for the Philippine cigarette industry), sugarcane and corn.

Principal cottage industries are cloth weaving, mat weaving, pottery, salt-making, native wine making, bamboo craft, cigar making, shellcraft, plastic and cloth bag making, and silk culture and weaving. Potential industries on the small scale are ceramics craft, fruit and vegetable processing and carpet weaving.

The terrain of Ilocos Norte is generally rugged. There are limited areas of flat land along the coast and broken terrain inland. Settlements are relatively small, averaging 13,000 people, and scattered. Before the advent of rural electrification only 5 of 19 municipalities could say they had electric service and only 16 percent of the population. The Ilocos Norte Electric Cooperative will bring, within ten years, service to at least ten municipalities and 75 percent of the population within its service area.

## C. The Pilot Projects

In comparison with the MORESCO and VRESCO pilot projects, the Ilocos Norte Rural Electric Cooperative is technically most similar to MORESCO. Both are distribution cooperatives purchasing bulk power from an NPC grid. However, MORESCO receives its power from the low-cost Agus River hydro-generation as opposed to the higher cost thermal-generated power purchased by Ilocos Norte from the Luzon Grid. VRESCO, on the other hand, is self-generating cooperative with much higher power costs than either MORESCO or Ilocos Norte.

The provinces which include the service areas of all three cooperatives are predominantly agricultural. Misamis Oriental, which includes the MORESCO service area, however, has the greatest potential for industrial and economic development because of its lower cost power potential. Negros Occidental, which includes the VRESCO service area, is planted primarily to sugar cane and the largest part of the rural population consists of sugar cane workers. These workers are at the low end of the economic spectrum and the provincial population is economically similar to that of Ilocos Norte.

#### D. Capital Requirements for Ilocos Norte

Based upon the feasibility study using the core system concept, the system of the Ilocos Norte Rural Electric Cooperative will consist of the following lines and equipment when the facilities financed by the initial loan are in service:

Three phase 7.6/13.2 KV line	96 km.
"v" phase	20
Single phase	59
Secondary	35
Secondary underbuild	81
Services	<u>140</u>
Total lines	431 km.
No. of Consumers (4th year of operation)	7400

To arrive at an estimate for the cost of the Ilocos Norte system, several assumptions (based on historical fact) were made to reflect the inflationary impact since completion in February, 1974 of the system feasibility study. The feasibility study shows foreign exchange requirements totaling \$733,000, excluding meters and substations, and local currency requirements of ₱2,900,000. It is estimated that to build the system at today's prices it would require \$2,100,000 for foreign exchange commodities (including meters and substations) and ₱4,500,000 in local currency costs.

#### E. Financial Analysis

##### 1. Terms of Debt

Ilocos Norte illustrative debt structure is shown in the financial annexes in accord with the official NEA relending terms for NPC supplied cooperatives. These involve capitalization of interest during the first five years followed by repayment over 25 years. The relending interest rate is 3%. Maintenance of value on foreign exchange loans from foreign donors is the responsibility of the GOP and is not passed on to the individual coops.

The relending rate is a concessionary rate for the Philippines. It is recognized, however, that these relending rates are not the same as are the rates of the AID loan to the GOP. It is anticipated that the stricter terms for the cooperatives will allow NEA, in years to come, build up a reserve for further lending for cooperative development before having to turn over all receipts to pay its governmental obligations.

##### 2. Terms for the Pilot Projects

The two pilot projects discussed in Section C above have had their relending terms modified in this paper for purposes of comparison. These terms were brought into line with NEA's current relending terms for all cooperatives. Tables 5 and 6 Annex XIV reflect these modified terms.

3. Table 1 below sets forth a comparison of the estimated debt coverage of the Ilocos Norte coop as well as those of the two pilot projects. This data is drawn from Annex XIV Tables 1, 2 and 3. As used below, debt coverage is the total cash funds available for debt service (both principal and interest) divided by the principal and interest due that year. For example a coverage of 2.0 times indicates that the project is expected to generate 200% of the funds needed to meet debt service in that year. The table indicates that the debt coverage for Ilocos Norte is slim but adequate in the early years and becomes very satisfactory in the eighth year and beyond as the growth in operating revenues (and thus the rate of growth of the system) reaches its peak. The debt coverage for the VRESCO project is not as adequate and is forecasted to become less than adequate in the eighth year. This signals the need to re-examine the present rate structure for this project in light of the project's debt burden.

TABLE 1

Comparison of Debt Coverage\*

<u>YEAR</u>	<u>Ilocos Norte</u>	<u>MORESCO</u>	<u>VRESCO</u>
1	---	0.39	1.07
2	---	0.56	1.29
3	---	1.13	2.58
4	1.31	1.96	3.46
5	1.04	2.22	2.00
6	1.07	1.76	1.34
7	1.33	1.95	1.14
8	1.86	2.29	1.00
9	2.72	2.78	0.86
10	3.64	3.42	0.45

\* Assuming that MORESCO and VRESCO loans are restructured to reflect similar terms as for Ilocos Norte.

4. Annex XIV tables 4, 5 and 6 summarize financial internal rate of return results for the Ilocos Norte case and that of the two pilot projects. These calculations were performed assuming a 30 year operating life for all three projects, a two year construction period and assumed a residual salvage value equivalent to 20% of the gross investment made during the life of the project. (Similar calculations were performed on the basis of a 10% salvage value. The effect of such a reduction was marginal and such lower salvage value estimate is not considered to be realistic give the type of project involved and the fact that incremental investments continue relatively far into the life of the project. The conclusion is that the higher salvage value estimate is to be preferred).

The significant differences in the rates of return for these three projects is attributable to the differences in the rate structures (see table 1, page 30), and the differences between loan terms discussed above. The Ilocos Norte illustrative case shows a financial return of 9.5% which is considered very favorable. This project pays no taxes and is not intended to be a profit making institution. Its proposed rate structure is designed to provide for servicing debt and to generate sufficient additional funds for future capital investments. The fact that this return is slightly below the cost of commercial money in the Philippines is attributable to the low rate of interest on debt from NEA-and, as mentioned above, that no provision for profit is necessary in this type of project.<sup>1</sup>

5. Sensitivity Analysis-Ilocos Norte Annex XIV Table 1 (Statement of Source and Application of Funds) sets out the basic sources of revenues and the principal items of cost over a ten year period for this illustrative project. Additional cost and operating data is provided by Annex XIV Table 8. The principal external variable cost item is the cost of power purchased from the national grid. Other internal variable cost items are O&M and general and administrative expenses. Together these variable costs account for 63% of total costs including debt service in the seventh year to be met from operating revenue. These variable costs are 57% of total revenues and the cost of purchased power is 30% of total revenues. If purchased power costs were increased by 10%, such an increase could be absorbed by the project without requiring an increase in rates to the consumer. An increase of 30% on the other hand would most likely require some increase in rates. While it is difficult to judge future energy costs for the country it is our assumption that they will not increase by as much as 30% within the next seven years. The rate assumptions discussed in paragraph C above reflect the latest estimates of energy costs in the country. Increases in either of the two internal variable cost categories are more directly within the control of the project. As these costs taken together amount to less than 50% of the costs of purchased power it is deemed unlikely

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<sup>1</sup> These return calculations include interest in the net cash flow, thus if interest were higher, rates and revenues would have to be expanded to cover this margin. In a financial sense the returns of all three projects are considered satisfactory as all exceed the cost of money borrowed from NEA.

that increases in these costs would occur in the magnitude sufficient to require an increase in rates. (Using the same type of analysis employed for the cost of power, O&M and general and administrative costs would have to increase by some 60% to force an upward revision in rates).

6. Conclusion. Based on the above analysis it is concluded that the illustrative case built on the Ilocos Norte project reflects a satisfactory and viable financial prospect for the project and allows for sufficient margin to absorb reasonable cost increases in the future while at the same time providing sufficient funds to support ongoing investment in the expansion of the system.

## F. Economic Analysis

### 1. Introduction and Summary

This section evaluates the economic feasibility of the Ilocos Norte sub-project and employs for this purpose the quantitative tools of social cost benefit and internal rate of return analysis. A secondary purpose of the analysis is to provide some indication of the economic feasibility of the other 9-14 sub-projects that may be financed by the proposed loan. The results of this economic analysis may be assumed to indicate the lower range of the B/C ratios and IRR's of other sub-projects since the Ilocos Norte subproject is located within a region less favorably endowed than others in terms of natural resource availability. Growth of the Ilocos regional economy over the last decade has lagged behind that of other regions and in 1971, average annual family income in Ilocos (₱3,302) was 5% lower than the national average of ₱3,465.<sup>1/</sup> It is unlikely that this historical regional growth pattern will be reversed over the next 10 years. Thus, the economic feasibility of a rural electrification project in the Ilocos region may be somewhat limited vis-a-vis other regions.

This section also discusses some important aspects of the Ilocos Norte sub-project which are not reflected in the B/C ratio or the IRR, but have a bearing on its economic and social desirability.

The analysis concludes that the Ilocos Norte project is economically feasible. The B/C ratio is greater than one (1.29) and the IRR of 20.32% is comparable to, if not greater than, the IRR's of other infrastructure projects of the COP. In addition, the other effects of the sub-project which are treated qualitatively are found to be generally favorable.

### 2. Methodology

For the purpose of the B/C and IRR calculations in this paper, the benefits from the project have been defined as the projected sales revenues and the incremental cost savings offered by central station electricity over alternative but less efficient sources of energy, e.g. kerosene or small diesel generators. Sales revenues measure direct project benefits since they reflect the monetary valuation placed on the electric service by consumers. Cost reductions from using central station electricity imply an increase in net income or profitability for household and business consumers.

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<sup>1/</sup> There are no official estimates of national income accounts on a regional basis. A port feasibility study completed in 1971 for the IBRD shows, however, that NDP growth in the Ilocos region from 1961-1969 was 3%, the lowest among the regions in the Philippines. The same study forecasts that the Ilocos region will remain in lagging region up to 1985. Even with this lag, it is considered likely that people will connect up and use the electric service. The IBRD estimates that people will spend approximately 8% of family income for electric service. If incomes in Ilocos Norte remained constant while the cost of electric service escalated and consumption grew as shown in Annex XIV, the percentage of family income used would grow from 3% in year one to 12% in year 15.

Cost reductions from using central station electricity for three classes of rural consumers are summarized in the following table.

TABLE  
Cost Savings from Central Station Electricity<sup>1/</sup>

Consumer Class	Present Consumption	Cost Savings (₱/yr)
1. Domestic or Household	₱197/yr. for kerosene lightening	₱142/Household
2. Large Commercials <sup>2/</sup>	Minimum-sized diesel motor generator sets of 25 KW. ₱.61/KWH	₱.38/KWH
3. Pump Irrigation	Diesel 10 HP and 20 HP pumps ₱.66/KWH equiv.	₱.30/KWH

An average rural household spends about ₱14/mo. (₱172/yr.) on kerosene to provide lighting equivalent to that of a 10-watt electric bulb. In addition, other costs (primarily wick and lamp costs) are incurred. Total annual costs of kerosene lighting amount to about ₱197 as against ₱55 for an equivalent amount of electric lighting. Annual household cost savings from using electricity are therefore equivalent to ₱142 multiplied by the annual projections of household connections.

The projected commercial, industrial, and farm users of electricity to be provided by the coop presently depend on energy from auto-generated electricity or diesel and gasoline engines. By availing of coop-provided electricity, these users can save from ₱.30-.38/KWH. Total annual savings of these users are equal to their respective annual KWH consumption multiplied by their respective cost savings.

Demand projections for the Ilocos Norte system are shown in Annex XIV Table 9. These projections are based on studies of an NRECA consultant, and on previous pilot rural electrification experiences. The projections for small commercials (which include rice mills) may be somewhat conservative. The projections assume that of the existing 460 rice mills in

<sup>1/</sup> Cost reductions for other rural consumers, mainly small commercial and industrial users (loads of less than 25 KW) and public buildings, were not quantified for lack of adequate data.

<sup>2/</sup> Commercial and industrial users with loads equal to or greater than 25 KW.

Ilocos Norte, only 10 would be served in the first year, rising to 75 during the 10th year. The existing mills are powered by small gasoline or diesel engines, and could realize substantial economies by shifting to central electricity if available.

Costs are defined as the sum of: (1) initial plant investment; (2) annual capital investment from the 1st year to 15th year reflecting gradual plant build-up and increased system coverage; and (3) annual power, operating and maintenance, and general and administrative costs. The foreign exchange component accounts for approximately 70% of the total investment cost. Shadow pricing of this component was not considered necessary since under the current floating rate regime, the foreign exchange rate approximates the true scarcity value of foreign exchange. Shadow pricing the unskilled component of labor costs was not considered necessary because it is a relatively small amount.

For purposes of the B/C and IRR calculations, the project life was assumed to be 33 years. The opportunity cost of capital used to discount the benefit and cost streams to the present was 15%. This is the rate generally used by the IBRD and the ADB in their project feasibility studies.

### 3. Results of B/C and IRR Calculations

The B/C and IRR calculations for Ilocos Norte are shown in Annex XV Tables 6 and 7. The calculations show that the benefit cost ratio is greater than one (1.29) and the IRR of 20%. The B/C ratio and the IRR demonstrate that the investment in the distribution system for Ilocos Norte appears economically feasible.

The B/C ratio and the IRR for Ilocos Norte are conservative estimates since as noted earlier, the cost savings of small commercial and industrial users and public buildings are not quantified, and the demand projections for small commercial and industrial users are on the low side.

### 4. Other Project Benefits

Within its zone of influence, the sub-project is expected to promote qualitative improvements in the life style of the Ilocos Norte rural populace. As indicated in section III-F the availability of cheap electric power in the MORESCO area has promoted the use of home appliances. Based on the MORESCO experience and on other assumptions, the following hypothetical tenth-year appliance profile for barrios and poblaciones in Ilocos Norte has been prepared.

Tenth-Year Appliance Ownership Schedule

	<u>Poblaciones</u>		<u>Barrios</u>		
Estimated Residential Connections	7,240		10,860		
Appliance	% of Connections		Number of Connections		
	Owning		Owning		
	In	In	In	In	Total
	: Poblaciones:	: Barrios	: Poblaciones:	: Barrios	:
Refrigerator-freezer	35	10	2,534	1,086	3,620
Flat-iron	90	50	6,516	5,430	11,946
Stereo-Phonograph	15	20	1,086	2,172	3,258
Electric fan	15	2	1,086	217	1,303
Water pump	3	1	218	108	326

The increased demand for appliances resulting from rural electrification in Ilocos Norte and in other areas will have significant "multiplier" effects. Most appliances used in the Philippines have significant local components - all the woodwork, metal casings, parts assembly, and some parts production.

The sub-project will generate substantial indirect employment effects resulting from more intensive cropping through irrigation and from the creation and expansion of rural labor-intensive industry. By the fifth year, it is projected that 2,550 hectares or 9% of the potential irrigable area will be serviced by electric pump irrigation. This will generate more than 900 full-time jobs on the assumption that irrigation (using the same agricultural production technology) generates .36 man-years/hectare of incremental employment. This estimate excludes incremental employment resulting from the processing of additional output.

V. Economic and Balance of Payments Impact

A. Philippine Economic Performance and Debt Service Capacity

With a major economic stabilization program initiated in February, 1970, which included devaluation of the peso, the BOP position improved considerably and a small surplus was realized in 1970 and 1971. The capital account, however, continued to be under pressure due to heavy repayment of short-and medium-term debt. Performance in 1972, while not all favorable, resulted in an overall BOP surplus of \$94 million. Developments during 1973 were unprecedented. GNP growth is officially estimated at 10 percent, compared to 4.1 percent in 1972. The BOP surplus amounted to \$671 million due mainly to a large trade surplus which in turn was a result primarily of unprecedentedly high export prices. Merchandise exports were 70 percent higher than in 1972. Investment growth accelerated in 1973 reflecting increased business confidence and the salutary effects of investment incentives. Investment growth was also facilitated by a greatly improved domestic savings effort. In 1973, however, the economy had to cope with a major inflation which worsened during the second half.

As of October 31, 1973, the external debt outstanding amounted to \$2,272 million of which 68% consisted of loans with original maturities of more than 5 years compared to 43% at the beginning of 1970. Despite the improved maturity pattern, heavy debt service payments will persist at least over the medium-term future. Provided adequate levels of official aid for commodity imports and project assistance are forthcoming, and if the recent encouraging export performance persists, management of the external debt and debt servicing, while difficult, will not present serious problems. The debt service ratio has been reduced from 26% of export earnings three years ago to 14% today, with a continuous improvement in the maturity structure.

A major uncertainty, on the continued positive performance of the Philippine economy is the rising cost and uncertain availability of energy. Crude oil imports for 1974 are estimated to cost \$700 million, or \$500 million more than the 1973 level. The Philippine Government expects to meet increased petroleum costs through a combination of foreign borrowing, continued export growth, and maintenance of restraints on imports. With the present debt service ratio the GOP has considerable latitude to increase its foreign borrowing and cover the higher costs of petroleum imports.

B. Impact on U.S. Balance of Payments

The impact of this loan on the U.S. balance of payments should be favorable. Goods and services financed by this loan will be obtained from A.I.D. Geographic Code 941 (U.S. and Lower Income Countries). Virtually all goods and services procured under previous A.I.D. Loans were supplied from the United States. It is expected that essentially the same situation will prevail under the proposed loan.

## VI. Loan Administration

### A. Implementation Plan

#### 1. Summary

As in the case of the first Rural Electrification loan, primary responsibility for implementation of the loan will rest with NEA, drawing upon the technical assistance available from NRECA and Stanley Engineers. The major departure in procedures from the first loan is that commodities will be procured in advance of final coop selection and completion of system design. In lieu thereof, procurement will be against a standard bill of materials developed in the process of implementing the first loan. Commodities received in country in advance of individual coop needs will either be warehoused in the Manila area or at coop site warehouses as appropriate. This revised procedure is considered well justified in the context of NEA's experience gained under the first loan, and will in addition result in cost savings in materials procurement and most probably a reduction in actual implementation time.

Construction of core systems will be through private contractors selected through a competitive bidding process. Force account construction will be utilized for line extensions beyond the core systems.

#### 2. Procurement

The commodities to be procured through this second loan are essentially the same as those procured under the first loan. NEA is therefore well advanced in its preparatory work for procurement under the proposed loan. Standard IFB documents have been developed and refined through actual bid experience. Standard commodity lists have been developed for the core distribution systems and the commodities themselves are essentially interchangeable between individual coops. These factors, combined with the rapidly escalating commodity prices and extended delivery times being encountered in today's market, have led the project committee and NEA to the conclusion that advance procurement of materials is both justified and the preferred method of procurement under the loan.

Advance procurement will require increased attention to warehousing and this aspect has received careful review during development of the loan. NEA has acquired considerable experience in warehousing and material handling with reparations commodities and excess property. NEA has also acquired access to excellent storage facilities at the former U. S. Naval Base at Sangley Point as described in Appendix VI. These facilities are in the greater Manila area, have ocean going pier facilities and are in the security of a military compound. USAID estimates NEA has handled approximately 20,000 tons of material through Sangley.

Warehousing storage in the Manila area is however still interim storage and NEA plans to continue the procedure developed in the first loan of moving commodities to coop sites as soon as practicable. Construction of coop office and site warehousing facilities are undertaken as early as possible after coop selection so that this can be accomplished.

In addition to the above procedures USAID and NEA have agreed to add a procurement and warehousing expert to the Stanley team to assist NEA to further develop its capacity for commodity management. A candidate has been selected and should be on site by July 10 of this year.

### 3. Coop Selection Procedures

Under the first loan, feasibility studies for each coop were finished and preliminary design completed prior to AID concurrence on procurement of commodities. Under the proposed loan, because of the adoption of the advance procurement discussed above, the procedure will be reversed, although it is expected that feasibility work and coop selection will be agreed to for most of the new coops prior to the time commodities begin arriving in July 1975.

The individual coops are expected to be selected from the 23 systems listed on page 8 and, as indicated earlier, A&E firms are currently at work on 13 systems, preparing preliminary designs and assisting NEA to revise the feasibility studies around the core concept approach.

AID review and approval of coop selection will essentially follow the same procedures developed under the first loan. However, AID approval will be a precondition to release of commodities to the coops rather than a precondition to procurement. The "Evaluation of Legal, Financial, Technical and Organizational Soundness of Electric Cooperatives Checklist utilized under the first loan is included in Annex VII. This checklist will be reviewed and updated for utilization under the second loan but will essentially cover the same substantive issues. During negotiation of this loan, discussions will be held with NEA and NEDA to determine the practicality of setting a minimum financial rate of return criterion for project selection. Certification by NEA and Stanley as to the compliance with these procedures will continue to be required.

### 4. Construction

Construction activity on the individual cooperatives will be undertaken in three stages. Stage one will cover construction of headquarter facilities consisting of a coop office and warehousing facilities. This represents a local currency cost item and will be funded by an early advance from NEA utilizing their own resources.

Construction of these facilities will be by competitive award to local contractors. In some isolated locations construction may be done by force account or the Philippines Army Engineers, if contractors are not available. Construction of facilities for this phase is relatively unsophisticated and availability of contractors is not considered to be a problem. Progress on headquarter facilities under the existing loan and qualified contractors for this phase are listed in Annex XII,

Philippine wood poles are being used exclusively for all the cooperatives needs. NEA has acted to counteract inflating prices for local timber with the assistance of the cooperatives themselves. Contracts have been made with small logging concerns, in addition to larger suppliers, for pole supply and, in some instances, cooperatives have obtained timbering licenses for selective cutting for pole procurement only. The cooperatives arrange for hauling to and from treatment plants. Poles are now being processed at the rate of about 3,000 per month.

Stage two will include the construction of the core system normally consisting of a step-down substation (69 KV--13.2/7.6), three phase lines, and a limited amount of single phase lines. A typical core system consists of approximately two 69--13.2/7.6 step-down substations and 180 km of three and single phase lines. The construction contractor will be required to build substations, set the poles, string line and set transformers; line drops and house wiring will be handled by the coops. The proposed schedule allows 18 months for completion of the core system. The project committee believes this is conservative and should be subject to substantial improvement as the contractors gain experience.

NEA prequalified nine contractors for this type of work under loan 492-H-028. A combined construction schedule for distribution systems covered by loan 492-H-028 and this loan has been developed and coordinated with the projected delivery of line materials. This schedule would require up to a total of 15 contractors. (See page 41 for Construction Schedule). There are numerous experienced contractors in the Philippines and while they have no direct rural line construction experience, they should be able to handle the proposed projects with adequate supervision.

NEA will furnish all of the materials and will award labor only contracts. This reduces capital requirements and permits smaller contractors to participate. It will be incumbent upon NEA to demonstrate that risks are reasonable by:

- a. making construction materials available in a timely manner;
- b. paying contractor invoices promptly; and
- c. ensuring that field engineering is completed on a timely basis and accurately.

The Committee believes that NEA will have no difficulty in carrying out the above procedures and attracting at least six additional contractors into the field.

In order to initiate modern and efficient rural distribution construction practices on the two AID-financed pilot rural electrification

projects, NEA made available to the contractors two experienced U. S. construction experts for a limited time. NEA is prepared to offer this service to new contractors if it appears to be necessary.

Stage three--construction of secondary and service lines of core systems will be accomplished by force account by cooperative personnel. This procedure was followed on one of the AID-financed pilot projects and resulted in satisfactory construction. The amount of work involved can be performed by the cooperatives regular staff and completed in a timely manner to permit orderly energizing of the systems.

Some recent contractor and force account work has not been entirely satisfactory. NEA plans to remedy this by further intensive training and by making periodic field inspections.

Construction Schedule

<u>Cumulative Number of Coops</u>	<u>Starting Date of Each Increment of 3</u>	<u>Contractors*</u>	<u>Completion Date</u>
3	September 1974	<u>A<sub>1</sub>B<sub>1</sub>C<sub>1</sub></u>	April 1976
6	November 1974	<u>D<sub>1</sub>E<sub>1</sub>F<sub>1</sub></u>	June 1976
9	January 1975	<u>G<sub>1</sub>H<sub>1</sub>I<sub>1</sub></u>	August 1976
12	March 1975	<u>A<sub>2</sub>B<sub>2</sub>C<sub>2</sub></u>	October 1976
15	May 1975	<u>J<sub>1</sub>K<sub>1</sub>L<sub>1</sub></u>	December 1976
18	July 1975	<u>M<sub>1</sub>N<sub>1</sub>O<sub>1</sub></u>	February 1977
21	October 1975	<u>D<sub>2</sub>E<sub>2</sub>F<sub>2</sub></u>	May 1977
24	December 1975	<u>G<sub>2</sub>H<sub>2</sub>I<sub>2</sub></u>	July 1977
27	January 1976	<u>J<sub>2</sub>K<sub>2</sub>L<sub>2</sub></u>	August 1977
30	March 1976	<u>A<sub>3</sub>B<sub>3</sub>C<sub>3</sub></u>	October 1977
33	July 1976	<u>D<sub>3</sub>E<sub>3</sub>F<sub>3</sub></u>	February 1978
36	September 1976	<u>M<sub>2</sub>N<sub>2</sub>O<sub>2</sub></u>	April 1978
39	November 1976	<u>G<sub>3</sub>H<sub>3</sub>I<sub>3</sub></u>	June 1978

\*Each letter represents a contractor, subnumbers represent project for the contractor--e.g., A<sub>1</sub> represents contractor A, first project, A<sub>2</sub> represents contractor A, second project, etc.

B. Implementation Schedule

- |  |                    |
|--|--------------------|
| 1. Loan Authorization  | June 30, 1974      |
| 2. Loan Agreement Negotiated and Signed                              | August 15, 1974    |
| 3. Conditions Precedent to Opening<br>First Letter of Commitment Met | September 15, 1974 |
| 4. Approval of First Bid Package                                     | September 15, 1974 |
| 5. First Procurement Award   | December 15, 1974  |
| 6. First Delivery of Materials                                       | July , 1975        |
| 7. Begin Construction on Initial Coops                               | January , 1976     |
| 8. Completion Initial Coops  | August , 1977      |
| 9. Completion Final System   | June, 1978         |

C. Evaluation

During the negotiations of this loan it is planned that agreement be reached with NEDA and NEA to mutually develop within the following two months a plan for project evaluation. This will be formalized in the form of a covenant. During the time up to the negotiating sessions ASIA/CD will attempt to develop at least preliminary ideas on what an appropriate evaluation program should look like.

This evaluation could cover institutional, technical and economic aspects of the rural electrification program. It could be carried out at both the national level (National Electrification Administration) and the local level (the cooperatives).

The institutional aspects would cover the overall management of NEA and selected cooperatives. This would involve a review of training activities, engineering planning, record keeping, financial aspects, including rate structures, and procurement and warehousing.

The technical evaluation would cover primarily design and construction. This would be an extension of the pole by pole survey to be conducted as discussed in Section III paragraph C(3).

Developing an economic evaluation is more difficult. This would involve developing criteria for baseline data studies and their interpretation. This type of analysis should, however, attempt to establish the linkages between the rural electrification program and other development aims of the GOP.

The above program would apply primarily to loan 028 financed co-ops since construction of these is getting underway and data and results can be obtained sooner.

## VII. Conditions Precedent and Covenants

The proposed loan agreement will be a three party agreement between A.I.D., the GOP (Borrower) and NEA (Beneficiary). The conditions precedent and covenants therefore will apply to the Borrower or Beneficiary as appropriate in each individual case.

To the extent that there are specific terms and conditions that will apply to the individual cooperative systems themselves, these are provided for in the loan agreement between NEA and the individual electric cooperatives. A standard NEA sub loan agreement was developed under Loan 028 and has been reviewed and approved by AID.

### A. Conditions Precedent

The conditions precedent required of the Borrower and/or the Beneficiary in addition to the standard conditions precedent are as follows:

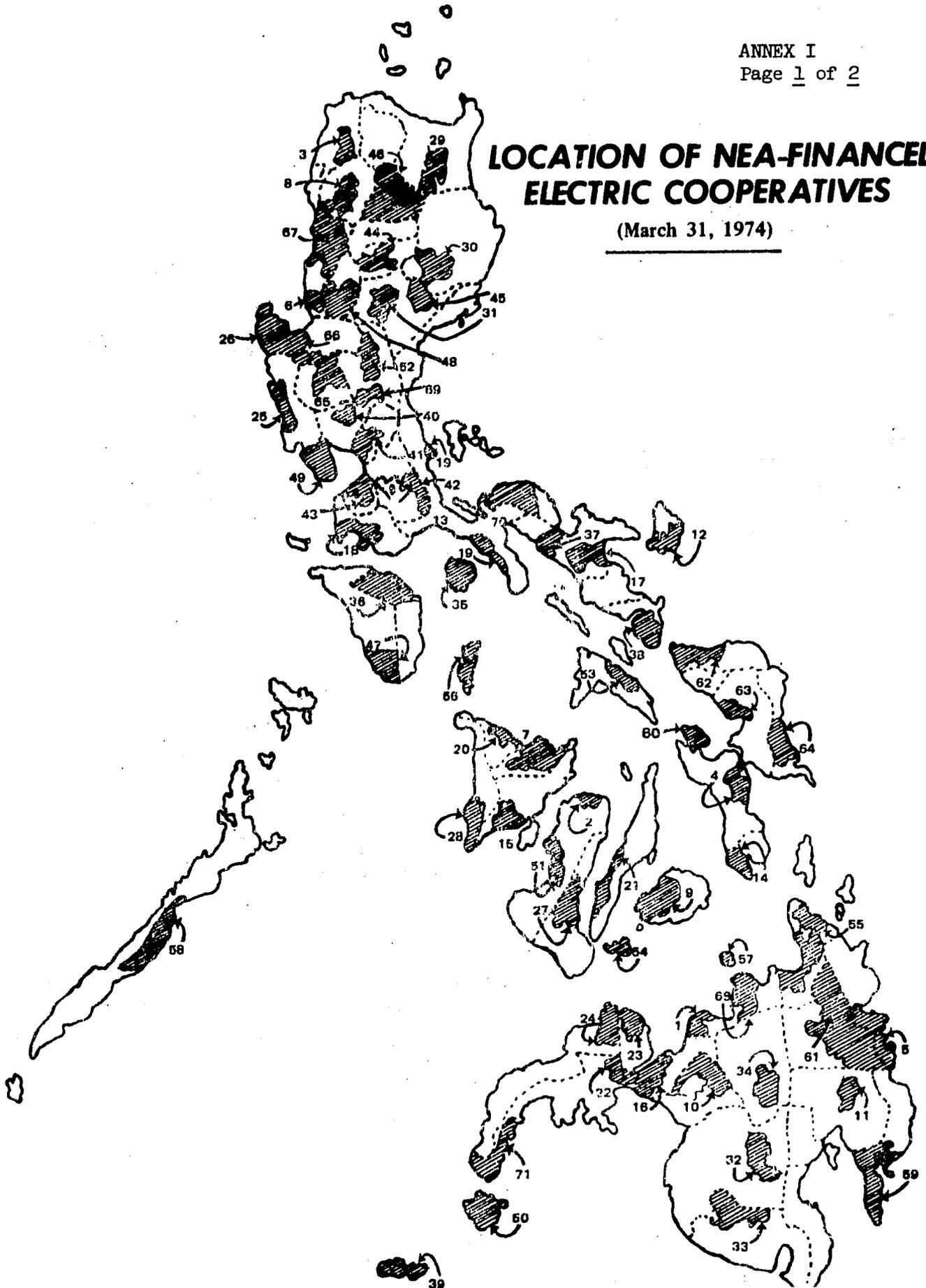
- (1) Beneficiary shall execute an amendment to its existing contract with Stanley Engineering, Inc., which shall provide for an expansion and extension of Stanley's services for an additional two years.
- (2) NEA shall provide AID with a formal rate policy statement approved by its Board of Administrators.
- (3) NEA shall provide AID with a revision of Policy Determination 301 of the Board of Administrators and which sets forth the Economic and Technical Parameters for qualifying electric cooperatives;
- (4) Beneficiary will provide AID with a procurement and warehousing plan setting forth the proposed delivery schedules and related warehousing and commodity handling plans for the proposed procurement;
- (5) NEA will review and update the Implementation Review of Approval Procedures checklist adopted by NEA and accepted by AID under loan 028 to demonstrate completion of all legal, technical, financial and organizational preconditions to approval of individual cooperatives to receive AID subloan. (See Annex VII)

### B. Covenants

- (1) GOP will covenant to relend proceeds of this loan to NEA on terms and conditions satisfactory to AID;
- (2) NEA will covenant that any commodities procured under this loan will not be released to individual electric cooperatives until after compliance with the requirements set forth in the revised implementation review and approval checklist and certification thereto by the Board of Administrators of NEA and the consulting engineers as appropriate. NEA shall also provide AID with a supporting updated feasibility study on each cooperative.
- (3) Within two months after the date of the loan agreement the Borrower and NEA will submit a plan and program for the evaluation of this project.

# LOCATION OF NEA-FINANCED ELECTRIC COOPERATIVES

(March 31, 1974)



LEGEND

Cooperative

1. MORESCO
2. VRESCO
3. Ilocos Norte
4. Leyte
5. Surigao Sur
6. La Union
7. Capiz
8. Abra
9. Bohol
10. Lanao Sur
11. Davao Norte
12. Catanduanes
13. Talim, Rizal
14. Leyte Sur
15. Iloilo
16. Lanao Norte
17. Albay
18. Batangas
19. Quezon
20. Aklan
21. Cebu
22. Zamboanga Sur
23. Misamis Occidental
24. Zamboanga Norte
25. Zambales
26. Pangasinan
27. Negros Oriental
28. Antique
29. Cagayan
30. Isabela
31. Nueva Vizcaya
32. Cotabato
33. Cotabato Sur
34. Bukidnon
35. Marinduque
36. Mindoro Oriental
37. Camarines Sur
38. Sorsogon
39. Sulu
40. Pampanga
41. Bulacan
42. Laguna
43. Cavite
44. Ifugao
45. Quirino
46. Kalinga-Apayao
47. Mindoro Occidental
48. Benguet

Cooperative

49. Bataan
50. Basilan
51. Negros Occidental
52. Nueva Ecija
53. Masbate
54. Siquijor
55. Surigao Norte
56. Romblon
57. Camiguin
58. Palawan
59. Davao Oriental
60. Biliran
61. Agusan Sur
62. Northern Samar
63. Western Samar
64. Eastern Samar
65. Tarlac
66. Central Pangasinan
67. Ilocos Sur
68. Misamis Oriental
69. So. Nueva Ecija
70. Camarines Norte
71. Zamboanga City
72. Sultan Kudarat
73. Maguindanao
74. Davao Sur
75. Agusan Norte

Philippine Model for the Development of Rural Electric Cooperatives  
Col. Pedro G. Dumol

General

1. An electric cooperative is above all a business entity. While it is true that a cooperative is established to provide service for its members, a cooperative can only provide such service that it can afford. It cannot continue providing service for its members if it is continually losing money in its operations.
2. Before any electric cooperative is formed, studies must be conducted to determine its feasibility. The cooperative must be able to collect sufficient revenue not only to cover its operating and administrative expenses; but it must have some margin to pay back its loan and to finance minor expansions of its system. The cooperative must of course provide adequate, reliable and low cost electricity on an "area coverage concept."
3. In the determination of the service area of a cooperative, the primary consideration is "size". The electric industry is highly sensitive to the economies of scale (the bigger the electric system the more efficient is its operations). The area to be serviced must be big enough that the revenue justifies the hiring of qualified managers and the setting up of a maintenance unit to insure reliable power.
4. The cooperative is also a social being. To succeed it needs the cooperation and assistance of its members. The members must believe that the cooperative belongs to them. In this respect the distance of the cooperative headquarters from its members is an important consideration. The cooperative, therefore, must not be too large so that the headquarters is not too remote from its farthest members.

The "Area Coverage" Concept

5. The "area coverage" concept in rural electrification simply stated means that the electric cooperative is bound to provide service to any person requesting connection within its service area. It must be emphasized, however, that while it is one of the primary goals of electric cooperatives to provide electric service to all the people living in its service area, the cooperative must construct lines to remote the sparsely populated areas at such a pace that the feasibility of the total system is not jeopardized. Lines to remote areas are generally uneconomical. The revenues from such lines are not sufficient to cover the cost of power, the administrative cost of reading the meters and collecting the bills, the maintenance cost and finally the amortization and interest on the lines themselves. These uneconomical lines will be built only when the "losses" from these lines can be offset by the profitable lines.

6. It may be argued that if these uneconomical lines are not built, the cooperative can reduce its rates; that the people in the poblaciones and the more densely populated areas are being made to subsidize the barrios. The argument can be refuted easily by the sociologist but there is an economic rationale for "area coverage". The economy of the urban centers is dependent upon the economy of the rural areas. If rural electrification will enhance the economic development of the barrios, then the income of the barrio people will increase and there will be an improvement in the economic activities in the poblaciones.

7. In the same manner it may be argued that the postal system is illogical in that it charges the same postage irrespective of the destination within the country. It costs the same to mail a letter from Quezon City to Manila as it does from Quezon City to a barrio in Cotabato. Certainly, the costs to the postal system of delivering these two letters are different and yet the postal system charges the same postage. The rationale is that communication is considered vital to our economic and social well-being and it will redound to the benefit of all if communication is encouraged among our people.

8. The lines to the barrios which now are uneconomical will, in a few years, become economical as the area develops. When this happens, these lines will help subsidize the construction of other lines until finally we have attained total electrification.

#### The Size of an Electric Cooperative Area

9. In general, a cooperative area should cover from 5-10 municipalities populated by some 100,000 - 200,000 people. The area must be contiguous and the dialect spoken similar. Furthermore, the farthest customer of the cooperative must not be more than 30 kms from the center of load of the system.

10. The criteria of 5-10 municipalities with a total population of from 100,000 - 200,000 people is primarily economic. Our initial feasibility studies indicated that this is an ideal size for the Philippines. On the other hand, the presence of industrial, commercial and agro-industrial loads in an area will permit the reduction of the required minimum size correspondingly.

11. That the area is contiguous and that the people there speak a common dialect is primarily a social consideration. People can be expected to cooperate better if they are near one another and if they speak the same language.

12. That the farthest customer will not be more than 30 kms from the load center is both an economic and social consideration. The distribution voltage for the cooperatives has been standardized at 13,800 volts and 30 kms is considered the maximum length for such distribution lines on the basis of

economics. Also, because of the condition of the roads and the transportation systems, 30 kms is considered the farthest distance a member should be from the cooperative headquarters.

#### Feasibility of a Cooperative

13. An electric cooperative is expected to lose money in the initial years of its operations. In general, however, its revenue after one (1) year of operation is sufficient to cover the cost of administration and operation. A cooperative to be "feasible", however, must generate enough revenue in its 7th Year to cover not only the cost of operation and administration but also the amortization on both capital and interest of its loan.

14. The seven (7) year constraint is in consonance with R.A. No. 6038 which limits the grace period for payment of loans of cooperatives to seven (7) years. It is believed that by the 7th Year the cooperative should have developed its "power use" programs so that the "non-lighting" load is substantial enough to make the system feasible.

#### The Phasing of Development of Cooperatives Within a Province, a Region or an Island

15. The over-all objective of the country is the attainment of total electrification. This implies that service will be provided to all persons desiring such service.

16. The following factors are mandatory in the attainment of total electrification:

- a. Establishment of island grids and the integration of power generation.
- b. The consolidation of electric distribution franchise areas.
- c. The adoption of the area coverage concept.

17. The cost of power in general, represents from 40-50% of the electric bill of a customer. The cost of power is highly sensitive to the economics of scale. The bigger the plant, the lower is the cost of generating one (1) kilowatt-hour of electricity. The integration of power generation also reduces to a minimum the total spare capacity required in the system.

18. The distribution of electricity is also sensitive to the economics of scale. The construction and maintenance of lines can be better planned and programmed when the service area is large and not constrained by political boundaries. Like power generation, big distribution systems can afford more capable management that can program expansion and maintenance requirement. Hence we can expect large systems to provide adequate, reliable and low cost power.

19. Unless the area coverage concept is adopted, total electrification will take a long, long time to attain if it can be attained at all. If lines to sparsely populated areas will be constructed only when such lines are by themselves economically feasible, the distribution franchise operators must wait until the area is developed before they will extend service to the area. The distribution franchise operators, however, should build these lines as soon as the losses from them can be reasonably absorbed by the profitable lines.

20. With the above concepts in mind, the following are the accepted policies in the phasing of construction of cooperatives within a province, a region or an island.

- a. The initial cooperatives to be formed will be developed in such a manner that it will fit into the over-all plan for the electrification of the province, region or island.
- b. The cooperative area as much as possible will represent the area to be serviced by a load center of the grid. This implies that plans should now be prepared for such island grids and the location of their load centers identified.
- c. For cooperatives that will initially generate their own power, the cooperatives relatively close to one another should try to share a power plant as much as possible. For example, the power plant for Capiz should serve not only Capiz but also Aklan. The power plant for Iloilo should, in addition, serve Antique. This also implies that the transmission lines from Capiz to Aklan and from Iloilo to Antique must be so designed as to ultimately form part of the Panay Island Grid.
- d. The NPC has adopted a policy of providing service only at 69 kv or higher. This policy greatly enhances the consolidation of small franchise systems that can be served by a load center.

#### The Phasing of Construction of Lines Within a Cooperative Area

21. While the feasibility study and the Architectural and Engineering plans of the electric system of a cooperative include lines thru the poblaciones and all the barrios, these lines will not be constructed at the same time. The lines will be constructed by phases.

22. The first phase shall be the construction of the lines within the poblaciones and the main lines (trunk lines) connecting the poblaciones with the power plant or substation. Phase one (1) must be so implemented that once sections of the line are completed, they may be energized immediately. Construction, therefore, should start from the power plant/substation leading out.

23. In general, phase one of the project will be constructed by contract. The NEA/cooperative will furnish the materials including the poles. The contractor shall construct the distribution lines (both primary and secondary) while the cooperative shall install the service drop and the housewiring by forced account.
24. To insure the early utilization of completed distribution lines, the cooperatives must synchronize their construction with that of the contractor. The cooperatives must form service-drop/housewiring teams.
25. The extension of lines to densely populated barrios should be done after phase one (1) has been completed or even just before phase one is completed. This will be undertaken by force account. The cooperative must form distribution line teams. It would be desirable if the linemen trained by NEA/NPC/NMYC be initially employed by the contractor of phase one (1) and as phase one (1) means completion, these linemen will be able to form the Cooperative Distribution Teams.
26. The criteria for the priority of construction is discussed in detail on page 6. As soon as the construction of phase one (1) is started, the cooperative will initiate the establishment of a priority for the construction of the subsequent lines. From this priority list NEA will approve the lines to be included in phase two (2). As soon as phase two (2) is started, the cooperative shall submit their priority for phase three (3), etc. To insure an orderly implementation of the different phases of construction, materials, labor, equipment and funds must be available to the cooperative at the right time and in the right quantity. NEA and the cooperative must agree on the priority list early enough to provide sufficient time for planning, ordering of materials and equipment, funding and finally organizing for construction.

Priority of Lines for Phase Two (2) and the Subsequent Phases

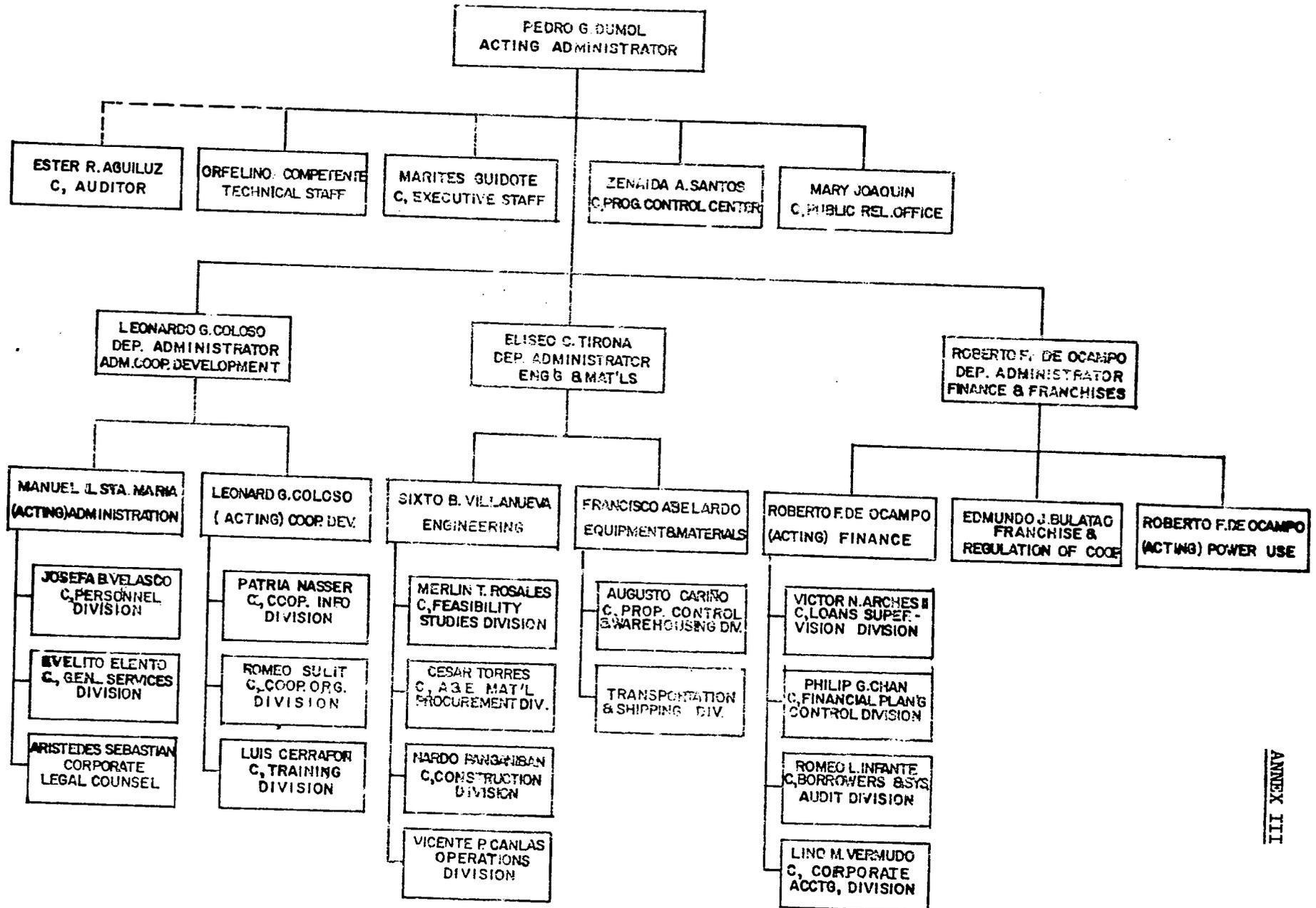
27. As soon as phase one (1) has been started, the cooperative should start on the preparation of a priority list for the construction of lines for inclusion in phase two (2).
28. Each line (lateral) extension to a barrio or group of barrios must be analyzed in terms of the following:
- a. right of way
  - b. economic and social factors including:
    - (1) number of houses that will actually be served
    - (2) the electric motor loads such as irrigation pumps
    - (3) the length of the line in kms.

29. No line will be approved for construction during phase two (2) unless its right of way (ROW) has been cleared. The people who will be supplied by a line shall have the primary responsibility for securing the ROW. Furthermore, of the lines considered for construction in phase two (2), priority will be given to lines that will supply more houses and/or house equivalent per km of line.
30. The number of houses to be served pertains only to those houses that are wired or will be wired before the service drops are installed. The number of house equivalent refers to existing motor loads or motor loads that will be installed before the service lines are constructed. In this connection, a 1 Hp motor is equivalent to 5 houses.
31. Each line, therefore, will be rated in terms of houses per km and the lines with the higher index will have higher priority in construction. The determination of the index number (N) may be expressed in the following formula:

$$N = \frac{H+H_E}{L}$$

where, H is the number of houses  
H<sub>E</sub> is the number of house equivalent  
of the motor load and  
L is the length of the line in kms.

**NATIONAL ELECTRIFICATION ADMINISTRATION  
PLANTILLA PICTURE**



**TRAINING DIVISION  
STATUS OF TRAINING ACTIVITIES  
AS OF MARCH, 1974**

ANNEX IV  
Page 1 of 2

PROVINCE	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1 MORESCO				MAR3	MAY3				JUL3				APR2	JAN4
2 VRESCO				MAR3	MAY3				JUL3					JAN4
3 ILOCOS NORTE	OCTO	JAN2	APR2	MAR3	MAY3	FEB2	DEC2		JUL3	JUN2				
4 LEYTE	OCTO	MAR2	APR2 DEC2	MAR3		MAY2	JUN3	MAR3			AUG2			JAN4
5 SURIGAO SUR	OCTO	APR2	APR2	MAR3	MAY3	FEB2	JAN3		JUL3		AUG2			
6 LA UNION	DECO	JAN2	APR2	MAR3	MAY3	APR2	JAN3		JUL3	JUN2	AUG2		APR3	
7 CAPEZ	DECO	JAN2	JUN2	MAR3	MAY3	JUN2	MAR3	MAR3	JUL3		AUG2	OCT3		
8 ABR4	MAR1	MAY2	JUN2	OCT2	MAY3	FEB3	JUL3		JUL3	JUN2			APR3	
9 BOHOL	DECO	FEB2	JUN2	OCT2	MAY3	JUN2	JUL3	MAR3	JUL3					JAN4
10 TANAO SUR	OCTO	APR2	JUN2	MAR3	MAY3	SEP2	MAR3		JUL3				APR2	
11 DAVAO NORTE	MAR1	APR2	JUN2	OCT2	MAY3	AUG2	SEP2		JUL3	JUN2			APR2	
12 CEBU NORTE	MAY1	MAR2	JUN2	MAR3	MAY3	AUG2	AUG3	MAR3	JUL3				APR3	JAN4
13 TIGAYAN	OCTO	MAR2	JAN2	APR4		FEB2	NOV3							
14 LEYTE SUR	DECO	MAR2	APR2	MAR3	MAY3	MAR3	SEP3	MAR3	JUL3					JAN4
15 ILOILO	OCTO	JUN2	SEP2	OCT2	MAY3	JUL3	OCT3	MAR3	JUL3	JUN2				JAN4
16 DAVAO SUR	MAR1	SEP2	SEP2	OCT2	MAY3	JUL3	OCT3		JUL3					JAN4
17 CEBU SUR	DECO	DEC2	MAR3	OCT2	MAY3	MAY3	AUG3		JUL3	JUN2				JAN4
18 BUENAVISTA	DECO	AUG2	SEP2	OCT2	MAY3	OCT3	DEC2		JUL3					JAN4
19 QUEZON	MAR1	AUG2	SEP2	OCT2	MAY3	OCT2	NOV2		JUL3	JUN2				JAN4
20 SAMAOL	MAR1	JUN2	SEP2	OCT2	MAY3	MAR3	NOV3		JUL3					JAN4
21 CEBU	DECO	JUN2	SEP2	OCT2	MAY3	JUL3	JAN4		JUL3	JUN2				JAN4
22 ZAMBOANGA SUR	DECO	OCT2	DEC2	MAR3	MAY3	OCT3			JUL3				APR3	JAN4
23 MISAMIS OR	MAR1	DEC2	MAR3	MAR3	MAY2	SEP2			JUL3	JUN2				
24 ZAMBOANGA NORTE	MAY1	OCT2	DEC2	MAR4	MAY3	NOV3			JUL3	JUN2				
25 ZAMBOANGA	MAR1	OCT2	DEC2	OCT3	MAY3	NOV3	DEC3		JUL3				APR3	JAN4
26 PANAY	MAR1	FEB3	MAR3	OCT2	MAY3	FEB4	FEB4		JUL3	JUN2				JAN4
27 NEGROS OR	MAR1	SEP2	DEC2	OCT3	MAY3	FEB4	FEB4		JUL3					JAN4
28 ANTIQUE	MAR1	JAN3	MAY3	OCT3	MAY3	JAN4	FEB4		JUL3					JAN4
29 CAGAYAN	OCTO	OCT2	FEB4	MAR4					JUL3					
30 ISABELA	MAR1	SEP2	FEB4	OCT3					JUL3					
31 NUEVA VIZCAYA	MAR1	OCT2	FEB4	MAR4					JUL3					
32 COTABATO	MAY1	OCT2	DEC2		MAY3				JUL3					
33 COTABATO SUR	OCTO	AUG2	JUN2	MAR4	MAY3				JUL3					
34 BUTUAN	MAR1		SEP2	DEC2	MAR4	MAY3			JUL3					
35 MARINDUQUE	MAY1	AUG3	JUN3	OCT3					JUL3					

- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>1 - PECP Seminar</li> <li>2 - DEC Phase I (Orientation-Briefing)</li> <li>3 - Co-op Management Course</li> <li>4 - Co-op Accounting Course</li> <li>5 - Gen. Managers Conference</li> <li>6 - Linemen Course</li> <li>7 - Barrio Electricians Course</li> <li>8 - Plant Operators Course</li> </ul> | <ul style="list-style-type: none"> <li>9 - Annual Conference - Workshop for Presidents &amp; Gen. Managers</li> <li>10 - Rural Broadcasters Course</li> <li>11 - Inspectors Course</li> <li>12 - Dec Phase II ("Gitnayan")</li> <li>13 - Conus Observation - Tour</li> <li>14 - Seminar on the Administration of Construction by Force Account</li> </ul> |
|--|---|



NEA'S TRAINING ACTIVITIES

(By Type of Program, as of March 31, 1974)

PROGRAM	Training Period (days)	Times Offered	Number of Participating Coops.	Number of Persons Trained
I. For Cooperatives Development				
A. Organization:				
1. Provincial Electric Cooperative Team (PECT) Seminar Workshop	11	6	71	322
2. District Electrification Committee (DEC) Phase I Orientation Workshop	3	43	43	2,616
3. District Electrification Committee (DEC) Phase II Orientation Workshop	3	1	1	31
B. Management:				
1. Cooperative Management Course	8	8	62	398
2. General Managers Conference	3	1	32	32
3. Annual Conference-Workshop for Presidents and General Managers of Rural Electric Cooperatives	6	1	43	79
4. Seminar on the Administration of Construction by Force Account and Session on PERT/CPM	8	1	38	84

C. Office Operation				
1. Cooperative Accounting Course	13	3	59	105
2. Inspectors' Course	2	1	4	25
D. Technical Training:				
1. Linemen Training Course	30	29	29	763
2. Barrio Electrician Course	21	29	29	1,257
3. Plant Operators Course	22	1	6	24
4. Rural Broadcasters Council Seminar-Workshop	4	1	8	68
II. NEA In-Service Training				
1. Staff Orientation Seminar on the Rural Electrification Program for Middle Management Personnel of NEA	8	1		42
2. Seminar-Workshop on Contract Administration of NEA Middle Management Personnel	25	1		30
3. Seminar on Feasibility Study Preparation of NEA Personnel	4	1		40
4. Trainors Training for Linemen Course	35	2		10
5. Skills Training for Drivers	5	2		32

6. NEA inspectors Orientation Course on Pole Preservation Processing	2	1			11
7. In-Service Training for NEA Personnel (non-supervisory)	6	1			48
8. Personnel Development Institute	6	2			65
9. Annual Convention of the Philippine Society for Training Development	4	1			2
10. Seminar on the Review of Engineering and Construction Materials	2	1			87
11. Lecture-Seminar on Records Management	3	1			60
12. Skills Training for Janitors and Messengers	3	1			13
13. CONUS Observation Safety	12 weeks	3		8	29
14. First Industrial Safety Seminar for NEA Supervisors	4	1			36

Background

The Sangley Point Naval Air Station was transferred to the Philippine Government by the United States in July 1971. Shortly thereafter, negotiations began on an agreement between the Armed Forces of the Philippines and NEA to enable NEA to use the base for storage for material and equipment. The agreement was signed January 13, 1972.

The NEA/AFP agreement provides that NEA will provide support equipment for the base operation such as forklifts, trucks and cranes. The AFP is to provide all personnel to handle off-loading, storage out shipping. It was also intended that the AFP would handle all record keeping to fully account for receipts, inventory, and releases. (This latter function was poorly administered and NEA slowly took over the activity). The Armed Forces handle all security.

NEA's first shipload of excess material and equipment arrived at Sangley from Vietnam late in 1971 and on December 29, 1971 a formal turnover ceremony was held with NEDA Director Sicat representing the Philippine Government and Director Niblock representing AID.

Current Activities

NEA has one representative at Sangley to generally monitor all receipts, storage and disbursement of NEA property. He is assisted considerably by AID representatives, although AID's participation at Sangley is officially limited to the Provincial Development excess property program.

All of the official records are maintained at the NEA headquarters at

Quezon City, where responsibility for equipment and material is divided between the Property Control and Warehousing Division and the Loans Supervision Division (accounting).

When a shipment of goods is received at Sangley a full inventory is made on the spot. The records are then transferred to NEA headquarters where disposition of individual items to the cooperative is decided. Arrangement for shipping are made and the particular cooperative is charged for the item. Withdrawal orders are then issued to the NEA representative at Sangley who releases the item to the shipper. Where rehabilitation is required it is performed after removal from Sangley and before transshipment to the cooperative.

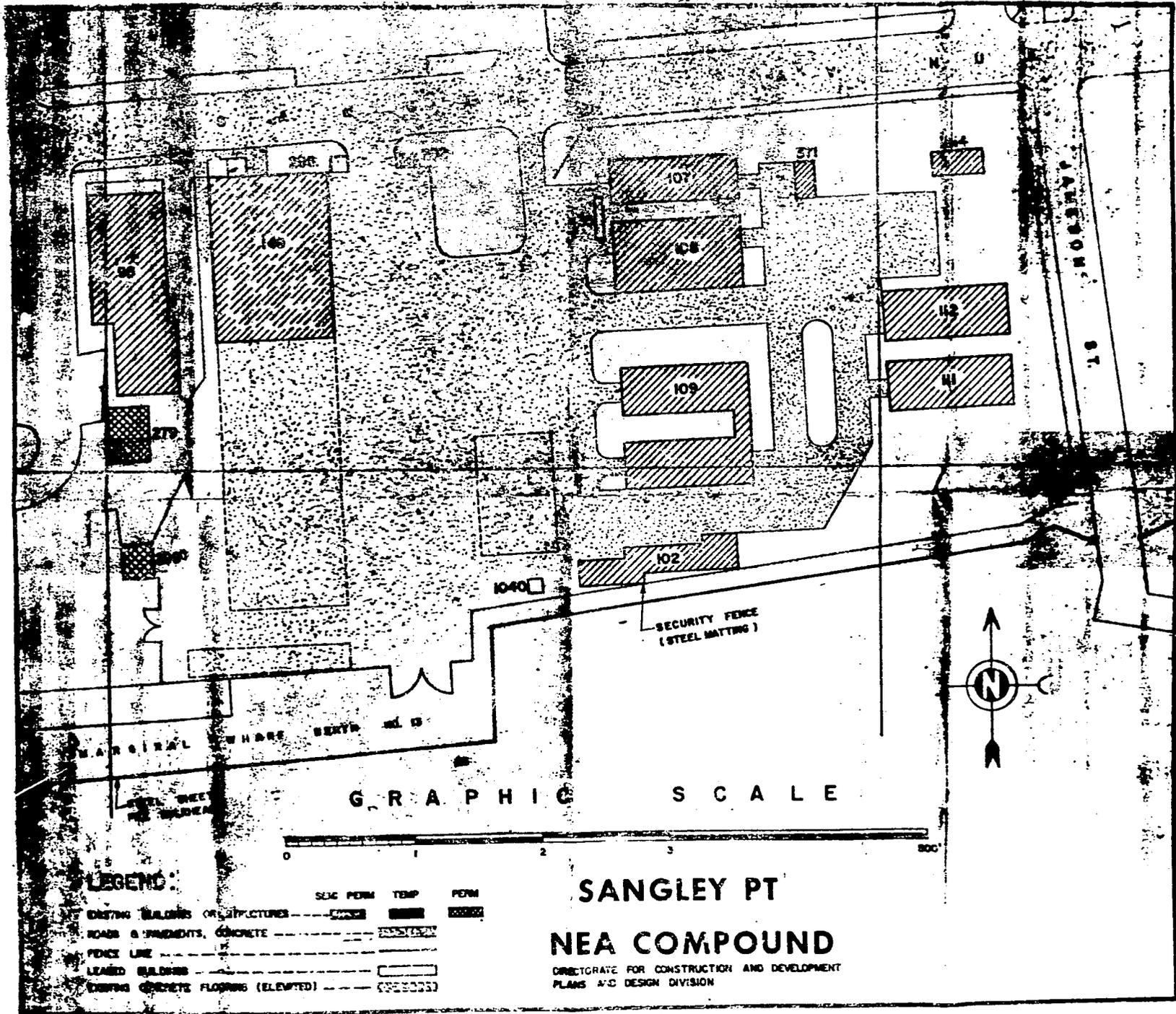
Approximately 20,000 tons of material and equipment have been handled by NEA AND AFP at Sangley. Excess property comprises most of the goods with the balance being Japanese Reparations.

#### Future

Throughout this growing period of the use of Sangley as a storage and transshipment operation, many changes have occurred. Several government agencies have taken advantage of the location and NEA, being the first to utilize the facility, has had to make many changes. It is now permanently located as shown on the attached drawing. This location is ideally situated for receiving and delivery material at dockside and for similar handling where ground transportation is used (Sangley Ave.) Whenever new material being procured under the AID loan cannot be handled immediately by a cooperative, NEA plans to store it at Sangley. The principal warehousing and transshipment of AID financed goods, however,

will occur at three warehouses located at North Harbor, Manila. These warehouses are owned by the National Power Corporation.

The full warehousing system will be assisted by a materials and warehousing specialist who is to be added soon under the contract with Stanley Consultants, Inc.



**LEGEND:**

EXISTING BUILDINGS OR STRUCTURES	SLIC PERM TEMP PERM	PERM
ROADS & DRIVEWAYS, CONCRETE	---	---
FENCE LINE	---	---
LEAVED BUILDING	---	---
EXISTING CONCRETE FLOORING (ELEVATED)	---	---

**SANGLEY PT  
NEA COMPOUND**

DIRECTORATE FOR CONSTRUCTION AND DEVELOPMENT  
PLANS AND DESIGN DIVISION

IMPLEMENTATION REVIEW AND APPROVAL PROCEDURE  
TO INSURE COMPLIANCE WITH POLICY NO. 301

INTRODUCTION

The NEA Board of Administrators in Policy No. 301 established the economic and technical standards by which NEA will determine whether a rural electric cooperative applying for GOP assistance shall be qualified for such assistance under the provisions of AID Loan No. 492-H-028. Said Policy No. 301 makes the Administrator responsible for developing an implementation review and approval procedure that will insure compliance with the provisions stated therein.

In compliance with the above-mentioned Policy No. 301, NEA hereby establishes a review and approval procedure to insure that only qualified electric cooperatives shall receive loans from AID-provided funds.

DEFINITIONS

The terms "Board," "Administrator," "Consultant," and "Applicant Cooperative," as used herein, unless otherwise defined, shall mean the NEA Board of Administrators, the NEA Administrator, the Consulting Engineer contracted by NEA per provisions of AID Loan No. 492-H-027, and the Electric Cooperative applying for financial assistance under the provisions of R.A. No. 6038, respectively.

PROCEDURE

1. Before any applicant cooperative can be granted financial assistance by NEA, such cooperative must show legal, technical, financial and organizational soundness. To insure sufficient and uniform evaluation of all applicant cooperatives on these aspects, the checklist shown in Inclosure 1 hereof shall be used.
2. For each applicant coop that satisfies the requirements indicated in the Checklist, the Administrator shall recommend certification by the Board to the effect that the criteria stated in Section 3.2(a), (3) of the Loan Agreement for AID Loan No. 492-H-028 have been met. The format shown in Inclosure 2 hereof may be used for the Administrator's recommendation.

3. The Administrator shall attach to the above-mentioned recommendation the following:
  - a. Checklist
  - b. A certification of the Consultant as shown in Inclosure 3 hereof.
  
4. Approval by the Board of the Administrator's recommendation shall be indicated in the certification form shown in Inclosure 4. This certification shall be signed by the Board Chairman or his duly designated representative. This certification along with the Consultant's certification (Inclosure 3) shall be transmitted direct to AID.

Inclosures:

1. Checklist
2. Administrator's recommendation to the Board
3. Certification of Engineer Consultant
4. Certification of the Board

C H E C K L I S T

EVALUATION OF LEGAL, FINANCIAL, TECHNICAL  
AND ORGANIZATIONAL SOUNDNESS OF ELECTRIC  
COOPERATIVES

- | <u>I. LEGAL</u>   | <u>Yes</u> | <u>No</u> |
|---|------------|-----------|
| a. Cooperative is legally incorporated and registered.  |            |           |
| b. Cooperative is clear of any encumbering lawsuits or other legal restraints.  |            |           |
| c. Cooperative has an executed loan contract with NEA which, as a minimum, covers these points:   |            |           |
| 1. Establishes service area.  |            |           |
| 2. Establishes loan and grant limits, purposes and repayment schedules and conditions.  |            |           |
| 3. Establishes NEA rights of review, audit, appraisals and approvals.   |            |           |
| 4. Establishes framework for compliance with NEA's requirements for engineering, construction, materials, operations, maintenance, management, reports, financial and materials controls, equity, membership, borrowing, relending.   |            |           |
| 5. Designates NEA as its agent to procure materials for the initial project for which the first loan is made; to select required engineering services; to evaluate and select construction services; and to evaluate, approve and supervise any force account construction. |            |           |
| d. Cooperative has adopted and NEA has approved any wholesale power purchase agreements and retail rate schedule.   |            |           |
| e. Cooperative has proof of issuance of Certificate of Public Convenience and Necessity.  |            |           |
| f. Cooperative has accomplished Deed of Mortgage and Promissory Note preliminary to first release of project loan.  |            |           |

II. FINANCIAL

Yes      No

- a. GOP and NEA have committed a plan of allocation and made available to the cooperative pesos pro rata to USG PL 480 peso contribution adequate to complete the cooperative project.
- b. Cooperative has received and has available or is receiving materials allocated to the cooperative by NEA sufficient to complete the project from any or all of the following sources:
  - AID loan
  - Japanese reparations
  - Excess property
  - Philippine sources
- c. Cooperative has functioning an adequate system of controls and accountability covering
  - Member's deposits
  - Materials warehousing, inventory and issuance
  - Basic property accounting
- d. Cooperative project as currently defined has had the determinations made by the Philippine engineer and certified to by the U.S. Consultant as outlined in "Technical" below.
- e. Cooperative or NEA has . . . a qualified Philippine engineer acceptable to NEA performing all necessary engineering work under contract.

III. TECHNICAL

- a. The Philippine Engineer has completed and the US Consultant has certified as adequate for the purposes below Preliminary Plans & Specifications.

YesNo

- b. Philippine Engineer has submitted and the U.S. Consultant has certified as reasonable and adequate for proceeding with the cooperative project the following:
1. New estimated total project cost.
  2. New estimated cost of operation, maintenance, administration, and management of the total project.
  3. New estimated project, engineering, materials, procurement, construction and energization schedule (CFM, PERT or equivalent).
  4. Bill of Materials currently available and cooperative management control.
  5. Bill of Materials, and schedule thereof, to be turned over by NEA to the cooperative.
  6. Bill of Materials to be purchased in U.S., in Code 941 countries and in Philippines.
- c. Philippine Engineer has completed and submitted on basis of Preliminary Plans & Specifications all items covered under "Technical", and the U.S. Consultant has certified as to adequacy, correctness and appropriateness in support of further financing of the cooperative project -
1. That the project is now technically sound and economically feasible;
  2. That the financial projections--both on cash flow and accrual basis-- has been completed and supports this determination;
  3. That the Cooperative Board has set the retail rate adequate to achieve these projections;
  4. That the Cooperative Board of Directors has negotiated a wholesale power procurement contract or has approved the Engineer's determination of self-generation cost which will support these projections.

Yes      No

- d. Philippine Engineer has determined and U.S. Consultant has certified that current construction capabilities do and are expected to continue to exist which will result in competitive, timely, economical construction in keeping with the standards and specifications established by NEA.
- e. U.S. Consultant and Philippine Engineer have certified that there is an adequate reasonably priced power supply for the cooperative.

IV. COOP ORGANIZATION

- a. NEA has determined and certifies that an effective Board of Directors is functioning and undergoing development training.
- b. NEA has determined and certifies that the Board of Directors has selected and NEA approved a qualified manager who is now functioning effectively and is undergoing development training.
- c. NEA has determined and certifies that there exists local, community and provincial support adequate to assume successful implementation of the cooperative.

**NATIONAL ELECTRIFICATION ADMINISTRATION**  
BALANCE SHEET  
March 31, 1974

**A S S E T S**

**Current Assets -**

Cash on Hand	P	8,945.13
Cash in Bank - DBP		34,514,052.32
Cash in Treasury		422,786.09
DBP Fund Trustee Accounts		24,382,807.45
NEA Trust Fund		1,570,955.42
Loans Receivable		8,993,111.26
Loans Receivable-Cooperatives	P	493,576.95
Loans Receivable-Private Franchises		5,639,492.40
Loans Receivable-Municipal System		<u>4,000,042.03</u>
Due from Officers & Employees		226,929.17
Due from Government Agencies		4,006.20
Accrued Interest Receivable		381,705.53
Equipment & Electrical Materials Inventory		18,676,795.06
Prepaid Expenses		9,192.74
Deposit on Letters of Credit		<u>1,609,147.65</u>

Total Current Assets -

P 90,688,334.02  
131,231,389.73

Long-Term Loans Receivable

Property Plant & Equipment

Land	P	25,000.00
Office Furniture & Equipment	P	469,802.84
Less: Accumulated Depreciation		<u>192,592.20</u>
Transportation Equipment	P	99,130.00
Less: Accumulated Depreciation		<u>36,036.25</u>
Electric Plant & Equipment	P	95,035.00
Less: Accumulated Depreciation		<u>5,362.50</u>
Other Property Plant & Equipment	P	22,347.00
Less: Accumulated Depreciation		<u>6,860.10</u>

Total Property Plant & Equipment -

400,131.85

Unamortized Development Cost

5,222,956.46

Government Project Cost

294,152.74

Total Assets -

P225,916,963.80

**LIABILITIES & CAPITAL**

**Current Liabilities -**

Interest Payable - USAID Loan	P	16,472.17
Accounts Payable - General		730,551.48
Retentions Payable		802,629.24
Withholding Tax Payable		190,840.39
Due to Government Agencies		1,542.64
Other Current Liabilities - DBP Fund Trustee		<u>24,382,807.45</u>

Total Current Liabilities -

P 26,124,823.37

Long-Term Debt

2,242,469.45

Unearned Revenue

355.54

Capital Stock

82,328,580.47

Paid-In-Capital

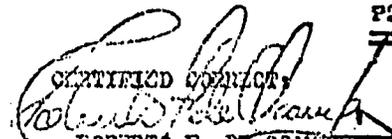
( 240,508.73)

Retained Earnings

115,461,243.90

Donated Capital

P225,916,963.80

  
 CERTIFIED CORRECT  
 ROBERTO F. DE OCMPO  
 Deputy Administrator for  
 Finance & Franchises  
 pr

**FUND DISBURSEMENTS BY COOPERATIVES**  
(As of December 31, 1973)  
(in thousand pesos)

ANNEX X

<u>Cooperatives</u>	<u>Prior to FY 1973</u>	<u>FY 1973</u>	<u>1st &amp; 2nd Quarters FY 1974</u>	<u>Total</u>
3. Ilocos Norte	58	883	1,251	2,162
4. Leyte	117	1,321	3,682	5,120
5. Surigao Sur	141	297	1,109	1,547
6. La Union	28	491	531	1,048
7. Capiz	116	1,601	3,027	4,744
8. Abra		199	736	935
9. Bohol		157	328	485
10. Lanao Sur		302	779	1,031
11. Davao Norte		303	93	396
12. Catanduanes		178	122	300
13. Palim, Rizal		23	17	40
14. Leyte Sur		135	38	193
15. Iloilo		189	33	222
16. Lanao Norte		193	163	358
17. Albay		62	486	548
18. Batangas		42	67	109
19. Quezon		29	119	148
20. Aklan		41	231	272
21. Cebu		141	94	235
22. Zamboanga Sur		81	180	261
23. Misamis Occidental		85	66	151
24. Zamboanga Norte		175	50	225
25. Zambales		124	228	352
26. Pangasinan		11	113	124
27. Negros Oriental		32	102	134
28. Antique		18	27	45
29. Cagayan			36	36
30. Isabela			92	92
31. Nueva Vizcaya			48	48
32. Cotabato		38	18	56
33. Cotabato Sur		12	12	24
34. Bukidnon		21	8	29
35. Marinduque			372	372
36. Mindoro Oriental			27	27
37. Camarines Sur		13	33	46
38. Sorsogon			26	26
39. Sulu			12	12
40. Pampanga			1,189	1,189
41. Bulacan			2,069	2,069
42. Laguna			650	650
43. Cavite			1,342	1,342
44. Bataan			114	114
<b>TOTAL</b>	<b>458</b>	<b>7,169</b>	<b>19,740</b>	<b>27,367</b>

**FUND DISBURSEMENT BY PURPOSE**  
 (As of December 31, 1973)  
 (in thousand of pesos)

ANNEX XI

<u>Description</u>	<u>Prior to FY 1973</u>	<u>FY 1973</u>	<u>1st &amp; 2nd Quarters FY 1974</u>	<u>Total</u>
<b>GENERAL PLANT</b>				
1. Land		215	161	376
2. Site Improvement		189	11	200
3. Multi-purpose building		207	10	217
4. Headquarters, warehouse, other facilities		192	2,499	2,691
5. Materials Inventory and Fuel Stock		24	179	203
6. Working Capital		1,042	2,377	3,419
7. Office		241	140	381
8. Communication equipment			3	3
9. Transportation equipment		128	105	233
10. Tools and equipment		37	91	128
<b>GENERATING PLANT</b>				
1. Equipment			184	184
2. Power house and installation		192	1,641	1,833
<b>SUBSTATION</b>				
1. Equipment			77	77
2. Labor		18	58	76
<b>TRANSPORTATION AND DISTRIBUTION</b>				
1. Poles and other wood materials		456	2,221	2,786
2. Insulators, hardwares, street lights		9	503	512
3. Distribution transformers			921	921
4. Wires		1,708	2,628	4,396
5. Service drop materials and meters			1,175	1,175
6. Sectionalizers				
7. Labor		7	388	395
8. Right-of-way clearing		28	94	122
HOUSE WIRING		50	585	635
ENGINEERING SERVICES	485	2,156	3,226	5,840
IN-COUNTRY MATERIALS HANDLING		82	139	221
MISC. AND CONTINGENCIES		79	264	343
<b>TOTAL</b>	<b>485</b>	<b>7,169</b>	<b>19,740</b>	<b>27,367</b>



Cooperatives	Fund- ing 1/	Feasi- bility Study	Co-op Regis- tered	Amount of Loan P M	A&E Firm 2/	Under Construc- tion	Consumers Served
44. Ifugao	C	x					
45. Quirino	E	x					
46. Kalinga-Apayao	E	x					
47. Mindoro Occidental	E	x					
48. Benguet	D	x	10/73		TAP		12,066
49. Batangas	D	x	8/73	5.5	TAP		5,394
50. Basilan	E	x					
51. Negros Occidental	E	x					
52. Nueva Ecija	E	x					
53. Masbate	F	x					
54. Siquilim	E	x					
55. Surigao del Norte	C	x					
56. Romblon	E	x					
57. Carigara	E	x					
58. Polillo	C	x	1/74				
59. Davao Oriental	C	x					
60. Zamboanga	E	x	7/73				
61. Agusan Sur	C	x					
62. Northern Samar	E	x					
63. Eastern Samar	C	x	2/74				
64. Southern Samar	E	x					
65. Tarlac	D	x					
66. Central Pangasinan	D	x					
67. Ilocos Sur	D	x	1/70				
68. Ilocos Oriental	E	x					
69. Sta. Nueva Ecija	E	x	11/73		EDCOP		10,692
70. Camarines Norte	C	x					
71. Zamboanga City	D	x	2/74		AWIA		
72. Sultan Kudarat	C	x					
73. Benguet	C	x					
74. Davao Sur	C	x					
75. Agusan Norte	C	x					
<b>TOTAL</b>		<b>75</b>	<b>51</b>		<b>38</b>	<b>11</b>	<b>118,013</b>

1/ Funding

- A. Previous AID Loans - 2  
 B. AID Loan 492-H-028 -24  
 C. Eligible for FY 1974 Proposed Loan - 2?  
 D. Primarily Local currency - 12  
 E. Future - 14

2/ Architectural and Engineering Firms

- AWIA - Adrian Wilson Int.  
 EDCOP - Engr. Dev. Co. of the Philippines  
 DCCD - Design, Construction, Coordination and Development  
 TAP - Trans Asia of the Philippines  
 AFP - Armed Forces of the Philippines

CONSTRUCTION CONTRACTS -- STATUS OF WORK

I. Status of construction work - headquarters facilities:

<u>Project</u>	<u>Contractor</u>	<u>Date Bid</u>	<u>Start of Construction</u>	<u>Percent Completion</u>
1. MORESCO				(Completed)
2. VRESCO				(Completed)
3. Ilocos Norte	JPD Const.	May 31, 1973	Jun. 15, 1973	72
4. Leyte	United Const.	Mar. 8, 1973	Jun. 1, 1973	76
5. Surigao Sur	EC Estrella	Jun. 19, 1973	Aug. 1, 1973	27
6. La Union	SD Flores	Jun. 14, 1973	Sept. 10, 1973	29
7. Capiz	JV Angeles	Mar. 8, 1973	May 7, 1973	98
8. Abra	SD Flores	Aug. 16, 1973	Sept. 1, 1973	28
9. Bohol 1/		Aug. 9, 1973		
10. Lanao Sur	Edmar Const.	July 26, 1973	Sept. 15, 1973	5
11. Davao Norte	GM Ticugco	Sept. 25, 1973	Nov. 2, 1973	
14. Leyte Sur 1/		Sept. 28, 1973		
16. Lanao Norte 2/	EC Estrella	Oct. 26, 1973		
21. Cebu 3/		Dec. 14, 1973		

II. Status of construction work transmission, distribution, substation:

<u>Project</u>	<u>Contractor</u>	<u>Date Bid</u>	<u>Start of Construction</u>	<u>Percent Completion</u>
1. MORESCO				(Completed)
2. VRESCO				(Completed)
3. Ilocos Norte	Citation Eng'g	May 31, 1973	July 9, 1973	48
4. Leyte	Citation Eng'g	Mar. 8, 1973	Jun. 18, 1973	39
5. Surigao Sur	Audion Elec.	Jun 19, 1973	Aug. 1, 1973	12
6. La Union	Electromechanical	Jun 14, 1973	Oct. 1, 1973	15
7. Capiz	Audion Elec.	Mar. 8, 1973	Jun. 6, 1973	70
8. Abra	Force account			14
9. Bohol	Trigon Eng'g	Aug. 9, 1973	Nov. 3, 1973	
10. Lanao Sur	544 EEN			15
17. Albay	Force account			

III. Status of construction work - power plant:

<u>Project</u>	<u>Contractor</u>	<u>Date Bid</u>	<u>Start of Construction</u>	<u>Percent Completion</u>
2. VRESCO				(Completed)
4. Leyte	Trigon Eng'g	Mar. 8, 1973	May 28, 1973	70
7. Capiz	Audion Elec.	Mar. 8, 1973	May 7, 1973	90
9. Bohol	Trigon Eng'g	Aug. 9, 1973	Nov. 5, 1973	

- 1/ Submitted bids were rejected for being too high. Both projects will be done by force account.
- 2/ No bids were submitted. The project was negotiated with EC Estrella.
- 3/ No bids were submitted. The project is to be done by force account.

**LIST OF PRE-QUALIFIED CONTRACTORS  
FOR TRANSMISSION/DISTRIBUTION LINE CONSTRUCTION**

1. ITT PHILIPPINES, INC.  
Buendia Ave. & Washington St.  
Makati, Rizal  
Tel. 88-53-51
2. CITATION ENGINEERING & MARKETING CO., INC.  
368-C Ben-Lor Building  
Quezon Blvd. Ext., Q. C.
3. POWER CONSULTANTS  
Suite E H. Davies  
Far East Building, Buendia  
Makati, Rizal
4. ISABELO ONC CONSTRUCTION  
Rm 304 Anita Building  
1300 Quezon Blvd. Ext.  
Quezon City
5. EDWARD J. NELL COMPANY  
325 Buendia Avenue Ext.  
Corner Malugay, Makati, Rizal
6. TRIGON ENGINEERING CORPORATION  
399 C. Padilla St.  
Cebu City
7. AUDION ELECTRIC CO., INC.  
85 Don A. Rocas Ave.  
Quezon City
8. ATKINS, KROLL & COMPANY, INC.  
7232 Malugay Street  
Makati, Rizal
9. ELECTRO MECHANICAL ENTERPRISES  
8861-C Sampaloc Street  
San Antonio Village  
Makati, Rizal

**LIST OF PRE-QUALIFIED CONSTRUCTORS  
FOR HQ FACILITIES AND POWER PLANT CONSTRUCTION**

1. J.P.D. CONSTRUCTION (HQ only)  
2171 Florida St., Pandacan, Manila
2. J.V. ANGELES CONSTRUCTION CORP. (HQ only)  
58 Pasig Boulevard, Pasig, Rizal
3. J.D. MATIAS CONSTRUCTION (HQ only)  
3576 Mag. Villamor, Bacood, Sta Mesa, Manila
4. UNITED CONSTRUCTION CO., INC (HQ only)  
13 M. Hemady Street, Quezon City
5. EDUARDO ESTRELLA (HQ only)  
449 Malvar Street, Davao City
6. E.E. BLACK LTD.  
10th Floor, Insular Life, FGU Bldg.  
Ayala Avenue, Makati, Rizal
7. ELIGIO DE GUZMAN & CO., INC. (HQ only)  
550 Libertad Ext., Pasay City
8. SALAZAR CONSTRUCTION (HQ only)  
350 Cebu Road Expressway
9. MASTER BUILDERS (HQ only)  
4645 Valenzuela St., Sta Mesa, Manila
10. J.M. HERNANDEZ & SONS, INC. (HQ only)  
547 Magtipid St., Bacood, Sta Mesa, Manila
11. EDMAR GENERAL CONSTRUCTION SERVICES, INC. (HQ only)  
Feliciano Bldg., Roxas Ave., Iligan City
12. ATLANTIC GULF & PACIFIC CO. OF THE PHIL (Power Plant)  
Oledan Bldg., 131-133 Ayala Ave., Makati, Rizal
13. ROBLETT ENGINEERING (P.P. only)  
Suite 208 B.F. Goodrich Bldg., Legaspi St., Cebu City
14. PHESCO, INC. (P.P. only)  
73 Quezon Blvd. Ext., Quezon City
15. V.M. GARCIA CONSTRUCTION (HQ only)  
Q.C.D.B. Building, 1424 Q. Blvd. Ext., Q. C.
16. C.M. PANCHO CONSTRUCTION (HQ only)  
443 A. Bonifacio Street, Quezon City
17. CARLOS S. DAVID (HQ only)  
Rm 304 Laperal Building, Rizal Ave., Manila
18. S.D. FLORES CONSTRUCTION CO. INC., (HQ only)  
29 Sorsogon Street, West Avenue Section  
Quezon City
19. G.M. TIONGCO CONSTRUCTION (HQ only)  
Sanang, Davao City

May 10, 1978

Mr. Antonio Aquino  
General Manager  
First Bulacan Electric Cooperative, Inc.  
Calumpit, Bulacan

Sir:

We hereby recommend the following rate schedules for  
use by your cooperative:

**Residential:**

First	10 kWh	--	P 0.45/kwh
Next	40 kWh	--	0.40/kwh
Next	50 kWh	--	0.37/kwh
Next	100 kWh	--	0.45/kwh
Excess	200 kWh	--	0.50/kwh

**Commercial:**

First	12 kWh	--	P 0.45/kwh
Next	36 kWh	--	0.48/kwh
Next	50 kWh	--	0.45/kwh
Next	100 kWh	--	0.50/kwh
Excess	200 kWh	--	0.55/kwh

**Industrial:**

Heavy (15 kw and above)

Demand Charge: P 10.00

Energy Charge:

1st 200 hours of billing demand	P 0.39/kwh
Next 200 hours of billing demand	P 0.34/kwh
Excess of 400 hours of billing demand	P 0.30/kwh

**Light ( below 15 kw)**

Demand Charge: P 10.00

**Energy Charge:**

First 200 hours of billing demand	P 0.44/kwh
Next 200 hours of billing demand	P 0.40/kwh
Excess of 400 hours of billing demand	P 0.38/kwh

Without demand meter: P 0.45/kwh

**Street Lights:****Public:****a) Incandescent bulb**

First 10,000 watts	P 0.12/ watt
Next 5,000 watts	P 0.13/ watt
Excess of 15,000 watts	P 0.14/ watt

b) 175 watts, mercury vapor P 00.00/ bulb

Private P 0.15/ watt

These rate schedules were formulated based on the following guidelines:

**A) Residential**

Residential rate is equal to or lower than small commercial rates. Residential rate follows a U-shaped curve to encourage consumption up to the 50-100 kwh per month range, and to charge presumably more affluent consumers higher rates for higher consumption, in accordance with national guidelines on socialized pricing.

**B. Commercial**

Commercial rates are increasing block by block.

Rationale: Business can afford higher rates, also scale economies are not significant for commercial firms.

C. Industrial

A demand charge of ₱10.00 per kw is set to cover higher than average investments in cooperative facilities used by such industries.

Assumption: Industrial rate is an off-peak rate. If it can be established that the basic 8-hour of first shift operation spans the systems peak period, then a higher demand charge of ₱15.00 should be imposed.

Decreasing block energy costs corresponds to two-shift and three-shift operations. While probably adding to the peak load of the cooperative, these blocks also improve the cooperative's load factor and need not bear a full share of other costs, including power losses.

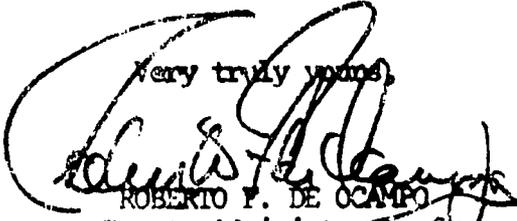
D. Street Lights

Street lighting ought to bear full costs given 12 hours operation and the maintenance functions performed by the cooperative. The coop may recommend that wider spacing of street lights be practiced in some instances to reduce municipal bills.

We have reformulated the foregoing rate schedules taking into consideration the rates proposed by FBECO and the various data and information submitted therewith. We hope that a common understanding of cooperative requirements and objectives with respect to rates has hereby been achieved.

With cordial regards.

Very truly yours,

  
ROBERTO P. DE OCAMPO  
Deputy Administrator for  
Finance and Franchises

A N N E X   X I V

F I N A N C I A L   T A B L E S

## ILOCOS NORTE

TABLE 1

Pesos (000)

Statement of Sources and Application of Funds

Year	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
<b>Sources:</b>										
Loan Funds	1,860	2,868	1,702	1,105	1,981	2,201	2,542	2,209	3,961	5,446
Gross Revenues	540	1,102	1,544	1,999	2,495	3,351	4,301	5,375	7,070	8,473
Membership Fees	15	13	7	5	5	9	10	7	13	13
<b>TOTAL</b>	<b>2,415</b>	<b>3,983</b>	<b>3,253</b>	<b>3,109</b>	<b>4,481</b>	<b>5,561</b>	<b>6,853</b>	<b>7,591</b>	<b>11,044</b>	<b>13,932</b>
<b>Applications:</b>										
Cost of Power	241	483	660	835	1,004	1,320	1,665	2,050	2,537	3,100
O&M	66	82	113	119	153	167	212	229	293	339
Interest	---	---	---	647	689	739	796	843	940	1,079
Principal Payments	---	---	---	544	561	602	666	735	815	889
Gen'l. & Admin. Exp.	131	240	306	348	403	482	579	642	821	897
Capital Expenditures	1,860	2,868	1,702	1,105	1,981	2,201	2,542	2,209	3,961	5,446
<b>TOTAL</b>	<b>2,298</b>	<b>3,673</b>	<b>2,781</b>	<b>3,598</b>	<b>4,791</b>	<b>5,509</b>	<b>6,460</b>	<b>6,708</b>	<b>9,367</b>	<b>11,750</b>
Beg. Cash	---	102	399	864	370	55	96	479	1,355	3,019
+ Sources-Appl.	102	297	465	(494)	(315)	41	383	876	1,664	2,169
= Ending Cash	102	399	864	370	55	96	479	1,355	3,019	5,188
Funds Avail. for D.S.	---	---	---	1,561	1,305	1,437	1,941	2,933	4,774	7,156
<b>TOTAL D.S.</b>	<b>---</b>	<b>---</b>	<b>---</b>	<b>1,191</b>	<b>1,250</b>	<b>1,341</b>	<b>1,462</b>	<b>1,578</b>	<b>1,755</b>	<b>1,968</b>
Debt Coverage	---	---	---	1.31	1.04	1.07	1.33	1.86	2.72	3.64

\* -Net revenues after operating expenses plus beginning cash balance before deducting principal and interest payable.

MORESCO

TABLE 2

Pesos(000)

Statement of Sources and Applications of Funds

Year	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
<b>Sources:</b>										
Loan Funds										
Gross Revenues	661	527	650	522	574	399	366	366	366	366
Membership Fees	820	1,003	1,186	1,368	1,551	1,734	1,916	2,099	2,282	2,465
	3	2	3	3	3	2	2	1	1	1
<b>TOTAL</b>	<b>1,484</b>	<b>1,532</b>	<b>1,839</b>	<b>1,893</b>	<b>2,128</b>	<b>2,135</b>	<b>2,284</b>	<b>2,466</b>	<b>2,649</b>	<b>2,832</b>
<b>Applications:</b>										
Cost of Power										
O&M	177	214	249	289	326	369	404	445	481	523
Interest	98	104	110	115	120	125	131	134	136	139
Principal Payments	578	396	430	418	400	392	379	365	351	337
Gen'l. & Admin	---	--	40	40	235	674	674	674	674	674
Capital Expenditures	110	115	123	130	138	141	143	147	153	157
	661	527	650	522	574	399	366	366	366	366
<b>TOTAL</b>	<b>1,624</b>	<b>1,356</b>	<b>1,602</b>	<b>1,514</b>	<b>1,793</b>	<b>2,100</b>	<b>2,097</b>	<b>2,131</b>	<b>2,161</b>	<b>2,196</b>
Begin. Cash	(211)	(351)	(175)	62	441	776	811	998	1,333	1,821
+ Sources-Appl.	(140)	176	237	379	335	35	187	335	488	636
= Ending Cash	(351)	(175)	62	441	776	811	998	1,333	1,821	2,457
Funds Avail. for D.S.*	227	221	532	899	1,411	1,877	2,051	2,369	2,846	3,468
Total D.S.	578	396	470	458	635	1,066	1,053	1,036	1,025	1,011
Debt Coverage	0.39	0.56	1.13	1.96	2.22	1.76	1.95	2.29	2.78	3.45

\*Net revenues after operating expenses plus beginning cash balance before deducting principal and interest payable.

VRESCO

TABLE 3

Pesos(000)

Statement of Sources and Applications of Funds

Year	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
<b>Sources:</b>										
Loan Funds	686	539	399	399	399	399	399	399	399	399
Gross Revenues	2,221	2,578	2,826	3,184	3,408	4,027	4,441	4,902	5,366	5,889
Membership Fees	3	3	3	3	3	3	3	3	3	3
<b>TOTAL</b>	<b>2,911</b>	<b>3,120</b>	<b>3,228</b>	<b>3,506</b>	<b>3,810</b>	<b>4,429</b>	<b>4,843</b>	<b>5,304</b>	<b>5,768</b>	<b>6,291</b>
<b>Applications:</b>										
Cost of Power	1,119	1,345	1,526	1,729	1,961	2,226	2,528	2,872	3,262	3,711
O&M	175	175	175	190	195	202	210	223	231	239
Interest	828	693	413	408	476	587	575	563	551	538
Principal Payments	25	25	25	72	628	1,245	1,245	1,245	1,305	1,534
Gen'l. & Admin.	175	192	210	214	229	243	257	257	283	301
Capital Expenditures	666	539	399	399	399	399	399	399	399	399
<b>TOTAL</b>	<b>3,008</b>	<b>2,969</b>	<b>2,748</b>	<b>3,012</b>	<b>3,888</b>	<b>4,902</b>	<b>5,214</b>	<b>5,559</b>	<b>6,031</b>	<b>6,722</b>
Begin. Cash	157	60	211	691	1,181	1,103	630	259	(6)	(269)
+ Sources-Appl.	(97)	151	480	494	(78)	(473)	(371)	(265)	(263)	(431)
= Ending Cash	60	211	691	1,181	1,103	630	259	(6)	(269)	(700)
<b>Funds Avail. for D.S.*</b>	<b>913</b>	<b>929</b>	<b>1,129</b>	<b>1,661</b>	<b>2,207</b>	<b>2,462</b>	<b>2,079</b>	<b>1,802</b>	<b>1,587</b>	<b>741</b>
<b>Total D.S.</b>	<b>853</b>	<b>718</b>	<b>438</b>	<b>480</b>	<b>1,104</b>	<b>1,832</b>	<b>1,820</b>	<b>1,808</b>	<b>1,856</b>	<b>2,072</b>
<b>Deb+ Coverage</b>	<b>1.07</b>	<b>1.29</b>	<b>2.58</b>	<b>3.46</b>	<b>2.00</b>	<b>1.34</b>	<b>1.14</b>	<b>0.997</b>	<b>0.86</b>	<b>0.45</b>

\* - Net revenues after operating expenses plus beginning cash balance before deducting principal and interest payable.

TABLE 4

ROI PHILIPPINE RURAL ELECTRIC LOAN - ILOCOS NORTE (IN THOUSANDS)

YEAR	INVESTMENT	RETURN	FACTOR	ADJUSTED INVESTMENT	ADJUSTED RETURN
1	2494	0	1.0000	2494	0
2	9978	0	0.9132	9112	0
3	2290	117	0.8340	1909	97
4	3397	310	0.7617	2587	236
5	2298	472	0.6956	1598	328
6	1105	702	0.6352	701	445
7	1981	940	0.5801	1149	545
8	2201	1491	0.5298	1166	789
9	2542	1855	0.4838	1229	897
10	2200	2461	0.4419	976	1087
11	3961	3432	0.4075	1598	1384
12	5446	4150	0.3685	2006	1529
13	1106	4630	0.3365	372	1558
14	1108	5041	0.3073	340	1549
15	1106	5528	0.2807	310	1551
16	1108	5777	0.2563	284	1480
17	1108	6456	0.2341	259	1511
18	0	6568	0.2138	0	1404
19	0	6568	0.1952	0	1282
20	0	6568	0.1783	0	1171
21	0	6456	0.1628	0	1051
22	0	6568	0.1487	0	976
23	0	6568	0.1358	0	891
24	0	6568	0.1240	0	814
25	0	6456	0.1133	0	731
26	0	6568	0.1034	0	679
27	0	6568	0.0945	0	620
28	0	6568	0.0863	0	566
29	0	6456	0.0788	0	508
30	0	6568	0.0719	0	472
31	0	6568	0.0657	0	431
32	-9088	6568	0.0600	-545	394
				27545	26976

PERCENTAGE IS 9.4

ROI PHILLIPINE RURAL ELECTRIC LOAN - MORESCO (IN THOUSANDS)

TABLE 5

YEAR	INVESTMENT	RETURN	FACTOR	ADJUSTED INVESTMENT	ADJUSTED RETURN
1	2002	0	1.0000	2002	0
2	8007	0	0.9302	7448	0
3	661	311	0.8653	571	269
4	527	446	0.8050	424	359
5	650	570	0.7488	486	426
6	522	710	0.6966	363	494
7	574	843	0.6480	371	546
8	399	975	0.6028	240	587
9	336	1115	0.5607	188	625
10	336	1249	0.5216	175	651
11	336	1388	0.4852	163	673
12	336	1522	0.4513	151	686
13	0	1522	0.4199	0	639
14	0	1522	0.3906	0	594
15	0	1522	0.3633	0	552
16	0	1522	0.3380	0	514
17	0	1522	0.3144	0	478
18	0	1522	0.2925	0	445
19	0	1522	0.2720	0	414
20	0	1522	0.2531	0	385
21	0	1522	0.2354	0	358
22	0	1522	0.2190	0	333
23	0	1522	0.2037	0	310
24	0	1522	0.1895	0	288
25	0	1522	0.1763	0	268
26	0	1522	0.1640	0	249
27	0	1522	0.1525	0	232
28	0	1522	0.1419	0	215
29	0	1522	0.1320	0	200
30	0	1522	0.1228	0	186
31	0	1522	0.1142	0	173
32	-2937	1522	0.1063	-312	161
TOTAL				12270	12310

PERCENTAGE IS 7.5

TABLE 6

ROI PHILIPPINE RUPAL ELECTRIC LOAN - VRESKO (IN THOUSANDS)

YEAR	INVESTMENT	RETURN	FACTOR	ADJUSTED INVESTMENT	ADJUSTED RETURN
1	3651	0	1.0000	3651	0
2	14602	0	0.9569	13973	0
3	686	728	0.9157	628	666
4	539	836	0.8763	472	732
5	399	876	0.8386	334	734
6	399	901	0.8025	320	723
7	399	933	0.7679	306	716
8	399	1246	0.7348	293	915
9	399	1296	0.7032	280	911
10	399	1540	0.6729	268	1036
11	399	1397	0.6439	256	899
12	399	1451	0.6162	245	894
13	0	1451	0.5897	0	855
14	0	1451	0.5643	0	818
15	0	1451	0.5400	0	783
16	0	1451	0.5167	0	749
17	0	1451	0.4945	0	717
18	0	1451	0.4732	0	686
19	0	1451	0.4528	0	657
20	0	1451	0.4333	0	628
21	0	1451	0.4146	0	601
22	0	1451	0.3968	0	575
23	0	1451	0.3797	0	550
24	0	1451	0.3634	0	527
25	0	1451	0.3477	0	504
26	0	1451	0.3327	0	482
27	0	1451	0.3184	0	462
28	0	1451	0.3047	0	442
29	0	1451	0.2916	0	423
30	0	1451	0.2790	0	404
31	0	1451	0.2670	0	387
32	-4534	1451	0.2555	-1158	370
TOTAL				19868	19846

PERCENTAGE IS 4.5

BASIC COST DATA ILOCS NORIE FEASIBILITY STUDY

TABLE C

	Construction Period Cost			1st Yr.			2nd Yr.			3rd Yr.			TOTAL		
	Km	\$	P	Km	\$	P	Km	\$	P	Km	\$	P	Km	\$	P
	#3/o - 3Ø line	44	91,080	380,380	-	-	-	-	-	-	-	-	-	44	91,080
#1/o - 3Ø line	13.5	23,477	107,433	-	-	-	-	-	-	-	-	-	13.5	23,477	107,433
#2 - 3Ø line	10.0	13,000	70,670	8	10,400	56,536	10	13,000	70,670	10	13,000	70,670	38	49,400	269,546
#3/o VØ line	-	-	-	20	41,400	172,900	-	-	-	-	-	-	20	41,400	172,900
#4 - 1Ø line	20	9,380	87,540	5	2,345	21,885	22	10,318	96,294	12	5,628	52,524	59	27,671	258,243
Secondary	12	8,160	58,404	3	2,040	14,601	13	8,840	63,271	7	4,760	34,069	35	23,800	170,345
Secondary U.B.	28	7,336	20,804	7	1,834	5,201	30	7,860	22,290	16	4,192	11,588	81	21,222	60,183
Services & trans.	2,440	109,800	-	611	27,495	-	2,576	115,920	-	1,377	61,965	-	7,004	315,180	-
Sectionalizing	9	2,169	1,350	2	482	1,300	-	-	-	-	-	-	11	2,651	2,650
Street Lights	172	6,020	8,600	43	1,505	2,150	167	5,845	8,350	77	2,695	3,850	459	16,065	22,950
Substations (incl. engr)	-	280,000	303,000	-	-	-	-	-	-	-	-	-	-	280,000	303,000
Sub-Total	-	550,422	1,038,181	-	87,501	274,573	-	161,783	260,875	-	92,240	173,001	-	691,946	1,746,630
ADJ for location (1.03)	-	566,935	1,069,326	-	90,126	282,810	-	166,636	268,701	-	95,007	178,191	-	918,704	1,799,028
R/W Clearing	28	-	28,000	9	-	9,000	11	-	11,000	7	-	7,000	55	-	55,000
Engineering @ 6% (exc. subs.)	-	-	160,964	-	-	54,220	-	-	88,864	-	-	54,940	-	-	358,988
General Plant (incl. engr.)	-	138,300	1,080,000	-	-	-	-	-	-	-	-	-	-	138,300	1,080,000
<b>TOTALS</b>		<b>705,235</b>	<b>2,338,290</b>		<b>90,126</b>	<b>346,030</b>		<b>166,636</b>	<b>369,565</b>		<b>95,007</b>	<b>240,131</b>		<b>1,057,004</b>	<b>3,293,016</b>

ILOCOS NORTE  
PLANT INVESTMENTS & OPERATING EXPENSES  
(PESOS IN 1000'S)

TABLE 8

Item	Constr. Period	Planning Year														
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
<b>CUMULATIVE PLANT INVESTMENT</b>																
Plant Beginning of Year	-	12,472	14,762	18,159	20,457	21,562	23,543	25,744	28,286	30,495	34,456	39,902	41,008	42,116	43,222	44,330
Investment During Year *	12,109	1,860	2,868	1,702	1,105	1,981	2,201	2,542	2,209	3,061	5,446	1,106	1,108	1,106	1,108	1,108
Plant End of Year **	12,472	14,762	18,159	20,457	21,562	23,543	25,744	28,286	30,495	34,456	39,902	41,008	42,116	43,222	44,330	45,438
<b>COST OF POWER</b>																
KWH Purchased (1000's)		2,529	5,065	6,923	8,749	10,515	13,571	6,785	20,256	24,586	29,407	30,447	33,107	35,747	38,524	47,228
Average Cost/KWH (₱)		.0951	.0953	.0954	.0954	.0955	.0973	.0992	.1012	.1032	.1054	.1076	.1096	.1120	.1142	.1164
Cost of Power		241	483	660	835	1,004	1,320	1,665	2,050	2,537	3,100	3,275	3,635	4,004	4,399	4,799
<b>OTHER OPERATING EXPENSES</b>																
O&M as % of Plant		.45	.45	.55	.55	.65	.75	.75	.75	.85	.85	.95	.95	1.05	1.05	1.05
O&M Expense		66	82	113	119	153	167	212	229	292	399	390	400	454	465	477
General & Admin (₱/consumer)		40	40	41	41	42	42	43	43	44	44	45	45	46	46	47
General & Admin. Expenses		131	240	306	348	403	482	579	642	821	897	959	1,001	1,065	1,108	1,175
Depr. as % of Total Plant)																
End of Year )		3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Depreciation		443	545	614	647	705	772	849	915	1,034	1,197	1,230	1,263	1,297	1,330	1,363

\* Includes Escalation & Contingencies  
\*\* Includes Interest at 3% thru year 3.

ILOCOS NORTE  
TOTAL SYSTEM REVENUES  
(IN PESOS)

TABLE 9, Page 1 of 2

Item	Planning Year														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
<b>Irrigation Pumps</b>															
1. Average KWH/Consumer/Mo.	1,417	1,417	1,417	1,417	1,417	1,417	1,417	1,417	1,417	1,417	1,417	1,417	1,417	1,417	1,417
2. Average Revenue/Consumer/Mo.	241	241	241	241	241	241	241	241	241	241	241	241	241	241	241
3. Annual Revenue/Consumer	2,891	2,891	2,891	2,891	2,891	2,891	2,891	2,891	2,891	2,891	2,891	2,891	2,891	2,891	2,891
4. Number of Consumers	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
5. Annual Revenue (P000)	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35
<b>Security Lights</b>															
1. Average KWH/Consumer/Mo.	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
2. Average Revenue/Consumer/Mo.	16.5	16.5	16.5	16.5	16.5	16.5	16.5	16.5	16.5	16.5	16.5	16.5	16.5	16.5	16.5
3. Annual Revenue/Consumer	198	198	198	198	198	198	198	198	198	198	198	198	198	198	198
4. Number of Consumers	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
5. Annual Revenue (P000)	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43
<b>Large Commercials</b>															
1. Average KWH/Consumer/Mo.	6,900	7,300	7,900	8,200	8,800	9,100	9,500	9,900	10,300	10,800	11,200	11,500	11,900	12,000	12,100
2. Average Revenue/Consumer/Mo.	1,337	1,619	1,794	1,866	1,938	2,010	2,082	2,154	2,226	2,298	2,370	2,442	2,514	2,586	2,658
3. Annual Revenue/Consumer	19,044	20,148	21,252	22,356	23,460	24,564	25,668	26,772	27,876	28,980	30,084	31,188	32,292	33,396	34,500
4. Number of Consumers	3	7	10	14	17	21	24	28	31	35	38	42	45	49	52
5. Annual Revenue (P000)	57	141	215	317	404	522	629	765	890	104	1,175	1,333	1,466	1,623	1,737
<b>Domestic</b>															
1. Average KWH/Consumer/Mo.	29	32	35	39	42	48	53	60	65	70	73	76	79	82	85
2. Average Revenue/Consumer/Mo.	9	9.92	10.85	12.09	13.02	14.88	16.43	18.60	20.15	21.70	22.63	23.56	24.49	25.42	26.35
3. Annual Revenue/Consumer	107.88	119.04	130.20	145.08	156.24	178.56	197.16	223.20	241.80	260.40	271.56	282.72	293.88	305.04	316.20
4. Number of Consumers	2,818	5,200	6,484	7,390	8,378	10,096	11,844	13,166	16,629	18,103	18,953	19,803	20,653	21,503	22,353
5. Annual Revenue (P000)	304	620	844	1,072	1,309	1,803	2,335	2,959	4,021	4,714	5,147	5,599	6,070	6,559	7,068

TABLE 9, Page 2 of 2

ITEM	PLANNING YEAR														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
<b>Small Commercials</b>															
1. Average KWH/Consumer/Mo.	172	165	183	179	196	207	218	233	240	247	250	250	250	255	260
2. Average Revenue/Consumer/Mo.	48	46	51	50	57	51	61	65	67	69	70	70	71	71	73
3. Average Revenue/Consumer	578	554	618	601	659	696	732	783	806	820	840	840	857	857	874
4. Number of Consumers	133	234	379	306	335	378	424	461	521	579	591	603	615	627	639
5. Annual Revenue (P000)	77	100	184	184	221	263	311	361	420	481	496	537	527	537	558
<b>Public Buildings</b>															
1. Average KWH/Consumer/Mo.	70	71	76	85	93	98	103	112	119	128	132	133	147	145	147
2. Average Revenue/Consumer/Mo.	32	33	25	28	31	32	34	37	39	42	44	46	47	47	49
3. Annual Revenue Consumer	277	281	301	337	360	398	408	444	471	507	531	546	562	574	582
4. Number of Consumers	85	156	195	221	301	305	355	394	468	543	543	543	543	543	543
5. Annual Revenue (P000)	24	44	59	74	92	118	145	175	221	275	288	297	305	312	316
<b>Revenue Summary - All Sources (P000)</b>															
1. Irrigation Pumps	35	69	100	139	173	208	243	278	317	347	376	405	434	463	491
2. Street Lights	43	76	91	100	111	127	143	158	179	201	210	219	229	238	248
3. Large Commercials	57	141	215	217	404	527	629	705	893	1,043	1,175	1,333	1,466	1,623	1,737
4. Domestic	304	620	844	1,072	1,309	1,603	3,335	2,959	4,021	4,714	5,147	5,599	6,070	6,559	7,068
5. Small Commercials	77	130	172	184	221	263	311	361	420	481	496	537	527	537	558
6. Public Buildings	24	44	59	74	92	118	145	175	221	275	288	297	305	312	316
7. Total Operating Revenue	540	1,089	1,465	1,886	2,310	3,046	3,806	4,674	6,043	7,061	7,692	8,360	9,031	9,732	10,418
8. Inflation Pass Thru Factor	1.20	1.02	1.04	1.06	1.08	1.10	1.13	1.15	1.17	1.20	1.22	1.24	1.27	1.29	1.32
9. Adjusted Total Operating Revenue	540	1,102	1,544	1,999	2,495	3,351	4,301	5,375	7,070	8,473	9,384	10,366	11,469	12,554	13,752

Rate Assumptions (P/KWH)	
1. Irrigation Wells	.17
2. Security Lights	.30
3. Large Commercials	.23
4. Domestic	.31
5. Small Commercials	.28
6. Public Buildings	.33

Totals may not add up due to rounding.

A N N E X   X V

E C O N O M I C   T A B L E S

TABLE 1

Comparative Cost Analysis of Kerosene vs. Electric Lighting<sup>1/</sup>

Kerosene Lighting Costs (₱/yr.)

Kerosene <sup>2/</sup>	172
Wick <sup>3/</sup>	8
Capital Costs <sup>4/</sup>	<u>17</u>
Total Costs/yr.	197

Electric Lighting Costs (₱/yr.)

Electricity <sup>5/</sup>	6
Incandescent Bulb <sup>6/</sup>	4
Capital Costs <sup>7/</sup>	<u>45</u>
Total Costs/yr.	55

Cost Reduction/House (₱/yr.) 142

- 1/ Calculations assume that illumination provided by a standard kerosene lamp (Aladdin type) is equivalent to that of a 10-watt electric incandescent bulb.
- 2/ 138 liters/yr. at ₱ 1.25/liter (pre-tax)
- 3/ 1 wick/mo. at ₱ 0.70/wick
- 4/ A kerosene lamp costs ₱ 35.00 and lasts for 3 years. Interest rate assumed at 15%.
- 5/ 18 KWH at ₱ 0.31/KWH
- 6/ Costs ₱ 2.00 and lasts for 200 days assuming 5 hours daily use.
- 7/ Annual depreciation of house wiring (₱ 250/house) equivalent to 3%. Interest rate assumed at 15%.

TABLE 2

Comparative Cost Analysis of Self-Generated Electricity  
vs. Coop-Provided Electricity (Large Commercials)<sup>1/</sup>

Self-Generated Electricity (P/yr.)

Energy Costs <sup>2/</sup>	33,780
Maintenance	1,125
Capital Costs <sup>3/</sup>	<u>9,375</u>
Total Costs/yr.	44,280
Cost/KWH	0.61

Coop-Provided Electricity (P/yr.)

Cost/KWH	0.23
----------	------

Cost Reduction - 62%

<sup>1/</sup> Large commercials include industries with a minimum load of 25 KW.

<sup>2/</sup> Operating full load for 8 hrs./day. Assumes .712 liters/KWH and P 0.65/liter (pre-tax).

<sup>3/</sup> A 25 KW diesel generator costs P 37,500. Assumed depreciation and interest rates are 10% and 15%, respectively.

TABLE 3  
Comparative Cost Analysis of Diesel vs. Electric Pump Irrigation

Diesel Pump Irrigation:

(a) 10 HP (₱/yr.)

Energy Costs <sup>1/</sup>		5,460
Capital Costs <sup>2/</sup>		2,500
	Total Costs/yr.	<u>7,960</u>
	Cost/KWH	₱ 0.66

(b) 20 HP (₱/yr.)

Energy Costs <sup>3/</sup>		10,920
Capital Costs <sup>2/</sup>		5,000
	Total Costs/yr.	<u>15,920</u>
	Cost/KWH	₱ 0.66

Electric Pump Irrigation:

(a) 10 HP (₱/yr.)

Energy Costs <sup>4/</sup>		2,040
Capital Costs <sup>5/</sup>		1,576
	Total Costs/yr.	<u>3,616</u>
	Cost/KWH	₱ 0.30

(b) 20 HP (₱/yr.)

Energy Costs <sup>6/</sup>		4,080
Capital Costs <sup>5/</sup>		2,800
	Total Costs/yr.	<u>6,880</u>
	Cost/KWH	₱ 0.29

Cost Reduction - 54%

- 1/ 12,000 KWH/yr. at .7 liters/KWH and ₱ 0.65/liter (pre-tax).
- 2/ A 10 HP and 20 HP diesel pump costs ₱ 10,000 and ₱ 20,000, respectively. Appreciation and interest rates are assumed at 10% and 15%, respectively.
- 3/ 24,000 KWH/yr. at .7 liters/KWH and ₱ 0.65/liter (pre-tax).
- 4/ 12,000 KWH/yr. at ₱ 0.17/KWH.
- 5/ A 10 HP and 20 HP electric pump costs ₱ 5,250 and ₱ 9,450, respectively. Assumed depreciation rates for the electric motor and pump are 20% and 10%, respectively. The interest rate is assumed at 15%.
- 6/ 24,000 KWH/yr. at ₱ 0.17 KWH.

TABLE 4

## ILOCOS NORTE

Pesos (000)

Cost Savings from Rural Electrification

<u>Year</u>	<u>Domestic</u> <sup>1/</sup>	<u>Large Commercials</u> <sup>2/</sup>	<u>Irrigation</u> <sup>3/</sup>	<u>Total Cost Savings</u>
0	--	--	--	--
1	400	94	73	567
2	739	233	147	1,119
3	921	356	220	1,497
4	1,049	523	294	1,866
5	1,190	667	367	2,224
6	1,434	871	441	2,746
7	1,682	1,040	514	3,236
8	1,870	1,264	588	3,722
9	2,361	1,470	661	4,492
10	2,571	1,724	734	5,029
11	2,691	1,941	796	5,428
12	2,812	2,202	857	5,871
13	2,933	2,421	918	6,272
14	3,053	2,681	979	6,713
15	3,174	2,869	1,041	7,084
16-30	3,174	2,869	1,041	7,084

1/ ₱ 142 (cost savings/house) x No. of houses

2/ ₱ 0.38 (cost savings/KWH) x Total KWH/yr.

3/ ₱ 0.36 (cost savings/KWH) x Total KWH/yr.

PV of Cost Savings (15%) : 20,824

Table 5

PROJECTED BENEFITS AND COSTS, ILOCOS NORIE SUB-PROJECT  
(in thousand pesos)

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16-30
<b>Total Benefits</b>	-	1,107	2,221	3,041	3,865	4,719	6,097	7,537	9,097	11,562	13,502	16,812	18,237	17,741	19,267	20,836	20,836
Sales revenue	-	540	1,102	1,544	1,999	2,495	3,351	4,301	5,375	7,070	8,473	9,384	10,366	11,469	12,554	13,732	13,752
Cost savings	-	567	1,119	1,497	1,866	2,224	2,746	3,236	3,720	4,492	5,029	5,428	5,871	6,272	6,713	7,084	7,084
Domestic	-	400	739	921	1,029	1,190	1,434	1,682	1,970	2,361	2,571	2,691	2,812	2,933	3,053	3,174	3,174
Large Commercials	-	94	233	356	523	667	871	1,040	1,264	1,470	1,724	1,941	2,202	2,421	2,681	2,869	2,869
Irrigation	-	73	147	220	294	367	441	514	588	661	734	796	857	918	979	1,041	1,041
<b>Total Costs</b>	12,109	2,298	3,673	2,781	2,407	3,541	4,170	4,998	5,130	7,612	9,782	5,731	6,144	6,629	7,080	7,559	6,451
Capital costs	12,109	1,860	2,868	1,702	1,105	1,951	2,201	2,542	2,209	3,961	5,446	1,106	1,108	1,106	1,108	1,108	-
Current costs	-	438	805	1,079	1,302	1,560	1,969	2,456	2,921	3,651	4,336	4,625	5,036	5,523	5,972	6,451	6,451
Power costs	-	241	483	660	835	1,004	1,320	1,665	2,050	2,537	3,100	3,276	3,635	4,004	4,399	4,799	4,799
Operating and Maintenance	-	66	82	113	119	153	167	212	229	293	334	390	400	454	465	477	477
General and Administrative	-	131	240	306	348	403	482	579	642	821	897	959	1,001	1,065	1,108	1,175	1,175
<b>Net Benefits</b>	-12,109	-1,191	-1,452	260	1,458	1,178	1,927	2,539	3,967	3,950	3,720	9,081	10,093	11,112	12,187	13,277	14,385

Table 6

## COMPUTATION OF BENEFIT COST RATIO, ILOCOS NORTE SUB-PROJECT

<u>Year</u>	<u>Benefits</u>	<u>Costs</u>	<u>Discount Factor (15%)</u>	<u>Discounted Benefits</u>	<u>Discounted Costs</u>
0	-	12,109	1.000		
1	1,107	2,298	.870		
2	2,221	3,673	.756		
3	3,041	2,781	.658		
4	3,865	2,407	.572		
5	4,719	3,541	.497		
6	6,097	4,170	.432		
7	7,537	4,998	.376		
8	9,097	4,998	.326		
9	11,562	7,612	.284		
10	13,502	9,782	.247		
11	14,812	5,731	.215		
12	16,237	6,144	.187		
13	17,741	6,629	.162		
14	19,267	7,080	.141		
15	20,836	7,559	.123		
16-30	20,836 <u>1/</u>	6,451 <u>1/</u>	.719		
30	10,788 <u>2/</u>		.015		
				53,770	41,804

1/ Assumed at same level from 16th-30th year.

2/ Salvage value at 30th year.

Benefit - Cost Ratio (15% Discount Rate) = 1.29

Table 7

COMPUTATION OF INTERNAL RATE OF RETURN, ILOCOS NORTE SUB-PROJECT

<u>Year</u>	<u>Net Benefits</u>	<u>Discount Factor</u> <u>20%</u>	<u>Present Value</u>	<u>Discount Factor</u> <u>21%</u>	<u>Present Value</u>
0	-12,109	1.000		1.000	
1	-1,191	.833		.826	
2	-1,452	.694		.683	
3	260	.579		.564	
4	1,458	.482		.466	
5	1,178	.402		.386	
6	1,927	.335		.319	
7	2,539	.279		.263	
8	3,967	.232		.218	
9	3,950	.194		.180	
10	3,720	.162		.149	
11	9,081	.134		.123	
12	10,093	.112		.102	
13	11,112	.093		.084	
14	12,187	.078		.069	
15	13,277	.065		.057	
16-30	14,385 <u>1/</u>	.304		.257	
30	10,788 <u>2/</u>	.004		.003	
			+472		-984

$$IRR = .2 + .01 \left( \frac{472}{472+984} \right) = 20.32\%$$

1/ Assumed at same level from 16th-30th year.

2/ Salvage value at 30th year.

U.S. AGENCY FOR INTERNATIONAL DEVELOPMENT  
Manila, Philippines

ANNEX XVI

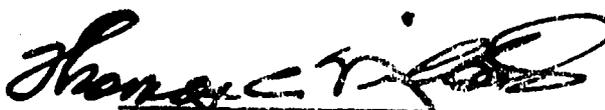
Ramon Magsaysay Center  
1680 Roxas Boulevard

Telephone: 59-80-11

CERTIFICATION PURSUANT TO SECTION 611(e)  
OF THE FOREIGN ASSISTANCE ACT OF 1961, AS AMENDED

I, THOMAS C. NIBLOCK, the principal officer of the Agency for International Development in the Philippines, having taken into account, among other things, the maintenance and utilization of projects in the Philippines previously financed or assisted by the United States, do hereby certify that, in my judgment, the Philippines has both the financial capability and the human resources capability to effectively maintain and utilize the proposed Rural Electrification Loan.

This judgment is based upon the project analysis as detailed in Philippines Rural Electrification-II Capital Assistance Loan Paper and is subject to the conditions imposed therein.



Thomas C. Niblock, Director  
USAID/Philippines

MAY 9 1974

Date

**Tanggapan ng Pangulo ng Pilipinas**  
(OFFICE OF THE PRESIDENT OF THE PHILIPPINES)

May 9, 1974

Mr. Thomas C. Niblock  
Director  
United States Agency for  
International Development  
Ramon Magsaysay Center  
Roxas Boulevard  
Manila

Sir:

Reference is made to the National Electrification Program which seeks to establish an additional ten to fifteen cooperatives throughout the country during the period 1974 to 1976. The cost of these rural electric cooperatives is estimated at P254.0 million (\$38.2 million), of which approximately 43% (P110.50 million) will be peso costs and 57% (\$22 million) will be foreign exchange costs.

The National Electrification Administration (NEA) wishes to apply, through the National Economic and Development Authority, for a \$20 million USAID Development loan to finance the above-mentioned foreign exchange costs of this segment of the electrification program. With USAID's approval, the proceeds of this loan will be used primarily for the procurement of electrification equipment and materials, from countries listed in AID Geographical Area Code 941 as well as from the host country, the Philippines.

For this application, NEA wishes to avail of the most favorable AID loan terms possible -- 40 years repayment with a grace period of 10 years and with interest rates of 2% during the grace period and 3% during the remaining 30 years.

In connection with this loan, we would like to make the following assurances:

1. That GOP will provide the resources (both foreign exchange and local currency) as may be required to enable NEA to implement the electrification program on a timely basis.
2. That GOP will absorb any " maintenance of foreign exchange value " risks in behalf of NEA and the rural electric cooperatives.

-2-

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We are certain that you are fully informed of the present status of and the requirements for the implementation of the electrification program.

We therefore request your assistance in obtaining the loan mentioned above. This loan is necessary for the full implementation of our electrification program, and your assistance in this regard will be a vital factor.

Very truly yours,

By Authority of the President:

  
ALEJANDRO MELCHOR  
Executive Secretary

AID 1240-2 (5-74)

CHECKLIST OF STATUTORY CRITERIABASIC AUTHORITY

1. FAA § 203; § 204; § 205;  
§ 206; § 207. Is loan being made

a. *for agriculture, rural development or nutrition;*

a. This loan will contribute to the factors that alleviate starvation, hunger, and malnutrition by providing electric power to irrigation systems which will enable the farmers to increase crop production. Also by providing electric power the project will encourage and directly contribute to the development of cottage industry and therefore enhance the Co-op members' capacity for self-help.

b. *for population planning or health;*

Not Applicable (N.A.)

c. *for education, public administration; or human resources development;*

N.A.

d. *to solve economic and social development problems in fields such as transportation, power, industry, urban development, and export development;*

N.A.

AID 1240-2 (5-74)

*e. in support of the general economy of the recipient country or for development programs conducted by private or international organizations.*

N.A.

COUNTRY PERFORMANCE

Progress Towards Country Goals

2. FAA §201 (b) (5), (7) & (8); § 208

A. Describe extent to which country is:

A.

*(1) Making appropriate efforts to increase food production and improve means for food storage and distribution.*

(1) Food production is top priority of Marcos Administration with goal of achieving self-sufficiency in rice and corn and accelerated production of livestock, poultry, fish, fruits and vegetables. Plans for expanded warehousing and distribution of the increased output of grains are being prepared and carried out with help from IBRD loan.

*(2) Creating a favorable climate for foreign and domestic private enterprise and investment.*

(2) See FAA C20(e)(1) below.

AID 1240-2 (5-74)

(3) Increasing the public's role in the developmental process.

The four-year agriculture program is increasing the productive capability of Philippine farmers. The Department for Local Government and Community Development carries out programs at the barrio (village) level throughout the Philippines. A Decentralization Act providing more autonomy to the Province was enacted in 1967. The Provincial Development Assistance Program is operating in seventeen provinces.

Additionally, in an attempt to redistribute income and raise the rural standard of living, the GOP has recently embarked upon an aggressive land reform program, and is well under way with a country-wide rural electrification program.

(4) (a) Allocating available budgetary resources to development.

(a) More than 70 percent of the national budget is allocated to social and economic development. One-fourth of the budget goes to education, nearly 10 percent to agriculture and natural resources, and almost 20 percent to transportation and communications.

(b) Diverting such resources for unnecessary military expenditure (See also Item No. 20) and intervention in affairs of other free and independent nations.) (See also Item No. 11)

(b) Less than 15 percent of the budget goes for national defense.

(5) Making economic, social, and political reforms such as tax collection improvements and changes in land tenure arrangements, and making progress toward respect for the rule of law, freedom of expression and of the press, and recognizing the importance of individual freedom, initiative, and private enterprise.

The GOP, ever since its establishment as an independent nation in 1946, has patterned its government after that of the United States, adopting the same democratic principles and strongly supporting a free and open society. On Sept. 22, 1972 President Marcos, citing a serious threat to their system from both the extreme left and right, invoked martial law and, ruling by decree, ordered an accelerated implementation of essential reforms

long needed to improve the efficiency of the government, to reduce wide-spread crime and corruption, to speed development efforts aimed primarily at improving the social and economic well-being of lower income groups. However, under Martial Law political activity and freedom of the press has been curtailed. In this regard President Marco is inaugurating an all-encompassing nationwide land reform program. Over the last five years the GOP has increased revenues through improved administration and new tax laws, the most recent being a stabilization tax imposed on traditional high level exports following the devaluation of the peso in 1970.

(6) Willing to contribute funds to the project or program.

(6) Approximately 45 percent of project is a local currency cost which has been pledged at the Presidential level.

(7) Otherwise responding to the vital economic, political, and social concerns of its people, and demonstrating a clear determination to take effective self-help measures.

(7) As a result of the disastrous summer of 1972 floods, the Marcos Administration has embarked on a large scale reconstruction program with the help of USAID. This program is directly meeting the needs of the devastated communities of Luzon. Included in the program are: a school reconstruction and textbook program as well as on road building, irrigation and other infrastructure programs.

B. Are above factors taken into account in the furnishing of the subject assistance?

B. Yes.

Treatment of U.S. Citizens and Firms

3. FAA § 620(c). If assistance is to government, is the government liable as debtor or unconditional guarantor on any debt to a U.S. citizen for goods or services furnished or ordered where (a) such citizen has exhausted available legal remedies and (b) debt is not denied or contested by such government?

No.

4. FAA § 620(e)(1). If assistance is to a government, has it (including government agencies or subdivisions) taken any action which has the effect of nationalizing, expropriating, or otherwise seizing ownership or control of property of U.S. citizens or entities beneficially owned by them without taking steps to discharge its obligations toward such citizens or entities?

The Parity Amendment, an Ordinance appended to the Philippine Constitution on March 12, 1947, and effective by its terms until July 3, 1974, permitted U.S. citizens, as distinguished from other aliens, to acquire and hold "public agricultural land" and to operate public utilities with the same rights and privileges as citizens of the Philippines. The Supreme Court of the Philippines, in a decision now being appealed, has held that the right of U.S. citizens to acquire and hold such property and to operate utilities will expire on July 3, 1974. The GOP and U.S. Embassy are currently negotiating on this point. At present there is no indication that the GOP contemplates any act contravening FAA § 620(e)(1).

AID 1240-2 (5/74)

5. FAA § 620(o); Fishermen's Protective Act. § 5. If country has seized, or imposed any penalty or sanction against, any U.S. fishing vessel on account of its fishing activities in international waters,

5. N.A.

a. has any deduction required by Fishermen's Protective Act been made?

b. has complete denial of assistance been considered by A.I.D. Administrator?

Relations with U.S. Government and Other Nations

6. FAA § 620(a). Does recipient country furnish assistance to Cuba or fail to take appropriate steps to prevent ships or aircraft under its flag from carrying cargoes to or from Cuba?

6. No.

AID 1240-2 (5-74)

7. Yes

7. FAA § 620(i). If assistance is to a government, has the Secretary of State determined that it is not controlled by the international Communist movement?

8. N.A.

8. FAA § 620(d). If assistance is for any productive enterprise which will compete in the United States with United States enterprise, is there an agreement by the recipient country to prevent export to the United States of more than 20% of the enterprise's annual production during the life of the loan?

9. No.

9. FAA § 620(f). Is recipient country a Communist country?

10. No.

10. FAA § 620(i). Is recipient country in any way involved in (a) subversion of, or military aggression against, the United States or any country receiving U.S. assistance, or (b) the planning of such subversion or aggression?

11. The GOP has taken all reasonable measures to protect U.S. property. On infrequent occasion when damage has occurred, proper compensation has been made without delay.

11. FAA § 620(j). Has the country permitted, or failed to take adequate measures to prevent, the damage or destruction, by mob action, of U.S. property?

AID 1240-2 (5-74)

12. FAA § 620(l). If the country has failed to institute the investment guaranty program for the specific risks of expropriation, in convertibility or confiscation, has the A.I.D. administration within the past year considered denying assistance to such government for this reason? 12. N.A.
13. FAA § 620(n). Does recipient country furnish goods to North Viet-Nam or permit ships or aircraft under its flag to carry cargoes to or from North Viet-Nam? 13. No.
14. FAA § 620(q). Is the government of the recipient country in default on interest or principal of any A.I.D. loan to the country? 14. No.
15. FAA § 620(t). Has the country severed diplomatic relations with the United States? If so, have they been resumed and have new bilateral assistance agreements been negotiated and entered into since such resumption? 15. No.
16. FAA § 620(u). What is the payment status of the country's U.N. obligations? If the country is in arrears, were such arrearages taken into account by the A.I.D. Administrator in determining the current A.I.D. Operational Year Budget? 16. The Philippines is not in default with respect to its dues, assessments or other obligations to the U.S. The Loan Agreement and disbursement procedures will ensure that loan funds are not used for payment of U.N. obligations.

AID 1240-2 (5-74)

17. FAA § 481. Has the government of recipient country failed to take adequate steps to prevent narcotic drugs and other controlled substances (as defined by the Comprehensive Drug Abuse Prevention and Control Act of 1970) produced or processed, in whole or in part, in such country, or transported through such country, from being sold illegally within the jurisdiction of such country to U.S. Government personnel or their dependents, or from entering the U.S. unlawfully?

17. No.

18. FAA, 1973 § 29. If (a) military base is located in recipient country, and was constructed or is being maintained or operated with funds furnished by U.S., and (b) U.S. personnel carry out military operations from such base, has the President determined that the government of recipient country has authorized regular access to U.S. correspondents to such base?

18. Yes. (Presidential Determination No. 74-14 dated 1/20/74).

Military Expenditures

19. FAA § 620(s). What percentage of country budget is for military expenditures? How much of foreign exchange resources spent on military equipment? How much spent for the purchase of sophisticated weapons systems? (Consideration of these points is to be coordinated with the Bureau for Program and Policy Coordination, Regional Coordinators and Military Assistance Staff (PPC/RC).)

19. Annual defense budgets average less than 15% of the national budget. Approximately one-third of this amount is for maintenance of peace and order. Philippine foreign exchange resources used to acquire military equipment are negligible. We know of no diversion of either development assistance or of PL 480 sales to military expenditures. We are not aware of any diversion of Philippine resources for unnecessary military expenditures.

AID 1240-2 (b-74)

CONDITIONS OF THE LOAN

General Soundness

20. FAA § 201(d). *Information and conclusion on reasonableness and legality (under laws of country and the United States) of lending and relending terms of the loan.*
21. FAA § 201(b)(2); § 201(e)  
*Information and conclusion on activity's economic and technical soundness. If loan is not made pursuant to a multilateral plan, and the amount of the loan exceeds \$100,000, has country submitted to A.I.D. an application for such funds together with assurances to indicate that funds will be used in an economically and technically sound manner?*
22. FAA § 201(b)(2) *Information and conclusion on capacity of the country to repay the loan, including reasonableness of repayment prospects.*
23. FAA § 201(b)(1) *Information and conclusion on availability of financing from other free-world sources, including private sources within the United States.*
20. The rate of interest is considered reasonable and repayment of the loan with interest is within the financial capability of the borrower. Interest through the grace period will be at the rate of 2% per annum, and 3% thereafter. This rate is not higher than the applicable legal rate of interest in the Philippines.
21. All project development is covered by feasibility studies assuring viability.
22. Chapter V of the CAP indicates a satisfactory future capacity on the part of the Philippines to repay this loan. The GOP is the borrower and the prospects for loan repayment are good.
23. Financing is not considered to be available from other sources on terms comparable to this proposed loan.

AID 1240-2 (5-74)

24. FAA § 611(a)(1). Prior to signing of loan will there be  
(a) engineering, financial, and other plans necessary to carry out the assistance and  
(b) a reasonably firm estimate of the cost to the United States of the assistance?

24. Yes.

25. FAA § 611(a)(2). If further legislative action is required within recipient country, what is basis for reasonable expectation that such action will be completed in time to permit orderly accomplishment of purpose of loan?

25. All legislative authorities exist.

26. FAA § 611(a). If loan is for Capital Assistance, and all U.S. assistance to project now exceeds \$1 million, has Mission Director certified the country's capability effectively to maintain and utilize the project?

26. Yes.

Loan's Relationship to Achievement of Country and Regional Goals

27. FAA § 207; § 113  
Extent to which assistance reflects appropriate emphasis on: (a) encouraging development of democratic, economic, political, and social institutions; (b) self-help in meeting the country's food needs; (c) improving availability of trained manpower in the country; (d) programs designed to meet the country's health needs;

i7. (a) The cooperatives to be formed under the project are non-political organizations directed by interested citizens in the community.

(b) The project will permit and encourage irrigation projects, thereby helping the Philippines increase their food production.

(c) N.A.

(d) N.A.

ATD 1240-2 (5-74)

(e) other important areas of economic, political, and social development, including industry; free labor unions, cooperatives, and Voluntary Agencies; transportation and communication; planning and public administration; urban development, and modernization of existing laws; or  
(f) integrating women into the recipient country's national economy.

(e) Reliable electricity at reasonable rate is essential to most development activities. This project will have a beneficial effect on most of the areas of development mentioned.

(f) N. A.

28. FAA § 209. Is project susceptible of execution as part of regional project? If so why is project not so executed?

28. N.A.

29. FAA § 201(b)(4) Information and conclusion on activity's relationship to, and consistency with, other development activities, and its contribution to realizable long-range objectives.

29. This project is consistent with the GOP new society policy of assisting the common man.

30. FAA § 201(b)(9) Information and conclusion on whether or not the activity to be financed will contribute to the achievement of self-sustaining growth.

30. Improved electric power systems will contribute to overall standard of living, increase individual productivity and encourage industrial growth.

31. FAA § 209; Information and conclusion whether assistance will encourage regional development programs.

31. N.A.

AID 1240-2 ( 574)

32. This project is specifically designed to assist in the development of cooperatives. Each cooperative will be governed by its members which average 10,000 per cooperative.
33. This project is directed at long-range extension of rural electrification to help accelerate economical social development.
34. The cooperatives to be formed under the project are non-political organizations directed by interested citizens in the communities served.
35. The program is directed at the rural population, which comprises the majority of the country's total population but has the lowest income levels. It will provide an opportunity through membership in cooperatives for direct participation in institutional development and democratic political processes.
36. The program will bring economic power to currently unelectrified areas. This will promote increased agricultural productivity and expansion of agricultural business as well as small industrial production potential in the rural areas.
39. FAA § Section 111. Discuss the extent to which the loan will strengthen the participation of the urban and rural poor in their country's development, and will assist in the development of cooperatives which will enable and encourage greater numbers of poor people to help themselves toward a better life.
33. FAA § 201(f). If this is a project loan, describe how such project will promote the country's economic development taking into account the country's human and material resource requirements and the relationship between ultimate objectives of the project and overall economic development.
34. FAA § 281(a). Describe extent to which the loan will contribute to the objective of assuring maximum participation in the task of economic development on the part of the people of the country, through the encouragement of democratic, private, and local governmental institutions.
35. FAA § 281(b). Describe extent to which program recognizes the particular needs, desires, and capacities of the people of the country; utilizes the country's intellectual resources to encourage institutional development; and supports civic education and training in skills required for effective participation in governmental and political processes essential to self-government.
36. FAA § 201(b)(3). In what ways does the activity give reasonable promise of contributing to the development of economic resources, or to the increase of productive capacities?

AID 1240-2 (6-74)

37. FAA § 601(a). *Information and conclusions whether loan will encourage efforts of the country to: (a) increase the flow of international trade; (b) foster private initiative and competition; (c) encourage development and use of cooperatives, credit unions, and savings and loan associations; (d) discourage monopolistic practices; (e) improve technical efficiency of industry, agriculture, and commerce; and (f) strengthen free labor unions.*
37. (a) Only indirectly through promotion of self-sustaining economic growth; (b) the availability of low cost power will create more opportunity for private initiative, see Section II; (c) the loan is designed to assist in the establishment of rural electric cooperatives throughout the Philippines; (d) not applicable; (e) providing electrical power where none now exists will improve the technical efficiency of rural industry and agriculture.

38. FAA § 619. *If assistance is for newly independent country; is it furnished through multilateral organizations or plans to the maximum extent appropriate?*
38. N.A.

Loan's Effect on U.S. and A.I.D. Program

39. FAA § 201(b)(6) *Information and conclusion on possible effects of loan on U.S. economy, with special reference to areas of substantial labor surplus, and extent to which U.S. commodities and assistance are furnished in a manner consistent with improving the U.S. balance of payments position.*
39. The project's output of electricity will not compete with or adversely affect the U.S. economy in any respect; the services procured will be of U.S. source and origin. Commodity procurement will be from Code 941 countries with a large percentage expected to be of U.S. source and origin.
40. FAA § 202(a) *Total amount of money under loan which is going directly to private enterprise, is going to intermediate credit institutions or other borrowers for use by private enterprise, is being used to finance imports from private sources, or is otherwise being used to finance procurements from private sources.*
40. The loan will be channeled through an intermediate credit institution for use by newly created private electric cooperative. Commodities and services will be from private sources.

AID 1240-2 (5-74)

41. FAA § 601(L). Information and conclusion on how the loan will encourage U.S. private trade and investment abroad and how it will encourage private U.S. participation in foreign assistance programs (including use of private trade channels and the services of U.S. private enterprise).
41. Private enterprise is being utilized to the maximum extent practicable under this loan.
42. FAA § 601(d). If a capital project, are engineering and professional services of U.S. firms and their affiliates used to the maximum extent consistent with the national interest?
42. Engineering and other professional services will be procured in accordance with the Capital Projects Guidelines from either U.S. firms or their affiliates. The loan will not be used to finance the direct costs of construction.
43. FAA § 602. Information and conclusion whether U.S. small business will participate equitably in the furnishing of goods and services financed by the loan.
43. Small Business Notification procedures will be utilized.
44. FAA § 620(h). Will the loan promote or assist the foreign aid projects or activities of the Communist-Bloc countries?
44. No. The loan agreement will contain implementation control prohibiting such use.
45. FAA § 621. If Technical Assistance is financed by the loan, information and conclusion whether such assistance will be furnished to the fullest extent practicable as goods and professional and other services from private enterprise on a contract basis. If the facilities of other Federal agencies will be utilized, information and conclusion on
45. Services financed under the loan will be from private US engineering firms and other non-governmental sources.

*whether they are particularly suitable, are not competitive with private enterprise, and can be made available without undue interference with domestic programs.*

Loan's Compliance with Specific Requirements

- |   |  |
|---|--|
| 46. <u>FAA § 110(a); § 208(e)</u> . In what manner has or will the recipient country provide assurances that it will provide at least 25% of the costs of the program, project, or activity with respect to which the Loan is to be made? | 46. The loan agreement will so provide and the planned administrative arrangements will assure it.   |
| 47. <u>FAA § 112</u> . Will loan be used to finance police training or related program in recipient country?  | 47. No.  |
| 48. <u>FAA § 114</u> . Will loan be used to pay for performance of abortions or to motivate or coerce persons to practice abortions?  | 48. No.  |
| 49. <u>FAA § 201(b)</u> . Is the country among the 20 countries in which development loan funds may be used to make loans in this fiscal year?  | 49. Yes.   |
| 50. <u>FAA § 201(d)</u> . Is interest rate of loan at least 2% per annum during grace period and at least 3% per annum thereafter?  | 50. Yes.   |
| 51. <u>FAA § 201(f)</u> . If this is a project loan, what provisions have been made for appropriate participation by the recipient country's private enterprise?  | 51. The Philippine private sector will supply commodity and construction services for the projects. The end recipients of the proposed aid are in themselves private enterprise. |
| 52. <u>FAA § 604(a)</u> . Will all commodity procurement financed under the loan be from the United States except as otherwise determined by the President?   | 52. Commodity procurement will be limited to AID Geographic Code 941, plus the Philippines.  |
| 53. <u>FAA § 604 (b)</u> What provision is made to prevent financing commodity procurement in bulk at prices higher than adjusted U.S. market price?  | 53. N. A.  |

AID 1240 2 (5-74)

54. FAA § 604(d). If the cooperating country discriminates against U.S. marine insurance companies, will loan agreement require that marine insurance be placed in the United States on commodities financed by the loan? 54. Yes.
55. FAA § 604(e). If offshore procurement of agricultural commodity or product is to be financed, is there provision against such procurement when the domestic price of such commodity is less than parity? 55. N. A.
56. FAA § 604(f). If loan finances a commodity import program, will arrangements be made for supplier certification to A.I.D. and A.I.D. approval of commodity as eligible and suitable? 56. N. A.
57. FAA § 608(a). Information on measures to be taken to utilize U.S. Government excess personal property in lieu of the procurement of new items. 57. U.S. Government excess property is being utilized where practicable in lieu of new items. A separate procurement fund for excess acquisition will be established under the loan.
58. FAA § 611(b); App. § 101. If loan finances water or water-related land resource construction project or program, is there a benefit-cost computation made, insofar as practicable, in accordance with the procedures set forth in the Memorandum of the President dated May 15, 1962? 58. N. A.

ATD 1240-2 (5-74)

59. FAA § 611(c). *If contracts for construction are to be financed, what provision will be made that they be let on a competitive basis to maximum extent practicable?* 59. N.A.
60. FAA § 612(b); § 636(h). *Describe steps taken to assure that, to the maximum extent possible, the country is contributing local currencies to meet the cost of contractual and other services, and foreign currencies owned by the United States are utilized to meet the cost of contractual and other services.* 60. The GOP will provide all local currency required for completion of the project. Country owned PL 480 generations will be utilized to the maximum extent practicable, however the Philippines is not an excess currency country and foreign currency is not available to be utilized in lieu of dollars.
61. App. § 113. *Will any of loan funds be used to acquire currency of recipient country from non-U.S. Treasury sources when excess currency of that country is on deposit in U.S. Treasury?* 61. The Philippines is not an excess currency country.
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62. Section 30 and 31 of PL 93-189 (FAA of 1973). *Will any part of the loan be used to finance directly or indirectly military or paramilitary operations by the U.S. or by foreign forces in or over Laos, Cambodia, North Vietnam, South Vietnam, or Thailand?* 62. No.
63. Section 37 of PL 93 - 189 (FAA of 1973); App. § 111. *Will any part of this loan be used to aid or assist generally or in the reconstruction of North Vietnam?* 63. No.
64. FAA § 612(d). *Does the United States own excess foreign currency and, if so, what arrangements have been made for its release?* 64. The Philippines is not an excess currency country.
65. FAA § 620(r). *What provision is there against use of subject assistance to compensate owners for expropriated or nationalized property?* 65. The loan agreement will so provide.

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66. FAA § 620(k). If construction of productive enterprise, will aggregate value of assistance to be furnished by the United States exceed \$100 million? 66. N.A.
67. FAA § 638(i). Will any loan funds be used to finance purchase, long-term lease, or exchange of motor vehicle manufactured outside the United States, or any guaranty of such a transaction? 67. No.
68. App. § 103. Will any loan funds be used to pay pensions, etc., for military personnel? 68. No.
69. App. § 105. If loan is for capital project, is there provision for A.I.D. approval of all contractors and contract terms? 69. Yes.
70. App. § 107. Will any loan funds be used to pay UN assessments? 70. No.
71. App. § 109. Compliance with regulations on employment of U.S. and local personnel. (A.I.D. Regulation 7). 71. The loan agreement will so provide.

72. App. § 110. Will any of loan funds be used to carry out provisions of FAA §§ 209(d)? 72. No.
73. App. § 112. Will any of the funds appropriated or local currencies generated as a result of AID assistance be used for support of police or prison construction and administration in South Vietnam or for support of police training of South Vietnamese? 73. No.
74. App. § 114. Describe how the Committee on Appropriations of the Senate and House have been or will be notified concerning the activity, program, project, country, or other operation to be financed by the Loan. 74. Special notification is being made.
75. App. § 601. Will any loan funds be used for publicity or propaganda purposes within the United States not authorized by Congress? 75. No.
76. App. § 604. Will any of the funds appropriated for this project be used to furnish petroleum fuels produced in the continental United States to Southeast Asia for use by non-U.S. nationals? 76. No.
77. MMA § 901.b; FAA § 640C.

*(a) Compliance with requirement that at least 50 per centum of the gross tonnage of commodities (computed separately for dry bulk carriers, dry cargo liners, and tankers) financed with funds made available under this loan shall be transported on privately owned U.S.-flag commercial vessels to the extent that such vessels are available at fair and reasonable rates.*

(a) The loan agreement will so provide.

*(b) Will grant be made to loan recipient to pay all or any portion of such differential as may exist between U.S. and foreign-flag vessel rates?*

(b) It is not our present intention to do so.

**DEPARTMENT OF STATE**  
**AGENCY FOR INTERNATIONAL DEVELOPMENT**  
WASHINGTON, D. C. 20523

ANNEX XLX  
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OFFICE OF  
THE ADMINISTRATOR

Loan No. 492- -

DRAFT  
LOAN AUTHORIZATION

Provided from: Food and Nutrition  
(Philippines: Rural Electrification Loan)

Pursuant to the authority vested in me as Administrator, Agency for International Development (A.I.D.), by the Foreign Assistance Act of 1961, as amended, (the "Act") and the Delegations of Authority issued thereunder, I hereby authorize the establishment of a loan pursuant to Part I, Chapter 1, Section 103 and Chapter 2, Title I, the Development Loan Fund, to the Government of the Republic of the Philippines through the National Economic Development Authority (Borrower) for the National Electrification Administration (Beneficiary) of not to exceed Twenty Million Dollars (\$20,000,000). The proceeds of this loan will be used (a) to permit the Beneficiary to finance the foreign exchange costs of certain engineering and other professional services required to continue development of its institutional and managerial capabilities and (b) to permit the Beneficiary to relend the remainder of said proceeds to a number of newly established rural electric cooperatives to finance the foreign exchange costs of certain goods and services required by said cooperatives for the development of their distribution systems.

1. Interest Rate and Terms of Repayment

The loan shall be repaid by the Borrower within forty (40) years after the date of the first disbursement under the loan, including a grace period not to exceed ten (10) years. The interest on the unrepaid principal balance of the loan shall be from the date of first disbursement at the rate of two percent (2%) per annum during the grace period and at the rate of three percent (3%) thereafter.

2. Currency of Repayment

Provision shall be made for repayment of the loan and payment of interest in United States dollars.

3. Other Terms and Conditions

Unless A.I.D. agrees in writing,

(a) Goods and services financed under the loan shall have their source and origin in countries under A.I.D. Geographic Code 941 (Selected Free World).

(b) No A.I.D.-financed commodities will be provided to cooperatives prior to a certification by the Beneficiary and its U.S. consultant as to the technical, economic and financial soundness of each proposed cooperative.

(c) Borrower shall reloan the proceeds of the loan to Beneficiary on terms and conditions satisfactory to AID.

(d) This loan shall be subject to such other terms and conditions as A.I.D. may deem advisable.

\_\_\_\_\_  
Daniel Parker

\_\_\_\_\_  
Date