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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

INDONESIA - CENTRAL JAVA ELECTRIC POWER REHABILITATION

AID-DLC/P-386

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

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AID-DLC/P-886
March 11, 1970

MEMORANDUM FOR THE DEVELOPMENT LOAN COMMITTEE

SUBJECT: Indonesia - Central Java Electric Power Rehabilitation

Attached for your review are the recommendations for authorization of a loan in an amount not to exceed \$16,800,00 to the Government of the Republic of Indonesia to assist in financing the foreign exchange costs of equipment, materials and services necessary for the rehabilitation and operation of certain electric power facilities of Perusahaan Listrik Negara in the Tuntang System located in Central Java.

This loan proposal is scheduled for consideration by the Development Loan Staff Committee at a meeting on Thursday, March 19, 1970.

Rachel C. Rogers
Acting Secretary
Development Loan Committee

Attachments:

Summary and Recommendations
Project Analysis
ANNEXES 2-13
ANNEX 1 - To be distributed later

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Institutional Reform of the Electric Power Sector

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SUMMARY AND RECOMMENDATIONS

A. BORROWER:

1. The Borrower is the Government of Indonesia (GOI).
2. The Beneficiary is Perusahaan Listrik Negara (PLN), a wholly owned Government utility (Perum), which is entrusted with substantially all of the public generation, transmission and distribution of electrical power in Indonesia.

B. LOAN:

1. Amount: Not more than U.S. \$16.8 million.
2. Terms:
 - a. U. S. Government to GOI: This will be a 40-year loan to the Government of Indonesia, with interest of 2 percent for the first 10 years during which no amortization payments will be required; thereafter 3 percent interest for 30 years, during which time the loan will be fully amortized in level semi-annual installments of principal and interest, payable in U.S. dollars.
 - b. GOI to PLN: The second step terms from GOI to PLN will not now be specified. They will be determined after a three-year grace period based upon the recommendations of PLN's management consultants and the program adopted by the GOI and PLN for implementation of those recommendations (see Section II A).

C. TOTAL COST OF THE PROJECT:

The total cost of the project is estimated to be equivalent to \$22.2 million of which the A.I.D. financed foreign exchange costs are \$16.8 million, third country foreign exchange costs are \$900,000 and local currency costs are the equivalent of \$4,500,000 (the latter two to be provided from the GOI National Development Budget).

D. DESCRIPTION OF THE PROJECT:

The project provides for rehabilitation of the distribution systems of the principal load centers of the Tuntang Electric Power System in Central Java and for the provision of adequate generating capacity. Existing diesel and hydro-electric generating facilities will be rehabilitated and additional capacity for minimum interim needs will be provided. A major component of the

project will be technical and management assistance and training to system management and operating personnel in Central Java. Rehabilitation and expansion of transmission lines and installation of major new generating capacity are deferred pending completion of a long-range planning study which is expected to begin by March 1, 1970.

E. PURPOSE OF LOAN:

To finance the U. S. dollar costs of imported equipment, engineering and construction services, and technical and management assistance.

F. BACKGROUND OF ACTIVITY:

Rehabilitation of the Electric Power Systems in Central Java is recommended in the October 1968 IBRD Appraisal Report, "Current Economic Position and Prospects of Indonesia," and is included in the current 5-year plan of the GOI. A reconnaissance study for this activity was conducted by two AID/W power engineers in early CY 1969, and a Feasibility Analysis was prepared in the last half of CY 1969 by an electrical engineer public utilities specialist, and two short-term specialists. The present rehabilitation project will provide better and more reliable electric service to selected areas within the part of Indonesia having both the highest population density and one of the highest levels of industrialization. It will facilitate economic development of those areas and will provide the essential service base upon which substantial system expansion can be predicated.

G. ALTERNATE FINANCING:

This project is recommended as part of the U. S. commitment under the Intergovernmental Group on Indonesia. Other donors are also working in the power sector in Indonesia: IBRD, Djakarta; Federal Republic of Germany, Central Java; and the Government of Japan, East Java. ExIm Bank does not currently make loans or guarantees in excess of one year in Indonesia and ExIm clearance for A.I.D. participation herein has been received.

H. ISSUES: None.

I. STATUTORY CRITERIA:

This loan meets all statutory criteria. See Annex 11.

J. MISSION AND EMBASSY VIEW:

USAID and the Country Team recommend that the loan be made.

K. RECOMMENDATIONS:

Authorization of a loan to the Government of Indonesia in an amount not to exceed U. S. \$16.8 million in accordance with the terms and conditions set forth in the proposed authorization shown in Section IV. An outline of conditions precedent and covenants is set forth in Section III C.

USAID CAPITAL ASSISTANCE COMMITTEE MEMBERS:

| | |
|-----------------------------------|----------------|
| Loan Officer | Paul Wenger |
| Engineer | Bruce Kent |
| Economic | Edmund Auchter |
| Controller | Charles Martin |
| Program | John McCarthy |
| Consulting Loan Officer | Howard Helman |

AID/W CAPITAL ASSISTANCE COMMITTEE MEMBERS:

| | |
|-------------------------------------|----------------|
| Loan Officer and Chairman | Howard Helman |
| Engineer | Earl F. Clark |
| Attorney | Stanley B. Kay |
| Procurement | Robert Cahn |
| Desk Officer | Gerald Kamens |
| Consulting Loan Officer | Norman Cohen |

I. THE PROJECT

A. Definition of the Project

The objective of the project is to improve the quality of service to the principal load centers in the Tuntang electrical system in Central Java in order to (a) permit substantial growth in electric power consumption; (b) demonstrate potential demand in these centers as a model for future expansion; and (c) encourage confidence in purchased electric power thereby stimulating industrial and commercial consumption.

The project will consist of rehabilitation of the distribution systems for Semarang, Jogjakarta, Solo, and Magelang, rehabilitation of existing hydroelectric and diesel generating units, and provision of additional interim generating capacity at Semarang and Jogjakarta. Rehabilitation of transmission lines has not been included in the project and will await a planning study to begin about March 1, 1970. Substantial technical and management assistance to the regional PLN organization in Central Java will be provided to improve its capability to maintain, operate, and manage the system. The management assistance will complement management assistance for reform of the overall public electric power sector which is being financed under an IDA loan.

B. Background of the Project

"In the period 1953-57, the three Dutch-owned electric utility companies supplying power in Indonesia were nationalized by the Indonesian Government. The transfer was not amicable, records were destroyed and there was no transition period during which the new Indonesian management could have been trained by its predecessors. During subsequent years the decline in the efficiency of the utilities was marked by inadequate expansion and poor operating conditions. In 1961, the three nationalized utilities were consolidated into a single entity, the predecessor of PLN responsible for all public electric utility facilities in the country. In 1965, when PLN was organized in its present form, it was relieved of the responsibility for major power station construction, which is at present carried out under other arrangements, under the authority of the Minister of Public Works and Power. Moreover, given the uncertainties as to fund availabilities, planning, which is carried out both by offices within the Ministry and PLN itself, has at best been haphazard." ^{1/}

Operation of the system has been hampered by the chaotic economic conditions, severe inflation and inadequate funds. Peak demand has remained almost constant, being controlled by PLN's inability to provide further

^{1/} IBRD (IDA) Appraisal of the Electricity Distribution Project, Djakarta of Perusahan Listrik Negara Indonesia (Report No. PU-18a, Oct. 8, 1969 P.3)

service, prejudicial rates to industrial and commercial users, restrictions against industrial use during peak periods, and unreasonable connection fees. Annual consumption of electricity is about 15 KWH per person, one of the lowest in the world (See Annex 6A)

Rehabilitation of the electric power systems in Central Java is recommended in the October 1968 IBRD Appraisal Report "Current Economic Position and Prospects in Indonesia," and is included as an item of highest priority in the GOI's current Five-Year Development Plan (1969/70 - 1973/74). We fully agree with the IBRD recommendations and the priority assigned to the project by the GOI.

A reconnaissance survey for Central Java power system rehabilitation and expansion was conducted by two A.I.D./W electrical engineers in February and March 1969. This survey recommended the proposed program.

In April 1969, USAID was requested by the GOI to finance a feasibility study to (a) rehabilitate the distribution systems of Semarang, Jogjakarta, and Solo, (b) rehabilitate the existing generating units, and (c) provide short-term future needs for new generating capacity. It also requested preparation of a long-range plan for integrated overall development of generation, transmission and distribution of electric power in Central Java. Rehabilitation of the distribution system in the city of Magelang was later added to the project at PLN's request.

A feasibility analysis for this activity was prepared in the latter half of 1969. That analysis includes the detailed planning and technical justification for the overall scope of the project and provides the information required to support favorable findings in accordance with Section 611 of the Foreign Assistance Act.

C. Program Justification

1. A Program for Electric Power Development In Indonesia

The proposed project is the first step in a broad program for electric power development in Central Java. The presently conceived elements of the program are:

- a) the proposed project;
- b) a long-range planning study for a full expansion program up to 40 times present system capacity;
- c) rehabilitation of the transmission lines of the Tuntang system; and
- d) near-term major overall power expansion projects.

2. Place of the Project in the Indonesian Development Program

"In common with other Sectors, upkeep of electric power facilities and their development have lagged during the long period of political and economic difficulties in Indonesia and in general power supply is now inadequate or worse. Improvement and expansion of electric power services therefore rank high among the priorities for economic action in Indonesia in the next few years and the urgent need for a number of investments in the power sector has been established. In this respect, the Government, as a part of its first Five-Year Plan submitted to Parliament in 1969, has prepared a plan of expansion of publicly owned electric facilities for the period 1969-1973. An investment of about U.S. \$260 million equivalent, of which 72% is foreign exchange, is involved, its implementation depending primarily on the degree of multilateral and bilateral assistance provided to the sector."^{2/} This project is included in the Plan.

Rehabilitation of the economic infrastructure is one of the three priority fields in the Five-Year Plan and rehabilitation of transmission and distribution networks is given first place among the power projects to be considered for implementation.

Although institutional improvements and revision of the electric power tariff structure are given lesser priority in the Plan, these are being emphasized in this project, as in the IBRD Power Rehabilitation project in Djakarta, because of the importance of good management and operating practices to realization of the goals of the Five-Year Plan. Local currency and third country foreign exchange requirements for the project will be programmed in the Indonesian Development Budget.

3. Place of the Project in the U.S. Objectives for Assistance in Indonesia.

The objectives of our aid policy are to assist Indonesia in preserving the economic stability achieved in the post-Sukarno years and in developing a sound infrastructure and base for economic growth and development. Wherever possible we want to provide aid which will strengthen the Indonesian private sector and widen the opportunities for its growth within the framework of the Five-Year Plan. We seek to accomplish these objectives through multilateral assistance through the framework of the Inter-Governmental Group on Indonesia (I.G.G.I.).

This project is part of a multi-donor effort to revitalize the badly rundown and inadequate power systems in Indonesia. Initial plans to finance system rehabilitation are being made by IBRD (IDA) in Djakarta, the Federal Republic of Germany (FRG) and A.I.D. in Central Java, the Japanese in East Java, and A.I.D. in Medan, Sumatra.

^{2/} IBRD, Id, P.i

The project is strongly supported by the Country Team, and the certification by the USAID Director of the country's performance on previous loans and capacity to implement this loan appears in Annex 10.

4. Current Status of the Indonesian Economy

The general economic condition of Indonesia has continued to develop favorably in 1968 and 1969. During 1969 the rise in the consumer price index in Djakarta was less than 10% compared to an increase of 80% during the preceeding 12 months. There was a sharp rise in real Government revenues, a fact which together with the stability of the rupiah's external value reflected continued and increased public confidence in the currency. Early in January 1970, prices in Djakarta rose sharply following an increase in the price of petroleum products, but gradually declined later in the month.

a. Domestic Factors

The decline in the rate of inflation was largely due to the successful implementation of a balanced routine budget, a cautious monetary policy, the availability of substantial amounts of foreign assistance and the continued increase in agricultural production. The sharp curtailment of the former inflationary momentum has led to some sluggishness in the economy, reflected in the low demand for imports and domestic credits, and steps are being taken by the Indonesian government and its monetary authorities to increase economic activity through encouragement of new investment and its careful guidance to economically important areas. The growth of the economy continues to be handicapped by the generally poor condition of Indonesia's existing infrastructure, problems of transportation and communication, and the underdeveloped finance markets. To correct this, work within the framework of Indonesia's Five-Year Development Plan, (REPELITA - an acronym from the initial letters of the Plan's title), of which the project to be financed by this loan is a part, continues.

b. Balance of Payments

Indonesia's balance of payments continued to improve in 1969. Total exports have increased considerably and Indonesia's net foreign exchange position was more favorable than in previous years. The BE exchange rate (applicable to the import of more essential goods and services) has remained stable at 326 Rupiah:U.S.\$1 for over one year, and the DP exchange rate (applicable to transactions and services and less essential but permitted commodity imports) has hovered around 385 Rupiah:U.S.\$1 since January 1969.

There was a substantial increase in external debt due to large multi-donor assistance and a modest excess of imports over exports. These results were anticipated for a country receiving major development assistance, and starting from a low economic base.

Among Indonesia's exports, oil and timber have shown the greatest rate of increase and promise to grow most rapidly in the near future. The sharp change in foreign investment policy begun in 1966 continues to attract increased amounts of foreign private investment.

BALANCE OF PAYMENTS (Millions of U.S. Dollars)

| | 1967 ^{1/} | 1968 ^{1/} Revised Est. | 1969 ^{1/} Projection | 1970 ^{2/} Projection |
|--|--------------------|---------------------------------------|----------------------------------|----------------------------------|
| Exports (FOB) | | | | |
| Non Oil | 526 | 569 | 622 | 676 |
| Net Oil ^{4/} | 69 | 78 | 100 | 139 |
| Net Private Capital & Credit ^{3/} | 100 | 65 | 64 | 63 |
| Total Sources | <u>695</u> | <u>712</u> | <u>786</u> | <u>878</u> |
| Total Uses | <u>977</u> | <u>990</u> | <u>1114</u> | <u>1358</u> |
| Non Oil Imports | 737 | 751 | 886 | 1059 |
| Non Oil Services (net) | 156 | 160 | 183 | 215 |
| Debt Servicing | 54 | 75 | 53 ^{4/} | 84 |
| Errors & Omissions | 30 | 4 | 8 ^{4/} | - |
| Foreign Exchange Gap | 282 | 278 | 328 | 480 |
| Official Transfers | 264 | 266 | 351 | |
| Monetary Movements | 18 | 12 | - 23 | |

^{1/} Based on IMF and IBRD estimates

^{2/} GOI projection for 1970/71

^{3/} Excluding Oil, but including repatriation

^{4/} Based on data for first 6 months

c. Self-Help

The IBRD and the IMF have been responsible for working with the Government of Indonesia on more general economic policies, and in turn these agencies have reported on the course of these to the other members of the IGGI. The most recent reports of the IMF and the IBRD to the IGGI countries are testimony to Indonesia's continued satisfactory performance in meeting such self-help conditions. There is a much larger and more systematically prepared program of public investment for the next year; there has been and will continue to be marked increase in Government revenues, largely through improvements in tax collections, and there was a surplus in the routine budget for the Fiscal Year 1969/70.

On this basis, we conclude that economic conditions and the current economic performance of the Indonesian Government warrant proceeding with this loan. Further data on economic conditions in Central Java appear in Annex 8 A.

II. PROJECT EVALUATION

A. Borrower and Beneficiary

The Borrower will be the Government of Indonesia (GOI). The Beneficiary is Perusahaan Listrik Negara (PLN). PLN is a Perum, which is a wholly Government owned corporation, generally one performing public utility services. PLN is under the control of the Directorate General of Power and Electricity which is part of the Ministry of Public Works and Power.

1. Organization

PLN is governed by the laws relating to Government agencies or enterprises in general and by a 1965 Government decree which establishes PLN and defines the scope of its operations. PLN has a Board of five Directors consisting of the President and the heads of the four main departments; Personnel, Operations, Financial, and Construction. De facto control of operations rests with the Ministry of Public Works and Power to whom the Board of Directors are responsible. The PLN central organization controls planning and allocation of funds for its 14 operating regions. Organizational charts of the public power sector and of the Board of Directors and management staff are shown in Annex 4 A.

2. Scope of Responsibilities and Operations

PLN is responsible for all public utility electric power service throughout Indonesia. ^{3/} PLN operates power systems on the island of Java and in Medan and Palembang, Sumatra and Makassar, Celebes, and has the potential of becoming a large utility. It also operates many small isolated systems throughout Indonesia. PLN's inability to meet the requirements for electric power in the main population centers of Indonesia has given rise to substantial captive (self-owned) generating capacity in the hands of industrial and commercial enterprises. As of mid 1968, publicly owned and installed generating capacity in Indonesia was 651 MW (including Djatiluhur) and captive generation was estimated to be about 200 MW.

3. Management and Operating Practices

a. General Practices

Management practices of the PLN Central organization manifest weakness in several important respects:

^{3/} An exception to this is the Djatiluhur hydro-electric authority, which is operated by a separate authority, but sells its power to PLN exclusively.

- 1) as indicated, the central management is not autonomous;
- 2) purchasing and contracting are outside the control of PLN management with the result that expenditures may not be responsive to priority needs. Assumption of these functions by higher authority within the Ministry has led to deterioration of the planning function within PLN. (There have been problems associated with importation by PLN of commodities financed under A.I.D. commodity import assistance. PLN has been declared an ineligible purchaser as have other budget supported agencies encountering similar problems. The problems will not affect procurement for this loan.);
- 3) the focus of decision making in the Djakarta office prevents timely action by those most familiar with operating problems, particularly with regard to allocation of necessary financial resources;
- 4) operating and maintenance procedures are inadequate for all systems;
- 5) accounting, billing and collection procedures are inadequate, records are kept but records management and coordination of information is lacking, centralized planning is not based upon data available from records within the districts;
- 6) there are too many employees and salaries are grossly inadequate, efficiency is hampered, and few persons are adequately trained or experienced in tasks they are called upon to perform; and
- 7) planning for system operation, capital investment, and allocation of funds are accomplished on an ad hoc basis. Major systems often suffer from shortages of needed operating funds.

4. Self-Help Measures and Institutional Reforms

Project assistance directed to almost any important public sector in Indonesia will encounter similar institutional problems to those outlined above. PLN operations, like those of other public corporations, reflect often ingenious and astonishing means for continuing operation under the difficult and spasmodic conditions of the past decade. Reform of management and operating practices of the overall PLN institution is needed (1) to introduce sound utility practices and (2) to influence thinking away from the shorter term least cash outlay philosophy which now prevails to planning and preparing for rapidly expanding and improved service. These reforms can only be accomplished gradually and over a reasonably long term.

Principal among the reforms are: (1) establishment of de facto autonomous operation; (2) revaluation of assets and development of a revised financial structure; (3) establishment of tariff schedules which

will eliminate unreasonable subsidies and provide funds sufficient to (a) meet all operating expenses and (b) adequately compensate investment in facilities and provide a reasonable level of internal cash generation for future system expansion; (4) improvement in staffing pattern, salary scales, and standards for employment; (5) improvement in operating and maintenance practices; and (6) adoption and continuing use of suitable system standards. Accomplishment of these reforms have been included as self-help objectives in Section 5.2(a) of the A.I.D. draft Loan Agreement.

a. Method for Accomplishment of Reform of the Overall PLN Organization

The format for accomplishment of reforms for the electric power sector will be (1) the provision of management consultants who will have broad flexibility to decide what standards should be applied to their task and to make recommendations for the needed institutional reforms; (2) review of the recommendations by the GOI and PLN and by IDA, A.I.D., and possibly other donors, and adoption by the GOI and PLN of a program for accomplishment of the reforms; and (3) implementation of the reforms by PLN with external assistance.

Under Article II of the IDA Project Agreement for the Djakarta power distribution system rehabilitation, PLN agrees to employ management consultants financed under the loan. The proposed IDA draft scope of work for the consultants is Annex 2C. The provision of the IDA agreements relating to self-help measures, and a comparison of those provisions with the self-help objectives of the A.I.D. draft Loan Agreement, appear in Annex 13. X

The consultants will make recommendations in such areas as governing laws, asset revaluation, tariff schedule revision, employment practices, and operating procedures. Legal reforms are to be accomplished within 12 months of the effective date of the agreement, revaluation of assets within 20 months, and tariff schedule revision within 32 months. X

We will work closely with the IBRD Resident Mission and with the management consultants on a current and continuing basis toward evolving and implementing the program of institutional reforms. Toward accomplishment of this task, we have included in the Loan Agreement commitments by the GOI and PLN to accomplish the obligations - X

"as prescribed in Article II of the Project Agreement with the International Development Association within the time limits prescribed in said Project Agreement. In carrying out the recommendations of the management consultants under Section 2.02(b) of the Project Agreement with the International Development

Association, the parties hereto agree on the following general objectives that should govern Beneficiary's organization, structure, authority and operations and further agree that Beneficiary's program to implement the recommendations of the management consultants as required by Section 2.02(b) of that agreement shall be in accordance with the objectives hereafter set forth and shall be subject to prior approval of A.I.D.:

(i) A revised schedule of electricity tariffs and charges fixed at such levels as should provide Beneficiary with revenue sufficient (a) to cover all its operating expenses, including administration and overhead expenses, maintenance, depreciation, and taxes, and interest on, and to the extent it exceeds depreciation, amortization of debt, and (b) to provide a reasonable return on its assets and to finance a reasonable portion of its capital expenditures;

(ii) A revaluation of Beneficiary's fixed assets in accordance with sound public utility practice;

(iii) Full and exclusive responsibility vested in Beneficiary for the public electric power sector of the Borrower, including planning, procurement, construction, operation, maintenance, and ownership of all facilities therein;

(iv) Management organization and employment practices, including staffing patterns, salary structure, and employee qualifications, in accordance with sound public utility practice;

(v) Operating practices, including records, accounting system, billing and collection procedures, financial planning and administration, insurance, repair and maintenance procedures, and procedures for systems operations, all in accordance with sound public utility practice;

(vi) Appropriate standards for the electric power system, including those for equipment, materials, construction, and operation and maintenance, in accordance with sound public utility practice."



b. Accomplishment of Self-Help Measures for PLN Region X

Technical and management assistance and training for PLN Region X will have two principal objectives (1) to implement as rapidly as feasible within Region X the recommendations of the IBRD management consultants as adopted by the PLN central organization;

and (2) to provide on-the-job training to Region X personnel in management and operation of the systems in Central Java. Training will be provided both by the project engineer where consistent with his responsibilities and by the general consultant. The general consultant will provide general engineering consulting services to PLN Region X for an extended period and will be the focal point for coordination of all Region X training and institutional development activities. He will also be responsible for coordination with the IBRD management consultants. The scopes of their responsibilities are defined in Annex 2 B.

The general consultant will provide personnel who have performed system operating tasks such as generating plant and electric system maintenance, accounting, load dispatching, system operations, etc., to work with PLN Region X personnel on a continuing basis to develop their skills and build their confidence in good operating practices. This will be supplemented by participant training of PLN Region X personnel in performing similar tasks for utility systems in the U. S. or third country. (See Annex 2 B)

5. Evaluation of PLN Capability to Implement the Project

For this project, PLN and the GOI will budget for and will provide a reserve fund to meet on a continuing basis the costs of project implementation and operating expenses for Region X. The GOI has agreed to budget for payment to PLN of uncollected billings from budget supported State enterprises. PLN will eliminate unreasonable connection fees for new service and will undertake to promote new customer usage and to expand existing consumption. Most importantly, PLN enthusiastically accepts the need for technical assistance and training for Region X personnel and has agreed to the need to carefully plan for provision and utilization of Region X counterpart personnel.

Construction of the rehabilitated plant will be accomplished under supervision of responsible U. S. contractors.

It is our conclusion that PLN has the capability (1) to develop its own technical and management practices within Region X to the extent required to satisfactorily operate the rehabilitated system and (2) to improve operating and maintenance practices so that the objectives of the project will be accomplished. X

B. Technical Analysis

1. Scope of the Project

The project provides for rehabilitation of portions of the Tuntang Electric Power system including:

a) the complete rehabilitation of the electric power distribution systems in the cities of Semarang, Jogjakarta, Solo, and Magelang, including construction of a new overhead 20KV distribution systems and redesign of the existing service system;

b) the rehabilitation of existing hydroelectric and diesel generating units;

c) the provision of additional generating capacity at Semarang (15 MW gas turbine unit) and Jogjakarta (three 2 MW diesel generators);

d) the provision of tools and service equipment for system operation and maintenance and of communications equipment; and

e) technical and management assistance (including participant training in the U.S. and in third countries) to PLN personnel in Central Java (Region X) throughout the rehabilitation period to develop sound management, operating and maintenance practices.

2. Cost of the Project

| | (\$000 Equivalent) | | | <u>TOTAL</u> |
|--|--------------------|----------------------|-----------------------|--------------|
| | <u>U.S.</u> | <u>THIRD COUNTRY</u> | <u>LOCAL CURRENCY</u> | |
| Rehabilitation of Distribution Systems | 6679 | | 2550 | 9229 |
| Rehabilitation of Existing Generators | 315 | 870 | 45 | 1230 |
| Additional Generating Capacity | 4315 | | 863 | 5178 |
| Tools, Service Equipment, Communications Equipment | 350 | | 25 | 375 |
| Project Engineering Services | 1705 | | 305 | 2010 |
| General Consulting Services* | 824 | | | 824 |
| Sub-Total | <u>14188</u> | <u>870</u> | <u>3788</u> | <u>18846</u> |
| Contingencies | 1415 | | 380 | 1795 |
| Price Escalation | 1192 | | 332 | 1524 |
| TOTAL | <u>16795</u> | <u>870</u> | <u>4500</u> | <u>22165</u> |

| | |
|------------------------|------------|
| * Participant training | 35 |
| Library | 8 |
| General Consultant | <u>781</u> |
| | 824 |

3. The Tuntang System

A schematic layout of the Tuntang System, superimposed on a map of the eastern portion of Central Java, is shown in Figure 1. The system

was originally built by the Dutch prior to World War II, and many existing system components are more than 30 years old. Transmission is effected at 30 KV, and distribution at 6 KV (mainly by underground cable). Service lines are overhead at a nominal 127 volts. Frequency is 50 cycles. Details of the system layout, loads and capabilities are found in Annex 5 A.

a. Generation:

Generating capabilities within the Tuntang System and those to be added by this project are summarized as follows:

| | CAPACITIES IN MEGAWATTS | | | | Total Capacity |
|------------------------------------|-------------------------|--------------------|----------------|----------------|----------------|
| | Hydro Timo | Electric Djelok | Diesel Gen. | Gas Turbine | |
| Existing Nameplate Capacity | 12.0 | 20.5 | 10.2 | 14.4 | 57.1 |
| Theoretically Realizable Cap. | 8.0 | 15.4 | 10.2 | 14.4 | 48.0 |
| Actually Realizable Now | 8.0 | 13.0 | 5.6 | 14.4 | 41.0 |
| Capacity When Rehabilitated | 8.0 | 15.0 | 9.2 | 14.4 | 46.6 |
| Added Generation, this project | | | 6.0 | 15.0 | 21.0 |
| Capacity at Compl. of this project | 8.0 | 15.0 | 15.2 | 29.4 | 67.6 |

During 1968, generation was about 182 million KWH and peak demand was 30.2 MW. (The load factor was 68 percent.) Over 80%^{5/} of current KWH generation (depending on water availability) comes from the Djelok and Timo hydro-electric stations. [Rehabilitation, principally cleaning and repair of tunnels and aqueducts, is expected to increase realizable peak capacity for these units by 2.0 MW to 23 MW.] Adoption of an improved rule curve for water flow from Rawa Pening Lake, will substantially increase the number of KWH generated by these units.]

There are eleven diesel generators in the system. Their rehabilitation is expected to increase capability by 3.6 MW to 9.2 MW. All of the diesel units are of non-U.S. manufacture, and will require the procurement of repair parts and spares by the Government of Indonesia with foreign exchange funds other than those to be provided under the A.I.D. loan. Three-fourths of this expense will be for a two-year stock of spare parts. It is contemplated that the A.I.D. loan funds will be used for the corollary procurement of parts, materials and equipment of U.S. manufacture required for the repair or replacement of auxiliary equipment in the various diesel plants, and the project estimate so provides.

Three new 2.0 MW units are planned for the existing power plant site in Jogjakarta. Realizable capability will be increased to 9.6 MW. Additional fuel storage capacity will also be provided.

5/ 93% in 1968

There is a 14.4 MW gas turbine unit at Semarang. It is of West German manufacture and was installed in 1968, but it has not been efficiently utilized. Fuel price adjustments after installation have made it uneconomical to operate on high speed diesel oil (HSD). Included in the project are improvement of auxiliary plant equipment, instrumentation, and fuel cleaning, handling and storage facilities including provision of new facilities and conversion of the existing unit to consumption of industrial diesel oil (IDO).

A new 15 MW gas turbine unit, consuming IDO fuel, will also be provided at the Semarang site. The unit will assure firm capacity to the largest load center in the system.

b. Transmission Lines

Transmission lines are single or double circuit 30 KV. Transmission distances are considerable and losses are in excess of 9% of total energy generated, with voltage drops in transmission of as much as 17%. There is both a need for higher transmission voltage and for improved operating techniques to control heavy flows of reactive KVA.

Transmission line rehabilitation is not included in the project. We are awaiting the results of the long range planning study to begin about March 1. Funds are included for repair of structures to assure continuity of service and for lightning protection to substations. It has been determined that with the additional generating capacity to be installed at Semarang and Jogjakarta, emergency service can be maintained during periods when a transmission line from one of the major power sources is non-operative, and that for normal contingencies, such as temporary loss of a major generating unit, it is probable that all major load centers can be reasonably served. This standard of service is consistent with the objectives of the project, and will encourage increased industrial and commercial utilization of electric power.

c. Distribution Systems

Distribution is effected at a nominal 6 KV, mainly by underground cable. Many cable runs are old and failures are frequent. Since the thermal and operational limits of the cables are uncertain, the system is rarely operated at voltages higher than 5.5 KV. Three-phase distribution transformers, each serving a large area, are used. The distribution transformer capacities are generally large enough, but the available power cannot be reasonably distributed in view of the relatively low load density which prevails and the service distances involved. Service lines extend for inordinate distances from transformers and often overlap. Service is at intolerably low voltage. Losses in distribution in 1968 amounted to 22% of total KWH generated.

PLN has concurred with the Consultant's recommendation to eliminate the 6 KV underground distribution system and to replace this with a 20KV overhead system using a much larger number of smaller transformer

units which will be pole mounted. Service lines will be short to reduce losses and to provide better service voltage. A nominal 220 voltage service is contemplated, although a final decision on this point can be deferred to the start of the design phase. Single phase service will be used generally with three-phase service provided where required. Using 20 KV distribution systems, only one major transmission step-down transformer substation will be required initially for each one of the four major cities. The existing principal substation at Djatingaleh, on the outskirts of Semarang will be eliminated.

The Feasibility Analysis assumed that considerable portions of the existing copper service conductors could be continued in service in the rehabilitated system. Considering the age and lack of information on material specifications and usage history, we have questioned the desirability of such practice. We have concluded, with the concurrence of the consultant, who prepared the feasibility analysis, that it cannot be determined without further study and testing appropriate for the detailed design for the project, whether a substantial portion of this wire may be utilized. Therefore, it is desirable to include in the plan for financing funds sufficient to replace existing service wire with new conductor. The Project Engineer will determine whether and to what extent existing service wire can be utilized.

Most residential customers have their service regulated by current limiters. With improved service and a revised schedule, many customers will wish to convert to metered service. The consultant has estimated, and we concur, that meter installations for about 25% of existing limiter consumers will probably occur during rehabilitation period. Funds have been provided for this purpose.

New substation transformers will be needed to step-down voltage from transmission lines (now 30 KV) to the distribution voltage (now 6 KV but being changed to 20 KV). It is anticipated that the existing transmission voltage will be increased to at least 70 KV or higher. These are long-lead items and must be procured early to avoid delay. It is not possible at this time to identify future high voltage requirements for these units. However, a recommendation will be made in the long-range planning study, and final procurement specifications must await a firm decision to begin transmission line rehabilitation (now proposed by the Federal Republic of Germany). The long-range planning study is expected to begin before March 1, 1970, and the recommendations for transmission line rehabilitation will be available by August 1, 1970, well in advance of the estimated time for purchasing the main transformer units. Meanwhile, we have based cost estimates upon provision of 70/30/20 KV, 3 winding transformers, which should provide sufficient funds to meet foreseeable contingencies.

d. Tools and Service Equipment

Adequate service and maintenance capability must be established for PLN Region X. This will be accomplished through training (see Sec. III B), and will be supported by provision of adequate tools, instruments, and service

line trucks for emergency crews. A line service truck, fully equipped, is planned for each of the three major cities (Semarang, Solo, and Jogjakarta); a smaller unit is believed adequate for Magelang.

e. Communications Equipment

An interconnected and reliable system of rapid communication is needed. The system should encompass the central dispatching office, all power stations, and all principal transmission substations. Cost estimates for a microwave system have been included in this project, but the type of communication system will be set in the final design.

f. Other Items

The Participant Training Program discussed in Section II.A (see Attachment III to Annex 2.B) and a small technical library are also included under the loan.

4. Special Considerations

a. Purchase of Parts of Eastern European Source (Czechoslovakia) for Generator Rehabilitation.

Two diesel generating units located at Kudus and four hydro electric units at Timo were purchased from Czechoslovakia. Repair parts for the diesel units are estimated to cost \$1,122 and spare parts \$70,935. Repair parts for the Timo hydro plant will consist mainly of auxiliary and lightning protection equipment associated with the station's switch yard and operations, and are expected to cost in the range of \$30-40,000. All of these items will be financed with GOI foreign exchange.

The Ambassador and Mission Director have concluded that there is not commingling of these small purchases as defined in Section 620(h) of the Foreign Assistance Act and M.O. 1018.9. We concur in their conclusion. (See Annex 9).

b. Fuel Purchase

All fuel oil for diesel generators and gas turbines must be purchased by PLN from P.N. Pertamina, a State-owned but not budget-supported enterprise. Pertamina sets prices (and levies charges) on fuel oils of different grade.

It is desirable that there be reasonable assurance regarding fuel prices before a decision is made on generator design. This problem is common to each donor's rehabilitation project and is really part of a broader problem resulting from Pertamina's control over prices and distribution of fuels. We have discussed the subject with the IBRD resident mission in Djakarta, and they have agreed that the matter should be pursued through direct negotiations between the PLN central organization and Pertamina. In addition, the IBRD resident mission expressed belief that Pertamina might welcome a defined arrangement, because a reasonably long-term firm estimate of requirements would facilitate their planning for movement of fuel oil to PLN sites.

USAID will work closely with the IBRD resident mission and BAPPENAS in pursuing negotiations between PLN and Pertamina. However, the agreement has not been made a condition precedent under this loan.

5. Finding of Technical Soundness

The scope of the project is defined in Section II B 1, and plans for accomplishing the project are outlined in Sections III A & B. These sections define a complete and independently justified activity. Substantive engineering and technical planning has been completed. A reasonably firm estimate of the cost to the United States Government of providing assistance for this project has been derived in accordance with Section 611(a) of the Foreign Assistance Act, and a satisfactory engineering plan for implementing the project has been developed. Specifically, it is found that attainment of the objectives of this initial rehabilitation project is technically feasible within the framework set forth herein.

C. Economic Evaluation

1. Forecasts

Electric power consumption is expected to increase sharply with the advent of newly available quality service. PLN's practices in the past have been strongly designed to discourage or prevent increase in energy consumption and in peak load. As a result, there has been rapid growth in private electric power generation, and there has developed a substantial waiting list of applicants for new customer service. A table of peak load and annual energy consumption levels, a schedule of private generating capacity, and a tabulation of applicants for new customer service appear in Annex 6 A.

Projection for increased KWH consumption have assumed that there will be some delay in realization of consumer growth potential and are probably at a conservative rate considering the very low base from which the projections are made. Rates of increase of 6.2%, 12.1%, 18.8%, 11.2%, and 11% have been assumed for years 1970 through 1974 respectively and no increase has been assumed after 1975 for purpose of the analysis. However, power consumption is expected to increase at a substantial rate after 1975.

Use by industrial and commercial customers is expected to increase at a higher rate than residential use. The following table summarizes the anticipated load growth during the period of rehabilitation and prior to major system expansion. Supporting data for the forecasts appear in Annex 6.

| | <u>Millions of KWH</u> | | | | | |
|-----------------------------------|------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | <u>1970</u> | <u>1971</u> | <u>1972</u> | <u>1973</u> | <u>1974</u> | <u>1975</u> |
| | <u>Existing</u> | <u>(Year 1)</u> | <u>(Year 2)</u> | <u>(Year 3)</u> | <u>(Year 4)</u> | <u>(Year 5)</u> |
| <u>Total Sales</u> | | | | | | |
| Semarang | 72.4 | 76.3 | 88.3 | 106.7 | 121.4 | 134.6 |
| Jogjakarta | 19.2 | 20.4 | 23.5 | 28.4 | 32.0 | 35.5 |
| Solo | 27.2 | 28.8 | 33.4 | 40.2 | 45.7 | 50.3 |
| Magelang | 9.4 | 10.2 | 11.4 | 13.8 | 15.9 | 17.4 |
| Totals | 128.2 | 135.7 | 156.6 | 189.1 | 215.0 | 237.8 |
| <u>Sales by Type of Customers</u> | | | | | | |
| Industrial | 17.9 | 19.8 | 27.3 | 41.1 | 45.8 | 48.8 |
| Commercial | 9.5 | 9.5 | 12.5 | 16.2 | 21.3 | 26.0 |
| Residential | 80.0 | 84.4 | 93.0 | 105.8 | 118.2 | 129.7 |
| Other* | 20.8 | 22.0 | 23.8 | 26.0 | 29.7 | 33.3 |
| Totals | 128.2 | 135.7 | 156.6 | 189.1 | 215.0 | 237.8 |

*Included in this classification are street lighting, service to religious organizations, schools, public buildings, and certain government agencies.

2. Rate of Return Analysis

The economic benefits resulting from this project will emerge principally from the provision of reliable and adequate electric service. Many of these benefits cannot be measured directly and are not included in an analytical estimate of rate of return, although they are an important element of the economic return to the economy. Therefore, we will satisfy ourselves of the economic justification for this project based upon the following findings:

a) the direct, measurable benefits of the project, when compared with direct costs, on a discounted cash flow basis, will provide a return equal to the cost for capital established by the GOI for other development assistance financing; and

b) The overall benefits, both direct and indirect, to the economy are expected to be comparable with those available from alternative sources of investment.

As stated, the first finding can be computed, and a return of the order of 12% (the interest rate charged by the GOI for other loan financed projects, B.E. credits, etc.) anticipated. The second finding is not quantifiable and calls for an appraisal of the indirect benefits (See 4. below) of the project in stimulating the Indonesian economy in comparison with potential economic benefits of alternative investments.

One might assume that for a distribution system rehabilitation project, a much higher rate of return would be anticipated. Indeed, such was the case for the Djakarta rehabilitation which the World Bank financed, because there was existing excess generating capacity in the Djakarta environs and there were substantial load densities. For this project, however, the realizable value of the existing distribution plant is expected to be small, the system must be almost entirely rebuilt, and substantial capital investment in generating additions is included. The distribution system will also be designed to handle many times the existing capacity, because future major expansion is contemplated, although no credit is taken for increase in capacity beyond the interim period.

3. Comparison of Investment and Direct Benefits

Direct measurable benefits include (1) savings in distribution losses; and (2) value added through additional energy consumed. The latter is a complex quantity comprising (1) increased KWH consumption expressed in dollar equivalents at an average per KWH assumed value, but (2) reduced by the increased fuel cost anticipated to generate the additional KWH. The fuel cost increase takes into account savings in fuel cost through more efficient operation of the generating units in the system.

The assumption and methods of computation are explained in Annex 8. The following table summarizes the data used in the rate of return analysis.

(\$000)

| <u>Year</u> | <u>Savings in Losses</u> | <u>Value of New Energy</u> | <u>Increase in Fuel Costs</u> | <u>Total Benefits</u> | <u>Discounted at 12%</u> | <u>Discounted Investment</u> | <u>Discounted at 12%</u> |
|-----------------|--------------------------|----------------------------|-------------------------------|-----------------------|--------------------------|------------------------------|--------------------------|
| 1970 | 24 | 304.2 | (161.8) | 166.4 | 161.6 | 1136 | 1102.9 |
| 1971 | 70 | 499.2 | 67.4 | 636.6 | 568.4 | 4347 | 3881.4 |
| 1972 | 176 | 1040.0 | (103.6) | 1112.4 | 886.8 | 8182 | 6522.7 |
| 1973 | 250 | 1890.2 | (285.8) | 1854.4 | 1320.0 | 6473 | 4607.5 |
| 1974 | 284 | 2558.4 | (517.0) | 2325.4 | 1477.8 | 1977 | 1256.4 |
| 1975 | 301 | 3153.8 | (723.4) | 2731.4 | 12914.9* | 50 | 28.4 |
| There- after | 301 | 3153.8 | (723.4) | 2731.4 | | 0 | 0 |
| Total | | | | | 17329.5 | | 17399.3 |

*Cumulative discounted value of continuing benefits at 1975 level.

Comparing the present worth of the investments with that for the annual benefits, the break-even interest (internal rate of return) is 11.9%.

4. Overall Benefits to the Indonesian Economy

The principal benefits not taken into account in the rate of return analysis are the values added through:

- 1) uninterrupted service at adequate voltage levels;
- 2) availability of sufficient power to meet consumer needs;
- 3) replacement of or elimination of inefficient investments;
- 4) making possible further development of major power system expansion; and
- 5) stimulus to the overall regional economic development through making possible small activities which could not otherwise be initiated and through making attractive other larger activities.

Improved voltage levels and continuous service will permit use of such basic items as small motors, refrigerators, etc. Availability of power without restriction will strongly encourage use, particularly by industrial and commercial consumers. Rehabilitation of the major load centers will facilitate planning for long-term growth and will build the confidence which will lead to replacement of existing captive generation and prevention of further inefficient investments. Major system expansion will be made possible, greatly increasing per capita consumption of electric energy throughout the region.

The stimulation to the economy of Indonesia is expected to be favorable in comparison with anticipated returns from other projects formulated thus far in the Indonesian economic development program, when improvements to the regional infrastructure such as highway and port development, and in small holder and estate farming and agribusiness activities are taken into account.

D. Financial Analysis

1. Alternative Sources of Financing

This project is recommended as part of the U. S. commitment for multilateral assistance to Indonesia under the IGGI. We will work closely with the Federal Republic of Germany which is planning to provide assistance for rehabilitation of transmission facilities in the Ketingger system and elsewhere in Central Java, in planning for the overall expansion and integration of the systems of Central Java. IBRD which has provided for project coordination by the various donors to Indonesia, has indicated its support for A.I.D. financing and plans for this project. Therefore, within the IGGI framework, alternate financing from other donors is not available. The ExIm Bank does not currently make loans or guarantees in excess of one year in Indonesia and an expression of non-interest for financing of this project was received from ExIm Bank on February 9, 1970.

2. Financial Requirements and Financial Plan

The total cost of the project is estimated to be U. S. \$22.2 million broken down as follows by major components and annual disbursements:

| | |
|--------------------------------------|---------------------------|
| U. S. Foreign Exchange Costs | \$16.8 million |
| Third Country Foreign Exchange Costs | \$.9 million equivalent |
| Local Currency requirements | \$ 4.5 million equivalent |

| Year | (\$000) | | | |
|--------------|--------------|----------------------|-----------------------|--------------|
| | <u>\$US</u> | <u>Third Country</u> | <u>Local Currency</u> | <u>Total</u> |
| 1970 | 334 | 720 | 82 | 1136 |
| 1971 | 2855 | 150 | 1342 | 4347 |
| 1972 | 6291 | | 1891 | 8182 |
| 1973 | 5288 | | 1185 | 6473 |
| 1974 | 1977 | | | 1977 |
| 1975 | 50 | | | 50 |
| <u>TOTAL</u> | <u>16795</u> | <u>870</u> | <u>4500</u> | <u>22165</u> |

The proposed loan from A.I.D. will provide the U.S. dollar portion of foreign exchange costs. The loan will be made to the GOI with U. S. dollar repayment over 40 years including a 10-year grace period. Interest is to be charged at the rate of two percent during which no amortization payments are required, and at three percent for 30 years, during which period the loan will be fully amortized in level semi-annual installments of principal and interest.

All local currency requirements for the project and any dollar overruns will be met through the GOI National Development Budget, as will the foreign exchange cost for third country diesel and hydro-electric rehabilitation and spare parts. A plan for provision of local currency funds

from the National Development Budget will be prepared, which will specify annual levels of support, and a reserve fund in rupiah will be established in the amount of 20% of the local currency costs for the project. The fund will be used for project implementation and for meeting operating needs of the system during the interim period, including purchase of spare parts and necessary inventory. The GOI will agree to make foreign exchange available for this purpose on a current basis.

3. Indonesian Debt Service Capacity

Indonesia's debt service burden continues to be extremely high in relation to present and prospective export earnings. Slightly over two-thirds of the present outstanding debt of \$3.4 billion is owed free world countries, including the U. S., and about one-third to the Soviet Bloc. However, the debt burden resulting from loans prior to the post-Sukarno assistance beginning in mid 1966 is about \$2.2 billion of which Soviet Bloc debt is about 60%.^{6/}

Indonesia's western creditors have rescheduled the massive "Sukarno debt" on three separate occasions to cover the periods mid-1966 through 1967, 1968, and 1969. In late 1966 agreement was reached with the U. S., France, Germany, Italy, Japan, Netherlands, and the U. K. to reschedule government or government-guaranteed term debt in excess of 180 days owed as of June 30, 1966 and falling due by December 31, 1967 in the amount of \$243 million (of which \$51.3 million was owed to the U. S.). Again, in mid-October 1967 the free world creditors agreed to reschedule the same class of debts falling due during 1968 and totaling \$92 million (of which \$22.7 million was due the U. S.). In October 1968 the same class of debt due in 1969, totaling approximately 80 million (of which \$22.6 million was owed the U. S.) was rescheduled by the Western creditors. In 1969 an agent of the IGGI creditor countries, Dr. Herman Abs, was requested to investigate and prepare a plan for the overall rescheduling of Indonesia's debt to all countries and he has since reported such a plan to a committee of the Western creditor countries. These creditors form the so called "Paris Club". They are now working on formulation of a plan which will permit a long-term rescheduling of Indonesia's \$2.2 billion (principal and interest) of debts incurred prior to June 30, 1966. The objective of such a rescheduling would be to firmly establish Indonesia's credit worthiness and to provide for a debt service burden which will permit implementation of Indonesia's development plans.

The present rescheduling left Indonesia with a reasonable debt service ratio of 9% in 1968. It is clear however that future debt service requirements as a percentage of exports continue to represent a most difficult situation. The ABS plan presented to the Paris Club countries is now being discussed by those creditor nations. In the interim a further annual rescheduling may be necessary until a long-term solution along the lines suggested by the Paris Club agent can be implemented.

^{6/} Footnote appears on page 30

Despite the substantial debt service burden, it is possible that with foreign investment and development of Indonesia's mineral and other export potential, exports may rise more sharply than estimated, even under the most optimistic assumptions. It should be noted that in 1951 Indonesian exports totaled about \$1.2 billion at current prices. Although these exports (now projected for 1976) took place during the Korean War, they nevertheless reflect Indonesia's potential future export capacity.

Given Indonesia's heavy foreign debt burden, A.I.D.'s softest terms are appropriate. Other donors' assistance are generally being made available on roughly DAC terms. The U. S. has continued to press for a further softening of these terms. The contributions that the project to be financed by this loan will make to Indonesia's overall economic capacity and particularly its capacity for export expansion, taken together with probable future rescheduling of the old debts, the prospects for repayments of the proposed loan appear reasonable. Our assessment of Indonesia's repayment prospects is shared by other IGGI donors.

4. Financial Structure of PLN

The current financial structure of PLN, following economic and political instability in Indonesia during the middle sixties with its accompanying inflation, is confused. Poor flow of information, erratic operating practices, loss of control over new facilities, uncertain allocation of resources, and inflation have rendered the balance sheet meaningless and have distorted revenue and expense accounts. Many new PLN facilities were not incorporated into PLN assets while the details of agreements under which others were obtained by PLN are unavailable. The result has been a thorough breakdown of the process of financial management.

It is not possible to erect current balance sheets or cash flows either for PLN as a whole or for PLN Region X. However, we have been able to prepare a skeleton income statement for Region X from available data. Similar skeletal information for the overall PLN organization is in Annex 7. Pro forma financial statements would have no practical value prior to the revaluation of assets, financial reorganization, and revision of tariffs.

Estimates of the costs and revenues of Region X and the Tuntang System, reconstructed from cash records for 1968, are:

REGION X

| | <u>U. S. Dollar Equivalent</u> |
|----------------------|--------------------------------|
| Receipts: | |
| Sale of Electricity | \$ 2,147,404.10 |
| Other Income | 203,435.50 |
| Total Gross Receipts | <u>2,350,839.60</u> |

| | |
|--|------------------------|
| Disbursements: | |
| Employee Salaries | \$ 485,931.50 |
| Fuel & Lubricants | 555,584.90 |
| Miscellaneous | 391,956.60 |
| Production Cost | <u>1,433,473.00</u> |
| Investments | 121,625.60 |
| Spare Parts | 552,850.80 |
| Total (Operating Cost) | <u>2,107,949.50</u> |
| Available for Transfer to Central PLN accounts | <u>242,890.20</u> |
| TOTAL | <u>\$ 2,350,839.70</u> |
| Past Due Accounts Receivable: | 692,514.80 |

In place of depreciation, which in the absence of a schedule of capital assets is impossible to allocate, PLN has included an arbitrary charge called "capital burden", equal to about 10% of operating costs. PLN's overall operations, even before imposition of the capital burden have shown a loss which the GOI has had to make up. Region X, however, has been in a better position and has positive net revenues, even after the imposition of such charge:

PLN Region X: 1968 Operations

| | |
|---------------------------------------|---------------------|
| Available for Transfer to PLN Central | \$ 242,890.20 |
| Estimated Capital Charge | <u>- 210,795.00</u> |
| Net Revenues | \$ 32,095.20 |

5. Tariff Schedules and Charges

Tariff schedules are established on a national basis. During the period of economic instability, tariff schedules changed frequently and bore little relationship to cost of service. The latest revision (April 1968) establishes a complex schedule. The three principal classes of customers, residential, industrial, and commercial have considerably different average costs of power. The average cost/KWH for these classes* is:

| | |
|---------------------------------|----------|
| Unmetered Residential (approx.) | 1.0¢/KWH |
| Metered Residential | 2.5¢/KWH |
| Industrial ** | 3.0¢/KWH |
| Commercial | 4.7¢/KWH |

* Cost/KWH increases with consumption deterring increased use of electric energy.

** Industrial consumers are prevented from taking service during the 5-11 p.m. peak.

Revision of tariff schedules, anticipated before 1973, is expected to eliminate existing inequities and unreasonable subsidies, to encourage increased use of electric energy, and to permit realization of appropriate financial returns:

6. Tax Considerations

The GOI levies an income tax and a reconstruction and development tax on State enterprises. Since current PLN operations are supported from the GOI Development Budget, tax assessments are either not significant or meaningless. However, after revaluation of assets and establishment of autonomous operation, tax considerations will be a significant factor in planning future operations, particularly with regard to internal cash generation for system maintenance and growth. A recommendation on tax consideration is expected from the IBRD management consultants in the financial reorganization plan.

7. Arrangements for Transfer of the Loan Proceeds from the GOI to PLN

With the current financial position of PLN, it would be difficult to (1) determine appropriate terms for a second step loan or (2) demonstrate that PLN had the short term capacity from its own resources to repay any loan obligation prior to the financial reorganization. With a revalued asset base and a new tariff schedule, PLN should realize a reasonable return on its revised financial structure (both debt and equity) without major upward adjustments in the average cost/KWH. Therefore, we have decided to not specify at this time the second step terms, and to await the recommendations of the management consultants for financial reorganization. The second step terms would then be set to best suit the recommended revised financial structure.

IDA agreed to an equity contribution by the GOI in PLN for the Djakarta rehabilitation project. Their acceptance was based upon expectation of an improved revenue position following revision of tariff structure, and they are optimistic that the equity will begin to earn a reasonable return shortly following tariff revision.

It is our assessment that the GOI is anxious to place PLN in a position to generate revenues sufficient to meet expenses without budget support (recognizing that continuing GOI financing will likely be needed for capital expansion). We believe that IBRD has been realistic in their assessment of GOI willingness to make broad and needed reforms, but recognize that the complexity of the transition may complicate and perhaps delay somewhat the timing for realization of some reforms. We conclude that PLN can become a viable utility earning a fair return on its rate base within a reasonable time following revision of electricity tariffs.

Therefore, we have adopted the following approach for definition of second step terms:

(a) A three-year grace period (or such other period as USAID shall agree to) will be permitted during which there will be no required repayment by PLN of principal or interest. This time will be sufficient to permit revaluation of assets, revision of financial structure and recommendations by the consultants of a new tariff schedule.

(b) Within the three-year period, and based upon the program accepted by PLN for accomplishment of self-help measures, PLN, GOI, and A.I.D. shall agree to second step terms consistent with the plan for financial reorganization. If all or part of the proceeds be transferred on loan terms, interest accruing during the grace period will be added to principal and amortized over the remaining loan term.

E. Impact on U. S. Balance of Payments

The impact of this loan on the U. S. balance of payments will be favorable, not merely in the fact that the entire proceeds of the loan will be spent for U. S. goods and services, but because follow-up orders of spare parts, equipment and materials will result in additional U. S. exports on a commercial basis. The loan agreement will include a covenant requiring budgeting and provision of foreign exchange for purchase of future spare parts and inventory needs.

F. Use of U. S. Government Excess Property

Because of the detailed equipment specifications required for the components of the system and of the need for standardization among components, it is not anticipated that U. S. Government Excess Property can be used for this project.

6/ Principal and interest payments are not now being made on the Soviet Bloc debt. While most of the communist countries have already rescheduled their debt, a further rescheduling appears warranted because of heavy payments arising in the 1970's. General agreement has not been reached between the Indonesians and the Soviet Bloc countries, but agreement on any new debt formula between the GOI and the Paris Club nations would need to be unilaterally applied by the Indonesians in repaying the debt to the Soviet Bloc.

III. LOAN ADMINISTRATION

A. Timetable for Implementation

A summary of the timetable for implementation of this project is set forth below. A more detailed schematic table, and one relating the project to other aspects of the electric power development program for Central Java appears in Annex 2 A.

| | |
|--|-------------------|
| Loan Authorization | March 15, 1970 |
| Loan Agreement Negotiated and Signed | April 1, 1970 |
| Conditions Precedent to Initial Disbursement Met | August 15, 1970 |
| Contract for Project Engineering Services | August 15, 1970 |
| Initial Procurement of Long-Lead Items | January 1, 1971 |
| Arrangements for General Consulting Services | January 15, 1971 |
| Construction Contract Approved | October 15, 1971 |
| Diesels and Gas Turbines Installed | September 1, 1972 |
| Rehabilitation Work Completed | May 1, 1974 |
| General Consulting Services Completed | July 15, 1974* |

* may be extended to January 15, 1976

B. Project Execution

1. Project Execution Plan

The project can be divided into four components (1) detailed design; (2) procurement for PLN's account; (3) general consulting services; and (4) construction.

Detailed design and procurement for PLN of long-lead and other items (which need to be purchased before letting the construction contract) will be undertaken by the project engineer. The project engineer will be responsible for construction supervision and for enforcement of the construction contract on behalf of PLN. He will also coordinate on-the-job training activities related to project execution with the broader training efforts of the general consultant.

The general consultant will be responsible for general engineering consulting services, for technical and management assistance to PLN Region X, and for planning participant training of Region X personnel.

The construction contractor will provide all material and equipment not segregated for procurement by the project engineer, will reuse or retire all materials of the existing system, will train and schedule work crews, and will arrange for timely performance of construction in accordance with standards established for the project.

The planning, proposed contractual arrangements, and anticipated services relating to project implementation are discussed in further detail in Annex 2 B.

Conditions precedent to initial disbursement require, in addition to standard A.I.D. provisions: (1) evidence that the IDA agreements under which management consulting services will be provided to the PLN Central Organization have become effective; (2) evidence that PLN has authority to undertake procurement and construction for the project (see Section II A); and (3) a decision on basic standards for the distribution system including service voltage (see Section II B).

Before the other components of the project can begin, all arrangements relating to assurances of financing and to accomplishment of self-help measures, plus additional conditions precedent related to each project component, must be met. A summary of conditions precedent and covenants for this project appears in Part C of this section.

2. Coordination

Self-help activities, training, management assistance and project execution must all be coordinated. To accomplish this task:

- 1) standards for rehabilitation of the distribution systems will be established before the project begins;
- 2) the scope of work for general consulting services will require the consultant to provide continuous liaison with the IBRD management consultants in Djakarta, and to coordinate his efforts within Region X with those of the project engineer (see Attachment II to Annex 2 B);
- 3) the scope of work for the project engineer will specify the type and extent of training he is to perform, and will require him to work with the general consultant in scheduling use and training of PLN Region X personnel. (See Attachment I to Annex 2 B.)
- 4) USAID will continue its close working relationship with PLN and with the IBRD resident mission in Djakarta and undertake as part of its monitoring responsibility to assure that adequate communication is maintained among the various contract groups.

3. Terminal Dates for Conditions Precedent, for Disbursing Authorizations, and for Disbursements

a. Conditions precedent to initial disbursement shall be met within five months after signing of the loan agreement.

b. Conditions precedent to other than preliminary design services shall be met within 16 months after signing of the loan agreement (but it is anticipated that all conditions precedent relating to general consulting services and procurement for PLN's account should be completed within a shorter period, perhaps 10 months, if the timetable is to be met).

c. The terminal date for requests for new disbursing authorizations shall be 28 months after signing of the loan agreement. This will permit one year after completion of all conditions precedent for opening of letters of commitment.

d. Terminal date for disbursement shall be 53 months after signing of the loan agreement.

C. Conditions Precedent and Covenants

1. Conditions Precedent to Initial Disbursement (Detailed Design)

(a) An opinion of the Minister of Justice of GOI that the loan agreement has been duly authorized or ratified by, and executed on behalf of GOI and is a valid and legally binding obligation in accordance with its terms.

(b) An opinion of the principal legal officer of PLN, or of other legal counsel satisfactory to A.I.D., that this loan agreement has been duly authorized or ratified by, and executed on behalf of PLN and is a valid and legally binding obligation in accordance with its terms.

(c) The names of the persons who will act as the representatives of GOI and PLN, together with evidence of their authority and a specimen signature of each such person.

(d) A cost-plus-fixed-fee contract with an engineering consultant firm or individual(s). The selection of said consultant and the terms of said draft contract shall be in accordance with A.I.D. Capital Project Guidelines: Borrower Procurement of Engineering and other Professional Services of U. S. Source and Origin (M.O. 1441.1).

(e) Evidence, including an opinion of the Minister of Justice of GOI, that PLN has legal authority to undertake promptly the procurement and contracting for commodities and services necessary for implementation of this project.

(f) A plan for implementation of the project, including the specification of basic system standards for the distribution systems. Said system standards shall include standards for service wiring and voltage level of primary and secondary lines. Said plan shall also set forth GOI's projection for providing Indonesian currency and foreign exchange from its budgetary sources to PLN.

(g) Advice of the International Development Association that the agreements for IDA Credit No. 165 IND have been declared effective.

2. Conditions Precedent to Financing General Consulting Services, Procurement for PLN's Account, and Construction

- Assurances of Financing and Self-Help Measures

(a) Evidence that foreign exchange has been made available to PLN for the purchase of third country spare and replacement parts for rehabilitation of diesel and hydro-electric generators and related equipment.

(b) Evidence of the establishment by PLN of a reserve fund in Rupiah equal to twenty percent (20%) of the estimated total Rupiah costs of the project, or such other amount as A.I.D. shall agree to in writing, which shall be used for the execution of the project and for support of operation and maintenance until the project is completed, and a plan for replenishment to maintain said fund.

(c) A plan for utilization by PLN of general consulting services for the project. Said plan shall include specific designations of counterpart personnel of PLN who will work with technical and management assistance personnel, and who will be afforded participant training. Said plan shall also include a detailed description of the manner in which the counterpart personnel of PLN are to be utilized for training.

(d) A plan for procurement of equipment for the project. Said procurement plan shall include evidence of provision for storage including secured storage at port or other location pending receipt of customs clearance and for handling and transportation of commodities to project site and for storage at the project site.

(e) An agreement between PLN and a contractor for the provision of management consulting services as required by Article II of the Project Agreement with the International Development Association.

- General Consulting Services

(f) A contract between PLN and a firm or individual(s) for the general consulting services to be provided for the project. The selection of the firm or individual(s) to provide said consulting services and the terms of said contract shall be in accordance with A.I. D. Capital Project Guidelines: Borrower Procurement of Engineering and Other Professional Services of U. S. Source and Origin (M.O. 1441.1).

- Procurement

(g) Procurement contracts for equipment and materials between PLN and a firm(s), selection of which shall be in accordance with A.I.D. Capital Project Guidelines. The terms of said contracts shall also be in accordance with A.I.D. Capital Project Guidelines.

(When (a) thru (f) have been met, a letter of Commitment may be opened for all procurement for the owner's account, but individual Letters of Credit will not be issued until A.I.D. approval has been obtained for the respective supply contracts.)

- Construction

(all of the above Conditions Precedent except (g), plus)

(a) A preliminary design for the rehabilitated electric system which will form the basis for the final design for each subdivision of the rehabilitated system. Said preliminary design shall include:

(i) maps and diagrams showing the preliminary layout of the proposed electric distribution systems;

(ii) detailed specifications for individual prototype units which combine in varying quantities to form the constructed physical plant;

(iii) an estimate of the quantity of each such unit; and

(iv) any revisions in the cost estimate for the project, including costs for labor and materials for each prototype unit. Said costs estimate revisions shall be divided into U. S. dollar and local currency expenditures.

(b) A contract or contracts for construction services between PLN and a firm(s). The selection of said firm(s) and the terms of said contract or contracts shall be in accordance with A.I.D. Capital Projects Guidelines: Borrower Procurement of Construction Services of U. S. Source and Origin (M. O. 1441.2).

3. GOI Covenants

(a) GOI covenants and agrees that it shall take all necessary actions to enable PLN to perform its obligations under Article II of the Project Agreement between PLN and The International Development Association within the time limits prescribed in said Project Agreement, taking into account the GOI's specific undertakings in this regard in the Development Credit Agreement between the GOI and the International Development Association and the objectives stated in Section 4.(a) hereof.

(b) Make available foreign exchange to PLN necessary to purchase third country spare and replacement parts for diesel and hydro-electric generator rehabilitation, for other spare and replacement parts required for completion of, and operation up to completion of the rehabilitation of the facilities, over and above the proceeds of the loan provided for.

(c) Make available to PLN any Indonesian currency necessary for the completion of, and operation up to completion of the rehabilitation of the facilities.

(d) From completion of the rehabilitation of the facilities until such time as PLN may become an autonomous, non-budget supported corporation, assist PLN in obtaining funds sufficient to meet the operating and maintenance expenses necessary for the effective utilization of the rehabilitated project.

(e) Assist PLN to carry out the project, or cause the project to be carried out, with due diligence and efficiency, and in conformity with sound engineering, construction, financial, administrative, and management practices.

4. PLN Covenants

(a) Perform its obligations as prescribed in Article II of the Project Agreement with the International Development Association within the time limits prescribed in said Project Agreement. In carrying out the recommendations of the management consultants under Section 2.02(b) of the Project Agreement with the International Development Association, the parties hereto agree on the following general objectives that should govern PLN's organization, structure, authority and operations and further agree that PLN's program to implement the recommendations of the management consultants as required by Section 2.02(b) of that agreement shall be in accordance with the objectives hereafter set forth and shall be subject to prior approval of A.I.D.:

(i) A revised schedule of electricity tariffs and charges fixed at such levels as should provide PLN with revenue sufficient (a) to cover all its operating expenses, including administration and overhead expenses, maintenance, depreciation, and taxes, and interest on, and to the extent it exceeds depreciation, amortization of debt, and (b) to provide a reasonable return on its assets and to finance a reasonable portion of its capital expenditures;

(ii) A revaluation of PLN's fixed assets in accordance with sound public utility practice;

(iii) Full and exclusive responsibility vested in PLN for the public electric power sector of the GOI, including planning, procurement, construction, operation, maintenance, and ownership of all facilities therein;

(iv) Management organization and employment practices, including staffing patterns, salary structure, and employee qualifications, in accordance with sound public utility practice;

(v) Operating practices, including records, accounting system, billing and collection procedures, financial planning and administration, insurance, repair and maintenance procedures, and procedures for systems operations, all in accordance with sound public utility practice;

(vi) Appropriate standards for the electric power system, including those for equipment, materials, construction, and operation and maintenance, in accordance with sound public utility practice.

(b) Establish connection fees for all future service within the Tuntang system that will encourage increased consumption of electricity.

(c) Maintain the basic systems standards of the distribution network.

(d) Replenish the Indonesian currency reserve fund whenever necessary to maintain said fund at twenty percent (20%) of the estimated total Indonesian currency cost of the project or such level as A.I.D. may agree to in writing.

(e) Carry out the project, or cause the project to be carried out, with due diligence and efficiency, and in conformity with sound engineering, construction, financial, administrative and management practices.

(f) Submit all plans, specifications, contracts, schedules, and engineering construction or procurement arrangements for the project, and all modifications thereof, to A.I.D. for its approval prior to their implementation and carry out the project, or cause the project to be carried out in conformity therewith.

(g) Adequately maintain, repair and operate, in accordance with sound commercial practices all Eligible Items, and any construction of facilities resulting from their use.

IV. LOAN AUTHORIZATION

AID-DLC/P-886/A Draft

A.I.D. Loan _____

Project No. _____

CAPITAL ASSISTANCE LOAN AUTHORIZATION

Provided from: Development Loan Funds
(Indonesia: Perusahaan Listrik Negara;
Central Java Electric Power Rehabilitation)

Pursuant to the authority vested in the Administrator of the Agency for International Development (hereinafter called "A.I.D.") by the Foreign Assistance Act of 1961, as amended, and the delegations of authority issued thereunder, I hereby authorize the establishment of a loan pursuant to Part I, Chapter 2, Title I, the Development Loan Fund, to the Government of the Republic of Indonesia (hereinafter called the "GOI") of not to exceed Sixteen Million Eight Hundred Thousand Dollars (\$16,800,000) to assist in financing the foreign exchange costs of equipment, materials and services necessary for the rehabilitation and operation of certain electric power facilities of Perusahaan Listrik Negara (hereinafter called "Beneficiary") in the Tuntang System located in Central Java, this loan to be subject to the following terms and conditions:

1. Interest Rate and Terms of Repayment.

The interest on this loan shall be two percent (2%) per annum on the disbursed balance of the loan during the first ten (10) years of the loan and three percent (3%) per annum for the remaining thirty (30) years of the loan. The principal of the loan shall be repaid in full within forty (40) years from the date of the first disbursement under the loan, and such repayment shall include a grace period of not to exceed ten (10) years from the date of first disbursement.

2. Currency of Repayment.

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

3. Other Terms and Conditions.

a. Equipment, materials, and services financed under this loan shall have their source and origin in the United States.

b. The GOI will make the proceeds of this loan available to the Beneficiary for the purposes herein provided on terms and conditions satisfactory to A.I.D.

c. Unless A.I.D. agrees otherwise in writing, the GOI and the Beneficiary shall agree, either in the form of appropriate conditions precedent or covenants, or both, that:

(1) The GOI will make foreign exchange available to the Beneficiary, in addition to the proceeds of this loan, for the purchase of third country spare and replacement parts for diesel generator rehabilitation;

(2) Beneficiary will establish a reserve fund in Indonesian currency in an amount equivalent to twenty percent (20%) of the estimated total Indonesian currency costs of the project, or such other amount as A.I.D. shall agree to, for the execution of the project, and the support of operation and maintenance of the Project, and shall continue to replenish such fund;

(3) Pursuant to recommendations of a management consultant made in accordance with a Project Agreement between Beneficiary and the International Development Association, Beneficiary shall institute reforms with the following general objectives:

(a) Revision of electricity tariff schedules and charges to provide Beneficiary with revenue sufficient to cover all its operating expenses, including administration and overhead expenses, maintenance, depreciation, and taxes, and interest on, and to the extent it exceeds depreciation, amortization of debt, and to provide a reasonable return on its assets and to finance a reasonable portion of its capital expenditures;

(b) Vesting of Beneficiary with full and exclusive responsibility in the public electric power sector of the GOI;

(c) Revaluation of Beneficiary's fixed assets in accordance with sound public utility practices;

(d) Revision of management organization, employment and operating practices, and electric power system standards, all in accordance with sound public utility practices.

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

John A. Hannah

Date

Clearances:

Assistant Administrator for East Asia:

| | | |
|---------------------------------------|-------|-------------|
| Roderic O'Connor | _____ | Date: _____ |
| General Counsel: Stephen B. Ives, Jr. | _____ | Date: _____ |
| Controller: Charles F. Flinner | _____ | Date: _____ |
| PPC/CA: John H. Kaufmann | _____ | Date: _____ |
| EA/CDF: Selig A. Taubenblatt | _____ | Date: _____ |
| EA/DP: Charles H. Breecher | _____ | Date: _____ |
| GC/EA: Herbert E. Morris | _____ | Date: _____ |
| EA/IND: Alexander Shakow | _____ | Date: _____ |

GC/EA:SBKay:sb:2/19/70

AID-DLC/P-886
March 11, 1970

ANNEXES

CAPITAL ASSISTANCE PAPER

CENTRAL JAVA ELECTRIC POWER REHABILITATION

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ANNEX 1. Loan Application

(to be distributed)

ANNEX 2. Project Implementation

A. Timetables

1. Timetable for Implementation of the Project
2. Timetable Relating Project to Central Java Power Development Program

B. Implementation Considerations

- Attachment I - Draft Statement of Work for Project Engineer
- Attachment II- Draft Statement of Work for General Consultant
- Attachment III- Anticipated Participant Training

C. Terms of Reference for IBRD Management Consultants



TIMETABLE FOR IMPLEMENTATION

| | | 1970 | 1971 | 1972 | 1973 | 1974 |
|-------------------------------------|---------------------------------------|------|------|------|------|------|
| Design | Employ Consulting Engineer | — | | | | |
| | Rehabilitate Distribution Systems | — | — | — | — | — |
| | Gas Turbine | — | — | | | |
| | Additions for Jogjakarta Diesel Plant | — | — | | | |
| Procurement | Power Substations | — | — | | | |
| | Gas Turbine | | — | — | | |
| | Diesel Generator Equipment | | — | — | | |
| | Diesel Rehabilitation Equipment | — | — | | | |
| Construction | Power Substations | | — | — | | |
| | Rehabilitation Equipment | | — | — | — | |
| | Gas Turbine | | | — | — | |
| | Diesel Generators | | | — | — | |
| | Rehabilitation Diesel Generators | | — | — | | |
| | Power Substations | | | — | — | |
| | Rehabilitation Distribution Systems | | — | — | — | — |
| Participant Training | — | — | — | | | |
| Short Term Training in Central Java | | — | — | | | |
| Technical Assistance | | — | — | — | — | |

TIMETABLE FOR REHABILITATION PROJECT AND OTHER
ACTIVITIES IN THE OVERALL PROGRAM

| | 1970 | 1971 | 1972 | 1973 | 1974 |
|-----------------------------|----------------------|------------------------------------|--|-------------------------------------|------|
| REHABILITATION PROJECT | Engrg Procurement | Construction | | | |
| LONG RANGE PLANNING STUDY | | Interim Report Final Report | | | |
| TRANSMISSION REHABILITATION | | Loan Paper Conditions Precedent | | Engrg & Procurement Construction | |
| EXPANSION PROJECTS | Engineering, | Procurement & Construction | Analysis & Financing Conditions Precedent | | |

IMPLEMENTATION CONSIDERATIONS

A. Project Engineering Services

1. Selection Procedure

The engineering consultant will be chosen by the PLN under the procedures outlined in Chapter 2 of the A.I.D. "Capital Projects Guidelines for Borrower Procurement of Engineering and Other Professional Services of United States Source and Origin" (M.O. 1441.1).

2. Type of Contract

A cost-plus-fixed-fee contract with a cost ceiling will be used. A.I.D. approval will be obtained for the contractor selection and the terms of the contract prior to execution.

3. Scope of Project Engineering Services

The project engineer shall be responsible for the final design of the system, for preparation of bill of materials and specifications for all equipment, and for IFBs for the items of equipment to be procured for PLN's account. He shall also be responsible for definition of construction standards and material specifications and warranties, for preparation of the IFB for the construction contract, for evaluation of bids and recommendations of award for the construction contract, for supervision of construction, and for final inspection, testing, and acceptance of completed work and for final accounting.

The consultant shall prepare a critical path analysis which shall have as its objective the earliest possible start of actual construction on an uninterrupted basis. The consultant shall also review the status of all equipment in the system and shall use to the fullest practical extent, serviceable equipment and materials in the possession of PLN Region X. In preparation of final design, the consultant shall also make maximum use of locally available materials and labor. The consultant shall, during the performance of his task, conduct technical training for PLN counterpart officials with whom he will be working. See Attachment I for a detailed scope of work for the project engineer.

B. The Construction Contract

1. Advertisement, Bidding, and Award

The project engineer shall prepare an IFB for the construction contract(s). The contract shall be let on the basis of competitive bidding with the award being made to the lowest responsive bidder, under the format discussed below, and in accordance with A.I.D. Capital Projects Guidelines "Borrower Procurement of Construction Services of the United States Source and Origin" (M.O. 1441.2).

2. Construction Contract

In letting the construction contract, it is desired to achieve a result as close as possible to a fixed-price construction contract including provision of some materials and equipment to be procured by the construction contractor. However, final design for the distribution system will be completed on a piecemeal basis so that construction can begin on portions of the system while final design is being completed for the remainder. Thus, the construction contract must be let on the basis of a preliminary estimate of the quantities of construction units required.

The project engineer will submit, prior to letting the contract for construction, a preliminary design for the rehabilitated electric system which will form the basis for the final design for each portion of that system. He will also prepare drawings for the construction units, complete with material lists. He will estimate the quantity of each such unit required for completion of the project and will prepare a cost estimate for the preliminary design based upon the number of each such units and their estimated installed cost. With this information, the project engineer will prepare an invitation for bids for the construction contract which will define the scope of the project, identify the individual construction units and provide detailed specifications and construction standards for them, and indicate the number of each unit anticipated for the job. In submitting bids, the construction contractor will be expected to provide a total price based on the estimated numbers of units and to break down that bid price into a price for each unit, specifying the dollar and local currency components thereof. Award will be based on either the lowest total price or lowest dollar price, depending upon whether the local currency component would more advisably be bid on a fixed unit price or cost reimbursable basis. Payment to the contractor shall be made on the basis of actual quantities of individual installed units at the unit price stated in the executed contract, as amended from time to time.

C. Arrangements for Procurement

1. Project Engineer's Role

Procurement of long-lead items should be initiated as soon as possible. To accomplish this, the project engineer will identify those items, such as generators, substations, and major transformers, prepare bills of material and specifications for them, and prepare IFBs. Upon approval of the IFBs by PLN and A.I.D. he will procure these items for PLN on a competitive bid basis in accordance with procedures in Section 2 of A.I.D. Capital Projects Guidelines "Borrower Procurement of Equipment and Materials of United States Source and Origin" (A.O. 1441.3).

The project engineer, in preparation of the preliminary design, will also recommend which remaining items are to be procured by himself for the account of PLN and which are to be included in the construction contract. When this recommendation is approved by PLN and A.I.D., the project engineer shall prepare and obtain approval of IFBs for the remaining items, if any, and procure those items.

The project engineer shall be responsible for inspection and acceptance of all commodities which he has procured and for assuring that commodities procured by the construction contractor are in compliance with specifications.

The engineer will establish a plan for reuse or retirement and return of existing distribution materials and equipment to PLN by the contractor. He will prepare staking sheets and material inventory sheets for use during the construction period and also will aid and assist PLN in accounting for these used materials.

2. Construction Contractor's Role

When a summary of the IFB for the construction contract is published, it will announce the type of work being performed and indicate what items of equipment and material are included. This will permit suppliers on their own initiative to contact U. S. construction firms likely to bid for the project and to offer their equipment to the construction firm. Construction firms will be seeking to minimize their own bids, and thus, competition as to equipment supplied by the construction contractor will be achieved through the competitive construction contract bid price.

The invitation for bids shall identify the construction units to be installed by the contractor, show the estimated quantities of each unit, and include detailed specifications. In addition, it will include a list of individual items of material and equipment which have been procured by PLN for use on this project and which are to be taken over by the contractor and incorporated into the project.

The IFB will include a list of construction units and the quantity of each which will be reused or retired from the existing electrical system. The contractor will remove units to be retired from the system and return all of the material to the designated PLN warehouse.

The contractor may at the completion of the project turn in for credit, at designated PLN warehouses, reasonable amounts of new materials which are surplus to his needs. PLN will purchase this material at the contractor's demonstrated cost delivered to his warehouse.

Loss and breakage of materials handled by the contractor shall be for his account.

The construction contractor shall be responsible for timing of arrivals of adequate quantities of materials and equipment as the construction work progresses, for inspection of materials and equipment which he has provided, for handling and utilization of all materials and equipment at the project site, including those furnished by the project engineers, and for assuring that work performed is in accordance with construction standards and specifications.

3. Shipping, Customs Clearance, Handling and Storage

In accordance with A.I.D. practice, at least 50% of eligible items will be shipped on U. S. flag vessels, the standard marine insurance provision will be included in the loan agreement, a GOI commitment of foreign exchange will be required for any shipment on non-U.S. flag carriers, and port charges shall be paid with foreign exchange provided by the GOI and a trust fund for such purpose will be effected through sideletter agreement.

The project engineer will be responsible to obtain earliest possible delivery of long-lead and other items which he is to procure for PLN's account, which he will inspect and turn over to the construction contractor. The construction contractor will be responsible for storage and handling of these materials and equipment for the project, and for control and accounting of existing facilities being retired or diverted to alternative use. The construction contractor must arrange time and delivery for all other items and must assure that all equipment and materials as needed are timely available. It will, therefore, be necessary to carefully schedule shipping arrangements to avoid possible delays.

It is desirable that commodities be shipped through the port of Semarang rather than to other ports in Java from which long truck or rail shipment would be required. Semarang is a shallow bottom port but most items of equipment can be accommodated. Arrangements can be made to obtain customs clearance through the port of Semarang.

In the past PLN has encountered difficulties in moving imported commodities through customs. This appears to have been due to PLN's inability to pay customs duty on shipments. Since this is a loan financed economic development project receiving support from the National Development Budget, the GOI policy is to not charge customs duties on imported commodities and equipment. Therefore, no problem is foreseen in obtaining customs clearance but the arrangements for procurement shall include a plan for movement of commodities through customs.

D. General Consulting Services

1. Objectives

Broad management consulting services will be provided to the PLN central organization as part of the IDA loan for Djakarta rehabilitation. The technical assistance and training for this project will be focused upon PLN Region X, will be coordinated with and will support the management consultants provided to the central organization, and will emphasize both on-the-job training in Central Java and participant training in the U. S. and third countries for key PLN personnel. The general consultant will also provide general engineering-consulting services to PLN Region X. Before services will begin, PLN will provide a plan for utilization of these services (as a condition precedent to other than detailed design) including identification and proposed utilization of counterpart personnel.

2. Arrangements for General Consulting Services

To permit flexibility, management control, and continuity, we believe it is desirable that general consulting services be provided under contract with a consulting firm. However, additional services on a personal contract basis might be permitted for short-term services or special circumstances. The consulting firm may not be the same firm providing project engineering services.

The original reconnaissance survey for this project (see Sec. I B) recommended the provision of general consulting services to PLN Region X for a period of five years. We have chosen to incorporate both general consulting and specialized training functions under a single contract for the period of the rehabilitation project (3-1/2 years). However, consideration may be given to extension of the general consulting services for an additional 1-1/2 year period, and cost estimates for the project would accommodate the additional services as a contingency.

An important aspect of the general consulting services will be coordination with the IBRD management consultants working with the PLN Central organization on broad management and institutional reforms, and this is specified in the scope of work for the general consultants. (See Attachment II.)

3. Scope of General Consulting Services

The general consultant will provide one general utility specialist who will reside in Central Java during the entire term of the contract. In addition, the general consultant will furnish and supervise several long-term specialists who will train PLN personnel at the operational level. The scope of work for the general consultant is outlined in Attachment II.

4. Participant Training

It is planned to train selected PLN personnel, principally through work experience at operating utilities, in U. S. or a third country to develop skills in operation and maintenance of generating equipment, load dispatching, equipment procurement and accountability, and utility accounting. The training period for any employee will probably not exceed six months.

Participant training is recommended for the following classifications of personnel:

- 2 Chief Plant Superintendents
- 2 Production Plant Superintendents
- 3 Accountants
- 1 Equipment and Supply Management Control Superintendent
- 1 Systems Operation Superintendent

The program for participant training is outlined in further detail in Attachment III.

SCOPE OF WORK FOR PROJECT ENGINEER

The Contractor will accomplish the tasks outlined in this scope of work and obtain the appropriate approval of PLN as the tasks are accomplished. Since one important element of the rehabilitation project is training of PLN personnel, the engineer will be expected to specify appropriate training in contracts with equipment and material manufacturers, the construction contractor, and to set up his own program to furnish the remaining technical and professional training not covered by the other contracts.

A. Engineering and Design

1. Prepare and recommend the following basic criteria for systems design, consistent with basic system standards established by PLN:
 - a. primary voltage
 - b. secondary voltage
 - c. voltage drop permitted in:
 - (1) primary lines
 - (2) secondary lines
 - (3) services
 - d. Use of single phase and three phase secondary
 - e. Use of poles - i.e., concrete, tropical treated SYP, etc.
 - f. Re-use of existing materials such as:
 - (1) Steel poles
 - (2) Copper secondary lines
 - (3) Copper secondary conductor
 - (4) Services
 - g. Changeover of medium and heavy use domestic customer from 127/220 volt three phase 4 wire service to 220 volt single phase 2 wire or 220/440 volt single phase 3 wire service.
 - h. Metering of customers
 - (1) Those involved in voltage changeover
 - (2) Those desiring change from limiter to meter or to increase service beyond a stated minimum
 - (3) New customers
 - i. Maps and drawings
 - (1) Select standard, high quality materials for reproducible sheets
 - (2) Establish standard sheet sizes to be adopted by PLN
 - (3) Establish suitable scales to be used in preparing key and detail maps, circuit diagrams, drawings, etc.

2. Establish general criteria for engineering

- a. Prepare a complete set of standard construction drawings complete with material lists.
- b. Adopt a construction code such as NESC or any other recognized code which will insure sound and safe construction.
- c. Establish a cut-over procedure for each section of each city to cause least interruption to customer service and public services.
- d. Establish a plan for use or retirement and return to PLN by the contractor of existing materials and equipment. This will include among other things the following:
 - (1) Include in the IFB a description of construction units to be retired from the PLN electrical system and an estimate of the quantity of each unit.
 - (2) Show on the staking sheets issued to the contractor and PLN the units to be retired and their location, the units to be used as is, and units to be modified and the nature of modification.
 - (3) Require that contractor return all retired material to a designated PLN warehouse.
 - (4) Prepare material inventory sheets so that PLN and the contractor can determine the amount of each item of material to be returned.
 - (5) Establish prices for each item of retired material to be used as a basis for settlement between the Contractor and PLN for the loss and breakage which may occur.
 - (6) Assist PLN in implementing the acceptance of used material into inventory and in issuing necessary charges and credits to the contractor.
- e. Establish a plan for the contractor to return to PLN for credit excess new materials, in reasonable quantities, when the rehabilitation work is complete.

3. Project Scheduling

- a. Prepare a critical path analysis for the project to permit earliest and most practical scheduling of activities and initiation of construction on an uninterrupted basis.
- b. Prepare, also, a bar type chart covering the scheduling of design procurement and construction activities.
- c. Submit to PLN and AID monthly progress reports, in a timely manner, showing progress made during previous months and outlining the problems that have arisen and suggesting remedies.

4. Design for Rehabilitation

a. Distribution Systems, Preliminary Designs (incl. switching stations)

- (1) Semarang
- (2) Solo
- (3) Jogjakarta
- (4) Magelang

b. Sub-stations

Prepare final substation design for each of the cities in a. above noting that two substations are necessary at Jogjakarta and Semarang.

c. Designs for Generating Plants

- (1) Gas Turbine plant at Semarang including oil pipe line from the harbor to plant and oil storage facilities
- (2) Diesel plant addition at Jogjakarta including oil storage and handling facilities
- (3) Determine whether existing AEG gas turbine should be modified to burn IDO diesel fuel. If so, prepare all necessary design data to make this changeover.
- (4) Draw up any necessary designs and work description associated with the rehabilitation of:
 - (a) Kalisari diesel plant
 - (b) Kudus diesel plant
 - (c) Jogjakarta existing diesel plant
 - (d) Djelok hydro generating plant including cleaning and rehabilitation of plant tunnels and aqueduct.
 - (e) Timo plant switchyard (lightning protection)

d. Communications

Design a communication system suitable for the operation of the individual distribution systems and the associated transmission and generating system. This design should be keyed to long range system requirements to avoid early obsolescence.

5. Rehabilitation Cost Estimate

- a. Using the final designs developed in 4.b.c.d. above, estimate the completed cost of this work, separating foreign exchange and local currency costs.

- b. Using the preliminary design for the distribution system listed in 4.a. above, break the requirements for each system into standard construction units, price them and arrive at estimated installed unit prices showing labor and material separately and separating foreign exchange and local currency costs. Develop the overall cost from the product of the unit quantities and the unit costs.
- c. Combine a and b above to arrive at the total overall project cost.

B. Procurement - Materials

1. Material and equipment for account of PLN

- a. Prepare a list of long lead time items and other items which should be ordered before letting the construction contracts.
- b. Prepare IFB's for all items of such material and equipment. Include a training requirement covering operation in contracts for generation and communication equipment.
- c. Evaluate bids, make recommendation for award of contracts and assist PLN in obtaining approved contracts.

C. Construction Contract

The construction contract will be essentially a unit price contract with the contractor furnishing a considerable amount of material and taking over material procured for PLN under B above. The contract will include all work described under A. 4.

1. Prepare the IFB for the labor and material contract on a unit price basis.
 - a. Include all preliminary key and detail maps, and one line diagrams showing the details of work to be done on the electric distribution systems.
 - b. Include construction drawings for all units of construction.
 - c. Include design drawings and material lists for all substations and switching stations.
 - d. Include all design drawings and material lists for generating plant additions and modifications.
 - e. Provide a complete list of materials to be furnished by PLN and the unit prices of each item.
 - f. Include a complete list of construction units and the quantities of each required.

- g. Include a schedule for each city of the rehabilitation work to be performed and the proposed completion date for each operation.
- h. Provide for contractor to furnish the necessary breakdown between foreign exchange and local currency.
- i. Include a list of construction units and the quantity of each which will be retired from the existing electrical system. The contractor will bid this work on a unit basis and will return all retired materials and equipment to a designated PLN warehouse for credit.
- j. Include a list of materials and equipment for construction units to be retired and assign appropriate values for each item. This will become the basis for a settlement between PLN and the contractor for retired materials.
- k. Include a provision in the IFB permitting the contractor to return to PLN for credit, when the rehabilitation is completed, reasonable quantities of new construction material and equipment purchased expressly for this rehabilitation; PLN will purchase this material if in good condition, at the demonstrated cost to the contractor for the material delivered to the on-site warehouse.
- l. Include a provision that all loss and breakage of materials and equipment handled by the contractor from whatever source shall be for his account.
- m. Provide for the contractor to inspect and accept responsibility for materials:
 - (1) Purchased by the project engineer for PLN's account
 - (2) Purchased by PLN with local currency
 - (3) Presently incorporated in the existing electric systems and designated by the engineer for reuse or return to PLN's warehouses.
- 2. Evaluate bids, make recommendation for award of the contract and assist PLN in obtaining the approved contract.

D. Construction Contract Supervision

- 1. Release the final specifications for a city or section of a city to the contractor on a timely basis to coordinate with the availability of construction materials in accordance with the critical path analysis. Other releases will follow on such a schedule that construction will not be delayed.
- 2. Supervise construction of generating plant additions and modification of AEG gas turbine scheduling, this work to coordinate with the rehabilitation of the distribution system and possible transmission rehabilitation by other contractors.

3. Supervise rehabilitation of the distribution systems, coordinating the work of the contractor to maintain as good service to the customer as possible; also maintain street lighting capability as far as possible.
4. Supervise changing customer service voltage from 127 volts to 220 volts.

E. Inspection, Final Inventory and Contract Closeout

1. Furnish engineering inspection services on a daily basis during the entire period that the contractor is working to assure that all work is fully in accordance with the plans and specifications.
2. Test and accept each section of the distribution system as the contractor completes it and turns it over to PLN for operation.
3. Run final acceptance tests and make evaluation as appropriate on new generation equipment before recommending final acceptance to PLN.
4. Maintain a cumulative inventory of construction units installed and accepted.
5. Correct all key and detail maps and drawings as the construction progresses.
6. Complete the final inventory of the rehabilitated distribution system and the final key and detail maps within 30 days after the contractor completes work on each city distribution system. All final documents must be presented to PLN in such shape and detail that it can be used for operating the system and as part of its continuing property records.

F. Training

1. Prepare a training program and furnish the personnel to train PLN employees as follows:
 - a. Develop an engineering training capability
 - (1) Requirements of the safety code.
 - (2) Design of standard construction units.
 - (3) Distribution system design to carry projected loads.
 - (4) Voltage regulation and sectionalizing of distribution and transmission system and application of relays.
 - (5) Construction supervision practices.
 - (6) Preparation and use of implementation schedules.
 - (7) Construction inspection
 - (8) Keeping of running inventory of construction units and updating of construction maps.
 - (9) Making acceptance tests, final inspections, and final inventory.
 - (10) Other training as may be agreed upon by PLN and A.I.D.

2. The IFB covering the construction contract will include a training requirement, to the extent consistent with services provided, in:
 - a. Hot line work
 - b. Safety
 - c. Distribution system operations and maintenance
 - d. Ordering, receiving, and accounting for utility materials
 - e. Maintenance of diesel generating units.

G. General

1. The engineer will prepare additional construction drawings from time to time as may be necessary to facilitate completion of the rehabilitation project.
2. When the engineer completes his services under this contract, he should leave the PLN ^{Region X} engineering department as a going concern complete with engineering equipment, facilities, drawings and standards for continuing growth.
3. The engineer should develop a workable system of cost estimating for new work and cost allocation for completed work which will have continuing value to PLN.
4. The engineer will turn over to PLN at the completion of his contract all records, maps, drawings, and reproduces which were used in connection with this rehabilitation project.

SCOPE OF WORK FOR GENERAL CONSULTANT

I. Objective

To provide PLN Region X with:

- a. General engineering and management service including the identification and development of future projects and advising and assisting PLN in the implementation of new and ongoing projects.
- b. Technical assistance
- c. On-the-job training
- d. Coordination with IBRD management consultant.

The assistance and training will be to build up in the local PLN officers and their staff, both confidence and competence in the most efficient and proper management, administration and operation of their power system and facilities. The primary objective will be to establish self-sufficiency of PLN Region X personnel in utility management and system operation and maintenance practices.

II. Statement of Work

1. To provide general engineering guidance and consulting services associated with problems as may arise during the term of this contract.
2. To supply technical assistance and on-the-job training through the provision of fully qualified personnel of long standing experience in their field of specialization, to work directly in the offices, plants and shops of PLN with the counterpart personnel who are responsible for the various phases of management and/or operations of the power system.
3. To develop and carry through specialized programs of instruction in those particular phases of utility administration, management, operation, maintenance, etc., as may be determined to be desirable.
4. To coordinate all phases of general consultation, technical assistance and training in management and operations with that of the IBRD (World Bank) in order to implement the procedures being established by the PLN Central Organization.
5. To cooperate with the rehabilitation project engineer (or engineers) in scheduling availability and utilization of PLN Region X personnel and to coordinate with the project engineer the various job related training activities that the project engineer and the general consultant will conduct.

6. Plan and arrange for U.S. and third country participant training.

III. Personnel Requirements

It is estimated that a team will be required comprised of reasonably long term personnel supplemented by shorter-term assistance as needed. The consultant shall plan for provision of expertise for varying time periods in the following areas:

1. General utility engineering capability to provide general consulting advice to PLN Region X and to accept responsibility for guiding the selection and coordination of project development and the initiation and supervision of the technical assistance and training program. It should also include responsibility for coordination of this work with that of the IBRD management assistance team.
2. General utility management capability to provide direction and assistance to PLN Region X in establishing methods and procedures for effective utility management and operation. Note: Personnel having expertise and long experience in the field of utility engineering and management should act as team leader.
3. Power system operation and load dispatching with responsibility for the instruction of PLN Region X personnel in the most desirable and efficient scheduling and operation of the Central Java Power System.
4. Utility system accounting with responsibility for setting up the methods and procedures to be followed and to instruct PLN staff in the utilization of sound accounting practices, and in proper records management. This training effort should be closely coordinated with the IBRD to implement the procedures being established in the Djakarta area.
5. Parts management and handling with responsibility for the establishment of a program for proper warehousing, handling and accounting for spare and replacement parts.
6. Distribution system operation, maintenance and minor expansion or extension. This area would include the instruction and training of PLN staff including distribution system supervisors and linemen and service foremen together with their crews.
7. Diesel plant operation and maintenance with responsibility to work with and train PLN power plant personnel in solving day-to-day plant operating problems, routine and major overhaul programs and to provide training in the effective application of preventative maintenance.

Participant Training in the United States or Third Country

It is contemplated that on-the-job training of key PLN personnel in the United States or Third Country should approximate the types and numbers listed below if optimum benefits of this type of training are to be attained. However, the availability of personnel for such training will be dependent in large part on English language capability and on the ability of Exploitasi X to release key personnel for extended periods. Therefore, an element of flexibility must be maintained in the scheduling of such participants. It is considered highly probable that intensive English language instruction must, in some cases, precede training and the General Consultant should take this probability into consideration in planning and scheduling the training program. With the foregoing reservations, the following participant training is recommended:

1. Two Chief Plant Superintendents. The program for each of these men should include on-the-job training in the operation and maintenance of gas turbine generating units at a relatively small utility company for a period of approximately five months. This should be followed by an additional training period of at least one month in the construction, operation and maintenance of diesel generating units.
2. Two Production Plant Superintendents. On-the-job training in the management, operation and maintenance of generating plants at one or more small utilities having substantial generating facilities is recommended. The overall period of training should approximate six months.
3. Three Accountants (Utility). The training period for each of these men should include a six-month working assignment with a utility having generation, transmission and distribution functions. Specific on-the-job training should include familiarization with the FPC uniform system of accounts, material ordering and control procedures, and billing, collection, and customer-accounts practices. In addition, each trainee should take a utility-type bookkeeping course.
4. One Equipment and Supply Management and Control Superintendent. This trainee should be scheduled for a six-month working and on-the-job training assignment with an electric utility company. Training should be focused on procurement procedures, warehousing, inventory accounting and control, and requirements planning.
5. One Systems Operation Superintendent. An on-the-job training assignment of at least four months with an electric utility company is recommended. Special emphasis should be placed on the theory and practice of load dispatching, and on the effects of transmission lines as related to load flow and reactive component.

FOR PERUSAHAAN LISTRIK NEGARA

INDONESIA

TERMS OF REFERENCE

1. The following are Terms of Reference under which would be provided (a) management consulting services to assist the development of the publicly owned electricity corporation, Perusahaan Listrik Negara (PLN) in Indonesia, and (b) engineering services for a project to expand electric distribution facilities in the city of Djakarta, the foreign exchange cost of which it is expected will be financed by the International Development Association.

2. The Terms of Reference outlined herein can be considered preliminary with respect to some details. They would be finalized when the contract for consulting services is negotiated.

3. Management consulting services are described separately from engineering services. Notwithstanding, it is realized that a substantial amount of engineering is involved in the management consulting work and some of the consulting personnel would be engaged in both management consulting and engineering services aspects.

Management Consulting Services

4. A team composed of three or four senior consultants with a background of electric utility management experience in organization, engineering including distribution, finance and management would be resident in Indonesia for a period presently estimated to be of the order of two years. The resident team would be supplemented from time to time for several weeks or months by experts from the consultants' headquarters, to provide expertise and manpower to deal with some of the specific functions or problems of the organization, for example, tariffs. A considerable amount of work would have to be done at headquarters, preparing standards, for example.

5. The consulting firm's relationship would be predominantly with PLN, the headquarters of which is in Djakarta. In view of PLN's wide-spread service area, some travel in Indonesia would be involved. However, the center of the consultants' activities, and their office, would be in the capital city. The firm would also deal with the Ministry of Public Works and Power which is responsible, ultimately, for the activities of the power sector.

6. The management consultants would have the following assignments: (a) advise and assist the management of PLN in the conduct of the company's affairs; (b) review the organization of the power sector and the division of responsibility between the Ministry, its office of the Directorate General of Power, and PLN; and make recommendations concerning the transfer

of functions to PLN to achieve the objective of giving it full responsibility for the power sector, and autonomy in the conduct of its affairs; (c) review the laws and legislation governing the activities of PLN, including the 1965 Decree which concerns it specifically, from the standpoint of giving PLN (i) full responsibility for the public power sector and autonomy in the conduct of its operations, and (ii) various specific responsibilities which it should have to accomplish this objective (for example, setting tariffs and earning a return on investment), and make recommendations concerning the amendment, modification and/or consolidation of such laws considered necessary in this connection and in the interest of clarity; (d) review PLN's internal organization and make recommendations concerning reorganization to enable the utility to function on sound, efficient principles, taking into consideration, among other things, such problems as the dispersed nature of the territories, limited communication facilities, availability of qualified administrative and technical personnel, and the like; (e) undertake to have recommendations concerning (b), (c) and (d) above, which are mutually related to some degree, in the hands of the Ministry, PLN and the Association not later than six months following signing of the contract for consulting services.

7. The consultants would organize and assist with the valuation of PLN's assets. PLN personnel would undertake the bulk of this work following training in the techniques required and the provision of appropriate guidances by the consultants. On the understanding that appropriate assistance and cooperation would be provided by PLN, the consultants would undertake to complete the valuation and recommendations thereto not later than 18 months following signing of the contract for their services. While the intention is to make the valuation as accurate as possible, reasonable assumptions and short-cuts should be employed in view of the fact that the prime purpose is to provide a base for accounting, financial, and other purposes as quickly as possible.

8. The consultants would review the following activities, make recommendations concerning their improvement, organize training, and implement appropriate methods, functions, and procedures where appropriate, with the objective of putting such functions on a sound, efficient and conventional utility basis as soon as possible.

- (a) Institute the use of modern power operations and system planning techniques and establish a system planning department.
- (b) Prepare standards for operation and maintenance on a system-wide basis.
- (c) Prepare standards for distribution design.
- (d) Institute appropriate purchasing and inventory practices, and policies and methods to implement them.

- (e) Establish a modern system of uniform accounts and institute methods and procedures to ensure their effective use.
- (f) Institute efficient meter reading, billing and collection procedures.
- (g) Provide training in financial management including cash flow, financial planning and forecasting and so forth.
- (h) Review the tariff structures.
- (i) Review tariff levels.
- (j) Review employment practices and employment levels.
- (k) Review the insurance policies of PLN.
- (l) Organize training programs for staff at supervisory, maintenance and operation levels, complementing training programs and training schools which may already exist.

9.

Reference is made to several items of the preceding paragraph:

- (a) The recommendations concerning tariff structure should be of a broad nature and of the type generally applicable to regulated utilities. The structure should provide that revenue should, after all expenses including interest and depreciation and to the extent it exceeds depreciation, amortization, are met, produce a substantial contribution towards future expansion. The tariff levels recommendation should include the specific levels for various classes of service. In addition to the valuation of assets, it would be necessary to prepare profit and loss statements in order to make recommendations as to tariff levels. The consultants would undertake to make tariff recommendations within 27 months of the signing of the contract for their services (that is within nine months of submission of their recommendations concerning valuation of assets).
- (b) Recommendations concerning employment levels and employment practices would be very important and, in making them, due consideration should be given to the particular circumstances in Indonesia.

10.

One of the prime objectives of the consultants is to work out step-by-step improvements and to assist in their implementation. It is expected that the consultants' suggestions concerning methods, procedures

and practices would be generally accepted, and when this is the case, they should be implemented as soon as practicable.

11. One of the main functions of the consultants would be to improve PLN 'know how' by direct contact, that is, meetings, demonstrations, training sessions and ordinary conversations. Routine reports, while of importance, should be brief and serve to relate progress, the problems experienced and their status or solution. Reports giving recommendations should be treated separately and issued immediately following completion of the consultants' work on the subject. More precise reporting requirements will be established when the contract is negotiated, taking into consideration the consultants views.

Engineering Services

12. Engineering services would be provided in connection with the expansion of the distribution facilities in the city of Djakarta and environs. The plans for expansion are described in the attachment.
13. The consulting firm would provide engineering services as follows:
 - (a) Review distribution practices (for Djakarta) giving particular attention to the propriety of present standardization on large (300 kva & 500 kva) distribution transformers and underground cable, the question of changing the secondary distribution voltage level, the use of static capacitors and voltage regulations, etc.
 - (b) Review the scope, planning and cost estimate of the program.
 - (c) Assistance with detailed design, as required.
 - (d) Prepare specifications for equipment.
 - (e) Assist with procurement, including the commercial and technical valuation of bids.
 - (f) Prepare programs and schedules for installation.
 - (g) Assist with the organization of the programs for installation, including hiring of contractors.
 - (h) Provide, or arrange provision of construction supervision.
14. This assignment will last several years and would be presided over by a manager, engineering services, resident in Indonesia throughout. It is anticipated that headquarters of the consultants would prepare specifications and provide backup for planning and design studies.

15. Time is of the essence inasmuch as distribution improvements in Djakarta are urgently needed. Before equipment financed by the Association can be purchased it will be necessary to provide specifications suitable for international competitive bidding, in accordance with the regulations for procurement of the Association. To keep the time involved in their preparation to the minimum, arrangements for their review by FLN should be made as simple as possible.

16. Details concerning the handling of documents and other matters would be settled when negotiating the contract.

October 3, 1969

ANNEX 3. Project Cost

A. Schedule of Costs

B. Comparison of Costs with Original Estimates of Feasibility Analysis

SUMMARY OF COSTS

(\$000 U.S. Equivalent)

| | | | | <u>U.S.</u> | <u>3rd Country Foreign Exch.</u> | <u>Local Currency</u> | <u>TOTAL</u> |
|---|-------------|--------------|--------------|--------------|--------------------------------------|---------------------------|--------------|
| <u>Rehabilitation of Distribution Systems:</u> | | | | | | | |
| Semarang | | | | 3071 | | 1206 | 4277 |
| Solo | | | | 1558 | | 603 | 2161 |
| Jogjakarta | | | | 1266 | | 489 | 1755 |
| Magelang | | | | 634 | | 252 | 886 |
| Spare and Replacement Parts | <u>US</u> | <u>Local</u> | <u>Total</u> | 150 | | | 150 |
| Total | | | | <u>6679</u> | | <u>2550</u> | <u>9229</u> |
| Substations | 800 | 248 | 1048 | | | | |
| Distribution Transformers | 1190 | 383 | 1573 | | | | |
| 20 KV Distribution Lines | 1450 | 650 | 2100 | | | | |
| Secondary Lines & New Customers | 3089 | 1269 | 4358 | | | | |
| Spare & Replacement Parts | 150 | | 150 | | | | |
| Total | <u>6679</u> | <u>2550</u> | <u>9229</u> | | | | |
| <u>Rehabilitation of Existing Generators:</u> | | | | | | | |
| Diesels | | | | 115 | 840 | 18 | 973 |
| Hydros | | | | 200 | 30 | 27 | 257 |
| Total | | | | <u>315</u> | <u>870</u> | <u>45</u> | <u>1230</u> |
| <u>Additional Interim Generating Capacity:</u> | | | | | | | |
| Gas Turbine, Semarang | | | | 2805 | | 451 | 3256 |
| Three 2 MW Diesels, Jogjakarta | | | | 1510 | | 412 | 1922 |
| Total | | | | <u>4315</u> | | <u>863</u> | <u>5178</u> |
| Generators | 3450 | 680 | 4130 | | | | |
| Fuel Storage & Auxiliaries | 525 | 183 | 708 | | | | |
| Spare Parts | 340 | | 340 | | | | |
| Total | <u>4315</u> | <u>863</u> | <u>5178</u> | | | | |
| <u>Tools and Service Equipment:</u> | | | | | | | |
| | | | | 150 | | | 150 |
| <u>Communications Equipment:</u> | | | | | | | |
| | | | | 200 | | 25 | 225 |
| <u>Engineering:</u> | | | | | | | |
| | | | | 1705 | | 305 | 2010 |
| <u>Technical and Management Consulting Services*:</u> | | | | | | | |
| | | | | 824 | | | 824 |
| <u>Contingencies Against Over-runs:</u> | | | | | | | |
| Equipment Contingencies | 1244 | 348 | 1592 | | | 380 | 1795 |
| Engineering Contingencies | 171 | 32 | 203 | | | | |
| Total | <u>1415</u> | <u>380</u> | <u>1795</u> | | | | |
| <u>Inflation</u> | | | | | | | |
| | | | | 1192 | | 332 | 1524 |
| ESTIMATED TOTAL PROJECT COST | | | | | | | |
| | | | | <u>16795</u> | <u>870</u> | <u>4500</u> | <u>22165</u> |
| * Participant training | 35 | | | | | | |
| Library | 8 | | | | | | |
| General Consultant | <u>781</u> | | | | | | |
| | 824 | | | | | | |

ANNEX 3B.

ELECTRIC POWER REHABILITATION PROJECT
CENTRAL JAVA
COST ESTIMATE

(Cost in \$000 U.S. Equivalent)

| <u>Generation</u> | | <u>Revised Estimate</u> | <u>Feasibility Analysis Estimate</u> | |
|--|-------|-------------------------|--------------------------------------|-----|
| 1 - 15 MW gas turbine | | 2,150 | 2,150 | |
| fuel storage and pipeline, Semarang | | 405 | 405 | |
| spare parts for gas turbine | | 250 | 250 | |
| 3 - 2 MW diesel units, Jogjakarta | | 1,300 | 1,300 | |
| fuel storage (Jogjakarta) | | 120 | 120 | |
| diesel parts | | 90 | 90 | |
| <u>Rehabilitation Parts</u> | | | | |
| diesel plants (US SOURCE) | | 115 | 115 | |
| hydro plants (US SOURCE) | | 200 | 200 | |
| communication equipment | | 200 | 200 | |
| <u>Rehabilitation Distribution Systems</u> | | | | |
| Semarang | | 3,071 | 2,334 | (1) |
| Substation | 250 | | 250 | |
| distribution transformers | 600 | | 600 | |
| 20 KV distribution lines | 677 | | 685 | |
| secondary lines | | | | |
| new customers | | | | |
| rehab. existing cust. services | 1,544 | | 660 | |
| Solo | | 1,558 | 1,086 | (1) |
| substation | 210 | | 210 | |
| distribution transformers | 225 | | 225 | |
| 20 KV distribution lines | 385 | | 350 | |
| secondary lines | | | | |
| new customers | | | | |
| rehab. existing cust. services | 738 | | 255 | |

ELECTRIC POWER REHABILITATION PROJECT
CENTRAL JAVA
COST ESTIMATE

(Cost in \$000 U.S. Equivalent)

| <u>Generation</u> | <u>Revised Estimate</u> | <u>Feasibility Analysis Estimate</u> | |
|--|-------------------------|--------------------------------------|-----|
| Jogjakarta | 1,266 | 1,283 | (1) |
| substations | 210 | 210 | |
| distribution transformers | 250 | 250 | |
| 20 KV distribution lines | 267 | 410 | |
| secondary lines | | | |
| new customers | | | |
| rehab. existing cust. services | 537 | 345 | |
| Magelang | 634 | 602 | (1) |
| substation | 130 | 130 | |
| distribution transformers | 115 | 115 | |
| 20 KV distribution lines | 121 | 180 | |
| secondary lines | | | |
| new customers | | | |
| rehab. existing cust. services | 268 | 150 | |
| spare system transformer | 50 | 50 | |
| parts for maintenance | 100 | 100 | |
| line trucks, pickups and tools | 150 | 150 | |
| technical assistance and training (in Indonesia)* including library of reference material on American Power stds. etc. | 824 | 650 | (2) |
| engineering | 1,705 | 1,445 | (3) |
| contingency | 2,607 | 2,070 | (4) |
| Total anticipated U.S. dollar cost for project | 16,795 | 14,600 | |
| Local currency equivalent costs | 4,500 | 4,500 | |
| Total Funds required | 21,300 | 19,100 | |
| Amount of the A.I.D. Loan | 16,800 | 14,600 | |

| | |
|------------------------|-----|
| * Participant training | 35 |
| Library | 8 |
| General Consultant | 781 |
| | 824 |

- ANNEX 4. Organization of the Electric Power Sector
- A. Organization Charts for the Public Power Sector
 - 1. Department of Public Works and Electric Power
 - 2. Directorate General of Electricity and Power
 - 3. PLN District X
 - B. PLN's Current Board of Directors and Management Staff

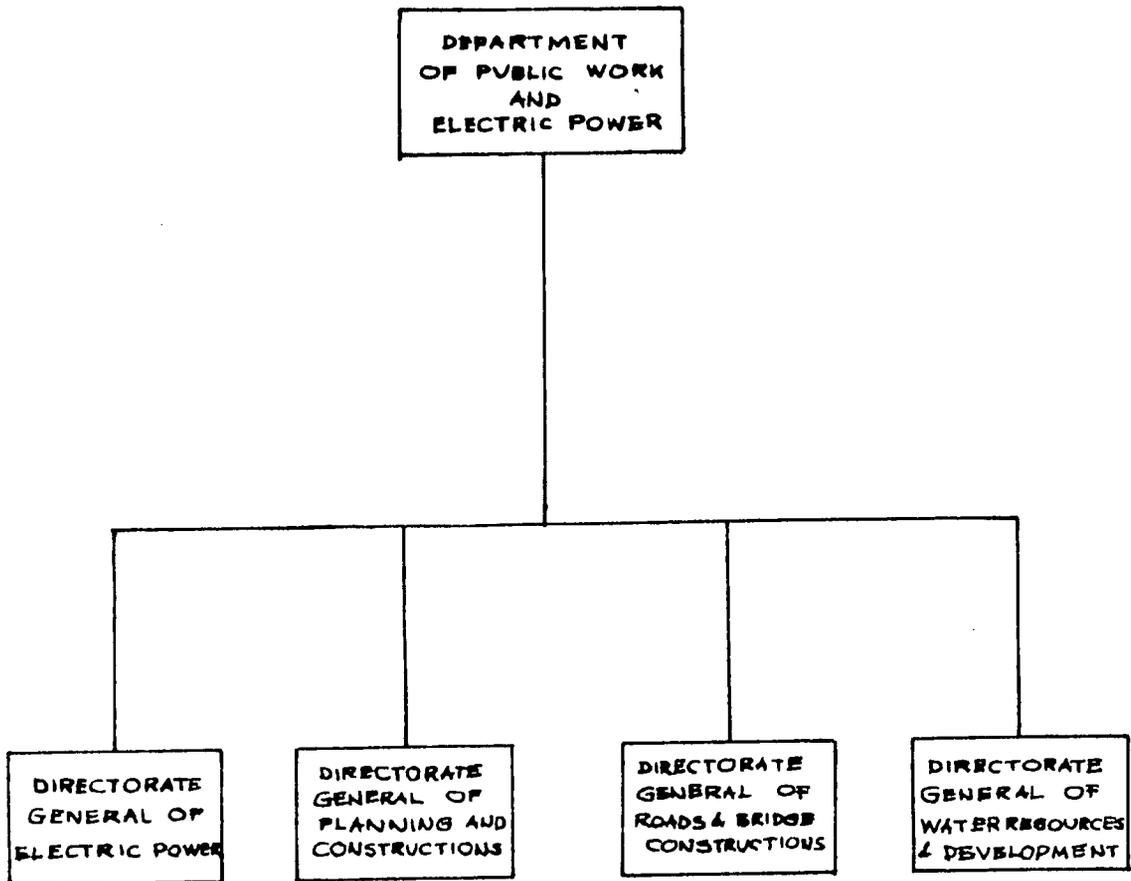
CHART NO.1.

ANNEX 4

A.



DIRECTORATE GENERALS OF
THE DEPARTMENT OF PUBLIC WORK AND
ELECTRIC POWER ..



**ORGANIZATIONAL STRUCTURE
OF THE DIRECTORATE GENERAL ELECTRIC & POWER**

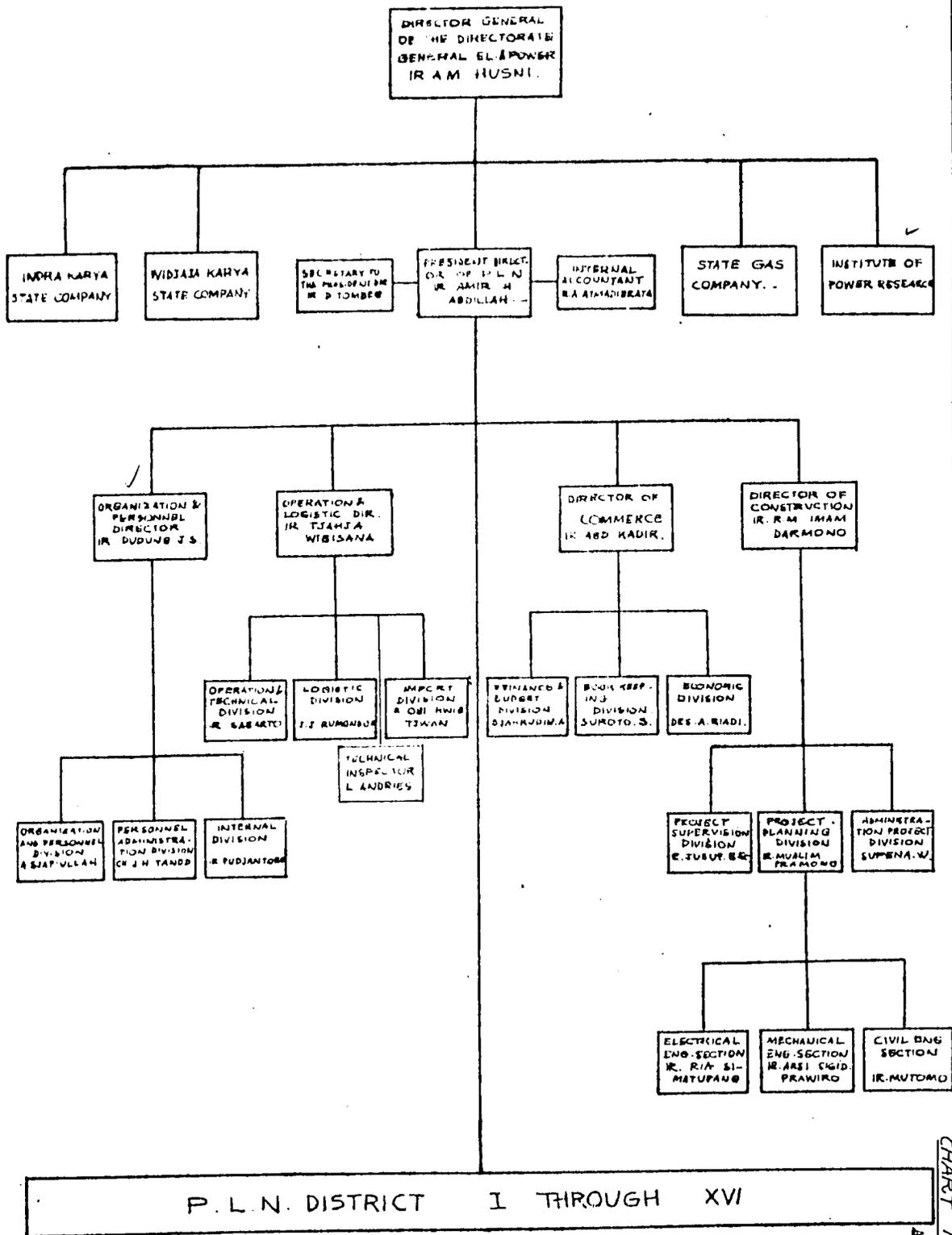
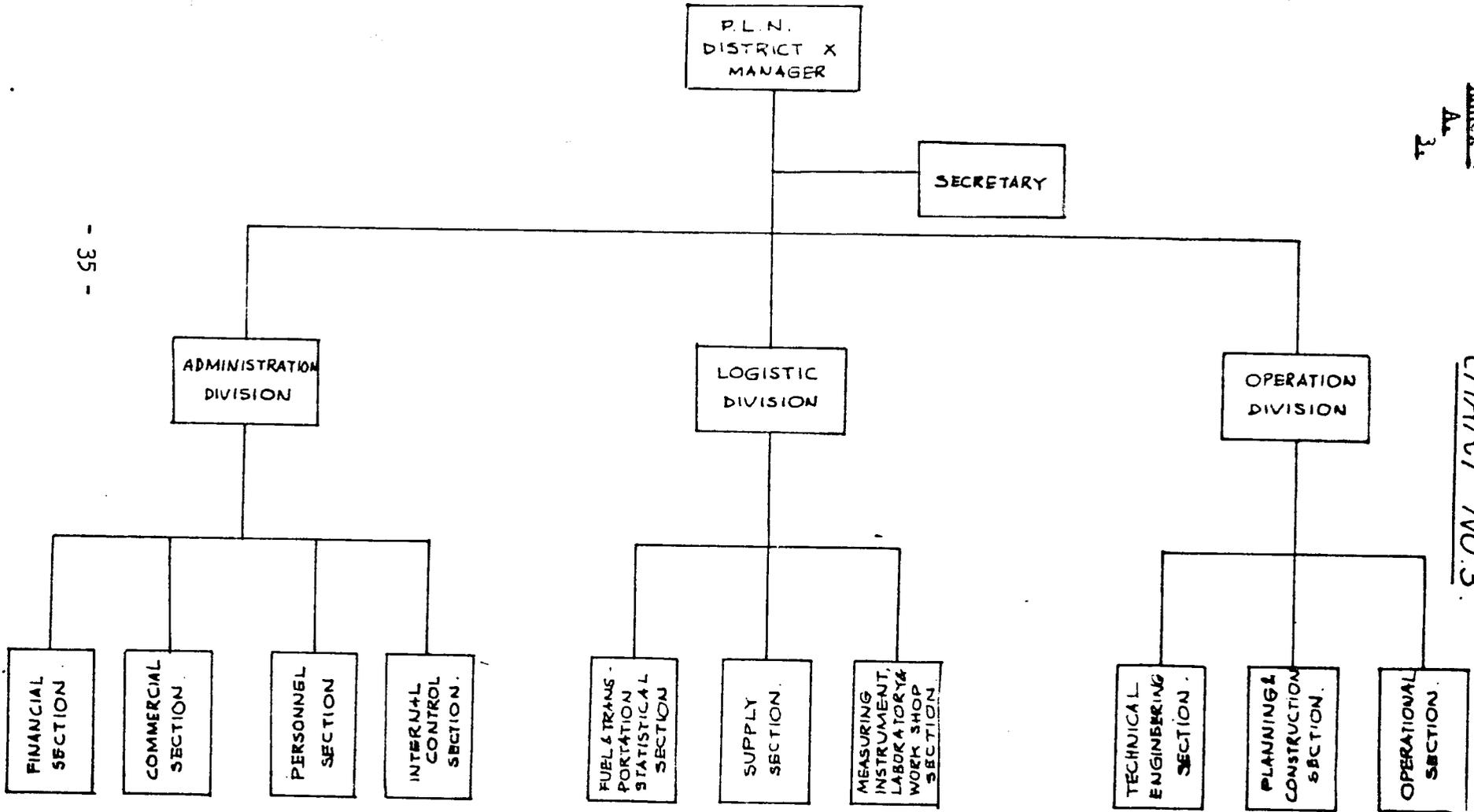


CHART NO. 2.

Amber 1
A. 2.

ORGANIZATION STRUCTURE
P.L.N. DISTRICT X

I



- 35 -

Annex 4
A.
3.

CHART NO. 3.

Current Board of Directors and Management Staff

Director General of the
Directorate General Electric & Power
Ir. A. M. Husni

Indra Karya
State Company

Widjaja Karya
State Company

State Gas Company

Institute of Power Research

President Director of P.L.N.
Ir. Amir H. Abdillah

Secretary to the President Director
Ir D. Tombeg

Internal Accountant
R. A. Atmadibrata

Organization & Personnel Director
Ir. Dudung J.S.

Organization and Personnel Division
A. Sjafiullah

Personnel Administration Division
CH. J.H. Tanod

Internal Division
Ir. Pudjantoro

Operation & Logistic Director
Ir. Tjahja Wibisana

Operation & Technical Division
Ir. Sabarto

Logistic Division
I.J. Rumondor

Technical Inspector
L. Andries

Import Division
Ir. Oei Hwie Tjwan

Director of Commerce
Ir. Abd. Kadir

Finance & Budget Division
Sjahrudin A.

Bookkeeping Division
Suroto S.

Economic Division
Drs. A. Riadi

Director of Construction
Ir. R.M. Iman Darmono

Project Supervision Division
R. Jusuf B. Sc.

Project Planning Division
Ir. Mualim Pramono

Administration Project Division
Supena W.

Electric Engineering Section
Ir. Ria Simatupant

Mechanical Engineering Section
Ir. Arsi Sigid Prawiro

Civil Engineering Section
Ir. Mutomo

ANNEX 5. Technical Exhibits

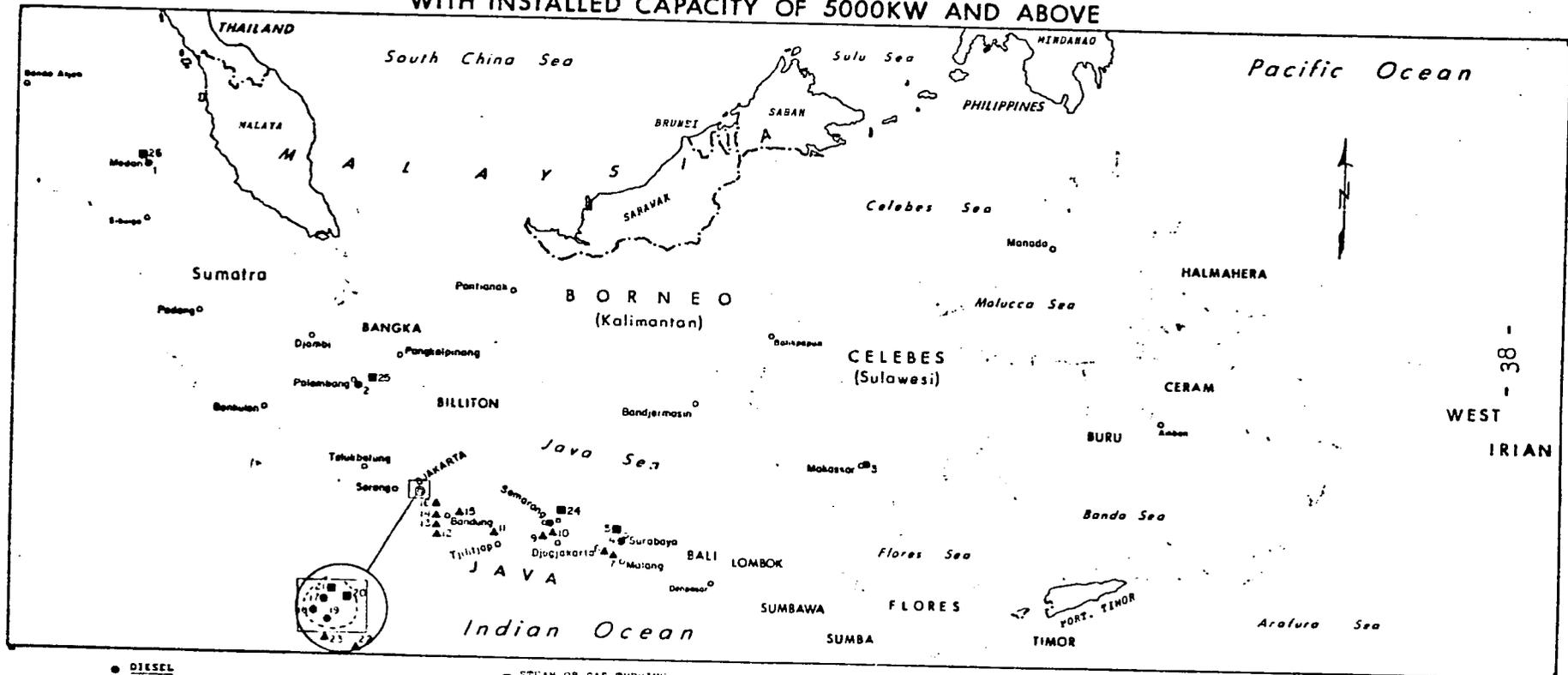
A. Existing Facilities

1. Location of Main Public Power Generating Facilities in Indonesia
2. Diagram of Transmission and Distribution Networks in Java
3. Public Power Generating Capacity
4. Tabulation of Existing Distribution Facilities - Major Load Centers of the Tuntang System
5. Source of Power Production - Tuntang System

B. Rehabilitation Program

1. Indonesia Five-Year Development Plan, Public Electric Power

INDONESIA
LOCATION OF MAIN GENERATION FACILITIES
WITH INSTALLED CAPACITY OF 5000KW AND ABOVE



● DIESEL

| No. | Location | Installed MW |
|-----|-----------|--------------|
| 1. | Medan | 16.2 |
| 2. | Palembang | 14.1 |
| 3. | Kedondong | 13.1 |
| 4. | Segele | 8.0 |
| 5. | Kedondong | 8.0 |
| 17. | Ahtajal | 11.0 |
| 18. | Rafel | 12.0 |
| 19. | Kedondong | 12.6 |

■ STEAM OR GAS TURBINE

| No. | Location | Installed MW |
|-----|--------------------------|--------------|
| 5. | Tanjung Perak (Surabaya) | 50.0 |
| 20. | Gambir (Jakarta) | 12.7 |
| 21. | Tanjung Priok (Jakarta) | 50.0 |
| 24. | Semarang | 12.5 |
| 25. | Palembang | 12.5 |
| 26. | Medan | 12.5 |

▲ HYDRO

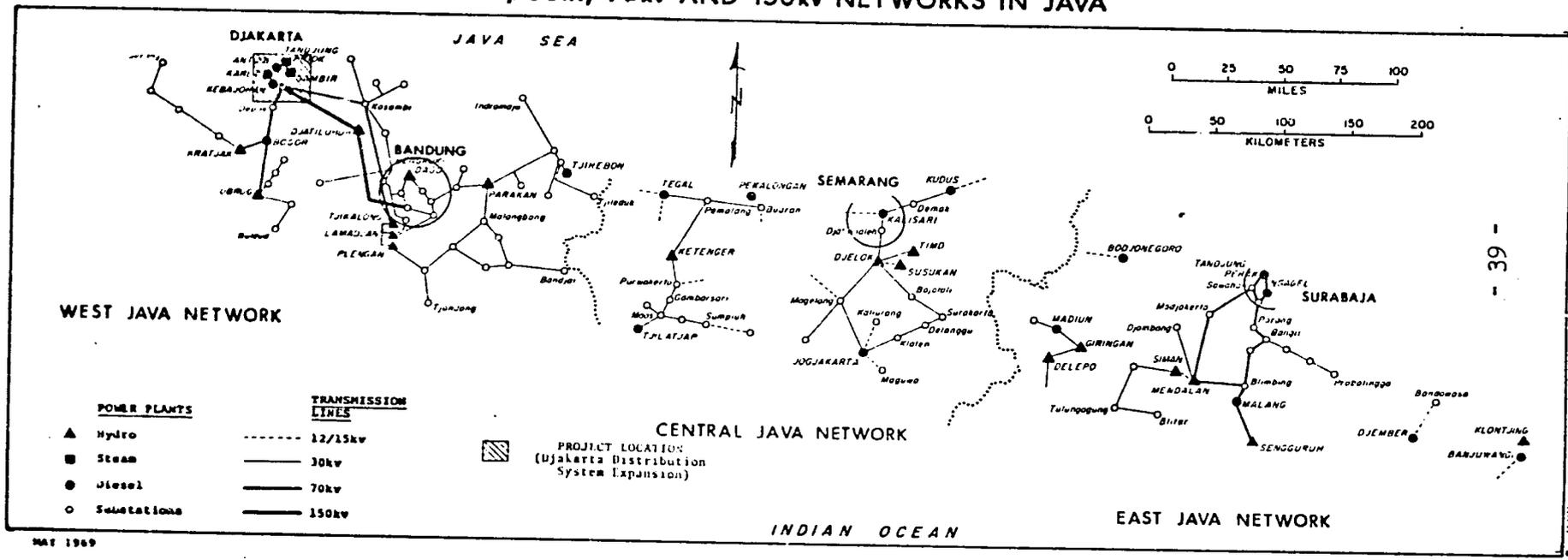
| No. | Location | Installed MW |
|-----|-----------------|--------------|
| 6. | Mendalan | 23.0 |
| 7. | Siman | 10.8 |
| 9. | Djelok | 20.5 |
| 10. | Tina | 17.0 |
| 11. | Ketenger | 7.0 |
| 12. | Plenjan | 5.2 |
| 13. | Lemahjan | 17.2 |
| 14. | Tjikalong | 19.2 |
| 15. | Parakan Kondang | 10.0 |
| 16. | Djatiluhur | 100.0 |
| 22. | Ubrug | 17.1 |
| 23. | Kratjuk | 16.6 |

□ PROJECT LOCATION
(Jakarta Distribution System Expansion)

0 100 200 300 400 500
KILOMETERS

0 100 200 300 400 500
MILES

INDONESIA
DIAGRAM OF
12kv, 30kv, 70kv AND 150kv NETWORKS IN JAVA



Taken from IBRD Report No. PU-18a
Electricity Distribution Project, Djakarta

INDONESIA

Public Power Generating Capacity
(as of June 30, 1968)

| PERUSAHAAN LISTRIK NEGARA (PLN) REGIONS | Number of Stations | Number of Units & Installed Capacity | | | | | | | | Total Installed Capacity kw |
|---|--------------------------|--------------------------------------|----------------|-----------|----------------|------------|----------------|-------------|---------------|--------------------------------------|
| | | Hydro | | Steam | | Diesel | | Gas Turbine | | |
| | | Units | kw | Units | kw | Units | kw | Units | kw | |
| I NORTH SUMATRA (Medan) | 19 | 2 | 120 | - | - | 75 | 24,245 | 1 | 12,250 | 36,615 |
| II SOUTH SUMATRA (Palembang) | 10 | 2 | 1,320 | - | - | 30 | 21,206 | 1 | 12,250 | 34,776 |
| III WEST KALIMANTAN (Pontianak) | 8 | - | - | - | - | 17 | 4,322 | - | - | 4,322 |
| IV NORTH, CENTRAL & SOUTH KALIMANTAN (Bandjarbaru) | 10 | - | - | - | - | 26 | 7,842 | - | - | 7,842 |
| V NORTH SULAWESI (Manado) | 8 | 1 | 4,440 | - | - | 16 | 2,932 | - | - | 7,372 |
| VI SOUTH SULAWESI (Makassar) | 8 | - | - | - | - | 18 | 14,457 | - | - | 14,457 |
| VII MALAKU (Ambon) | 6 | - | - | - | - | 29 | 4,292 | - | - | 4,292 |
| VIII NUSA TENGGARA (Denpasar) | 21 | - | - | - | - | 58 | 6,513 | - | - | 6,513 |
| IX EAST JAVA (Surabaya) | 25 | 15 | 42,722 | 6 | 59,482 | 59 | 20,567 | - | - | 122,771 |
| X CENTRAL JAVA (Semarang) | 28 | 14 | 42,300 | - | - | 61 | 21,593 | 1 | 12,250 | 76,143 |
| XI EAST WEST JAVA (Bandung) | 11 | 27 | 182,952 | - | - | 10 | 2,614 | - | - | 185,566 |
| XII WEST WEST JAVA (Djakarta) | 11 | 6 | 33,675 | 6 | 62,700 | 37 | 36,861 | - | - | 133,236 |
| XIII ATJEH (Banda Atjeh) | 9 | - | - | - | - | 27 | 3,742 | - | - | 3,742 |
| XIV WEST SUMATRA (Padang) | 23 | 1 | 70 | 6 | 3,012 | 53 | 10,325 | - | - | 13,407 |
| TOTALS | <u>197</u> | <u>68</u> | <u>307,599</u> | <u>18</u> | <u>125,194</u> | <u>516</u> | <u>181,511</u> | <u>3</u> | <u>36,750</u> | <u>651,054</u> |

May 12, 1959

Taken from IBRD Report No. PU-18a
Electricity Distribution Project, Djakarta

MAJOR CITIES - TUNTANG SYSTEM

EXISTING DISTRIBUTION

JANUARY 1969

| Item | LOCATION | NO. OF DISTR STATIONS | NO. OF DISTR TRANSFORMERS | TOTAL CAP. (KVA) | LENGTH OF CIRCUITS | | NO. OF POLES | | | | |
|------|------------|-----------------------------|---------------------------------|------------------------|--------------------|---------------------|--------------|-------|----------|-------|--------|
| | | | | | 6 KV (Miles) | 127/220V (Miles) | Steel | Wood | Concrete | Other | Total |
| 1. | Semarang | 166 | 201 | 23,532 | 96.08 | 174.99 | 5,714 | 1,586 | 48 | 417 | 7,765 |
| 2. | Solo | 77 | 77 | 7,530 | 41.01 | 113.40 | 4,095 | 854 | 12 | 52 | 5,015 |
| 3. | Jogjakarta | 104 | 118 | 11,827 | 50.16 | 101.75 | 2,980 | 1,939 | - | 493 | 5,412 |
| 4. | Magelang | 26 | 26 | 2,115 | 12.42 | 34.32 | 1,317 | 211 | - | 15 | 1,543 |
| | Total | 373 | 422 | 45,005 | 199.67 | 424.57 | 14,106 | 4,590 | 60 | 977 | 19,735 |

NOTE: Above distribution includes only that located within the major city areas (Excludes long 6 KV distribution feeders extending from the major cities to supply suburban villages)

TABLE NO. 10.

POWER PRODUCTION BY THERMAL GENERATION PLANTS

TUNTANG POWER SYSTEM

(KWH X 10⁶)

| YEAR | DIESEL PLANT | | | GAS TURBINE NE PLANT | TOTAL THERMAL | HYDRO ELECTRIC | TOTAL |
|------|--------------|----------|------------|-------------------------|------------------|-------------------|-------|
| | KUDUS | SEMARANG | JOGJAKARTA | | | | |
| 1961 | .7 | 19.6 | 11.5 | | 31.8 | - | - |
| 1962 | .9 | 20.5 | 15.6 | | 37.1 | - | - |
| 1963 | 1.0 | 10.7 | 7.9 | | 19.6 | - | - |
| 1964 | .8 | 4.9 | 4.1 | | 9.8 | 146.2 | 156.0 |
| 1965 | 1.3 | 6.1 | 6.2 | | 13.6 | 117.5 | 131.1 |
| 1966 | 1.3 | 9.1 | 11.4 | | 21.8 | 136.2 | 158.0 |
| 1967 | 1.9 | 8.8 | 8.3 | | 19.1 | 138.5 | 157.6 |
| 1968 | .6 | 3.5 | 7.1 | 2.0 | 13.2 | 168.9 | 182.1 |

INDONESIA

Public Electric Power
Five-Year Development Plan, 1969-73
 (Thousands of US\$ Equivalent)

| FACILITY | Capacity | Period | C O S T | | | FOREIGN ASSISTANCE | |
|--|----------|------------|-----------------|-------------------|---------|--------------------|--|
| | | | Local Component | Foreign Component | Total | Amount | Origin |
| Surveys and Consulting | | 1967-73 | 2,100 | 5,500 | 7,600 | 5,500 | Japanese and other sources |
| <u>Construction of Generating Stations</u> | | | | | | | |
| Asahan Kanan Hydro | 20 MW | 1969-72 | 9,500 | 7,600 | 17,100 | 7,600 | Japanese |
| Karang Kates Hydro (Multi-Purpose) | 70 MW | 1969-73 | 3,600 | 10,800 | 14,400 | 10,800 | Japanese |
| Garung Hydro | 20 MW | 1969-74 | 1,050 | 7,500 | 8,550 | 7,500 | Being sought. |
| Batang Agam Hydro | 10 MW | 1969-73 | 850 | 5,000 | 5,850 | 5,000 | Project still under consideration. |
| Asahan River Hydro | 460 MW | After 1973 | 1,200 | 13,500 | 14,700 | 13,500 | Total cost estimated at US\$70 million equivalent; project would only go ahead in conjunction with establishment aluminum smelter, and venture is in early exploration stage. |
| Priok Thermal Station (Extension) | 100 MW | 1969-72 | 10,900 | 12,000 | 22,900 | 12,000 | Japanese |
| Semarang Thermal Station | 60 MW | 1969-73 | 8,900 | 10,000 | 18,900 | 10,000 | Possible US - Necessity for station not settled. |
| Medan Thermal Station | 25 MW | 1969-73 | 7,100 | 7,000 | 14,100 | 7,000 | Assistance sought. |
| Makassar Thermal Station | 25 MW | -1970 | 1,700 | - | 1,700 | - | Near completion, Yugoslav credit financed equipment. |
| Palembang Thermal Station | 25 MW | -1971 | 6,000 | - | 6,000 | - | Completion 1971; Yugoslav credit financed equipment. |
| Sub-Total - Generation | | | 50,800 | 73,400 | 124,200 | 73,400 | |
| Transmission | | 1969-73 | 6,500 | 25,000 | 31,500 | 25,000 | With respect to transmission, distribution and diesel stations work in 1969 is underway with some assistance from US, Czechoslovakia, etc., France and the Netherlands. US\$15,000,000 proposed IDA credit will provide for some of future requirements, but most of foreign assistance required remains to be obtained or negotiated. |
| Distribution | | 1969-73 | 8,500 | 76,000 | 84,500 | 76,000 | |
| Rehabilitation of Diesel Power Plants | | 1969-73 | 4,300 | 9,600 | 13,900 | 9,600 | |
| TOTAL | | | 72,200 | 189,500 | 261,700 | 189,500 | |

Note: Import duties and sales taxes not included in estimates.

May 12, 1969

Taken from IBRD Report No. PU-18a
 Electricity Distribution Project, Djakarta

ANNEX 6. Load Forecasting

A. Existing Data

1. Per Capita KWH Consumption Among Asian Nations
2. Number of Customers, Connected Loads, Energy Consumption and Revenues - Major Load Centers - Tuntang System
3. Average Revenue, KWH Consumption and Unit Cost of Energy - Tuntang System - 1968
4. Customer Waiting List - Major Load Centers - Tuntang System - 1968
5. Electric Power Production - Tuntang System
 - a. graph of average annual production
 - b. bar graph of monthly production

B. Projections - Tuntang Power System Load Projections

ELECTRIC SUPPLY UTILITIES AND SELF GENERATING INDUSTRIES*1965

| <u>Country</u> | <u>Per Capita Generation kWh</u> |
|-----------------------|----------------------------------|
| Afghanistan | 14.8 |
| Australia | 3,100.0 |
| Brunei | 799.0 |
| Burma | - |
| Cambodia | - |
| Ceylon | 45.3 |
| China (Taiwan) | 533.0 |
| Hong Kong | 717.5 |
| India | 76.5 |
| Indonesia | 14.3 |
| Iran | 50.0 |
| Japan | 1,960.0 |
| Korea, Republic of | 113.5 |
| Laos | 6.1 |
| Malaysia: | |
| States of Malaya | 246.0 |
| Sabah | 95.5 |
| Sarawak | 58.8 |
| Nepal | 1.9 |
| New Zealand | 3,950.0 |
| Pakistan | 34.1 |
| Philippines | 152.6 |
| Singapore | 563.0 |
| Thailand | 46.0 |
| Viet-Nam, Republic of | 33.7 |
| Western Samoa | 58.0 |

*Taken from Electric Power in Asia and the Far East United Nations 1961-1965.

NUMBER OF CUSTOMERS, CONNECTED LOADS, ENERGY CONSUMPTION AND REVENUES
TUNTANG SYSTEM - 1968

Sheet 1 of 2

| DESCRIPTION | UNIT | SEMARANG | SOLO | JOGJAKARTA | MAGELANG | TOTAL SYSTEM |
|--------------------------------|---------------------|---------------|---------------|---------------|---------------|----------------|
| I. Number of customer: | | | | | | |
| Domestic | | 53,932 | 27,193 | 17,257 | 13,256 | 112,638 |
| Commercial | | 2,714 | 1,609 | 231 | 520 | 5,074 |
| Industrial | | 757 | 330 | 163 | 124 | 1,374 |
| Others | | 1,363 | 363 | 125 | 215 | 2,066 |
| TOTALS: | | 58,866 | 29,561 | 19,809 | 14,225 | 122,431 |
| II. Connected load | | | | | | |
| | KVA | | | | | |
| Domestic | | 13,414 | 5,411 | 3,914 | 2,407 | 25,179 |
| Commercial | | 3,299 | 1,572 | 1,060 | 465 | 6,396 |
| Industrial | | 12,237 | 4,435 | 3,175 | 1,511 | 21,361 |
| Others | | 2,751 | 1,036 | 1,684 | 628 | 6,309 |
| TOTALS | | 31,791 | 12,457 | 10,033 | 5,011 | 59,325 |
| III. Energy Consumption | | | | | | |
| | 10 ⁶ kWh | | | | | |
| Domestic | | 33.60 | 13.03 | 13.69 | 5.48 | 75.81 |
| Commercial | | 4.90 | 2.50 | 1.50 | 0.57 | 9.65 |
| Industrial | | 11.90 | 2.65 | 2.13 | 1.22 | 17.91 |
| Others | | 9.07 | 3.76 | 6.02 | 2.03 | 20.87 |
| TOTALS: | | 64.47 | 25.94 | 23.23 | 9.60 | 124.24 |

AVE. REVENUES, AVE. KWH USED AND AVE. UNIT COST OF ENERGY

TUNJANG SYSTEM - 1968

| DESCRIPTION | UNIT | SEMARANG | SOLO | JOGJAKARTA | MAGELANG | TOTAL AVERAGE |
|-------------------------------------|--------|----------|--------|------------|----------|---------------|
| <u>I. Average Revenues</u> | \$ | | | | | |
| customer | " | | | | | |
| Domestic | " | 7.23 | 6.63 | 8.12 | 5.83 | 7.03 |
| Commercial | " | 77.80 | 63.75 | 65.20 | 64.20 | 70.03 |
| Industrial | " | 460.75 | 210.10 | 39.10 | 251.80 | 355.30 |
| Others | " | 165.50 | 193.60 | 285.30 | 74.50 | 137.50 |
| <u>II. Average KWH used</u> | KWH | | | | | |
| customer | " | | | | | |
| Domestic | " | 716 | 666 | 767 | 395 | 673 |
| Commercial | " | 1,820 | 1,550 | 1,590 | 1,673 | 1,635 |
| Industrial | " | 14,920 | 6,300 | 12,900 | 9,050 | 12,050 |
| Others | " | 7,300 | 10,350 | 14,200 | 9,425 | 9,900 |
| <u>III. Average price of energy</u> | \$/KWH | | | | | |
| Domestic | " | 0.0117 | 0.0105 | 0.0106 | 0.0147 | 0.0105 |
| Commercial | " | 0.0445 | 0.0424 | 0.0407 | 0.0333 | 0.0421 |
| Industrial | " | 0.0291 | 0.0311 | 0.0311 | 0.0273 | 0.0295 |
| Others | " | 0.0213 | 0.0193 | 0.0202 | 0.0019 | 0.0195 |

= 47 =

CUSTOMER WAITING LIST 1968
TUNTANG SYSTEM

| BRANCH & SUB BRANCH | COMMERCIAL/DOMESTIC | | INDUSTRY | | TOTAL | |
|---------------------|---------------------|---------|----------|-------|--------|----------|
| | NO. | KVA | NO. | KVA | NO. | KVA |
| 1. SEMARANG | 18,356 | 4,915.6 | 270 | 6,938 | 18,626 | 11,853.6 |
| 2. JOGJAKARTA | 3,586 | 1,252.4 | 95 | 1,482 | 3,681 | 2,734.4 |
| 3. MAGELANG | 3,725 | 1,624.2 | 38 | 724 | 3,763 | 2,348.2 |
| 4. SURAKARTA | 7,466 | 2,162.2 | 43 | 1,018 | 7,509 | 3,180.2 |
| TOTAL | 33,133 | 9,954.4 | 451 | 9,212 | 33,584 | 19,166.4 |

SOURCE:

ANNUAL REPORT 1968

PLN DISTRICT I

POWER PRODUCTION
TUNTANG POWER SYSTEM
GRID.

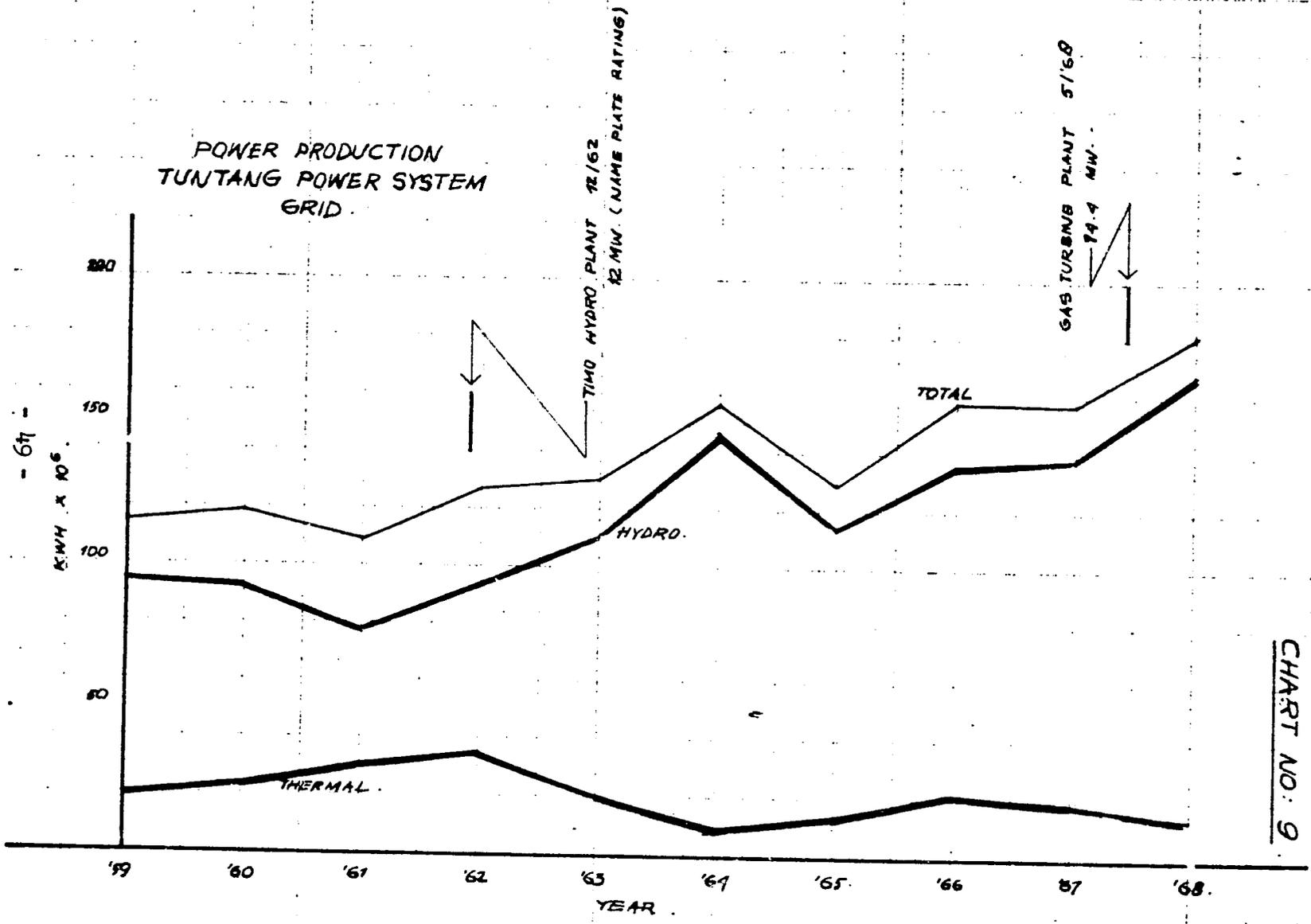
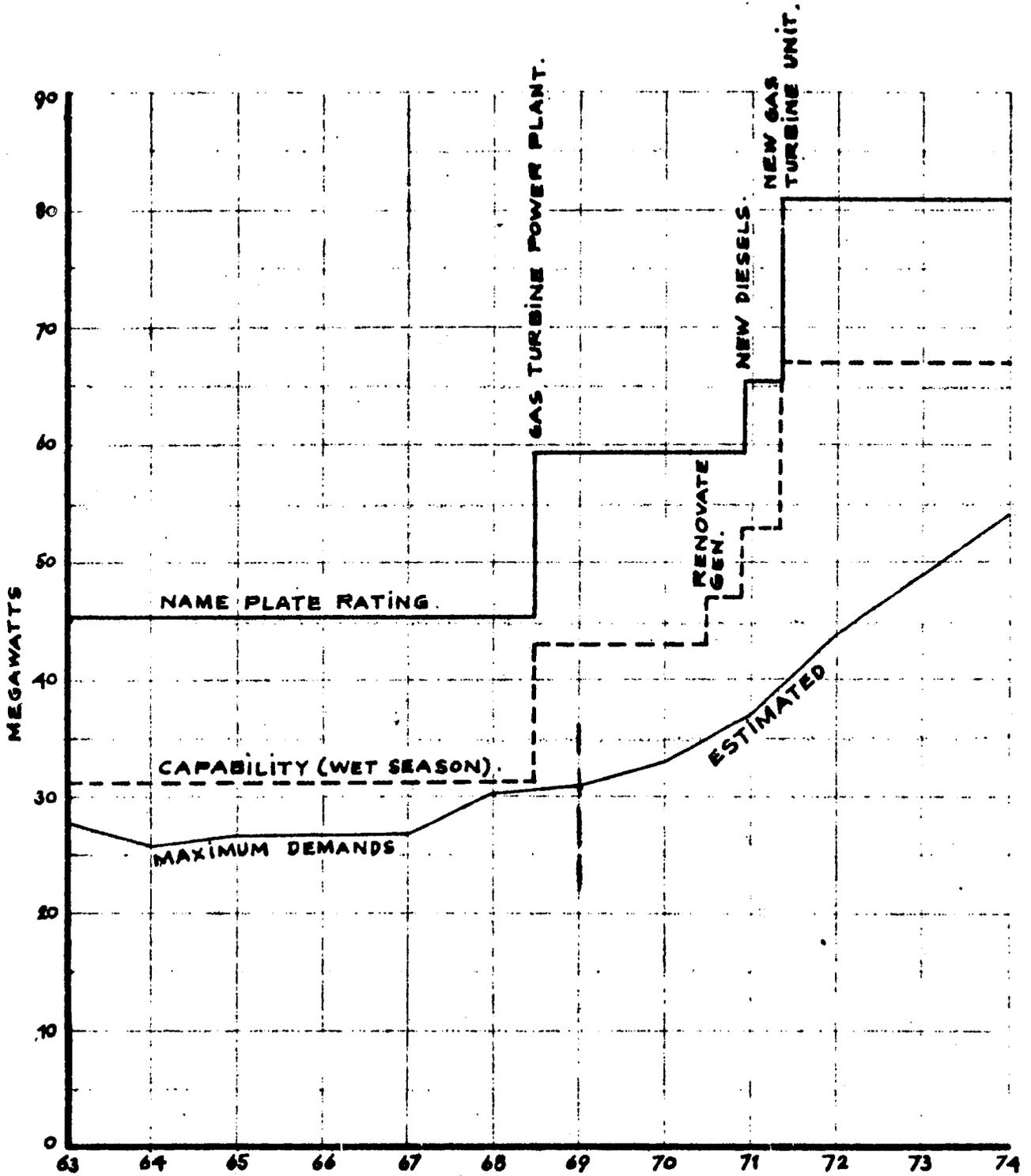


CHART NO. 9

TUNTANG POWER SYSTEM LOAD PROJECTION.



ANNEX 7. Revenues

A. Revenues

1. Summary of PLN Earnings for 1967 and 1968
2. Summary of Revenues of Tuntang System for 1968

INDONESIA

ANNEX 7
A.
1.

Summary by PLN of Estimated Earnings 1967 and 1968

(In thousands of Rupiahs) 1/

| <u>Operating Cost</u> | <u>1967</u> | <u>1968</u> |
|---|------------------|------------------|
| Fuel and lubricating oil (including transportation charges) | 773,455 | 2,222,845 |
| Labor cost | 589,172 | 1,519,658 |
| Repair and maintenance | 1,305,980 | 751,030 |
| Miscellaneous | <u>298,302</u> | <u>1,040,608</u> |
| | 2,966,909 | 5,534,141 |
| Capital burden | <u>291,736</u> | <u>553,414</u> |
| TOTAL OPERATING COST | 3,258,645 | 6,087,555 |
| <u>Revenues</u> | | |
| Sales | 2,241,833 | 4,944,189 |
| Other revenues | <u>90,613</u> | <u>623,660</u> |
| TOTAL REVENUES | <u>2,332,446</u> | <u>5,567,849</u> |
| <u>Balance</u> | | |
| Operating costs minus Revenues | 926,199 | 519,706 |

NOTE:

1. The 1968 financial account is based on the realization figures of the first half year and the estimates for the second half year.
2. The current kwh sold in 1968 are estimated at 1,246,504,000 kwh.
3. The deficit of Rp. 519,706,000.- is partly covered though deferred import duties, the amount of which is estimated at Rp.200,000,000.-.
4. The 1967 account is based on the realization figures of the first half year and the estimates for the second half year.

1/ The value of the Rupiah declined from about 90 to US\$1.00 at the end of 1966 to 326 to US\$1.00 at the end of 1968.

SUMMARY OF REVENUES TUNTANG SYSTEM 1968
(THOUSAND OF DOLLARS)

| DESCRIPTION | UNIT | SEMARANG | SOLO | JOGJAKARTA | MAGELANG | TOTAL SYSTEM |
|---------------------|------|----------|------|------------|----------|--------------|
| <u>IV. Revenues</u> | | | | | | |
| Domestic | | 390 | 182 | 145 | 81 | 798 |
| Commercial | | 214 | 103 | 56 | 33 | 406 |
| Industrial | | 347 | 82 | 65 | 34 | 528 |
| Others | | 196 | 72 | 122 | 16 | 406 |
| Total from sales | | 1,147 | 439 | 368 | 164 | 2,138 |
| Other incomes | | 52 | 20 | 19 | 23 | 114 |
| TOTALS: | | 1,199 | 459 | 407 | 187 | 2,252 |

Conversion rate Rps. 325. = \$1.00 U.S.

ANNEX 7
2.7

- ANNEX 8. Rate of Return Analysis
A. Economic Conditions in Central Java
B. Rate of Return Computation

ECONOMIC CONDITIONS IN CENTRAL JAVA

The Central Java area includes a present population of about 25.2 million. The population density averages about 650 persons per square kilometer, but densities throughout the arable and urban portions of the region are considerably higher. The major force is estimated at over 7.4 million.

The area is the cultural center for Indonesia, includes a substantial portion of the nation's colleges, libraries, and centers of learning, and literacy is rated between 45 and 50 percent, comparable with that throughout Indonesia. Existing secondary and higher education facilities in the area are inadequate but probably comparable with the rest of Indonesia outside Djakarta.

Agriculture is the principal activity in Central Java with about two-thirds of the population employed in this sector. The area includes 21 percent of Indonesia's rice hectareage and about 16 percent of its total land devoted to agriculture. The area is particularly important in major non-rice cash crops suitable for processing and packaging. This will provide important opportunities for small processors of agricultural products when adequate electric power is available. Sugar is the principal estate crop although tobacco and rubber are also important.

A 1964 manufacturing survey estimated that approximately 28 percent of Indonesia's large or medium sized manufacturing establishments are located in this area. There are about 1,000 of these firms employing over 116,000 persons. Principal activities include food processing, textiles, rubber processing, tobacco, metal fabrication, printing, and transportation services.

Transportation is in need of substantial improvements but is as good as elsewhere in Indonesia. Solo and Jogjakarta and Semarang lie on major trans-island roads. The roads are in need of rehabilitation but are comparable with other major highways throughout Indonesia. Cross-island highways in this area are among the best in the country. There is need for vast expansion in the transportation fleet but substantial improvements are being made in this area. There is also rail service to Solo and Jogjakarta. Semarang has a good but shallow bottom harbor.

ANNEX 8
B.

RATE OF RETURN COMPUTATION

Measurable direct benefits from the project include (1) savings in distribution losses resulting from improved facilities and operation; and (2) value added through capacity to deliver increased energy to consumers.

Savings in losses have been taken to mean the decrease in distribution losses under improved operating conditions which would occur in delivering the same level of energy which was generated in the year of greatest actual KWH consumption to date (1968). Thus, all capabilities beyond that level which may be made possible through a reduced rate of loss will be considered as value added. Savings in losses have been valued at 1.0¢/KWH, the average fuel cost per KWH for thermal generation. This is a conservative assumption which understates their value.

Value added through new energy available for sale would be, if a realistic rate and operating cost structure pertained, marginal revenues anticipated less marginal operating costs. Since the present rate structure is unrealistic and will not remain, and since current operating practices leave room for major increases in efficiency, some of which will result from this project, we have assumed values rather than any actual data. These are explained below. Value added has been taken to be the value of the new KWH's energy based upon expected average future revenue/KWH less the marginal increase in fuel costs to achieve the increase in energy generated above prior maximum actual production (1968). No deduction has been made for cost increases associated with maintenance, labor, and general administrative expenses. These are assumed to be capable of

rationalization within the self-help measures, including the revised tariff schedule, and the resultant costs which would be attributable to service to incremental consumers are not expected to be significant. The numerical analysis appears in the attached table.

Assumptions:

1. The rupiah price of local services in Indonesia fairly states their economic value.

Given the labor surplus in Central Java and widespread unemployment, this cost is probably overstated. Two exceptions are rupiah payments for transport because of the scarcity of transport facilities in Central Java, and managerial and technical services which are in short supply. For the latter, the value added through technical and management assistance provided under this contract should be more than offsetting.

2. Determining the criteria for maximum actual production for the existing system.

Maximum actual production of 182.1×10^6 KWH occurred in 1968. However, this was a year of plentiful water in which a somewhat improved rule curve was used for Rawa pening Lake, making available sufficient water to generate 168.8×10^6 KWH (92.8%). If these figures were used thermal fuel costs would be severely understated in comparison to average costs for the system under existing conditions. More importantly marginal fuel costs would be severely understated by the more than offsetting result that increased hydro-electric energy available from so large a base would greatly reduce need for further thermal generation. Accordingly the following assumptions were made.

1. Total energy produced was 182.1 KWH.
2. Hydro-electric energy accounts for 80% of this level. This is a conservative assumption based upon an historical average of about 86%.
3. The remaining 20% would be produced through thermal generation at an average cost of 1.0¢/KWH.

3. Future Hydro-electric Generation.

Hydro-electric capability will be increased in two respects: (1) an improved rule curve will make more water available almost immediately for passage through the penstocks; and (2) rehabilitation of the tunnels and associated equipment will increase generating capacity by 2.0 MW.

With the consultant's concurrence, we have assumed that an improved rule curve will increase energy production by 15% beginning January 1971, and that the new peak capacity would be available June 1972 with a further cumulative benefit of 10%.

4. Fuel Costs for Marginal Consumption.

Fuel costs for marginal consumption have been determined by plotting all anticipated KWH generation for the year by source of generation (hydro, thermal burning IDO fuel, and thermal burning HSD fuel). Maximum use of hydro has been assumed at no fuel cost, thereafter maximum use of HSD burning units (only the Kudus units and the existing gas turbine have been included) ^{with} the use of HSD burning units for the remainder. From this cost is subtracted the cost for maximum actual production for the existing system on the assumptions in #2 above.

This assumption is not conservative in two respects: (1) that maximum use will be made of the most efficient units; and (2) the average

fuel cost for the gas turbine burning IDO will be the average cost for the system reduced by the cost saving in using IDO. Since the gas turbine unit is expected to be used for a major portion of the time, and to be operated at close to full capacity when used and since a conservative estimate for KWH production from the Kudus plant has been used, the first assumption is reasonable. The second assumption understates the cost of operating the gas turbine on IDO fuel. However, there are other thermal units which operate at below 1.0¢/KWH and there is room for considerable saving in average fuel cost below the 1.0¢/KWH for remaining thermal. No reduction in this area has been taken until 1973 when the new gas turbine and diesel units (all burning IDO) will be on the line, and then only a conservative saving is estimated.

IDO fuel is currently 35% cheaper than HSD. Therefore, the Kudus diesel units and the existing gas turbine (after 1970) have been assumed to have an average fuel cost of 0.65¢/KWH. After 1972, the marginal cost of thermal production is assumed to decrease from 1.0 to 0.8¢/KWH.

5. Average Value per KWH Available for Sale.

An average value of 2.6¢/KWH available for consumption has been assumed. This value is only 50 percent higher than existing average revenues and is less than the average revenue now received from industrial users. It is expected to be comparable, perhaps conservatively, with the average revenue which will result when new tariff schedule are put in force. For the current system, the average price/KWH delivered is about 1.7¢/KWH, but the longest consumption is by small limiter service who pay 1-1.25¢/KWH.

Metered residential users pay 2.5¢, industrial users about 3¢ and commercial users about 4.7¢/KWH.

Losses

Losses in transmission have been about 9 percent and this level has been retained throughout this analysis. Distribution losses are estimated to decline from 22% to 7% by the end of the rehabilitation period. We have assumed that the 7% level would not be achieved until 1975.

7. Growth Projection

The consultant has projected a conservative increase in assumption through 1975. We have assured this level of growth, but no increase in KWH consumption beyond the 1975 level. This is a very conservative assumption and one which is ill suited to power systems, because it is essential to their operation and an element of utility financing that future growth continue. It is particularly damaging here because the distribution systems are being rehabilitated to accommodate many times existing load levels, with a cost component but no benefit included in the calculation.

However, benefits at the 1975 levels are assumed to continue indefinitely for purposes of a discounted comparison, although this assumption is not conservative, using a 12% discount rate the difference in present worth would only be minor if the anticipated service life for the equipment were used.

| ANNEX 8 B - 6 | (KWH x 10 ⁶) | Actual | | | | Projected | | | | | | |
|---------------|---|--------|-------|-------|----------|-------------|---------|--------|---------|---------|--------|--------|
| | | 1964 | 1965 | 1966 | 1967 | 1968 & 1969 | 1970 | 1971 | 1972 | 1973 | 1974 | 1975 |
| 1. | KWH Produced at Major Centers | 146.2 | 117.5 | 136.2 | 138.5 | 168.8 | 183.1 | 188.5 | 203.4 | 233.5 | 259.0 | 283.1 |
| 2. | % Losses in Transmission | 9.0 | 9.0 | 9.0 | 9.0 | 9.0 | 9.0 | 9.0 | 9.0 | 9.0 | 9.0 | 9.0 |
| 3. | % Losses in Distribution | 22.0 | 22.0 | 22.0 | 22.0 | 22.0 | 21.0 | 19.0 | 14.0 | 10.0 | 8.0 | 7.0 |
| 4. | % Losses Total | 31.0 | 31.0 | 31.0 | 31.0 | 31.0 | 30.0 | 28.0 | 23.0 | 19.0 | 17.0 | 16.0 |
| 5. | Maximum KWH Actually Generated | | | | | 182.1 | | | | | | |
| 6. | Losses for Service to Major Centers | 45.3 | 36.4 | 42.2 | 42.9 | 52.3 | 54.9 | 52.8 | 46.8 | 44.4 | 44.0 | 45.3 |
| 7. | KWH Consumed at Major Centers | 100.9 | 81.1 | 94.0 | 95.6 | 116.5 | 128.2 | 135.7 | 156.6 | 189.1 | 215.0 | 237.8 |
| 8. | Maximum Actual Consumption at Major Centers | | | | | 116.5 | 116.5 | 116.5 | 116.5 | 116.5 | 116.5 | 116.5 |
| 9. | Losses under Actual Conditions (31%) | | | | | 52.3 | 52.3 | 52.3 | 52.3 | 52.3 | 52.3 | 52.3 |
| 10. | Losses at this Level for Projected Rate | | | | | 52.3 | 49.9 | 45.3 | 34.7 | 27.3 | 23.9 | 22.2 |
| 11. | Savings in Losses | | | | | 0.0 | 2.4 | 7.0 | 17.6 | 25.0 | 28.4 | 30.1 |
| 12. | Value of Savings in Losses @1.0¢/KWH (\$000) | | | | | 0.0 | 24.0 | 70.0 | 176.0 | 250.0 | 284.0 | 301.0 |
| 13. | KWH Produced at Major Centers (1) | | | | | 168.8 | 183.1 | 188.5 | 203.4 | 233.5 | 259.0 | 283.1 |
| 14. | KWH Produced to Meet Maximum Actual | | | | | 168.8 | 166.4 | 161.8 | 151.2 | 143.8 | 140.4 | 138.7 |
| 15. | Consumption (8 + 9) | | | | | | | | | | | |
| 16. | Additional KWH Produced | | | | | 0.0 | 16.7 | 26.7 | 52.2 | 89.7 | 118.6 | 144.4 |
| 17. | Losses at Projected Rate | | | | | 0.0 | 5.0 | 7.5 | 12.2 | 17.0 | 20.2 | 23.1 |
| 18. | Additional KWH Available for Sale | | | | | 0.0 | 11.7 | 19.2 | 40.0 | 72.7 | 98.4 | 121.3 |
| 19. | Value of Additional KWH @2.6¢/KWH (\$000) | | | | | 0.0 | 304.2 | 499.2 | 1040.0 | 1890.20 | 2558.4 | 3153.8 |
| 20. | Total KWH Generated for Tuntang System (5+16) | 156.0 | 131.1 | 158.0 | 157.6 | 182.1 | 198.8 | 208.8 | 234.3 | 271.8 | 300.7 | 326.5 |
| 21. | Generated from Hydro* | | | | (Actual) | 168.9 | 145.7 | 167.6 | 176.0 | 184.4 | 184.4 | 184.4 |
| 22. | Diesel (Kudus Unit Burning IDO) | | | | | 0.0 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 |
| 23. | Gas Turbine (Burning IDO) | | | | | 0.0 | 0.0 | 31.5 | 31.5 | 31.5 | 31.5 | 31.5 |
| 24. | Marginal Thermal | | | | | 13.2 | 51.6 | 8.2 | 25.3 | 54.4 | 83.3 | 109.1 |
| 25. | Cost for Kudus Diesel (28) @0.65¢/KWH | | | | | 0.0 | 9.8 | 9.8 | 9.8 | 9.8 | 9.8 | 9.8 |
| 26. | Cost for Gas Turbine (29) @0.65¢/KWH | | | | | 0.0 | 0.0 | 204.8 | 204.8 | 204.8 | 204.8 | 204.8 |
| 27. | Marginal Thermal (30) @1.0¢/KWH | | | | | 364.0 | 516.0 | 82.0 | 253.0 | | | |
| 28. | @0.8¢/KWH | | | | | | | | | 435.2 | 666.4 | 872.8 |
| 29. | Total Fuel Cost | | | | | 364.0 | 525.8 | 296.6 | 467.6 | 649.8 | 881.0 | 1087.4 |
| 30. | Less Cost for Maximum Actual Thermal | | | | | 364.0 | 364.0 | 364.0 | 364.0 | 364.0 | 364.0 | 364.0 |
| 31. | Annual Fuel Cost Increase | | | | | 0.0 | 161.8 | (67.4) | 103.6 | 285.8 | 517.0 | 723.4 |
| 32. | Savings in Losses | | | | | 0.0 | 24.0 | 70.0 | 176.0 | 250.0 | 284.0 | 301.0 |
| 33. | Value Added through New Service | | | | | 0.0 | 304.2 | 499.2 | 1040.0 | 1890.2 | 2558.4 | 3153.8 |
| 34. | Less Annual Fuel Cost Increase | | | | | 0.0 | (161.8) | 67.4 | (103.6) | (285.8) | 517.0 | 723.4 |
| 35. | TOTAL ANNUAL BENEFITS | | | | | 0.0 | 166.4 | 636.6 | 1112.4 | 1854.4 | 2325.4 | 2731.4 |

* A Projection Base of 145.7 (80% of the 1968 level of 182.1), with increase of 15% for increased water availability 1/71, 10% increase for additional unit capacity (21-23 MW), 6/72.
+ IDO fuel is 35% cheaper than HSD.

- ANNEX 9. Eastern Bloc Generator Rehabilitation - USAID Analysis of Possible
Commingling as defined in Sec. 620(h) of the Foreign Assistance Act
Supplemented by M. O. 1018.9.

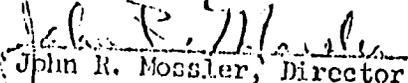
CENTRAL JAVA POWER REHABILITATION:USAID DIRECTOR'S CONCLUSION AND SUPPORTING ANALYSISON ABSENCE OF COMINGLING

It is my conclusion that comingling, as defined in H.O. 1018.9 and the GC/EA memorandum of January 13, 1970 to Mr. Helman, does not exist and will not exist in connection with subject project.

1. The existing Czech equipment was not procured pursuant to and does not constitute a Bloc project as defined in M.O.1018.9 and the subject project will not support or facilitate a Bloc project as defined in said M.O.
 - A. Although the total original cost of all equipment in the Tuntang system is impossible to establish precisely due to time, inflation and poor record keeping, the USAID engineering staff estimated, on the basis of a physical examination of such equipment, an original cost of at least US \$35 million equivalent; the Bloc equipment included in the Tuntang power system had an original cost of approximately US \$3 million equivalent; thus Bloc equipment constitutes less than 10% of the Tuntang system. There is no on-going Bloc assistance or current Bloc undertaking of any kind in the Tuntang system.
 - B. The Bloc equipment in the Tuntang system was purchased pursuant to a general GOI/PIK plan of modernizing and upgrading electrical power systems, rather than pursuant to any specific Bloc assistance program. The Bloc equipment in the Tuntang system was sold to Indonesia on export-promotion terms rather than concessional assistance terms, to wit: 10% of the F.O.B. value within 30 days after contract came into force; 15% of the F.O.B. value plus all freight proportionally upon receipt of the several shipments of equipment; 75% of the F.O.B. value within 8 years in the case of the diesel equipment and 5 years in the case of the hydro equipment at 4% interest, a rate that was promotional rather than concessional in 1958-60 when the purchases were made.
 - C. No technical assistance was provided in connection with such purchase except normal installation and operating advice.
 - D. There is no identification in the Indonesian community of the Tuntang system or any part thereof as constituting or resulting from a Bloc project. There are normal manufacturers' name-plates, but no special marking as Bloc equipment was provided and no special dedication ceremonies or other attempts were made to demonstrate Bloc involvement.

- E. All spare parts heretofore obtained for such equipment have been purchased on normal commercial terms out of Indonesian free foreign exchange.
- 2. Subject project is not expected to receive Bloc support as defined in M.O. 1018.9:
 - A. There are at present no Bloc programs for provision of new concessional assistance to Indonesia, in the public power sector.
 - B. The small amount (under US \$100,000 equivalent) of spare and rehabilitation parts to be obtained for such equipment as discussed in the CAP will be purchased on normal commercial terms out of Indonesian free foreign exchange and not through Bloc assistance as defined in M.O. 1018.9.

Wherefore my aforesaid conclusion of the absence of commingling.


John R. Mossler, Director

ANNEX 10. Certification by the USAID Director of country capability to maintain and utilize the project per Sec. 611(e) of the Foreign Assistance Act, and Country Team Recommendation for the project.

CENTRAL JAVA ELECTRIC POWER REHABILITATION
CERTIFICATION PURSUANT TO SECTION 611 (2) OF THE
FOREIGN ASSISTANCE ACT OF 1961, AS AMENDED

I, John R. Mosler, the principal officer of the Agency for International Development in Indonesia, having taken into account among other things:

- A. the existence of an IBRD project encompassing both large amounts of management assistance to the Central JEM organization and a thorough reform of JEM's management, operations, rate structure, etc.;
- B. the inclusion in subject capital assistance project of substantial management and operating assistance to PLN Region X plus covenants to implement therein reforms derived from those carried out by Central JEM under the IBRD project;
- C. the inclusion in subject capital assistance project of provisions for project implementation and local currency availability;
- D. the constructive attitude of the government of Indonesia, as expressed in the acceptance of the proposed IBRD reform program for PLN and the steps taken to increase PLN's autonomy of operation and financial independence from budget support

do hereby certify that in my judgment both PLN and the Government of Indonesia will have the financial capability and the human resources capability to implement, maintain and utilize effectively subject capital assistance project.

This judgment is based on the facts that:

1. The Government of Indonesia and PLN have taken or promised to take the reform measures contained in the agreements relating to IDA credit No. 165 IND and will agree to the self-help objectives to be included in the authorization for subject project.
2. Adequate planning for project implementation and sufficient financial support for timely project execution will be provided if the Government of Indonesia and PLN comply with the program set forth in the Capital Assistance Paper.
3. The Government of Indonesia has further demonstrated its adherence to sound business and economic principles by stabilizing the economy of Indonesia, which had been subject to rapid inflation and severe price distortions under the previous Government.


John R. Mosler
Director, USAID Indonesia

CENTRAL JAVANETRIC HOTEL REHABILITATION
COUNTRY TEAM RECOMMENDATION

Subject loan will be of substantial economic and social benefit to Indonesia, will constitute an important portion of the United States Assistance program in Indonesia and will be consistent with the overall United States objectives in Indonesia. Therefore the Country Team recommends approval thereof.

m
Drafter: CID: [redacted] 3/2/70

Clearences: CID: [redacted]
EC: [redacted]

JJK

John R. Kessler
John R. Kessler
Director, USAID Indonesia

Peter A. Seip
Peter A. Seip
Consul for Economic Affairs

ANNEX 11. Checklist of Statutory Criteria

COUNTRY PERFORMANCE

A. Progress Towards Country Goals

1. FAA §§ 201(b)(5), 201(b)(7), 201(b)(8), 208. Discuss the extent to which the country is:

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

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

(c) Increasing the people's role in the developmental process.

(d) Allocating expenditures to development rather than to unnecessary military purposes or intervention in other free countries' affairs.

(a) Indonesia is giving priority attention to projects which aim at increasing food production, particularly the production of rice, and is reviewing, with the assistance of ADB and several donor countries, the problem of inadequate food storage and distribution facilities.

(b) The GOI has enacted a comprehensive law with built in incentives for encouraging foreign capital investment, concluded an Investment Guaranty Agreement with the U. S., enacted new banking legislation which will permit foreign banks to open branches in Indonesia, and substantially completed negotiations for the returning nationalized properties to private ownership.

(c) A post-Sukarno policy structure has not fully emerged in Indonesia, because the long period of economic instability has necessitated devotion of primary energies to economic development. However, President Soeharto has demonstrated an ability to recognize and built upon a developing national consensus. The press has exercised considerably more freedom and has become a healthy critic and a purveyor of new ideas. Political party activity is still relatively subdued, but national elections have been promised by the government to be held in 1971. The Parliament and the Consultative Assembly are actively working to define their role in the governmental process.

(d) A major portion of budget allocations was made available for development as a result of sizeable reductions in military expenditures which followed termination of the confrontation policy with Malaysia. In CY 68 about 19% of the GOI budget expenditures went into developing activities. During the fiscal period Jan. 69 to Mar. 70, development expenditures increased to about 29% of the total budget and this percentage is maintained in the new budget prepared for the FY Apr. 70 to Mar. 71 despite the higher current expenditure level of said budget due to the costs of the prospective election and civil service salary increase.

(e) *Willing to contribute funds to the project or program.*

(f) *Making economic, social, and political reforms such as tax collection improvements and changes in land tenure arrangement; 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.*

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

(e) The cooperating Government will contribute local currency to establish a reserve fund to provide for the execution of the project, and to support an operation and maintenance program, including the purchase of foreign exchange for spare parts and inventory from third countries.

(f) and (g) Indonesia has made significant gains in freedom of speech and of the press under the Soeharto Government. Major economic reforms have been instituted with IMF/IBRD assistance. Run away inflation has been curbed and the country has moved substantially toward stabilized prices and exchange rates. The rupiah has remained relatively stable at Rp325-330/\$US for BE credits for the past year and at about Rp385/\$US for the DP rate. Major black market trading in rupiah has not been observed. Prices increased at 15 to 20 percent per annum for the last eight months of 1968, and were down to only 10 percent for 1969.

Tax revenues, in real terms, have increased by 19 percent from 1967 to 1968, by 32 percent from 1969 to 1970 and are expected to retain this rate of increase for 1970 to 1971.

B. Relations with the United States

1. FAA §620(c). *Is the government indebted to any U.S. citizen for goods or services furnished or ordered where: (a) such citizen has exhausted available legal remedies, including arbitration, or (b) the debt is not denied or contested by the government, or (c) the indebtedness arises under such government's, or a predecessor's unconditional guarantee?*

620(c) We are not aware of any cases that make Indonesia ineligible under this section.

2. FAA §620(d). If the loan is intended for construction or operation of any productive enterprise that will compete with U.S. enterprise, has the country agreed that it will establish appropriate procedures to prevent export to the U.S. of more than 20% of its enterprise's annual production during the life of the loan?

620(d) The enterprise to be assisted by this loan will not compete with U. S. enterprises.

3. FAA §620(e)(1). Has the country's government, or any agency or subdivision thereof, (a) nationalized or expropriated property owned by U.S. citizens or by any business entity not less than 50% beneficially owned by U.S. citizens, (b) taken steps to repudiate or nullify existing contracts or agreements with such citizens or entity, or (c) imposes or enforced discriminatory taxes or other exactions, or restrictive maintenance or operation conditions? If so, and more than six months has elapsed since such occurrence, identify the document indicating that the government, or appropriate agency or subdivision thereof, has taken appropriate steps to discharge its obligations under international law toward such citizen or entity? If less than six months has elapsed, what steps if any has it taken to discharge its obligations?

620(e) (1) Steps are being taken to return property to original U. S. owners or negotiate mutually acceptable settlements on nationalized property. A government committee has been established and is operating to handle this problem. We are aware of no cases that would make Indonesia ineligible under this section at this time.

4. 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, and failed to take appropriate measures to prevent a recurrence and to provide adequate compensation for such damage or destruction?

620(j) The country has not so permitted nor has it failed to take adequate measures.

5. FAA §620(l). Has the government instituted an investment guaranty program under FAA 8221(b)(1) for the specific risks of inconvertibility and expropriation or confiscation?

620 (l) Yes.

6. FAA §620(o): Fisherman's Protective Act of 1954, as amended, Section 5. Has the country seized, or imposed any penalty or sanction against, any U.S. fishing vessel on account of its fishing activities in international waters? If, as a result of a seizure, the U.S.G. has made reimbursement under the provisions of the Fisherman's Protective Act and such amount has not been paid in full by the seizing country, identify the documentation which describes how the withholding of assistance under the FAA has been or will be accomplished.

620(o) Fisherman's Protective Act of 1954, as amended: Section 5. No.

7. FAA §620(q). Has the country been in default, during a period in excess of six months, in payment to the U.S. on any FAA loan?

620(q) No; repayment of the only FAA loan involved has been rescheduled.

8. FAA §620(t). Have diplomatic relations between the country and the U.S. been severed? If so, have they been renewed?

620(t) No.

9. App. §106. Describe any attempt made by the country to create distinction because of race or religion in granting personal or commercial access or other rights otherwise available to U.S. citizens generally.

106 None

C. Relations with Other Nations and the U.N.

1. FAA §620(i). Has the country been officially represented at any international conference when that representation included planning activities involving insurrection or subversion directed against the U.S. or countries receiving U.S. assistance?

620(i) We have no information as to any such representational activity.

2. FAA §§620(a), 620(n); App. §§107(a), 107(b), 116. Has the country sold, furnished, or permitted ships or aircraft under its registry to carry to Cuba or North Viet-Nam items of economic, military, or other assistance?

620 (a) We have no information of any violation by Indonesia.

3. FAA §620(u); App. §114. What is the status of the country's U.N. dues, assessments, or other obligations? Does the loan agreement bar any use of funds to pay U.N. assessments, dues, or arrearages?

620 (u) Indonesia is not delinquent with respect to U.N. obligations. The loan agreement limits the use of loan proceeds to importation of goods and services of U. S. source and origin.

D. Military Situation

1. FAA §620(i). Has the country engaged in or prepared for aggressive military efforts directed against the U.S. or countries receiving U.S. assistance?

620 (i) No. Indonesia has settled its confrontation with Malaysia.

2. FAA §620(s). What is (a) the percentage of the country's budget devoted to military purposes, and (b) the amount of the country's foreign exchange resources used to acquire military equipment? Is the country diverting U.S. development assistance or P.L. 480 sales to military expenditures? Is the country diverting its own resources to unnecessary military expenditures? (Findings on these questions are to be made for each country at least once each fiscal year and, in addition, as often as may be required by a material change in relevant circumstances.)

620 (s) (see separate classified attachment)

3. FAA §620(v); App. §119. Has the country spent money for sophisticated weapons systems purchased since the statutory limitation became effective? If so, identify either (a) the documentation which describes how the withholding of an equivalent amount of A.I.D. assistance has been or will be accomplished, or (b) the Presidential determination that such purchase is important to the national security of the U.S. so that no withholding is necessary.

620 (v) We are aware of no such purchases.

II. CONDITION OF THE LOAN

- 7 -

A. General Soundness

-- Interest and Repayment

1. FAA §5201(d), 201(b)(2).

Is the rate of interest excessive or unreasonable for the borrower? Are there reasonable prospects for repayment? What is the grace period interest rate; the following period interest rate? Is the rate of interest higher than the country's applicable legal rate of interest?

201(d) No. Although Indonesia's debt burden heavy, there has been very rapid growth in real Government revenues and favorable economic performance. With the high current level of foreign assistance, it is recognized that future debt burden will be heavy. Further, annual rescheduling may be necessary, but major multi-donor rescheduling is a near term prospect. The various donors agree this would place Indonesia with a debt burden for which the prospects of repayment would appear reasonable. Country terms of a 40-year loan, 10-year grace period, 2% interest during the grace period, 3% thereafter, pertain.

Financing

1. FAA §201(b)(1). To what extent can financing on reasonable terms be obtained from other free-world sources, including private sources within the U.S.?

201(b)(1) Loan assistance to Indonesia is provided within the framework of the Inter-Governmental Group on Indonesia (IGGI), advised by the IBRD and the IMF. This project has been selected by A.I.D. as part of the U. S. Government contribution to the IGGI consortium and our participation in this project has been supported by the IBRD resident mission. Other donors are also participating in loan assistance to the power sector (IBRD, FRG, Japan). Inasmuch as the ExIm Bank does not currently make loans in excess of 1 year in Indonesia, it expressed to A.I.D. no interest in the project.

Economic and Technical Soundness

1. FAA §§201(b)(2), 201(e). The activity's economic and technical soundness to undertake loan; does the loan application, together with information and assurances, indicate that funds will be used in an economically and technically sound manner?

201(e) This loan will finance commodities and related services for rehabilitation of existing facilities and for provision of improved facilities for electric power service. Facilities provided are expected to be effectively utilized and it is expected that the system will be operated in a sound manner.

2. FAA §611(a)(1). Have engineering, financial, and other plans necessary to carry out assistance, and a reasonably firm estimate of the cost of assistance to the U.S., been completed?

611(a)(1) Full engineering, financial, and other plans necessary to carry out the project have been made, and a reasonably firm estimate of the cost of assistance to the U. S. has been completed.

3. FAA §611(b); App. §101. If the loan or grant is for a water or related land-resource construction project or program, do plans include a cost-benefit computation? Does the project or program meet the relevant U.S. construction standards and criteria used in determining feasibility?

611 (b) This is not a water or related land-resource construction project.

4. FMA §611(e). If this is a Capital Assistance Project with U.S. financing in excess of \$1 million, has the principal A.I.D. officer in the country certified as to the country's capability effectively to maintain and utilize the project?

611(e) The certification of the USAID Director is in Annex ____.

9. Relation to Achievement of Country and Regional Goals

-- Country Goals

1. FMA §§207, 281(a). Describe this loan's relation to:

a. Institutions needed for a democratic society and to assure maximum participation on the part of the people in the task of economic development.

207, 281(a) A principle element of this loan is technical and management assistance to PLN Region X to develop a sound, autonomous institution. Further such assistance is being provided to the PLN central organization under the IDA loan. These loans will require establishment of PLN as a fully autonomous institution within one year. Development of capability by PLN X personnel will be a key step in bringing about economic development through the initiative of people with the Central Java region.

b. Enabling the country to meet its food needs, both from its own resources and through development, with U.S. help, of infrastructure to support increased agricultural productivity.

Increased electric service capacity at the major distribution centers will assist expansion of those food processing and distribution facilities which are dependent upon electricity for their operation.

c. Meeting increasing need for trained manpower.

A substantial program of technical assistance and training for PLN Region X will be carried out as part of this project.

d. Developing programs to meet public health needs.

No direct relation. Indirect benefits through facilitating improvements in quality of life.

e. *Assisting other important economic, political, and social development activities, including industrial development; growth of free labor unions; cooperatives and voluntary agencies; improvement of transportation and communication systems; capabilities for planning and public administration; urban development; and modernization of existing laws.*

The project will make possible substantial improvement in the basic infrastructure of Central Java, will facilitate new small commercial and industrial enterprises and will make more attractive large activities. There will be extensive training and improvement of basic labor and managerial skills associated with the project, and there will be encouragement of new employment opportunities. The project will be a stimulus to the private sector thereby promoting opportunity for more free labor-management activities.

2. *FAA §201(b)(4). Describe the activity's consistency with and relationship to other development activities, and its contribution to realizable long-range objectives.*

201(b)(4) This loan is given in a multilateral context and furthers Indonesia's ability to achieve longer-range development objectives through rehabilitation of productive facilities.

3. *FAA §201(b)(9). How will the activity to be financed contribute to the achievement of self-sustaining growth?*

201(b)(9) Electric power capacity is a basic input in the infrastructure and productive facilities necessary for self-sustaining growth.

4. *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.*

201(f) The activity would utilize a substantial amount of local material and human resources in a manner contributing to economic development productivity.

5. *FAA §201(b)(3). In what ways does the activity give reasonable promise of contributing to development of economic resources, or to increase of productive capacities?*

201(b)(3) Increased electrical power capacity will provide a necessary basis for economic development.

6. FAA §281(b). How does the program under which assistance is provided recognize the particular needs, desires, and capacities of the country's people; utilize the country's intellectual resources to encourage institutional development; and support civic education and training in skills required for effective participation in political processes.

281(b) This project will enhance the expansion of industry and agriculture and make possible the creation of more jobs; it will also increase the availability of electricity for private consumption. The rehabilitated systems will make possible training in basic technical managerial skills for additional personnel.

7. FAA §601(a). How will this loan encourage the country's efforts 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?

601(a) The loan will facilitate purchase by the country of needed equipment and services. Trade with the U. S. will be stimulated through purchase of future spare and replacement parts. The project will stimulate industrial and commercial activities in such areas as agribusiness and intermediate processing which will increase the probable quantity and value of commodities available for export, and will assist Indonesia in developing more sophisticated products which may be competitive in international trade. (b) through improved opportunities for new commercial and industrial enterprises (c) no direct effect; (d) no direct effect; (e) through availability of better quality electric power service together with a program to increase electric power consumption; (f) no direct effect.

8. FAA §202(a). Indicate the amount of money under the loan which is: going directly to private enterprise; going to intermediate credit institutions or other borrowers for use by private enterprise; being used to finance imports from private sources; or otherwise being used to finance procurements from private sources.

202(a) The total amount of the loan will be used to finance procurement from private sources in the U. S.

9. FAA §611(a)(2). What legislative action is required within the recipient country? What is the basis for a reasonable anticipation that such action will be completed in time to permit orderly accomplishment of purposes of loan?

611(a)(2) No legislative action will be required as a condition precedent to this loan.

-- Regional Goals

1. FAA 0619. If this loan is assisting a newly independent country, to what extent do the circumstances permit such assistance to be furnished through multilateral organizations or plans?

619 Indonesia is not a newly independent country.

2. FAA 3209. If this loan is directed at a problem or an opportunity that is regional in nature, how does assistance under this loan encourage a regional development program? What multilateral assistance is presently being furnished to the country?

209 The loan is not directed at a regional problem. However, it is being furnished in the context of multilateral aid to Indonesia by a number of donor countries (the IGGI). The assistance is being coordinated with the advice of the IBRD.

C. Relation to U.S. Economy

-- Employment, Balance of Payments, Private Enterprise

1. FAA 88201(b)(6); 102, Fifth. What are the possible effects of this loan on U.S. economy, with special reference to areas of substantial labor surplus? Describe the extent to which assistance is constituted of U.S. commodities and services, furnished in a manner consistent with improving the U.S. balance of payments position.

201(b)(6); 102 Goods and services will be obtained under approved procedures solely from the U. S. We will expect that spare and replacement parts will be required from the U. S.

2. FAA 33612(b), 636(h). What steps have been taken to assure that, to the maximum extent possible, foreign currencies owned by the U.S. and local currencies contributed by the country are utilized to meet the cost of contractual and other services, and that U.S. foreign-owned currencies are utilized in lieu of dollars?

612(b), 636(h) Local currency provided by the GOI will be used to meet local currency needs of the project.

3. FAA §601(d); App. §115. If this loan is for a capital project, to what extent has the Agency encouraged utilization of engineering and professional services of U.S. firms and their affiliates? If the loan is to be used to finance direct costs for construction, will any of the contractors be persons other than qualified nationals of the country or qualified citizens of the U.S.? If so, has the required waiver been obtained?

601(d); All goods and services financed under the loan are of U. S. source and origin. There is an additional \$900,000 of third country foreign exchange costs which will be met from GOI resources for purchase of spare and replacement parts for generators and related equipment of third country source.

4. FAA §608(a). Provide information on measures to be taken to utilize U.S. Government excess personal property in lieu of the procurement of new items.

608(a) U. S. Government excess property will not be used for this project, because the project requires standardization by FLN of components for this and other systems.

5. FAA §602. What efforts have been made to assist U.S. small business to participate equitably in the furnishing of commodities and services financed by this loan?

602 Applicable regulations will be complied with

6. FAA §621. If the loan provides technical assistance, how is private enterprise on a contract basis utilized? If the facilities of other Federal agencies will be utilized, in what ways are they particularly suitable; are they competitive with private enterprise (if so, explain); and how can they be made available without undue interference with domestic programs?

621 The entire project implementation will be carried out by private enterprise under loan financed contracts on the basis of the applicable A.I.D. regulations.

7. FAA §611(c). If this loan involves a contract for construction that obligates in excess of \$100,000, will it be on a competitive basis? If not, are there factors which make it impracticable?

611(c) Yes. The construction will be awarded on a competitive basis, and equipment supplies will be afforded an opportunity to indicate their interest in selling equipment.

-- Procurement

1. FAA §602(a). Will commodity procurement be restricted to U.S. except as otherwise determined by the President? 602(a) Yes

2. FAA §604(b). Will any part of this loan be used for bulk commodity procurement at adjusted prices higher than the market price prevailing in the U.S. at time of purchase? 604(b) No.

3. FAA §604(e). Will any part of this loan be used for procurement of any agricultural commodity or product thereof outside the U.S. when the domestic price of such commodity is less than parity? 604(e) No.

D. Other Requirements

1. FAA §201(b). Is the country among the 20 countries in which development loan funds may be used to make loans in this fiscal year? 201(b) Yes.

2. App. §112. Does the loan agreement provide, with respect to capital projects, for U.S. approval of contract terms and firms? 112 Yes.

3. FAA §620(k). If the loan is for construction of a productive enterprise, with respect to which the aggregate value of assistance to be furnished will exceed \$100 million, what preparation has been made to obtain the express approval of the Congress? 620(k) Not applicable.

4. FAA §§620(b), 620(f); App. §109(b). 620(b), 620(f); Appt. 109(b)
Has the President determined that the country is not dominated or controlled by the international Communist movement? If the country is a Communist country (including, but not limited to, the countries listed in FAA §620(f)) and the loan is intended for economic assistance, have the findings required by FAA §620(f) and App. §109(b) been made and reported to the Congress?
The required determination has been made.

5. App. §109(a). Will any military assistance, or items of military or strategic significance, be furnished to a Communist nation? 109(a) No.

6. FAA §620(h). What steps have been taken to insure that the loan will not be used in a manner which, contrary to the best interest of the United States, promotes or assists the foreign aid projects of the Communist-bloc countries? 620(h) The loan agreement will contain a provision covering this requirement. (See Annex 9)

7. App. §118. Will any funds be used to finance procurement of iron and steel products for use in Vietnam other than as contemplated by §118? 118 No.

8. FAA §636(i). Will any part of this loan be used in financing non-U.S.-manufactured automobiles? If so, has the required waiver been obtained? 636(i) No.

9. FAA §§620(a)(1) and (2), 620(p); App. §117. Will any assistance be furnished or funds made available to the government of Cuba or the United Arab Republic? 620(a)(1) and (2), 620(p) No.

10. FAA §620(a). Will any part of this loan be used to compensate owners for expropriated or nationalized property? If any assistance has been used for such purpose in the past, has appropriate reimbursement been made to the U.S. for sums diverted?

620(g) No. No assistance has been used for such purposes in the past.

11. FAA §201(f). If this is a project loan, what provisions have been made for appropriate participation by the recipient country's private enterprise?

201(f) It is anticipated that a portion of the work will be accomplished through direct hire of personnel and subcontract with private firms in the recipient country.

12. App. §104. Does the loan agreement bar any use of funds to pay pensions, etc., for persons who are serving or who have served in the recipient country's armed forces?

104 Yes. The loan agreement will cover this requirement.

FOURTH DRAFT: 3/3/70

A.I.D. Loan No.

L O A N A G R E E M E N T

BETWEEN THE

GOVERNMENT OF INDONESIA

AND

PERUSAHAN LISTRIK NEGARA

AND THE

UNITED STATES OF AMERICA

LOAN AGREEMENT

AGREEMENT, dated the _____ day of _____, 19____
between the GOVERNMENT OF INDONESIA (hereinafter called the "Borrower"),
PERUSAHAAN LISTRIK NEGARA (hereinafter called the "Beneficiary"), and
the UNITED STATES OF AMERICA, acting through the AGENCY FOR INTERNATIONAL
DEVELOPMENT (hereinafter called "A.I.D.").

ARTICLE I.

The Loan

SECTION 1.1. The Loan. A.I.D. hereby agrees to lend to the
Borrower, for the use of and, under Section 9.1 hereunder, to be made available
to the Beneficiary, pursuant to the Foreign Assistance Act of
1961, as amended, up to sixteen million eight hundred thousand United
States dollars (\$16,800,000) to assist in financing the reasonable United
States dollar costs of certain goods and services required for the Project
as defined in Section 1.2 hereof. Goods and services financed hereunder
are hereinafter referred to as "Eligible Items," and the aggregate amount
disbursed hereunder is hereinafter referred to as "Principal."

SECTION 1.2. Project. As used in this agreement, the
"Project" shall mean the design and construction for the rehabilitation
and _____ the operation of certain facilities of the Beneficiary
in the Tuntang system and the provision of technical and management
assistance related thereto. This shall include:

- (a) the complete rehabilitation of the electric
power distribution systems in the cities of
Semarang, Jogjakarta, Solo, and Magelang;

- (b) the rehabilitation of existing hydro-electric and diesel generating units;
- (c) the provision of additional interim generating capacity at Semarang and Jogjakarta;
- (d) the provision of tools and service equipment for operation and maintenance in the Tuntang system;
- (e) the provision of communications equipment;
- (f) technical and management assistance, including participant training in the United States, to the Beneficiary's staff in Central Java (Region X) throughout the rehabilitation period to develop sound management, operating, and maintenance practices all as generally described in the "Application to Agency for International Development for _____" of the GOI dated _____ and more particularly described in the technical report entitled _____ and dated _____.

ARTICLE II.

Borrower Repayment Terms and Interest

SECTION 2.1. Interest. The Borrower shall pay semi-annually to A.I.D. in United States dollars on the unpaid Principal, interest which shall accrue from the dates of the respective disbursements hereunder, the first such interest payment to be due and payable no later than six (6) months after the first such disbursement on a date

to be specified by A.I.D. Principal and interest due but not paid shall accrue interest at the maximum rate hereunder until fully paid. Interest shall accrue at the rate of two percent (2%) per annum for ten (10) years after the first disbursement hereunder and at a rate of three percent (3%) per annum thereafter, computed on the basis of a three hundred sixty-five (365) day year. Disbursements hereunder shall be deemed to occur on the date on which payment by A.I.D. is made either directly to the Borrower or its designee or to a banking institution pursuant to a commitment document .

SECTION 2.2. Principal. Borrower shall repay the Principal to A.I.D. in United States dollars within forty (40) years from the date of first disbursement hereunder in sixty-one (61) level semi-annual installments of principal and interest, the first installment to be due and payable nine and one-half (9-1/2) years after the first interest payment is due.

SECTION 2.3. Application and Place of Payment. All payments shall be applied first to the payment of any interest due and unpaid and then to the repayment of Principal. All payments shall be made to the Controller, United States Agency for International Development (hereinafter called "USAID"), Djakarta, Indonesia, or to such other payee or at such other address as A.I.D. may designate, and shall be deemed to have been paid when there received.

SECTION 2.4. Prepayment. The Borrower shall have the right to prepay, without penalty, on any date on which interest is due, all or any part of the Principal. Any prepayment shall be applied first

to the payment of any accrued and unpaid interest and then to the remaining installments of Principal in the inverse order of their maturity.

ARTICLE III.

Conditions Precedent

SECTION 3.1. Conditions Precedent to Initial Financing.

Unless A.I.D. otherwise agrees in writing, prior to the issuance of the first letter of commitment or other commitment document^{for engineering services}, the Borrower or the Beneficiary, as appropriate, shall furnish A.I.D., in form and substance satisfactory to A.I.D.:

- (a) An opinion of the Minister of Justice of the Borrower that this Loan Agreement has been duly authorized or ratified by, and executed on behalf of, the Borrower and is a valid and legally binding obligation of the Borrower in accordance with its terms;
- (b) An opinion of the principal legal officer of the Beneficiary, or of other legal counsel satisfactory to A.I.D., that this Loan Agreement has been duly authorized or ratified by, and executed on behalf of, the Beneficiary and is a valid and legally binding obligation of the Beneficiary in accordance with its terms;

- (c) The names of the persons who will act as the representatives of the Borrower and the Beneficiary pursuant to Section 10.1 hereof, if other than the persons designated in said Section, together with evidence of their authority and a specimen signature of each such person, certified as to its authenticity by either the persons rendering the legal opinions pursuant to Sections 3.1(a) and 3.1(b) or the persons executing this Loan Agreement;
- (d) A cost plus fixed fee contract with an engineering consultant firm or individual(s). The selection of said consultant and the terms of said contract shall be in accordance with A.I.D. Capital Project Guidelines for the engineering consultant services required for the Project;
- (e) Evidence, including an opinion of the Minister of Justice of Borrower, that the Beneficiary has legal authority to undertake promptly the procurement and contracting for commodities and services necessary for implementation of this Project;
- (f) A plan for implementation of the Project, including the specification of basic system standards for the distribution systems. Said system standards shall include standards for service wiring and voltage level

of primary and secondary lines. Said plan shall also set forth Borrower's projection for providing Indonesian currency and foreign exchange from its budgetary sources to Beneficiary as required by Section 5.1(b) and (c) of this Agreement.

- (g) Advice of the International Development Association that its Development Credit Agreement with Borrower (Credit Number 165 IND) dated October 29, 1969, (hereinafter "Development Credit Agreement"), and the Project Agreement with Beneficiary executed in connection therewith (hereinafter "Project Agreement"), are effective within the meaning of those agreements.

SECTION 3.2. Conditions Precedent to Financing of General Consulting Services and of Procurement. Unless A.I.D. otherwise agrees in writing, prior to the issuance of letters of commitment or other commitment documents for the financing of technical and management consulting services, and procurement by Beneficiary, the Borrower or Beneficiary, as appropriate, shall furnish A.I.D. in form and substance satisfactory to A.I.D.:

- (a) Evidence that foreign exchange has been made available to Beneficiary for the purchase of third country spare and replacement parts for rehabilitation of diesel and hydro-electric generators and related equipment;
- (b) Evidence of the establishment by Beneficiary of a reserve fund in Indonesian currency equal to twenty percent (20%) of the estimated total Indonesian currency

- costs of the project, or such other amount as A.I.D. shall agree to in writing, which shall be used for the execution of the project and for support of operation and maintenance until the project is completed and a plan for replenishment to maintain said fund;
- (c) A plan for utilization by Beneficiary of general consulting services for the Project. Said plan shall include specific designations of counterpart personnel of Beneficiary who will work with technical and management assistance personnel, and who will be afforded participant training, and a detailed description of the manner in which the counterpart personnel of Beneficiary are to be utilized for said purposes;
- (d) A plan for procurement of equipment for the Project. Said procurement plan shall include evidence of provision for storage including secured storage at port or other location pending receipt of customs clearance and for handling and transportation of commodities to project site and for storage at the project site.
- (e) An agreement between the Beneficiary and a contractor for the provision of management consulting services as required by Article II of the Project Agreement with the International Development Association.
- (f) A contract between Beneficiary and a firm or individual(s) for the general consulting services to be provided for the Project. The selection of the firm

or individual(s) to provide said consulting services and the terms of said draft contract shall be in accordance with A.I.D. Capital Project Guidelines for consultant services;

- (g) Procurement contracts/^{for equipment and materials}between Beneficiary and a firm or firms, selection of which shall be in accordance with A.I.D. Capital Project Guidelines. The terms of said contracts shall also be in accordance with A.I.D. Capital Project Guidelines.

SECTION 3.3. Conditions Precedent to Financing Construction Services. Unless A.I.D. otherwise agrees in writing, prior to the issuance of letters of commitment or other commitment documents for construction services, the Beneficiary shall have met the conditions precedent in Section 3.2(a) through (f), and in addition shall furnish to A.I.D. in form and substance satisfactory to A.I.D.:

- (a) A preliminary design for the Project which will form the basis for the final design for each subdivision of the rehabilitated system. Said preliminary design shall include:
- (i) maps and diagrams showing the preliminary layout of the proposed electric distribution systems.
 - (ii) detailed specifications for individual prototype units which combine in varying quantities to form the constructed physical plant;
 - (iii) an estimate of the quantity of each such unit; and

(iv) any revision in the cost estimate for the Project, including costs for labor and materials for each prototype unit. Said cost estimate revisions shall be divided into U.S. dollar and local currency expenditures.

(b) A contract or contracts for construction services between Beneficiary and a firm or firms. The selection of said firm or firms and the terms of said contract or contracts shall be in accordance with A.I.D. Capital Project Guidelines for construction services.

SECTION 3.4. Terminal Dates for Fulfillment of Conditions Precedent. Except as A.I.D. may otherwise agree in writing, if the conditions required by Section 3.1 have not been satisfied within five (5) months after the date of execution of this Loan Agreement, or if the conditions required by Section 3.2 have not been satisfied within sixteen (16) months after the date of execution of this Loan Agreement, or if the conditions required by Section 3.3 have not been satisfied within sixteen (16) months from the date of execution of this Loan Agreement, A.I.D. may at any time thereafter terminate this Agreement by giving notice to the Borrower and to the Beneficiary. Upon such termination, and notwithstanding any other provisions of this Loan Agreement, the Borrower shall repay to A.I.D. the unpaid Principal, if any, and any accrued interest. Upon full payment in accordance with the foregoing, all other obligations of the Borrower and A.I.D. under this Agreement shall cease.

SECTION 3.5. Notification of Meeting of Conditions Precedent.

A.I.D. shall notify the Borrower upon its determination that the conditions precedent specified in Sections 3.1, 3.2, and 3.3 have been met.

ARTICLE IV.

Disbursements

SECTION 4.1. Requests for Letters of Commitment. To obtain disbursements, the Beneficiary may from time to time request A.I.D. to issue, and subject to the provisions of this Loan Agreement A.I.D. shall issue, letters of commitment to one or more banks in the United States designated by the Beneficiary and satisfactory to A.I.D., committing A.I.D. to reimburse such bank or banks for payments made, through letters of credit or otherwise, to the Beneficiary or any designee of the Beneficiary, pursuant to such documentation or requirements as A.I.D. may specify.

SECTION 4.2. Other Forms of Disbursement. Disbursements may also be made through such other means as the Borrower, the Beneficiary and A.I.D. may agree in writing.

SECTION 4.3. Terminal Date for Requests for Commitment Documents and for Disbursements. Except

as A.I.D. may otherwise agree in writing, no letters of

commitment or other commitment documents shall be issued in response to requests received by A.I.D. after twenty-eight (28) months, and no disbursements shall be made against documentation received after fifty-three (53) months, from the date of execution of this Loan Agreement.

ARTICLE V.

Particular Covenants and Warranties Concerning the Project

SECTION 5.1. Borrower's Covenants. The Borrower covenants and agrees that it shall

- (a) take all necessary actions to permit the Beneficiary to perform its obligations under Article II of the Project Agreement between the Beneficiary and the International Development Association within the time limits prescribed in said Project Agreement, taking into account Borrower's specific undertakings in this regard in the Development Credit Agreement between Borrower and the International Development Association and the objectives stated in Section 5.2(a) hereof;
- (b) make available foreign exchange to Beneficiary necessary to purchase third country spare and replacement parts for rehabilitation of diesel and hydro-electric generators and related equipment, for other spare and replacement parts required for the Project, and for any foreign exchange costs of the Project required for completion of, and operation up to completion of the rehabilitation of the facilities described in Section 1.2 above over and above the proceeds of the Loan provided for herein;

- (c) make available to Beneficiary any Indonesian currency necessary for the completion of, and operation up to completion of the rehabilitation of the facilities described in Section 1.2 above;
- (d) from completion of the rehabilitation of the facilities described in Section 1.2 above until such time as Beneficiary may become an autonomous, non-budget supported corporation, assist the Beneficiary in obtaining funds sufficient to meet the operating and maintenance expenses necessary for the effective utilization of the rehabilitated Project;
- (e) assist the Beneficiary to carry out the Project, or cause the Project to be carried out, with due diligence and efficiency, and in conformity with sound engineering, construction, financial, administrative, and management practices.

SECTION 5.2. Beneficiary's Covenants. The Beneficiary covenants and agrees that it shall:

- (a) perform its obligations as prescribed in Article II of the Project Agreement with the International Development Association and implement said undertakings within the time limits prescribed in said Project Agreement. In carrying out the recommendations of the management consultants under Section 2.02(b) of the Project Agreement with the International Development Association, the parties hereto agree on the following general objectives that should govern Beneficiary's organization,

structure, authority and operations and further agree that Beneficiary's program to implement the recommendations of the management consultants as required by Section 2.02(b) of that agreement shall be in accordance with the objectives hereafter set forth and shall be subject to prior approval of A.I.D.:

- (i) A revised schedule of electricity tariffs and charges fixed at such levels as should provide Beneficiary with revenue sufficient (a) to cover all its operating expenses, including administration and overhead expenses, maintenance, depreciation, and taxes, and interest on, and to the extent it exceeds depreciation, amortization of debt, and (b) to provide a reasonable return on its assets and to finance a reasonable portion of its capital expenditures;
- (ii) A revaluation of Beneficiary's fixed assets in accordance with sound public utility practice;
- (iii) Full and exclusive responsibility vested in Beneficiary for the public electric power sector of the Borrower, including planning, procurement, construction, operation, maintenance, and ownership of all facilities therein;
- (iv) Management organization and employment practices, including staffing patterns, salary structure, and employee qualifications, in accordance with sound public utility practice;

- (v) Operating practices, including records, accounting system, billing and collection procedures, financial planning and administration, insurance, repair and maintenance procedures, and procedures for systems operations, all in accordance with sound public utility practice;
- (vi) Standard for the electric power system including standards for equipment, materials, construction, and operation and maintenance in accordance with sound public utility practice.
- (b) establish connecting fees for all future service within the Tuntang system that will encourage increased consumption of electricity;
- (c) maintain the basic system standards for the distribution systems required by Section 3.1(f) of this Agreement;
- (d) replenish the Indonesian currency reserve funds required in Section 3.2(b) hereof whenever necessary to maintain said fund at twenty percent (20%) of the estimated total Indonesian currency cost of the Project or such other level as A.I.D. may agree to in writing;
- (e) carry out the Project, or cause the Project to be carried out, with due diligence and efficiency, and in conformity with sound engineering, construction, financial, administrative and management practices;

- (f) submit all plans, specifications, contracts, schedules, and engineering construction or procurement arrangements for the Project, and all modifications thereof, to A.I.D. as may be required by A.I.D. under this Loan Agreement or in letters of implementation, for its approval prior to their implementation and within the time periods established in Section 3.4 hereof; and carry out the Project, or cause the Project to be carried out in conformity therewith;
- (g) adequately maintain, repair and operate, in accordance with sound public utility practices all Eligible Items, and any constructed facilities resulting from their use.

ARTICLE VI.

General Covenants, Warranties and Agreements

SECTION 6.1. Utilization of Eligible Items. All Eligible Items shall be used exclusively in carrying out and operating the Project. This restriction shall apply only until such time as such goods can no longer be usefully employed for the Project, provided that no goods financed hereunder shall be exported from the Republic of Indonesia without the prior written approval of A.I.D., and provided further that no Eligible Items shall at any time be used to promote or assist any project or activity associated with or financed by any country not included in Code 935 of the A.I.D. Geographic Code Book as in effect at the time of such projected use except with the prior written consent of A.I.D.

SECTION 6.2. Information and Marking. The Beneficiary shall give publicity to the loan provided for herein and the Project as a program of United States aid, identify the Project site, and mark goods financed under such loan, as prescribed in implementation letters.

SECTION 6.3. Notice of Material Developments. The Borrower and the Beneficiary have disclosed to A.I.D. all circumstances which may materially affect the Project or the discharge of their obligations under this Loan Agreement and shall inform A.I.D. of any conditions which may constitute a default hereunder or which interfere, or which it is reasonable to believe may interfere, with the Project or the discharge of any of their obligations hereunder.

SECTION 6.4. Inspections. The authorized representatives of A.I.D. shall have the right at all reasonable times, whether prior to completion of the Project or subsequent thereto, to inspect the Project, the utilization of all Eligible Items, the books and records referred to in Section 6.10, and any other documents, correspondence, memoranda, or records relating to the loan provided for herein or to the Project. The Borrower and the Beneficiary shall cooperate with A.I.D. to facilitate such inspections and shall afford a reasonable opportunity for authorized representatives of A.I.D. to visit any part of the Republic of Indonesia for any purpose related to the loan provided for herein .

SECTION 6.5. Taxes and Duties. The Borrower covenants and agrees that this Loan Agreement and the loan provided for herein shall be free from, and the Principal and interest shall be paid to A.I.D. without deduction for and free from, any taxation or fees imposed under any laws or decrees in effect within the Republic of Indonesia or any such taxes or fees so imposed or payable shall be reimbursed by the Borrower. The importation of any Eligible Items, including the provision of services, shall be free from all import duties, fees and taxes of whatever nature or kind.

SECTION 6.6. Commissions, Fees and Other Payments. The Borrower and the Beneficiary warrant and covenant that in connection with obtaining the loan provided for herein or taking any action under or with respect to this Loan Agreement they have not paid and will not pay or agree to pay nor to the best of their knowledge has there been paid or will there be paid or agreed to be paid by any other person or entity, commissions, fees or other payments of any kind, except as regular compensation to the Borrower's or the Beneficiary's full-time officers and employees or as compensation for bona fide professional, technical or other comparable services. The Borrower and the Beneficiary shall promptly report to A.I.D. any payment or agreement to pay for such bona fide professional, technical, or comparable services to which it is a party or of which it has knowledge (indicating whether such payment has been made or is to be made on a contingent basis), and if the amount of any

such payment is deemed unreasonable by A.I.D., the party concerned shall cause a reduction satisfactory to A.I.D. to be made therein.

SECTION 6.7. Renegotiation of Terms. The Borrower agrees that, at any time or times when it is required to do so by A.I.D., but not sooner than six (6) months prior to the date the first repayment of Principal is due, it will negotiate with A.I.D. with respect to acceleration of the repayment of Principal by the Borrower. It is agreed that the Borrower and A.I.D. shall mutually determine to what extent repayment of such Principal should be accelerated on the basis of one or more of the following criteria:

- (a) significant improvement in the internal economic and financial situation of the Republic of Indonesia;
- (b) favorable trends in the balance of payments and foreign exchange holdings of the Republic of Indonesia;
- (c) ability of the Republic of Indonesia to make future repayment of A.I.D. loans without interfering with the service of debts owing to any United States Government agency or any international organization of which the United States is a member.

SECTION 6.8. Insurance. Beneficiary covenants that it will maintain prudent insurance coverage issued by responsible underwriters in such amounts and against such risks as is considered to be in accordance with good commercial practice.

SECTION 6.9. Local Sales Agents Commissions and Service Payments. The Beneficiary agrees that commissions and service payments to local sales agents are not Eligible Items and therefore will not be financed under the Loan, and that it will apply such rules and procedures with respect thereto as A.I.D. may prescribe in Implementation Letters.

SECTION 6.10. Maintenance and Audit of Records. The Beneficiary shall maintain, or cause to be maintained, in accordance with sound accounting principles and practices consistently applied, books and records relating both to the Project and to this Loan Agreement. Such books and records shall, without limitation, be adequate to show:

- (a) the receipt and use made of Eligible Items;
- (b) the progress of the Project;
- (c) current data covering operation; and
- (d) financial condition of the Beneficiary.

Such books and records shall be regularly audited by independent certified public accountants, in accordance with sound auditing standards, on an annual basis or for such period and at such intervals as A.I.D. may require, and shall be maintained for five years after the date of the last disbursement by A.I.D. or until all sums due A.I.D. under this Loan Agreement have been paid, whichever date shall first occur.

SECTION 6.11. Reports. The Borrower and the Beneficiary will furnish A.I.D. with such information and reports relating to

the Project, Eligible Items, and the loan provided for herein as A.I.D. may reasonably request.

ARTICLE VII.

Covenants Concerning Procurement

SECTION 7.1. Procurement Source and Origin. Except as A.I.D. may otherwise agree in writing, all Eligible Items, including transportation services and marine insurance, shall have both their source and origin in the United States. Transportation services shall be deemed to have their source and origin in the United States if procured from a United States flag carrier. Marine insurance shall be deemed to have its source and origin in the United States if issued in the United States by a company authorized to do a marine insurance business in any state of the United States. All other goods and services obtained for the Project, except transportation services or as A.I.D. may otherwise agree in writing, shall have their source and origin in countries included in Code 935 of the A.I.D. Geographic Code Book as in effect at the time such goods or services are procured. All Eligible Items shall be transported to Indonesia on carriers of countries included in the said Code 935 as in effect at the time such transportation is procured. This covenant shall be construed in accordance with A.I.D. regulations, as from time to time amended,

SECTION 7.2. Date of Procurement. No goods or services may be financed hereunder which arise out of orders or contracts firmly placed or entered into prior to the date of this Loan Agreement.

SECTION 7.3. Port Charges. With respect to transportation services that constitute Eligible Items, A.I.D. will finance under the Loan ninety percent (90%) of all ocean freight costs of each shipment, and ninety-eight percent (98%) of such costs on any shipment under free-out terms. The remaining ten percent (10%), or two percent (2%) of free-out shipments, represent port charges in Indonesia, and Borrower covenants that it shall make available foreign exchange to finance said port charges in accordance with such rules and procedures as A.I.D. may prescribe in Implementation Letters.

SECTION 7.4. Small Business Notification. In order that American small business shall have the opportunity to participate in furnishing Eligible Items, Beneficiary or Borrower, as appropriate, shall, at such time prior to ordering or contracting for any Eligible Item estimated to cost more than the equivalent of Five Thousand United States dollars (\$5,000) as A.I.D. may specify, cause to be received by A.I.D. such information concerning Eligible Items as A.I.D. may require.

SECTION 7.5. Ocean Shipment. At least fifty percent (50%) of the gross tonnage of all Eligible Items (computed separately for

dry bulk carriers, dry cargo liners, and tankers) which shall be transported on ocean vessels shall be transported on privately owned United States flag commercial vessels. No goods may be financed hereunder which are transported on any ocean vessel or aircraft (a) which A.I.D. in a notice to the Borrower and the Beneficiary has designated as ineligible to carry A.I.D.-financed commodities or (b) which has been chartered for the carriage of A.I.D.-financed commodities unless such charter has been approved in advance by A.I.D.

SECTION 7.6. Discrimination in Marine Insurance. If in connection with the placement of marine insurance on shipments financed under United States legislation authorizing assistance to other nations, the Republic of Indonesia, by statute, decrec, rule or regulation, favors any insurance company of any country over any marine insurance company authorized to do business in any state of the United States, goods financed hereunder shall during the continuance of such discrimination be so insured in the United States with a company or companies authorized to do a marine insurance business in any state of the United States.

SECTION 7.7. Employment of Contract Personnel. The employment of personnel to perform services under contracts financed hereunder, in whole or in part, will be subject to all applicable United States legislation and such requirements, including security clearances and limitations on the employment of third country

nationals, as A.I.D. may from time to time promulgate or specify and, except as A.I.D. may otherwise direct, all such contracts shall include provisions necessary to implement such legislation and requirements.

SECTION 7.7. United States Government Excess Property.

The Beneficiary shall utilize, with respect to goods financed under the Loan provided for herein to which the Beneficiary takes title at the time of procurement, as and to the extent provided in Implementation Letter No. 1, such reconditioned United States Government excess property as may be consistent with the requirements of the Project and as may be available within a reasonable period of time. The Beneficiary shall seek assistance from A.I.D. and A.I.D. will assist the Beneficiary in ascertaining the availability of and in obtaining such excess property. A.I.D. will make arrangements for any necessary inspection of such property by the Beneficiary and/or Borrower or its representatives. The costs of inspection and of acquisition, and all charges incident to the transfer to the Beneficiary of such excess property may be financed under the Loan. Prior to the procurement of any goods, other than excess property, financed under the Loan and having sought such A.I.D. assistance, the Beneficiary shall indicate to A.I.D. in writing, on the basis of information then available to it, either that such goods cannot be made available from reconditioned United States Government excess property

on a timely basis or that the goods that can be made available are not technically suitable for use in the Project.

ARTICLE VIII.

Remedies of A.I.D.

SECTION 8.1. Events of Default; Acceleration. If any one or more of the following events ("Events of Default") shall occur:

- (a) the Borrower shall fail to pay in full any interest payment or installment of principal of the Loan, or any other indebtedness or obligation, when the same shall become payable by it;
- (b) the Borrower or the Beneficiary shall fail to comply with any other provision contained herein applicable to it;
- (c) any representation or warranty made by or on behalf of the Borrower or the Beneficiary with respect to obtaining the loan provided for herein or made or required to be made hereunder is incorrect in any material respect;
- (d) any indebtedness or obligation of the Beneficiary for the payment of borrowed money shall have become due and payable and not been paid;

- (e) all or any substantial part of the Beneficiary's assets, business or operations (whether now or hereafter existing) shall be condemned, seized or appropriated, or any action by any governmental authority shall be instituted to dissolve or disestablish the Beneficiary or to suspend its operations, or a substantial part thereof;
- (f) any franchise, license, right, privilege, or charter, granted pursuant to or existing by virtue of law or other legal authority and necessary for the conduct of the Beneficiary's business, for the completion of the Project, or for the carrying out of the terms of this Loan Agreement is revoked, cancelled, or denied in such manner as to make it improbable that the Beneficiary will be able to perform its obligations under this Loan Agreement or that the loan provided for herein will substantially fulfill the purposes for which it has been established;
- (g) The Beneficiary shall voluntarily enter into or be subjected involuntarily to any procedure under the laws in effect within the Republic of Indonesia for the relief of a financially distressed debtor which is substantially equivalent to a petition in bankruptcy or the appointment of a receiver for the benefit of creditors; or

- (h) a material default shall have occurred after the date hereof, and not been remedied after notice, under any other loan agreement between the Borrower and A.I.D.;

then A.I.D., at its option, may declare all or any part of the unpaid principal under the loan provided for herein to be due and payable immediately, and upon any such declaration, unless the default may be cured and is cured within sixty (60) days thereafter, such principal and all interest accrued thereon shall become immediately due and payable.

SECTION 8.2. Termination of Disbursements; Transfer of Goods to A.I.D. In the event that at any time:

- (a) an Event of Default has occurred and has not been remedied as provided above;

- (b) an event occurs that A.I.D. determines to be an extraordinary situation which makes it improbable that the purposes of the loan provided for herein will be attained or that the Borrower or the Beneficiary will be able to or will perform its obligations hereunder; or
- (c) any disbursement would be in violation of the legislation governing A.I.D.;

then A.I.D. at its option, after notice to the Borrower and the Beneficiary, may (i) decline to issue further letters of commitment or other commitment documents, (ii) suspend or cancel outstanding letters of commitment or other commitment documents to the extent that they have not been utilized through the issuance of irrevocable letters of credit or through bank payments made other than under irrevocable letters of credit, giving notice to the Borrower and the Beneficiary thereof, (iii) decline to make disbursements other than under letters of commitment; and (iv) at A.I.D.'s expense, direct that title to goods financed under disbursements hereunder shall be transferred to A.I.D. at cost to the Beneficiary, provided the goods are from a source outside the Republic of Indonesia, are in a deliverable state and have not been off-loaded in ports of entry of the Republic of Indonesia. To the extent that any costs connected with the purchase and transportation of these goods have been financed hereunder, these amounts shall be deducted from Principal.

SECTION 8.3. Refunds. If A.I.D. determines that any disbursement is not supported by valid documentation in accordance

with the terms of this Loan Agreement, or is not made or used in accordance with the terms of this Loan Agreement, or was at the time of disbursement in violation of the legislation governing A.I.D., A.I.D., at its option, may, notwithstanding the availability of any other remedy provided for under this Loan Agreement or the exercise of the remedy provided for in Section 8.1, require the Borrower to pay to A.I.D. in United States dollars within thirty (30) days after receipt of a request therefor, an amount not to exceed the amount of such disbursement;

provided that such request by A.I.D. shall be made not later than five (5) years after the date of the final disbursement hereunder. Any such refund received by A.I.D. shall be applied first to any accrued interest, and then to installments of Principal in inverse order of their maturity.

SECTION 8.4. Waivers. No delay in exercising or omission to exercise any right, power or remedy accruing to A.I.D. under this Loan Agreement shall be construed as a waiver of any such right, power or remedy.

SECTION 8.5. Expenses of Collection. All reasonable costs incurred by A.I.D. (other than salaries of its staff) after an

Event of Default has occurred, in connection with the collection of amounts due under this Loan Agreement, may be charged to the Borrower and reimbursed as A.I.D. shall specify.

ARTICLE IX.

Borrower Contribution to Beneficiary

SECTION 9.1. Terms of Contribution. Borrower will make available the proceeds of this loan to Beneficiary on terms to be established within three (3) years of the date of this Loan Agreement, or such other time as may be agreed upon by A.I.D. Borrower, Beneficiary and A.I.D. will consult together, and Borrower shall establish, with the concurrence of Beneficiary and A.I.D., appropriate terms based upon Beneficiary's financial condition as of the date of such consultations and agreement, taking into account the recommendations of the management consultant under Section 2.02(b) of the Project Agreement and the program for implementing the recommendations agreed to by Beneficiary, Borrower, the International Development Association, and A.I.D. Under any repayment terms agreed upon which terms may be made retroactive to the date of this agreement:

- (a) Beneficiary will have the right to prepay, without penalty, all or any part of the debt to the Borrower on any date on which Beneficiary's interest payments are due and payable. Any such payment will be applied first to payment of any accrued interest and then to the remaining installments of principal in the inverse order of maturity.

- (b) A "maintenance of value" section, in the form of Section 9.2 below, will be included.
- (c) Except as A.I.D. may otherwise agree, all repayments made by Beneficiary to Borrower will be deposited by Beneficiary in an account established for this purpose only, and such deposits will be used only for such purposes as are agreed upon by A.I.D. and Borrower.

SECTION 9.2. Rate of Exchange. With respect to principal repayments and interest payments made to the Borrower by the Beneficiary pursuant to Section 9.1 of this Loan Agreement:

- (a) The amount of Indonesian currency equivalent to the United States dollar amount for which payment is due shall be computed on the basis of the rate of exchange prescribed in subsection (c) of this Section applicable to such payment; provided that in any case where payment is made after the due date for that payment A.I.D. may require that it be computed on the basis of the prescribed rate of exchange existing on the date of payment.
- (b) In the event there is no prescribed rate of exchange on the due date for a payment, the amount of Indonesian currency equivalent to the United States dollar amount of the obligation for which payment is due shall be computed

and paid on the basis of the prescribed rate of exchange existing on the date nearest preceding the due date for the payment on which such a rate can be ascertained.

Within sixty (60) days after the first date after such due date on which a current prescribed rate of exchange can be ascertained, the Beneficiary shall, upon the request of A.I.D., make prompt payment to the Borrower, or the Borrower, upon the request of A.I.D., shall make prompt reimbursement to the Beneficiary of the amount of Indonesian currency required to make the total payment of Indonesian currency equivalent in value to the United States dollar amount of the obligation against which the payment was made, computed on the basis of the prescribed rate of exchange existing on the first date following such due date on which such a rate can be ascertained.

- (c) For purposes of this Section, the prescribed rate of exchange between Indonesian currency and United States dollars on any particular date shall be the effective rate of exchange at which United States dollars are sold or offered for sale on that date in exchange for Indonesian currency to residents of the Republic of Indonesia, exclusive of Government entities, for effecting:
- (1) the payment of interest and repayment of principal on loans;
 - (2) the transfer of dividends and other forms

of earnings on capital investments in the Republic of Indonesia; and (3) the transfer of investment capital; provided that there is only one such rate in the Republic of Indonesia for such transactions; provided that A.I.D. and the Republic of Indonesia may agree in writing on a rate of exchange applicable to this agreement; [and provided, further, that so long as there is an established Bonus Export rate under which essential commodities are imported into the Republic of Indonesia, that rate shall be the prescribed rate of exchange. In the absence of such a Bonus Export rate,] if there is no written agreement between A.I.D. and the Republic of Indonesia on the rate of exchange applicable to this agreement, and if there is no such single rate of exchange applicable to all of the three categories of transactions referred to in the preceding sentence the applicable rate of exchange on any particular date shall be the highest (i.e., the largest number of units of Indonesian currency per United States dollar) effective rate of exchange at which United States dollars are sold or offered for sale on that date to residents of the Republic of Indonesia, exclusive of Government entities, to effect transactions within any of the three categories referred to in the preceding sentence.

ARTICLE X.

Miscellaneous

SECTION 10.1. Designation of Representatives.

- (a) All actions required or permitted to be performed or taken under this Loan Agreement by the Borrower, the Beneficiary or A.I.D. may be performed by their respective duly authorized representatives.

(b) The Borrower hereby designates _____
and the Beneficiary hereby designates _____
as their respective with authority to designate in
writing other representatives in their dealings with
A.I.D. The representatives designated in or pursuant
to the preceding sentence, unless A.I.D. is given notice
otherwise, shall have authority to agree, on behalf of the
Borrower and the Beneficiary respectively, to any modifica-
tion of this Loan Agreement which does not substantially
increase their obligations hereunder. Until receipt by
A.I.D. of written notice of revocation of the authority of
any such representative, A.I.D. may accept the signature
of such representative on any instrument as conclusive
evidence that any action effected by such instrument is
authorized by the party on whose behalf such representative
purports to act.

SECTION 10.2. Implementation Letters. A.I.D. shall from time
to time issue Implementation Letters that will prescribe the procedures
applicable hereunder in connection with the implementation of this Loan
Agreement.

SECTION 10.3. Communications. Any communication or document
given, made or sent by the Borrower, the Beneficiary or A.I.D. pursuant
to this Loan Agreement shall be in writing and shall be deemed to have
been duly given, made or sent to the party to which it is addressed

when it shall be delivered by hand or by mail, telegram, cable or radiogram to such party at its following address:

To the Borrower:

Mail Address:

Cable Address:

To the Beneficiary:

Mail Address:

Cable Address:

To A.I.D.:

Mail Address: United States Agency for International
Development
American Embassy
Djakarta, Indonesia

Cable Address: USAID AMEMB DJAKARTA

Other addresses may be substituted for the above upon giving of notice as provided herein.

All communications and documents submitted to A.I.D. hereunder shall be in English, and all technical and engineering specifications therein shall be in English and in terms of United States standards except as A.I.D. may otherwise agree in writing.

Executed at Djakarta, Indonesia, on the date first above
written.

UNITED STATES OF AMERICA

By: _____

Title: _____

THE REPUBLIC OF INDONESIA

By: _____

Title: _____

PERUSAHAAN LISTRIK NEGARA

By: _____

Title: _____

- ANNEX 13. Provisions of the IDA Agreements relating to Institutional Reform of the Electric Power Sector
- A. Cross index between IDA project agreement and A.I.D. self-help objectives
 - B. Provisions of Development Credit Agreement between GOI and IDA
 - C. Provisions of Project Agreement between PLN and IDA

Provisions of the IDA Agreements Relating to Institutional Reform of the Electric Power Sector

A. Cross index between IDA Project Agreement and A.I.D. Self-Help Objectives.

| <u>AID Self-Help Objective</u> | <u>IDA Project Agreement Prov.</u> |
|---|------------------------------------|
| 1. Tariff Schedule Revision | 202(a)2(ii), 2.04 |
| 2. Revaluation of Assets | 202(a)3 |
| 3. Establishment of Autonomy over PLN Operations | 202(a)2(i), 4(iv) |
| 4. Revision of Management Organization and Employment Staffing Pattern, and of Salary Structure and Work Procedures | 202(a)2(iii) |
| 5. Improvement of Operating Practices | |
| a. accounting, records keeping, billing and collection practices | 202(a)4(i) |
| b. financial planning and administration | 202(a)4(i), (ii) |
| c. repair, maintenance | 202(a)4(iii) |
| d. systems operations | 202(a)4(ii) |
| 6. Definition and Implementation of Standards for Service | 202(a)4(iii) |

B. DEVELOPMENT CREDIT AGREEMENT

SECTION 4.01. (a) The Borrower shall cause the Project to be carried out by PLN with due diligence and efficiency, and PLN to be managed and operated, in conformity with sound administrative, financial, engineering and public utility practices.

SECTION 4.05. The Borrower shall take all action which shall be necessary on its part to enable PLN to perform its obligations under the Project Agreement, including the establishment and maintenance of tariffs and charges as specified in Sections 2.02(b) and 2.04 thereof, and shall not take any action that would interfere with the performance of such obligations.

(b) Amounts owed to PLN for services provided by it to Governmental entities which are due and payable as of the date of this Agreement shall be paid to PLN within one year following such date. The Borrower shall take all action necessary to ensure at all times that amounts owed to PLN for such services so provided after such date be promptly paid when due.

SECTION 4.03. Within a period ending not later than April 1, 1971 the Borrower shall cause PLN to be vested with full and exclusive responsibility for the public electric power sector of the Borrower, including planning, procurement, construction, operation, maintenance and ownership of all facilities therein.

C. PROJECT AGREEMENT

ARTICLE II

Particular Covenants

SECTION 2.01. (a) PLN shall carry out the Project with due diligence and efficiency and shall at all times conduct its operations and affairs in accordance with sound engineering, public utility, administrative and financial practices and under the supervision of experienced and competent management.

(b) PLN shall cause all works included in the Project to be constructed by contractors acceptable to the Association and PLN, or pursuant to other arrangements satisfactory to the Association.

(c) Upon request from time to time, PLN shall furnish promptly to the Association the plans, specifications and the construction schedule for the Project, and shall furnish details of any material modifications subsequently made therein, in such detail as the Association shall from time to time request.

SECTION 2.02. (a) PLN shall employ management consultants acceptable to, and on terms and conditions satisfactory to, the Association to

1. assist in the management and operations of PLN;
2. review and make recommendations on the organization and operation of the electric power sector including
 - (i) the adequacy of the Governing Laws for the purpose of PLN's conducting its operations according to the criteria set forth in Section 2.01(a) of this Agreement, including the authority of PLN to determine its own tariffs according to criteria stipulated in such Laws, subject only to appropriate administrative review;

- (ii) the electricity tariff structure, having regard to the cost to PLN of providing services, and PLN's capital requirements; and
 - (iii) employment practices within the power sector;
3. assist PLN in the organization and implementation of a valuation of the fixed assets of PLN;
 4. review, prepare and assist in the institution of appropriate methods and procedures of PLN relating to the following:
 - (i) records, accounting system and financial practices;
 - (ii) system planning and operating techniques;
 - (iii) standards for design, operation and maintenance;
 - (iv) contracting, procurement and inventory practices; and
 - (v) insurance coverage.

(b) PLN undertakes that it will promptly carry out such recommendations of the consultants resulting from their activities referred to in the foregoing paragraph as the Borrower and the Association shall consider appropriate. Recommendations relating to the organization, structure and operations of PLN, including any required consolidation, modification or supplementing of the Governing Laws, shall be implemented within one year after the Effective Date; and those providing for the establishment of a schedule of tariffs and charges pursuant to Section 2.04 of this Agreement, within thirty-two months of such date.

(c) PLN undertakes that the valuation of the fixed assets of PLN shall be completed within twenty months of the Effective Date.

SECTION 2.03. In carrying out the Project, PLN shall employ engineering consultants acceptable to, and on terms and conditions satisfactory to, the Association, for the following purposes:

- (a) reviewing the electricity distribution system of PLN in Djakarta and environs;
- (b) preparing specifications for the equipment, supplies and materials to be procured under the Project;
- (c) assisting PLN in the evaluation of bids, awards of contracts and in the procurement of such goods for the Project; and
- (d) coordinating and supervising the installation and construction work included in the Project.

SECTION 2.04. The revised schedule of electricity tariffs and charges to be implemented as provided in Section 2.02(b) shall set forth tariffs and charges fixed at such levels as should provide PLN with revenue sufficient:

- (a) to cover (i) all operating expenses of PLN, including administration and overhead expenses, maintenance, depreciation and taxes, and (ii) interest on, and to the extent it exceeds depreciation, amortization of, debt; and
- (b) to finance a reasonable portion of PLN's capital expenditures.

Thereafter, unless the Association shall otherwise agree, PLN shall from time to time make such revisions in its schedule of tariffs as shall be necessary to maintain such a volume of revenue, and shall submit such revisions promptly to the Borrower for such administrative review as shall be required under the Governing Laws.