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~~UNITED STATES OF AMERICA  
DEPARTMENT OF AID  
WASHINGTON, D.C. 20547~~

**CAPITAL ASSISTANCE PAPER**

6-1-71

**Proposal and Recommendations  
For the Review of the  
Development Loan Committee**

497-H-625

INDONESIA - KETENGER TRANSMISSION AND DISTRIBUTION REHABILITATION

AID-DLC/P-975

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

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AID-ILC/P-975

June 1, 1971

MEMORANDUM FOR THE DEVELOPMENT LOAN COMMITTEE

SUBJECT: Indonesia - Ketenger Transmission and Distribution  
Rehabilitation

Attached for your review are the recommendations for authorization of a loan in an amount not to exceed \$21,000,000 to the Government of the Republic of Indonesia to assist in financing the foreign exchange costs of equipment, materials and services necessary for the construction of certain steam generation electric power facilities of Perusahaan Listrik Negara located in Semarang.

This loan proposal is scheduled for consideration by the Development Loan Staff Committee at a meeting on Tuesday, June 8, 1971.

Rachel R. Agee  
Secretary  
Development Loan Committee

Attachments:  
Summary and Recommendations  
Project Analysis  
ANNEXES I-X  
Figure A - Map of Central Java

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FIGURE A. Map of Central Java

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INDONESIA - KETENGER TRANSMISSION AND DISTRIBUTION REHABILITATION

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, responsible for substantially all public generation transmission and distribution of electrical power in Indonesia.

B. LOAN:

1. Amount: Not more than U.S. \$21.0 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: A condition of the A.I.D. loan will require that second step loan terms from GOI to PLN be agreed to by A.I.D., PLN and the GOI by May 22, 1973. Management consultants provided to PLN under an IDA credit are developing a financial plan for PLN, and the second step loan terms will be based on this plan. (See Section II.A.)

C. TOTAL COST OF THE PROJECT:

The total cost of the project is estimated to be equivalent to \$27.5 million of which the A.I.D. financed foreign exchange costs are \$21.0 million and local currency costs are the equivalent of \$6.5 million to be provided from the GOI National Development Budget.

D. DESCRIPTION OF THE PROJECT:

The project provides for the installation of 150-KV transmission and 20-KV distribution facilities to end in the Ketenger Electrical System in Western Central Java, and related technical assistance and training.

The project will rehabilitate distribution in the principal cities and towns of the area. It will also provide transmission facilities carrying power originating in a proposed 100-MW thermal power station (a separate AID project proposal) at Semarang to the Ketenger System and will link the Ketenger System with the Tuntang System, also in Central Java. The project will provide expanded and dependable electrical power to an area in which commercial and industrial development has been restricted by a lack of adequate and dependable electric power.

E. PURPOSE OF LOAN:

To finance the foreign exchange costs of imported equipment, engineering and construction services, and technical assistance.

F. BACKGROUND OF ACTIVITY:

Rehabilitation of the electric power systems was recommended in the October 1968 IBRD Appraisal Report and is included in the GOI's current Five-Year Plan. In 1970, AID commissioned the C. T. Main Company to carry out feasibility studies in Central Java for rehabilitation of Tuntang transmission lines and Ketenger distribution, and construction of a major power increment. This project is the product of the Ketenger study, and is a major component in a scheme of projects covering rehabilitation and expansion of Central Java power resources.

G. ALTERNATE FINANCING:

This project is recommended as part of the U.S. commitment under the Inter-Governmental Group on Indonesia. Other donors are also working in the power sector in Indonesia: IBRD (in Djakarta); Federal Republic of Germany (in Central Java); and the Government of Japan (in East Java). Ex Im clearance for A.I.D. participation herein has been received.

H. ISSUES: None.

I. STATUTORY CRITERIA:

This loan meets all statutory criteria. See Annex X.

J. MISSION AND EMBASSY VIEWS:

USAID and the Country Team recommend that the loan be made. (See Annex VII ).

**K. RECOMMENDATIONS:**

Authorization of a loan to the Government of Indonesia in an amount not to exceed U.S. \$21.0 million in accordance with the terms and conditions set forth in the proposed authorization shown in Annex IX. An outline of conditions precedent and covenants is set forth in Section V.

**USAID CAPITAL ASSISTANCE COMMITTEE MEMBERS:**

Chairman .....	Ernest Kanrich
Loan Officer .....	Dennis Brennan
Engineer .....	John Glaws
Economic .....	Paul Wenger
Controller .....	Denton Larson
Program .....	Donn Block

**AID/W CAPITAL ASSISTANCE COMMITTEE MEMBERS:**

Chairman and Loan Officer .....	Dalton A. Griffith
Power Engineer .....	Earl Clark
Legal .....	Stanley Kay
Desk .....	Louis Stamberg

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I. The Project.

A. Definition of the Project.

The project is the installation of 150 - KV transmission and 20 - KV distribution facilities to and in the Ketenger Electrical System in Western Central Java, and related technical assistance and training. The project will rehabilitate distribution in the principal cities and towns of the area. It will also provide transmission facilities from Pekalongan west to Tegal and thence south to Purwokerto and Tjilatjap, a total distance approximately 120 miles. These facilities will carry power originating in a proposed 100-MW thermal power station (a separate AID project proposal) at Semarang to the presently power-deficit Ketenger System and will link the Ketenger System with the Tuntang System, also in Central Java. These two systems are now completely separate and the presently proposed project will link them together into a single, continuous system for Central Java. A prime objective of the project is to provide expanded and dependable electrical power to an area in which commercial and industrial development has been restricted by a lack of adequate and dependable electric power.

B. Background of the Project.

Rehabilitation of the electric power systems was recommended in the October 1968 IBRD Appraisal Report "Current Economic Position and Prospects in Indonesia" and is included at highest priority in the GOI's current Five-Year Development Plan (1969/70 - 1973/74). Projects to finance system rehabilitation are already being implemented by IBRD (IDA) in Djakarta, AID in Central Java (\$16.8 million) and Medan (\$13.8 million), and the Federal Republic of Germany (FRG) in Central Java, while Japan is well along in its systems improvement program in East Java. In addition, AID commissioned the C.T. Main Company to carry out feasibility studies in Central Java for a) rehabilitation of the Tuntang transmission lines, b) rehabilitation of the Ketenger system distribution facilities, and c) a major power increment in Central Java.

These three studies together are placed in context with a comprehensive long range planning study looking to prospective Central Java power expansion up to 40 times present capacity. The long range study is also a C.T. Main effort. All four studies have been completed and submitted in final form. This project for the Central Java Ketenger system is the product of the study b) above, rehabilitation and

expansion of the Ketenger electric system, arising from the basic forecasts and recommendations of the long range planning study. The analysis in study b) above includes the detailed planning and technical justification for overall scope of the project and provides the information required to support this loan.

In basic development terms, provision of reliable electric power is essential to expansion of industrial and commercial use. Up to the present, peak demand has remained almost constant, and annual consumption of electricity is about 15 KWH per person, among the lowest in the world. Both these facts are a reflection of PLN's inability to provide increased service, reliable or not, and a reflection of other deterrent factors such as prejudicial rates to industrial and commercial users, restrictions against industrial use during peak periods, and excessive connection fees. The rehabilitation and expansion of the Ketenger system under this project is an essential step in dealing with the issue of availability and reliability of power. The question of rates and fees and of PLN Region X management capability are the subject of assistance being carried out under the AID loan for rehabilitation of the Tuntang distribution system (AID Loan 497-H-019 above), and this assistance will be coordinated with that being provided the Central PLN under an IDA credit by the French firm of SOFRELEC. This project is also directly in phase with and is a basic element in the project rationale for construction of the first 100 MW stage of the Semarang steam power station which is the subject of a separate AID proposed project. Accordingly, this project becomes an essential component in a scheme of continuing and prospective projects covering all aspects of overall rehabilitation and expansion of Central Java power resources and of overall institutional improvement of PLN throughout Indonesia.

### C. Program Justification.

#### 1. Place of the Project in the Indonesian Development Program.

This project is part of a multi-donor effort to revitalize the badly rundown and inadequate power systems in Indonesia. The IDA appraisal report of the Djakarta Power Rehabilitation comments on the Indonesian power sector:

"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 electricity facilities for the period 1969 - 73. An investment of about US \$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".

Institutional improvements and revision of the electric power tariff structure are being emphasized in this project, as in two previous power rehabilitation loans funded by A.I.D., and as in the IDA Loan for the rehabilitation of the Djakarta power distribution system. This is because of the importance of good management and operating practices to realization of the goals of the Five Year Plan. Local currency and non-A.I.D. loan financed foreign exchange requirements for the project will be programmed in the Government of Indonesia's Development Budget.

2. Place of the Project in the Objectives of U.S. Assistance to 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. Whenever 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 and the framework of the Inter-Governmental Group on Indonesia (IGGI).

Two AID loans were made in 1970 to assist the rehabilitation of the electric power sector in Indonesia: \$16.8 million for the rehabilitation of the Tuntang distribution system in Central Java and \$13.8 million for the rehabilitation of the distribution system in the city of Medan and its environs in North Sumatra. The currently proposed loan is one of three to be developed by a survey of the long-range power development needs of Central Java. The project is strongly supported by the Country Team. Certification by the USAID Director of the country's performance on previous loans and capacity to implement this loan appears in Annex VIII.

## II. Project Evaluation.

### A. Borrower and Beneficiary.

The Borrower will be the Government of Indonesia. The Beneficiary is Perusahaan Listrik Negara, a wholly Government-owned corporation. PLN is under control of the Directorate General of Power and Electricity, which in turn is part of the Ministry of Public Works and Power.

#### 1. Organization.

PLN is governed in general by Indonesian laws relating to Government agencies and enterprises and specifically by the 1965 decree which established PLN and defined the scope of its operations. PLN has a Board of five Directors consisting of the PLN President and the heads of the four main departments: Personnel, Operations and Logistics, Finance, and Construction. De facto control of operations rests with the Ministry of Public Works to whom the Board of Directors is responsible. Organizational charts of the PLN central organization and of Region X are shown in Annex I.

#### 2. Scope of Responsibilities and Operations.

Through its 15 operating Regions, PLN is responsible for all public utility electric power service throughout Indonesia. An exception is the Djatiluhur hydro-electric authority, which is operated separately but sells its power exclusively to PLN. PLN has the potential of a major utility system, but extensive expansion and improvement are required. In addition, PLN inability to meet the requirements for electric power in the main cities of Indonesia has given rise to a substantial captive (self-owned) generating capacity owned by industrial and commercial enterprises. The most recent data available are for 1969, and as of the end of that year, publicly owned and installed generating capacity in Indonesia was 661 MW (including Djatiluhur), while captive generation was estimated to be over 200 MW. Due to diesel equipment breakdown, with problems in obtaining spare parts and consequent delays in repair of equipment, and also as a result of derating of older equipment because of age, PLN's actual installed power at the end 1969 was 582 MW.

#### 3. Management and Operating Practices.

##### a. General.

PLN is the successor to three Dutch-owned electric utility companies which were nationalized between 1953-1957, consolidated several years later and finally organized as PLN in 1965. Operations at the outset were handicapped by the nature of the transfer from the Dutch, it was not amicable, and there was neither transition period nor carryover of Dutch personnel. PLN ability to overcome the substantial organizational and operating difficulties presented by the circumstances of transfer was further hampered by almost a decade of chaotic economic conditions in Indonesia, accompanied by severe inflation and completely inadequate funds. That PLN survived, grew -- though at too slow a pace -- and established a basic functioning level of performance and a base for expansion, reflects well both on the record of PLN and on its potential for growth. There is no question, however, that improvement of PLN management and operating practices is required, both to provide efficient current service and to meet the requirements for rapid expansion.

b. PLN Performance and Accomplishments.

In the last two years PLN has taken steps to reform its organizational structure and improve the basic level of its performance and management. In 1970 the Directorate General of Power and Electricity -- the office to which PLN was responsible -- was abolished and PLN put in the position where its Director reports directly to the Minister of Public Works and Power. PLN, therefore, now has a greater voice in the direction of its own policies.

PLN has also undertaken internal management-type training for its own executives, including, for example, the Director of Planning. At the present time it is operating a training course for its own people not only in Djakarta but also in Central Java. This training in some cases involves as much as a four month full-time commitment on the part of the trainee.

c. PLN Self-Help Measures and Institutional Reforms.

Pursuant to the IDA Project Agreement of October 29, 1969 for rehabilitation of the Djakarta power distribution system,

PLN has contracted with the French firm of SOFRELEC to provide management consultant services, specifically to develop operating standards and recommend institutional reforms. These recommendations will be reviewed by the GOI, PLN, IDA and AID, and possibly other donors, who may then agree on an overall PLN program.

SOFRELEC has been working with PLN since August 1970, and while still preliminary, its recommendations are taking form under the following main headings:

(1) Enactment of a new National Electricity Code as a comprehensive and consistent legal framework for the entire electrical power sector. A draft of the proposed Electricity Code, with accompanying explanatory comments, has already been submitted to the GOI by SOFRELEC. The Electricity Code would be supplemented by a technical and safety code to be elaborated by a proposed "electricity authority" entity.

(2) Creation of an autonomous National Electricity Authority with exclusive right to generate, transmit and distribute electricity in Indonesia, but with power to license independent producers and to set the conditions and duration of such licenses. Technical and safety regulations would apply to all producers, public and private. The proposed National Electricity Authority is provided for in the draft Electricity Code already submitted to the GOI. The pertinent provisions of the Code provide that the new Authority would have a nine-member

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Sources: "Management Consulting Services and Engineering Services in the Electric Power Sector" by SOFRELEC (France)  
Interim Report dated January 26, 1971  
Part A - Main Report  
Part B - Legal Drafts

"Report of a New Electricity Act - Draft Code of Electricity with Explanations" by SOFRELEC (France) March, 1971

Board of Directors. The Minister of Public Works and Power would be ex-officio Chairman of the Board, two other as yet undesignated Ministers and the Chairman of BAPPENAS (National Economic Planning Board) would also be ex-officio Board members. Two additional members would be appointed by the GOI as representatives of consumers, and finally, three prominent community members would be appointed by the President of Indonesia.

Contrary to the present relationship of PLN to the Ministry, however, the Board of the new Authority would only establish policies and guidelines, and limit itself to supervision of management's implementation of these policies and guidelines. The Board would, however, exercise decisional authority in three major areas: (a) where policies of the new Authority are clearly linked with the general policies of the GOI (e.g., power development programs and standard rates); (b) where the decision involves exercise of the most important of the powers delegated by the GOI to the new Authority (e.g., issuing of regulations and agreements with foreign organizations); and (c) where major financial decisions are involved (e.g., standard rates, borrowings, financial participation in other companies or incorporation of subsidiary companies).

Management of the new Authority would consist of a General Manager, a Deputy General Manager, and a Chief Technical Inspector. Each of these officers would be appointed by the Board of Directors, subject to the approval of the President of Indonesia. The General Manager would be responsible to the Board and certain of his powers would derive from delegations to him from the Board. It is also intended, however, that the General Manager derive directly from the Electricity Code all the powers needed to exercise his managerial functions within the general policy limits decided by the Board. The General Manager would organize and direct all branches of the new Authority, recruit and promote or dismiss all employees and set their rates of pay, would propose to the Board the standard rates to be charged for services, and would be responsible for the administration of the general business of the new Authority. According to the draft Electricity Code, the Deputy General Manager would function as full deputy to the General Manager, while the Chief Technical Inspector would ensure compliance with the provisions of the Electricity Code on the part of both plants and systems operated by the new Authority and those producers licensed by it.

(3) Rate revision sufficient to provide the new Authority with revenues to cover all operating expenses, including adequate depreciation and interest charges, and leave a reasonable surplus for

partial financing of expansion. The size of this surplus would be determined by the Authority, bearing in mind the desirability to meet at least one-third of its capital expansion costs from the Authority's own resources.

On the question of rates SOFRELEC makes the following point:

"With the present situation in Indonesia, there can be no doubt, however, that brutal application of this rule (i.e., the new enterprise setting new tariffs on the basis of the above criteria, and applying them to all consumers in all regions) would result in a considerable increase in the price of electricity, which in turn would provoke considerable social and political trouble."

For this reason, SOFRELEC recognizes that the GOI may choose not to apply the standard rates in certain areas or to certain consumers, but SOFRELEC recommends that in those instances the Authority would receive from the GOI a well identified subsidy to meet the established loss of revenue. Accounts would be kept in accordance with sound commercial and utility practice, with revision of current systems to be carried out by stages, and annual audits carried out by independent non-government auditors. An inventory and valuation of assets would be a first and essential step in establishing the basis for revised accounting.

SOFRELEC has not yet formulated recommendations on the question of centralization versus local autonomy, but in the interim Report suggests that most of their recommendations will tend to reinforce the central organization. Accounting and financial services, and certain operating divisions covering the large power stations and main transmission lines, are cited as examples of areas where central control should be strengthened.

Under terms of the IDA Project Agreement, the recommendations of the management consultant, SOFRELEC, are to be carried out on a schedule calculated from June 1, 1970, the date the Agreement became effective: 12 months for legal reforms to be accomplished, revaluation of assets within 20 months, and rate schedule revision within 32 months. The substantive effect of the SOFRELEC activities and recommendations will be felt throughout the PLN system in the coming

year. This will be particularly true with respect to PLN cooperation at the Region level in revaluing assets, defining alternative rate structures, reviewing Region reporting requirements, and determining applicability of operating procedures.

USAID is working with the IBRD Resident Mission and SOFRELEC to ensure coordination of purpose and effect between the overall PLN reforms and their application to those Regions where AID is immediately concerned, Region X Central Java and Region I Medan (AID Loan 497-H-022 for Medan Power Rehabilitation).

c. Self-Help Measures for PLN Region X.

Under the provisions of the Central Java Power Rehabilitation Loan (AID Loan 497-H-019), both a project engineer and general consultant are provided to work with PLN Region X. Training will be provided by both. In addition the general consultant will extend assistance toward establishing improved utility management, system operation and maintenance practices for all aspects of Region X activities. The general consultant will be the coordinating point for all Region X training and institutional development, and will also be responsible for keeping in close working relation with SOFRELEC. A main objective of the consultant's efforts in Region X will be to implement as rapidly as feasible the recommendations of SOFRELEC as adopted by the central PLN organization. On-the-job training in both management and operation of the systems in Central Java is an objective shared by both the general consultant and project engineer.

All of this development and training emphasis serves as background and foundation to the present project for rehabilitation of the Ketenger power system. The substantive effect of the efforts of the Central Java Power Loan general consultant and project engineer will be felt as this Ketenger system project gets underway. Classroom training for PLN Region X personnel will be performed at a centrally located training center, will include both Tuntang and Ketenger personnel, and will be conducted by the general consultant for the Tuntang project. This will be supplemented by on-the-job training for Ketenger personnel carried out by the project engineer responsible for the Ketenger system project.

4. Evaluation of PLN Capability to Implement the Project.

For this project, GOI and PLN will in their annual budgets include the funds needed for a revolving fund to meet on a current and

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continuing basis the local currency costs and operating expenses of the project, and will provide initially the funds required for third country replacement and spare parts for diesel generators and other related equipment until generation is replaced by the Semarang steam station.

Technical assistance and training are completely agreed to by PLN, and actual design and construction of the rehabilitated distribution and transmission system, and all related procurement and training, will be accomplished under supervision of a qualified and responsible engineering consultant and construction contractor.

It is our conclusion that with this basic technical assistance and training in electric power systems operation and maintenance, supplemented by that being provided overall to PLN Region X under the AID Loan 497-H-019 for Central Java, PLN has the capability effectively to operate the rehabilitated and expanded system so that the objectives of the project will be accomplished.



## B. Technical Analysis

### 1. Scope of Project

The project provides for rehabilitation of portions of the Ketenger Electric Power System and the erection of a 150 KV transmission inter-tie including:

- a. the complete rehabilitation of the electric power distribution system in the major cities of Pekalongan, Tegal, Purwokerto and Tjilatjap and including the smaller systems located at Batang, Pemalang, Slawi, Brebes, Probolinggo, Gombong, and Kebumen;
- b. the construction of a new overhead 20 KV distribution system and redesign of the existing service system at the locations cited in (a) above;
- c. the design and construction of approximately 120 miles of 150 KV double circuit transmission line connecting Tjilatjap and Purwokerto with Tegal and Pekalongan to provide a single interconnected grid for Region X tied to the U.S. proposed 100 MW Semarang Station;
- d. the design and construction of 150 KV/20 KV substations at Tegal, Purwokerto and Tjilatjap;
- e. the provision of tools and service equipment for systems operation and maintenance and including communications equipment; and
- f. technical and management assistance (including participant training in the United States) to PLN to develop sound management, operation and maintenance practices.

### 2. The Ketenger Electric Power System

The Ketenger system serves the western portion of Region X in Central Java. Major load areas are located in and adjacent to the towns of Tegal, Pemalang, and Pekalongan on the northern portion of the system, Purwokerto and Purbolinggo near the center of the island, and at Tjilatjap, Maos-Kroja and Kebumen on the Indian Ocean.

Generation is both diesel and hydro, and in 1969 the system served over 33000 customers, generated a total of  $46.3 \times 10^6$  KWH with a peak load at the plant of 7.38 MW. Estimated population in the cities and towns presently served, however, is approximately 2 million which is indicative of the potential load that could be realized with an expanded and improved power system.

a. Generation Facilities

Diesel Generation is located at Tegal, Pekalongan and Tjilatjap with a total name plate rating of 6.2 MW. The hydro plant at Ketenger with nameplate capacity of 7.04 MW is limited due to insufficient water to 4.0 MW. Based on field inspection by qualified engineers, the existing diesels should not be rehabilitated since more than half of the units are over 30 years old and repair parts are no longer available. The remaining five units are 15 years old or less and should be operated to the fullest extent possible within the limitation of available spares until late 1975 when the Semarang steam station (100 MW) and the 150-KV transmission lines are in service. In addition three diesel units rated at 1000 KW each are in process of being transferred by PLN from Djakarta to Tjilatjap. These units have also been derated to 800 KW each. These plus the 2.5 MW in diesel generation planned for installation by the FRG at Tegal, will help to improve generation capability to meet anticipated loads during the interim period 1971-1975 after which time they will be used for peaking and emergency operation. This situation also explains in part the inadvisability of investing further in the 31 year old hydro units in Ketenger. In addition, water conditions are so poor that further expansion or improvement to the machines would not result in appreciable benefit to the system and therefore, rehabilitation is not recommended. New generation within the Ketenger System beyond that presently planned is also not recommended primarily because the existing transmission and distribution systems are inadequate to handle additional generation, and by the time the rehabilitation of the distribution networks will be completed, the first steam unit planned for Semarang Harbor will be in operation.

### b. Distribution System

In the major cities of Pekalongan, Tegal, Purwokerto, and Tjilatjap, at least 90% of the equipment is over 20 years old and the condition of the secondary circuits varies from poor to very poor. This is also the case for the smaller systems all of which are in disrepair with almost 100% of the equipment over 20 years old. Thus there is no possibility of carrying additional load in any part of the system.

### c. Transmission System

The original portions of the system were constructed in two separate parts in 1939; a northern portion along the Java seacoast between Tegal and Pekalongan, and a southern portion between Ketenger, Tjilatjap, and Karanganyar. The two separate portions were interconnected by the occupying Japanese during World War II.

Conductor sizes are extremely small for the 30 KV transmission presently used. Voltages sag unacceptably during heavy load periods and is very poor. Reliability is further hindered by extremely poor communications which consist of obsolete World War II aircraft radio transmitter-receivers.

## 3. Proposed Rehabilitation

### a. Proposed Distribution System Rehabilitation

It is proposed to replace the present distribution system with 20 KV overhead primary lines and 220 V secondary service. Secondary lines will be greatly shortened and a much larger number of distribution transformers will be used, most of which will be pole mounted. Service will be single-phase except where the type of load requires three-phase service. Aluminum conductor will be used for the 20 KV overhead lines and for new secondaries. Existing copper secondary wiring will be utilized to the fullest extent feasible. The proposed distribution system will be designed in accordance with U.S. standards and practices.

b. Proposed Transmission System

The Ketenger system will be connected to the Tuntang system and the Semarang steam station at the Djatingaleh substation through double circuit 150 KV lines from the most distant substation at Tjilatjap with intermediate substations at Purwokerto, Tegal and Pekalongan. The Federal Republic of Germany (FRG) currently are funding the portion of the 150 KV double circuit link between Djatingaleh and Pekalongan through a substation at Barat (Semarang West). Connection between this project and the FRG effort will be made at Pekalongan substation at the main 150 KV bus. See Annex II . .

c. Proposed Substations

The substation at Pekalongan will be the terminal point connecting the FRG and this project. The FRG will furnish the station with breakers and disconnects for the incoming 150 KV Barat lines, outgoing line bays and distribution bay including 150/20 KV stepdown transformers. The 20 KV feeders of the distribution network that is part of this AID project (see Section IIB-3b) will connect with the 20 KV side of the stepdown transformers.

Substations at Tegal and Tjilatjap to be funded under this project will be essentially identical. They will include 150/20 KV transformers and breakers, line bays and 20 KV distribution bays which will be the termini of the 20 KV overhead distribution system. Purwokerto substation will be similarly equipped but will also include a 150/30 KV transformer and breakers and 30 KV line bay to connect to the present 30 KV transmission line from the Ketenger Hydro-station.

Construction timing schedule for a, b, and c above is shown in Annex II . .

d. Communications

Reliable and secure communication facilities will be provided for the Ketenger System. The facilities will include provision for voice circuits for operational control and tone equipment for high

speed relaying. A power line carrier system will be utilized. Communication system connection between the Ketenger System and the District X headquarters (and Steam power plant) at Semarang will be provided.

#### 4. Technical and Management Assistance and Training

Technical and management assistance and training services will be combined with the project engineering services to be rendered by a single consultant. It will include on-the-job training, conducted by persons having substantial experience performing similar tasks for comparable U.S. utilities, and participant training in the United States and third countries for PLN employees. An important aspect of this assistance will be coordination with the IBRD management consultants working with the PLN central organization on broad management and institutional reforms. Emphasis will be given to distribution systems operation and maintenance, transmission line operation and maintenance, accounting, warehousing, and records keeping. See Annex III.

#### 5. Finding of Technical Soundness

The scope of the project is defined in Section II-B 1, and plans for accomplishing the project, including provision of necessary technical and management assistance and training, are outlined in Section III and in Annex III. 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 rehabilitation project is technically feasible within the framework set forth herein.

## C. FINANCIAL ANALYSIS

### 1. Alternative Sources of Financing

This project is recommended as part of the U.S. commitment for multilateral assistance in Indonesia within the framework of the Inter-Governmental Group on Indonesia (IGGI). 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 requested by the GOI and supported by the IBRD resident mission. Other donors are also participating in loan assistance to the power sector (IBRD, Germany and Japan). Therefore, within the IGGI framework and total requirement for improved electrical power, alternative financing from other donors is not available. The EXIM Bank does not currently make loans of this type in Indonesia.

### 2. Financial Requirement - Project Cost

The total cost of the project is estimated to be \$27.5 million, consisting of U.S. dollar cost of \$21.0 million and local currency costs of \$6.5 million equivalent. A summary of project costs and a schedule of annual disbursement follows:

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**Summary of Project Costs**  
**(000)**

<u>Particular</u>	<u>US\$</u>	<u>Local Currency Equivalent</u>	<u>Total</u>
1. 150 KV Transmission:			
Pekalongan - Tegal	1,425	397	1,822
Tegal - Purwokerto	2,157	601	2,758
Purwokerto - Tjilatjap	<u>1,134</u>	<u>316</u>	<u>1,450</u>
Subtotal	4,716	1,314	6,030
2. 150 KV Substations:			
Tegal	1,102	206	1,308
Purwokerto	990	184	1,174
Tjilatjap	<u>747</u>	<u>141</u>	<u>888</u>
Subtotal	2,839	531	3,370
3. Distribution Rehabilitation:			
Pekalongan	941	400	1,341
Tegal	2,008	919	2,927
Purwokerto	1,001	445	1,446
Tjilatjap	<u>904</u>	<u>380</u>	<u>1,284</u>
Subtotal	4,854	2,144	6,998
4. Improvement of Small Load Centers:	2,007	985	2,992
5. Maintenance Equipment:	500	-	500
6. Communications Equipment:	60	-	60
7. Training:	85	15	100
8. Engineering Services:	1,600	300	1,900
9. Contingency <u>1/</u>	<u>2,129</u>	531	2,660
10. Escalation @ 4%	<u>2,210</u>	<u>680</u>	<u>2,890</u>
Grand Total	<u>21,000</u>	<u>6,500</u>	<u>27,500</u>

1/ Contingencies on all materials and U.S. labor 15%; on engineering and local labor 10%.

Schedule of Disbursements  
(\$000)

<u>Year</u>	<u>U.S.</u>	<u>Local Currency</u>	<u>Total</u>
1972	2,700	900	3,600
1973	6,500	2,000	8,500
1974	7,800	2,400	10,200
1975	<u>4,000</u>	<u>1,200</u>	<u>5,200</u>
<b>Totals</b>	<u>21,000</u>	<u>6,500</u>	<u>27,500</u>

### 3. Financial Plan

#### A. Arrangements for Provision of funds

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 during which interest is to be charged at the rate of two percent and no amortization payments are required, and at three percent for 30 years, during which 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. A plan for provision of local currency funds from the National Development Budget will be prepared, which will specify annual levels of support required to permit P.W to timely meet its local currency obligations including creation of a revolving fund. PLN will establish a revolving fund in rupiahs sufficient to cover local currency costs of construction for a six month period, which shall be replenished at least quarterly. The fund will be used for project implementation and for meeting operating needs for the project during the interim period, including purchase of spare parts and necessary inventory.



#### B. Arrangement for provision of the project proceeds to PLN

A.I.D. loan proceeds will be provided by the GOI to PLN on terms to be agreed upon and approved by A.I.D. Because of the current financial position of PLN (see below), it would be difficult to determine appropriate second-step loan terms or to demonstrate that PLN has the capacity to meet such terms. The Central Java Electric Power Rehabilitation Project, (Tuntang System), A.I.D. Loan 497-H-019, and the Medan Electric Power Rehabilitation Project, A.I.D. Loan 497-H-022, establish precedents for this approach. The borrower, beneficiary, and conditions are similar with respect to all of the loans. A study leading toward the financial reorganization of PLN is being financed by the IDA and is presently under-way. After the recommendations of the management consultants for financial reorganization, SOFRELEC, are complete, and not later than May 22, 1973, the financial condition of PLN will be reviewed and second-step loan terms for the A.I.D. loans set to best suit the revised financial structure.

#### 4. Financial Condition of PLN

Past PLN accounting procedures and practices have been inadequate to prepare meaningful financial statements reflecting the current financial structure and condition of PLN. Although PLN has issued detailed and uniform accounting procedures, they are not consistently followed by the various regional offices either because complete information is unavailable, or personnel are not qualified or trained to maintain proper accounts. Existing financial statements do not reflect fixed assets acquired from the predecessor Dutch companies, have not been adjusted for inflation, and make no provision for uncollectible receivables. The most recent audited combined financial statement for CY 1966 is too deficient to be usable and is not presented.

PLN is remedying its accounting and financial procedures as a condition of the IDA Development Credit Agreement for the Djakarta Rehabilitation project. This agreement requires that PLN employ management consultants to: review and make recommendations on the organization in operation of the electrical power sector, including the electricity tariff structure; review, prepare and assist in the institution of appropriate methods and procedures for PLN related to records, accounting system and financial practices; and assist PLN in implementation of a valuation of fixed assets.

As discussed above, the current financial structure and condition of PLN are under review by an IDA-financed study by SOFRELEC, a French consulting firm. They will recommend a rather complete revamping of PLN's capital structure. They are currently providing management and technical services to PLN headquarters staff. This assistance will provide the major reforms and guidelines needed to

introduce sound utility practices and financial management. In order to ensure that PLN Region X gets on a sound financial basis, substantial management and technical services will be required. Under AID Loan No. 497-H-019, Central Java Electric Power Rehabilitation (Tuntang System), the general consultant will provide management service, technical assistance and on-the-job training to implement sound accounting practices and proper records management. Additional training in accounting, financial reporting and supply management will be provided under the terms of the loan herein.

#### 5. Tax Consideration

The GOI levies an income tax and 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 IDA management consultants in the financial reorganization plan.

#### D. Economic Evaluation.

##### 1. Present Power Situation in the Ketenger Electrical System.

The economy of the area served by this system suffers from a shortage of power including all three elements: generation, transmission and distribution. All classes of customers must endure frequent interruptions, low voltage, and severe restrictions; rates are regressive, and applications for new or additional service have accumulated in PIN's waiting lists because of this lack of capacity. The greatest loss to the economy has been in the industrial sector; a survey of factory managers indicates that the unfilled demand for industrial power is several times greater than the presently connected load. Because of expensive shutdowns and motor failures caused by low voltage, many industrial customers have been forced to install their own generating facilities. There is also a considerable amount of suppressed demand for residential and commercial power. Since the combination of these factors has resulted in negligible growth for the several years annual sales and production data have been available, they are of little value for trend evaluation. See map at Figure A.

##### 2. Forecast for Growth in Electric Power Demand.

###### a. Projected Population Growth.

In usual electric power demand forecasting, population and load growth show a historical relationship. However, this type of analysis is not feasible where normal load growth has been necessarily restricted. Since growth must be projected from 1969 levels and later from potential levels in 1976-77, greater than usual reliance must be placed on population growth.

Using the 1961 census data and the 1969 registration data, it was determined that the annual population growth rate in the Ketenger Electrical System area since 1961 was 1.32% for urban areas and 1.28% for rural areas. Although this figure is substantially below the range usually estimated for Indonesia as a whole, it is probable that any persons missed would be of the subsistence rural or indigent urban classes who would not be likely power customers anyway. The population projection tables are set forth in Annex V.

###### b. Projected Economic Growth.

In addition to the population projection, our long range forecast is based on the region's current economic condition and its

economic outlook. While real income per capita for all Java is expected to increase at an annual rate of 2.5%, a 2.25% rate of annual increase is estimated in real income per capita for our load forecast determination here. See Annex VI.

### 3. Tariff Schedules and Charges

The existing PLN rate structure has a flat social rate for residential and small power users and another which applies to schools, churches and similar institutions. These rates do not reflect the economic cost of power, nor do they provide a reasonable return to PLN. Moreover, they provide no stimulus or significant concession to industrialization. As indicated in Section II.A.3, SOFRELEC of France is currently providing management and technical services for improvements of the PLN managerial and tariff-making functions which will lead to recommendations for a revised rate structure. It is expected this work will be completed sometime in 1972 and that the proposed rate structure will reflect the criteria contained in the SOFRELEC interim report cited in Section II.A.3 above.

The IDA Development Credit Agreement for the Djakarta Rehabilitation Project, under which SOFRELEC is financed, provides the following with respect to rates: the revised schedule of electricity tariffs and charges should provide PLN with revenue sufficient to cover all operating expenses of PLN, including administration and overhead expenses, maintenance, depreciation, and taxes, and interest on amortization of debt to the extent it exceeds depreciation, and finance a reasonable portion of PLN's capital expenditures.

In the absence of an economic rate structure and second step loan terms, in order to derive a reasonable estimation of PLN's cash flow requirements, and the economics of the proposed additions to PLN Region X, the Project Committee has derived several hypothetical power rates. Certain assumptions have been made with respect to the cost of money to PLN. Average terms of 30 years with a 5-year grace on the repayment of principal, and with interest at 12% per annum have been established for all PLN borrowings for capital additions or replacements. The 30-year term reflects an average economic life of the various capital assets to be financed, ranging from perhaps 25 years in the case of steam generating facilities to 50 years for the high voltage transmission. The interest rate of 12% per annum reflects a reasonable cost of capital in Indonesia, and is a rate used by the GOI in assessing project returns. Applying these terms to the capital additions and calculating operating and maintenance costs for all parts of the system, total annual cash requirements are derived.

In order to meet these cash requirements, cash revenues resulting from the application of four illustrative rates have been calculated by applying each rate against the load forecasts projected by Chas. T. Main in its recent Central Java load forecast. See Annex VI-A. It is recognized that the projected loads could vary from this projection; however, it is thought to be a conservative one by the Project Committee. The four illustrative rates are calculated as follows:

1) At A.I.D.'s request, Chas. T. Main calculated an illustrative rate structure for PLN based on what the consultants regard as the consumers' ability to pay in each rate category. This illustrative rate schedule is presented in Annex VI-B and equates to an average rate based on total KWH consumed of 2.082¢ per KWH.

2) As it is unlikely that a new rate structure can be easily imposed on existing PLN customers now paying the low social rate, a second calculation has been made reflecting the existing customers at the social rate and future new customers at the higher Chas T. Main rate. This average rate based on total KWH sales is 1.861¢.

3) A rate of 2.4751¢ per KWH reflects that charge which PLN would have to apply to KWH sales over a 30-year period in order to obtain cash revenues adequate to meet all cash expenses, including the cost of capital additions at the terms described above.

4) A rate of 2.7226¢ per KWH which would have to be charged by PLN in order to meet all of the cash requirements, and in addition achieve a net return of 10%.

It is clear from an examination of Annex IV that neither application of the Chas. T. Main rate will provide sufficient revenue in any year to meet cash requirements. The 2.48¢ per KWH rate will result in a financially self-sustaining project in approximately 1984, and the 2.72¢ per KWH will achieve break-even in about 1981.

##### 5. Benefit Evaluation

In order to examine the economics of PLN Region X, calculations have been made considering all of the capital additions to be made during the period 1971 through 1975. The five major capital projects and their amounts are given in Annex VI-C. An internal rate of return for each of the illustrative rates discussed above has been calculated and is as follows:

<u>Rate (¢/KWH)</u>	<u>IRR (%)</u>
2.082	8.00
1.8611	5.97
2.4751	11.48
2.7226	13.67

It is clear that both the financial and economic justification for this project turns on the question of rates. The above internal rates of return reflect only the economic benefits and costs of the project resulting from the four illustrative rate structures. There are no additional economic costs that have been identified by the consultant or A.I.D. There are, however, additional economic benefits that can be contemplated although perhaps are not easily quantifiable. The provision of firm reliable power in the Central Java region will serve as a basis for increased industrialization and development of that area. As discussed in earlier sections, the lack of adequate power has been a major impediment to expansion of the small amount of industry that presently exists using captive power sources. Secondly, as much of the power produced and consumed in the early years will be purchased for residential consumption, significant social benefits should result, and both the quality and standard of life of the residents of Central Java should be improved.

In view of the fact that five separate but integrated power projects are being simultaneously undertaken by PLN Region X, representing a total capital investment of over \$80 million, it is not considered useful to attempt to measure the economics of one of the projects as a separate entity. As the five projects are all interrelated, the deletion of any one would have a significant financial and economic effect on the Region X system as a whole. The important economic conclusion is that the five projects taken together result in an economic and financially viable project at a cost of power to the consumer that is in line with established power costs in the rest of Asia.

As is apparent from the foregoing financial and economic calculations, the justification for this project depends on rates. It appears that PLN will have to set a flat rate of about 2.48¢ per KWH if the project is to be financially viable. It may be that such a rate would be more than the consumers in Central Java could sustain and a cost of power nearer the Chas. T. Main estimate of 1.8611¢ per KWH will apply. If this is the case, it is clear that Region X would not be financially self-sustaining without GOI assistance which might take the form of a direct subsidy to PLN or perhaps agreement on lower second-step loan terms than those postulated in this analysis. A.I.D. has no objection to the use of lower second-step loan terms if such terms are adequately justified and warranted by the circumstances. Assuming, however, that an average flat rate of about 2½¢ per KWH can be applied, the project economics will provide an internal rate of return to the economy of about 12% which is considered both reasonable and justifiable in terms of the present Indonesia economic situation.

## THE INDONESIA'S ECONOMIC PERFORMANCE AND DEBT SERVICE CAPACITY

### A. Current Economic Developments

In 1968 and continuing to date, investment, output and exports all grew markedly despite the sharp drop in rubber prices early in FY 1970/71. Output of rice and textiles, the basic items of consumption, as well as other consumer goods, has increased. The volume of production of agricultural export commodities has also increased. A significant amount of building construction, both public and private, is underway, along with rehabilitation, improvement and expansion of irrigation, road, electric power, telecommunication and other infrastructure facilities.

This growth of investment and production has been accompanied by a similar increase in imports, financed in part by larger export receipts and in part by larger inflows of both private and official capital. Internal revenues, as well as budget expenditures, have both increased sharply above their 1969/70 levels, in accordance with the budget estimates for 1970/71.

Allocation of additional funds to the development budget must compete with proposed increases in the routine budget, some of which are of high priority to the development effort. Plans have been made to increase salaries and wages of Government officials by one-third. Debt service payments will require additional resource allocations and next year, for the first time, funds will be set aside to cover debts of government agencies to state enterprises. Even after meeting these additional financial needs in the current expenditure budget, the planned resource transfer to the development budget will be Rp52 billion compared to Rp34 billion in the current year, an increase of 53 percent.

The budget for the FY 1971/72 development program is Rp 155 billion (excluding estimated disbursements of project aid), an increase of 43 percent over the estimated 1970/71 expenditures of Rp 107 billion. The GOI will thus be providing a full one-third of development budget resources out of self-help funds, in addition to meeting all its routine expenditures. To meet these financial requirements an increase is also planned in the generation of program aid counterpart funds, from Rp 80 billion in 1970/71 to Rp 103 billion in 1971/72. Disbursements of program aid in 1971/72 of \$370 million are projected for this purpose; this amount would be substantially higher than the program aid disbursements of \$291 million in 1970/71, but is deemed capable of being achieved. Program aid commitments also in the amount of \$370 million have been requested for 1971/72.

An enlarged list of projects which merit project aid constitutes an appropriate basis for a project aid commitment request of \$270 million for 1971/72; total project aid disbursements (almost all under projects committed in prior years) are estimated at \$175 million. The resulting total foreign aid request is \$640 million in commitments for 1971/72; disbursements in that year are projected at \$545 million compared to an estimated \$401 million in 1970/71. Aid disbursements of this order will substantially augment projected export earnings which are expected to increase by about 19 percent. The increased foreign exchange resources thus available, after allowance is made for debt service payments and a token increase of foreign exchange reserves, will permit an increase of overall imports by 20 percent. Since this includes the higher disbursements projected for project aid and the larger inflow of imports financed by private capital inflows, other imports are, therefore, projected to increase by only 13.5 percent.

#### B. Price and Monetary Developments

The higher level of economic activity in 1970/71 has been accompanied by more stable prices than in previous years. The main elements making for price stability were the good rice crop and the availability of sufficient import supplies. A sizeable expansion of the money supply, 35.2 percent between December 1969 and December 1970, was not incompatible with the price stability achieved since this expansion resulted largely from an increase of bank credit to the business sector of the economy, and was at least partly offset by an increase of time and savings deposits in State Banks (which are the only ones providing reliable data) of 50 percent.

It presently appears, however, that FY 1971/72 may see considerably smaller credit expansion than 1970/71, notwithstanding active efforts by the banks to increase their deposits. The expansion of commercial credit to the business sector may also be somewhat limited as the medium-term investment program and the credit needs of the rice production program pre-empt a larger share of total credit resources.

Pressure on the cost of living is being largely contained by the new strength of the economy, the decline of inflationary psychology, and the continued supply of essential import commodities made possible by IGGI members' program aid. The rate of inflation has been sharply reduced (it was 635% in 1966, 120% in 1967, 85% in 1968, 10% in 1969 and under 9% in 1970) and rational pricing of goods and services is increasingly the rule. If supplies of rice and essential imports continue to be available, inflation should continue to be contained.



### C. Fiscal Policy

The 1970/71 fiscal year has produced a continuation of the excellent revenue growth of the two previous years. Internal revenues (excluding aid counterpart receipts) in 1969/70, at Rp 244 billion, were nearly Rp 16 billion higher than the original budget estimates. The present estimate of Rp 344 billion for 1970/71, an upward revision of the original estimate for the year, represents an increase of 41 percent over the preceding year in a period of substantial price stability. The 1971/72 budgeted increase of 21% to Rp 416 billion represents a further ambitious attempt at self-help.

These results have been achieved partly as a result of the return to more stable economic conditions. In 1966, after years of disorganization and hyperinflation, revenues were probably only 3 to 4 percent of the GDP. The proportion has been raised to perhaps 10 percent (although no reliable GDP estimate is available) by concentrating on sources which can readily be tapped at one or a few points, such as taxes on trade. Other taxes involving collection from multiple points and payers, sales and income taxes in particular, require better organization and procedures. The GOI is aware of this and is seeking more technical assistance on tax administration.

### D. Balance of Payments and Exchange Rate

While Indonesian export earnings (gross oil plus non-oil) have expanded from \$1,039 million in 1969/70 to \$1,196 million in 1970/71 and are projected to rise to \$1,420 million in 1971/72, they have not been sufficient to cover imports. As a result of the emphasis being placed on development as well as on stabilization, Indonesian import requirements have been increasing.

While non-food consumer goods imports have risen modestly from \$158 million in 1969/70 to \$185 million in 1970/71 and a projected \$200 million in 1971/72, Indonesia remains dependent on external sources for 1) capital equipment needed in investment programs, 2) raw materials such as fertilizer, textile fibers, metals, and chemicals, for increased agricultural and industrial production, and 3) food grains and other commodities needed to meet the gap between domestic production and consumption. Accordingly, total non-oil imports have grown from \$1,443 million in 1969/70 to \$1,612 million in 1970/71 and are expected to rise to \$1,800 million in 1971/72.

The current account deficit has in turn increased from \$400 million in 1969/70 to \$416 million in 1970/71 and is projected to reach \$500 million in 1971/72. In addition, Indonesia met debt service payments of \$85 million in 1969/70 and \$120 million in 1970/71 with a projected \$147 million for 1971/72, despite the favorable accommodations reached with foreign creditors.

For financing the current account deficit, Indonesia relies heavily on foreign assistance, with private capital and monetary reserves playing a secondary role. Food and fiber aid plus other program assistance, with disbursements ranging from \$307 million in 1969/70 to \$291 million in 1970/71 and a projected \$370 million in 1971/72, have accounted for most of the inflow. Project aid disbursements are expected to increase significantly from \$52 million in 1969/70 and \$110 million in 1970/71 to \$175 million in 1971/72. Private direct investment was \$51 million in 1969/70 and \$103 million in 1970/71 with \$135 million projected for 1971/72. See Annex VI.

The external value of the rupiah remained stable in 1969, and the DP exchange rate (applicable to payments for services, to less essential imports, and to most private financial transactions) actually improved during the year from about Rp 385 per US \$1 in January to 378:1.

During 1970 two separate reforms were made in the Indonesian foreign exchange system, both with the encouragement of the International Monetary Fund. On April 17, a reform package was announced which in effect devalued the rupiah. The package merged the two foreign exchange markets which were in existence until that time and set a fluctuating foreign exchange rate pegged at Rp 378:\$1, to apply to all foreign exchange transactions except for imports financed by commodity assistance programs; importers utilizing commodity assistance had access to a rate of Rp 326:\$1. The retention of this preferential exchange rate for foreign aid imports (Devisa Kredit or DK) was deemed necessary in order to compensate for the disincentives of program loan (especially U.S.) procedures. However, this was less than complete rate unification and thus did not accord with a basic tenet of the IMF. Consequently, as of December 9, the DK rate was officially fixed at Rp 378, equivalent to the regular (DU or Devisa Umum) rate. This final step had been expected by most observers, including businessmen, ever since the April 17 reforms.

#### E. Debt Service Capacity

Indonesia's debt service burden continues to be extremely high and recently there has been a substantial increase in external debt due to large amounts of multi-donor assistance, despite concessional loan terms. This result was expected for a country starting from a low economic base and receiving major loan-funded development assistance.

Perhaps the most significant events improving Indonesia's ability to make loan repayments were the April 1970 and August 1970 debt rescheduling decisions made by the major governments holding Indonesia's pre-July 1966 debt. The creditors at the April meeting included Australia, France, West Germany, Italy, Japan, the Netherlands, the United Kingdom, and the U.S., all members of the so-called "Paris Club". The agreement they reached

provides for repayment of principal in 30 equal annual installments beginning in 1970 and of contractual interest in 15 annual installments beginning in 1985. No consolidation interest will be charged during the 30-year period. Indonesia will have the option to defer part of the payments of principal due during the first eight years; amounts so deferred will bear interest from deferment at 4 percent and will be repaid no later than 1992-99 in equal annual installments. The agreement is subject to review after 1980. No more favorable treatment is to be accorded to any other creditor country for the consolidation of comparable debts. Agreement was reached with the U.S.S.R. in August 1970 regarding the rescheduling of payments due on their debts incurred by Indonesia before July 1, 1966. Provisions of the agreement are generally in accordance with the Paris Club agreement terms, and the rest of the Bloc countries are expected to follow suit.

The total principal together with rescheduled contractual interest and moratorium interest accrued prior to January 1, 1970, amounted to \$2,050.6 million. On an annual basis principal payments would amount to about \$59 million before application of the bisque clause, and interest payments, which are to be repaid equally during the years 1985-99, would amount to about \$18 million. Individual nations which have already signed bilateral rescheduling agreements are the U.S.A., the U.S.S.R., France, the F.R.G., and the Netherlands. See Annex VI, pages 4 through 7.

Past reschedulings left Indonesia with debt service ratios (calculated on the basis of non-oil exports plus net oil export earnings and including post-Sukarno debts) of 12% in 1968 and 8% in 1969. The debt service ratio for 1970 is projected at about 10%. On the assumptions of a conservative 6% growth in exports and further very sizeable inflows of foreign aid on which service payments must be made (Indonesia since mid-1966 has already contracted new obligations, including interest, of \$1.5 billion), Indonesia's debt service ratio is estimated under 20% in the 1970's and slightly higher in the 1980's. By international standards, these ratios are manageable.

With the soft terms of the loan herein proposed, particularly the 10-year grace period, the overall rescheduling of old debts already agreed upon and the Indonesian potential for export expansion, the repayment prospects for the proposed \$21 million loan appear reasonable. Our assessment of Indonesia's repayment prospects is shared by other IGGI members who are continuing with similar program and project lending programs of their own.

**IV. Loan Administration.**

**A. Timetable for Implementation.**

A summary timetable for implementation of this project is set forth below. A more detailed schematic table appears in Annex II.

<b>Loan Authorization</b>	<b>June 30, 1971</b>
<b>Loan Agreement Negotiated and Signed</b>	<b>August 31, 1971</b>
<b>Conditions Precedent to Opening Letters of Commitment Met</b>	<b>November 30, 1971</b>
<b>Project Engineer Selected and Contract Negotiated</b>	<b>November 30, 1971</b>
<b>Specifications and Invitations for Bids Prepared for Early Procurement Items</b>	<b>April 30, 1972</b>
<b>Conditions Precedent to Early Procurement Met</b>	<b>July 31, 1972</b>
<b>Bids Evaluated and Awards Made for Early Procurement Items</b>	<b>December 31, 1972</b>
<b>Conditions Precedent to Construction Met and Construction Contract Approved</b>	<b>March 31, 1973</b>
<b>Construction Work Completed</b>	<b>December 31, 1975</b>
<b>Engineering Supervisory Services Completed</b>	<b>February 28, 1976</b>

**B. Project Execution.**

**1. Project Execution Plan.**

The project will encompass four distinct but related operations: 1) detailed design, 2) technical and management assistance and training, 3) construction and 4) supervision.

Project implementation will require early contracting for consulting engineering services with the project engineer who will provide early preparation of specifications and IFB, analysis and procurement of essential equipment and materials. The project engineer will also be responsible for the detailed design, preparation of IFB for construction and supervision and enforcement of the construction contract on behalf of PLN.

The project engineer will also be responsible for training of personnel made available by PLN and assigned full time to this project and will be responsible for planning of participant training for selected personnel from this team.

The project engineer shall be responsible for the final design of all systems, preparation of bills of materials and specifications for all equipment and IFB's planned for procurement. He shall be responsible for definition of construction standards and material specifications and warranties, preparation of the IFB for the construction contract, evaluation of bids, recommendations for award for the construction contract, supervision of construction and final inspection, testing and acceptance of completed work. See Annex III.

The construction contractor will arrange for timely performance of construction as scheduled by the project engineer in accordance with standards established for the project and will train and schedule work crews and maintenance personnel assignments during the course of the project.

Conditions precedent have been held to a minimum and include only standard provisions divided into three groups: 1) Opening Letters of Commitment, 2) C. P. to early procurement of long lead items, and 3) C. P. to construction financing.

## 2. Coordination.

Project execution, construction and supervision, operation maintenance and training must be a coordinated and scheduled effort on the part of the project engineer, construction contractor, PLN and USAID. In addition 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 communications are maintained with all the contract organizations.

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

a. Conditions precedent to opening letters of commitment shall be met within three months after signing the loan agreement.

b. Conditions precedent to procurement of early procurement items shall be met within eleven months after signing the loan agreement.

c. Conditions precedent to construction shall be met within nineteen months after signing the loan agreement.

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

e. Terminal date for disbursement shall be seventy-two months after signing of the loan agreement. (See Annex II for implementation schedule.) This provides twelve months for opening the letter of credit for construction services, thirty-five months for construction and completion of engineering services, and six months for final accounting and final disbursement.

**C. Impact on U. S. Balance of Payments**

The impact of this loan on the U. S. balance of payments should be favorable. Goods and services financed by this loan will be obtained from A. I. D. Geographic Code 941 (Selected Free World), and it is expected the U. S. will provide a substantial amount of the goods and services supplied, with corresponding follow-up orders of spare parts, equipment and materials resulting in additional U. S. exports on a commercial basis.

**D. Use of U. S. Government Excess Property**

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

**V. Conditions Precedent and Covenants****1. Conditions Precedent to Opening Letters of Commitment (Project Engineering)**

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 contract with an engineering firm or individual(s). The selection of said engineering firm and the terms of said draft contract shall be in accordance with A. I. D. Capital Project Guidelines for engineering services.

**2. Conditions Precedent to Early Procurement**

a. Advice of the Government of the Federal Republic of Germany (FRG) that the agreements with the GOI and PLN are effective, said advice and agreements to include firm schedules for project implementation, for implementation of the FRG project for double circuit 150 KV linking of the Semarang steam power plant to Pekalongan including installation of required substations.

b. A plan for implementation of the project, including training, the procurement of equipment for the project, and the designation 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.

c. Evidence that any rights of way, rights of entry, real property leases or acquisitions necessary for project implementation and system operation have been obtained or plans made and financing provided therefor, all in form and substance satisfactory to A.I.D.

d. **Procurement contracts for equipment and materials between PLN and a firm or firms, selection of which and terms of said contract(s) shall be in accordance with A. I. D. Capital Project Guidelines.**

**(When a through c have been met, a Letter of Commitment may be opened for all procurement financed under this loan for PLN's account, but individual Letters of Credit will not be opened until A. I. D. approval has been obtained for the respective supply contracts.)**

### **3. Conditions Precedent to Construction Financing**

a. **Evidence of the establishment by PLN of a reserve fund in Indonesian currency equal to the total Indonesian currency costs of the project for the upcoming six (6) months as estimated by the project engineer, said funds to be replenished to the appropriate level quarterly or more often in the event actual Indonesian currency expenditures substantially exceed said estimates, or such lesser amount as A. I. D. shall agree to in writing, which shall be used for the execution of the project until the project is completed.**

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

### **4. GOI Covenants**

**GOI covenants and agrees that it shall:**

a. **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.**

b. **Make available to PLN over and above the proceeds of the loan foreign exchange to the extent necessary to purchase third country spare and replacement parts for maintenance, repair and operation of existing generation facilities and related equipment until power supply is replaced by that from the Semarang steam power plant.**

c. **Make available to PLN any Indonesian currency necessary for implementation and completion of the project and for operation up to completion of the project.**



d. From completion of the project 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 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.

5. PLN Covenants

PLN covenants and agrees that it shall:

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.

b. Replenish the Indonesian currency reserve fund whenever necessary to maintain said fund at the level set forth.

c. Establish connection fees for all future service within the project area that will encourage increased consumption of electricity.

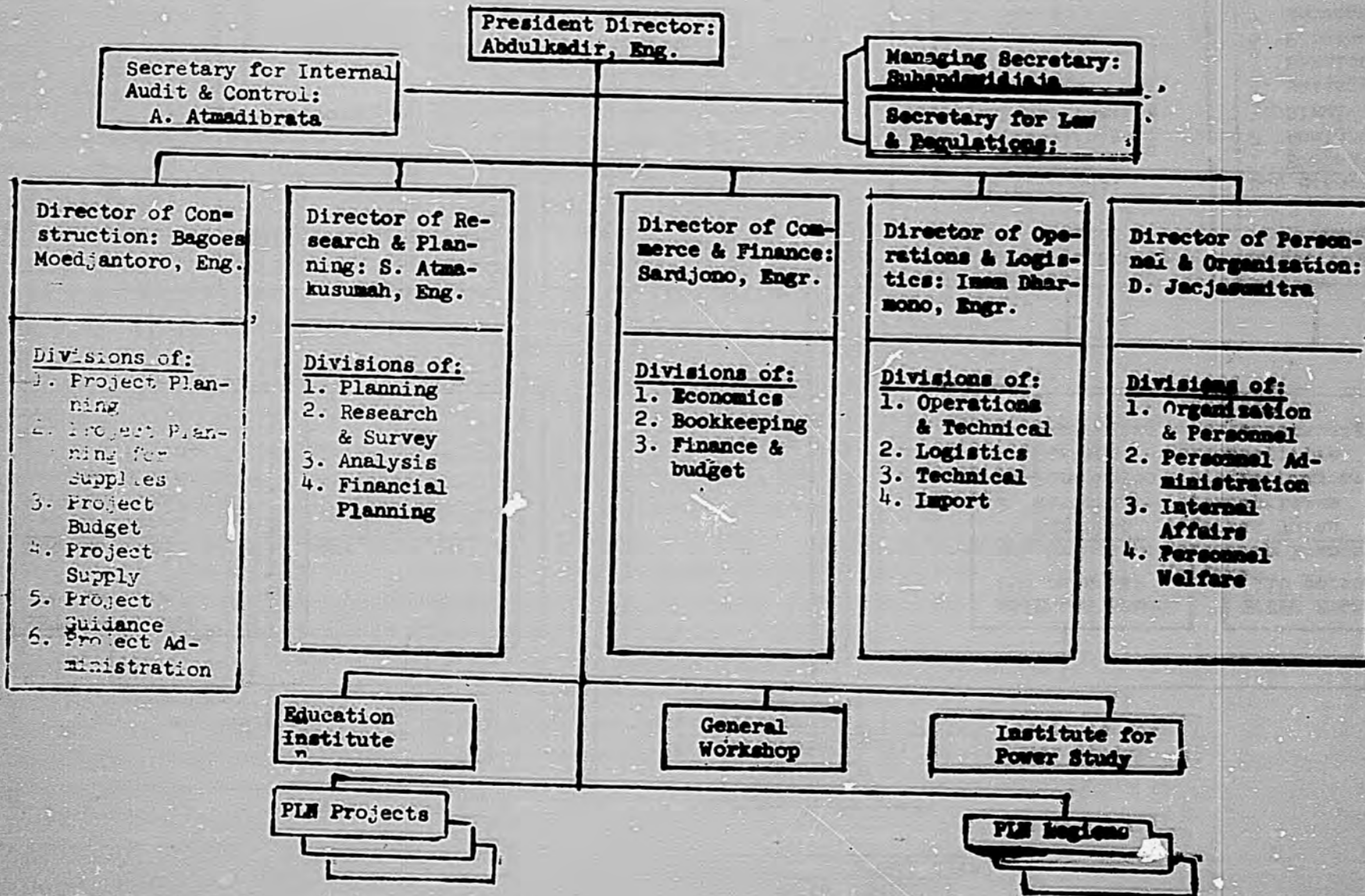
d. Maintain the basic system standards for the distribution systems in accordance with the conditions precedent above.

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 facilities resulting from their use.

ORGANIZATION STRUCTURE  
P.L.N. CENTRAL



AID-DIC/R-975

ORGANIZATION STRUCTURE  
PLM REGION X (CENTRAL JAVA)

Head Office  
PLM REGION X  
(249 persons)

KETENGER Sector  
(144 persons)

Sub Sectors:

1. DEG "Tegal"
2. DEG "Pekalongan"
3. DEG "Tjilatjap"
4. HEG "Ketenger"

DJOGJA Branch  
(166 persons)

Sub Branches:

1. Wates
2. Bantul
3. Wonosari

MAGELANG Branch  
(92 persons)

Sub Branches:

1. Muntilan
2. Kutoarjo
3. Purwokerto
4. Parakan
5. Temanggung

WYPU Branch  
(116 persons)

Sub Branches:

1. Taban
2. Lasem
3. Bojonegoro
4. Flora
5. Rembang

Branch  
(207 persons)

Sub Branches:

1. Sragen
2. Karanganyar
3. Sukoharjo
4. Sukoharjo
5. Mlaten
6. Boyali

SEMARANG Branch  
(388 persons)

Sub Branches:

1. Salatiga
2. Ungaran
3. Ambarawa
4. Weleri
5. Kendal
6. Djuwana
7. Pati
8. Jepara

TUNTANG Sector  
(359 persons)

Sub Sectors:

1. HEG "Djelok"
2. HEG "Timo"
3. DEG "Kalisari"
4. DEG "Kudus"
5. DEG "Wirobradjan"
6. "Purvosari" Solo
7. "Gedjajan"
8. "Magelang"

PURWOKERTO Branch  
(159 persons)

Sub Branches:

1. Wonosobo
2. Purbolinggo
3. Banjarnegara
4. Kebumen
5. Gombong
6. Banjumas
7. Kroja
8. Madjenang
9. Sukaradja
10. Karanganyar
11. Sempuh

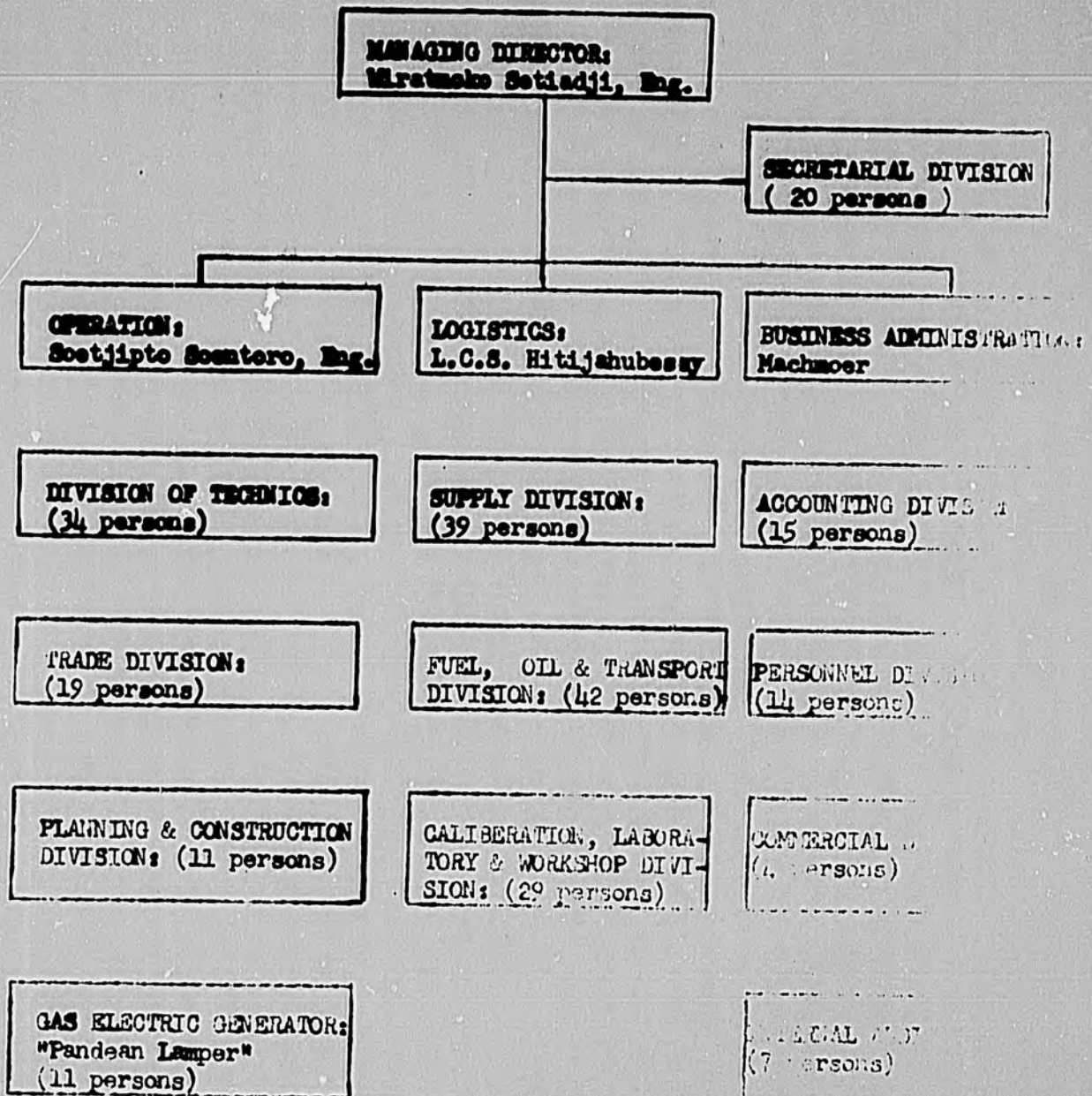
TEGAL Branch  
(143 persons)

Sub Branches:

1. Brebes
2. Pemalang
3. Slawi
4. Batang
5. Pekalongan
6. Pemalang
7. Kedungwuni



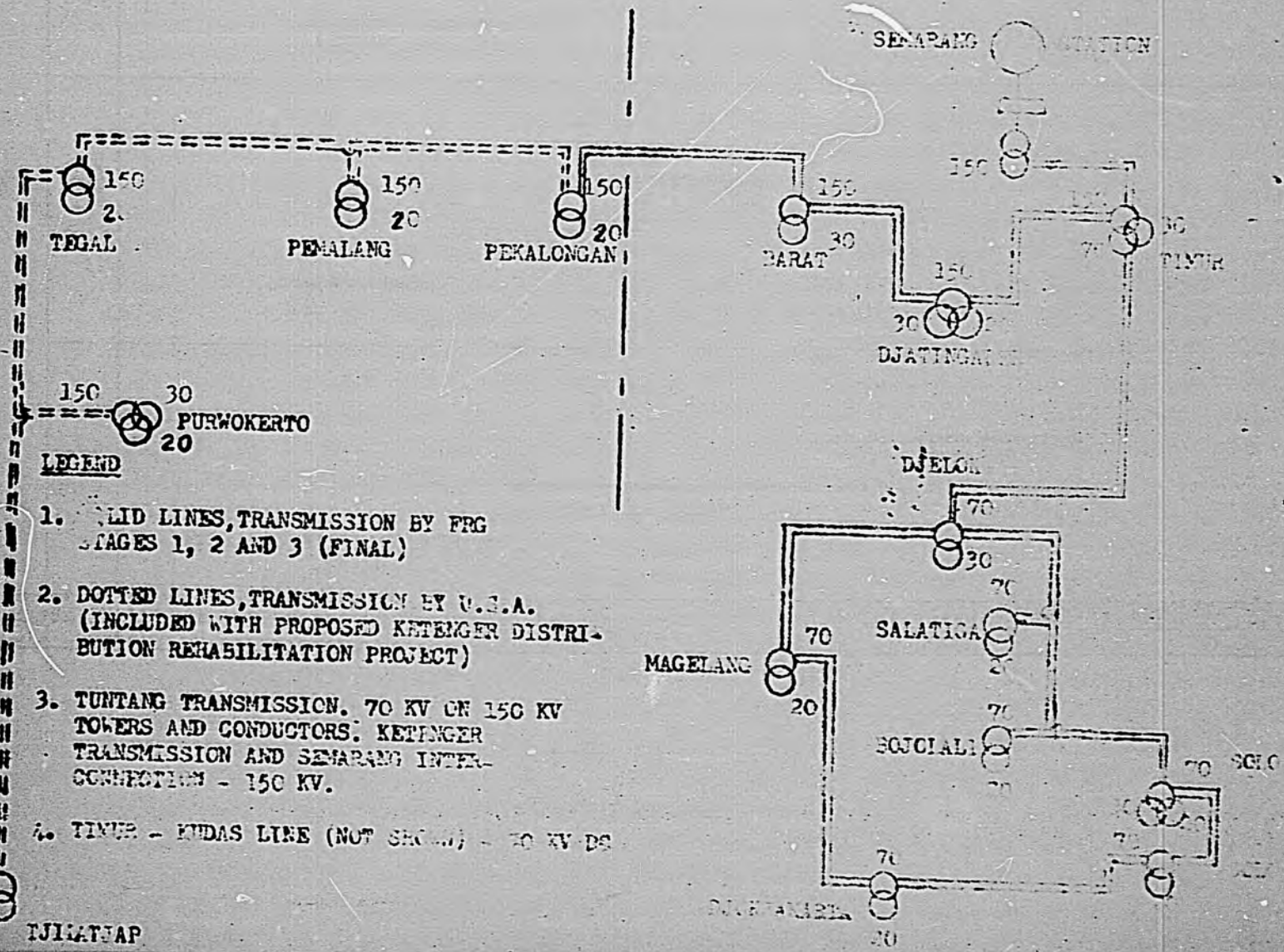
**ORGANIZATION STRUCTURE  
PLM REGION I ( CENTRAL JAVA )  
HEAD OFFICE**



PROPOSED TRANSMISSION SYSTEM  
CENTRAL JAWA  
REGION V

KETENGER SYSTEM

SEMARANG SYSTEM



**LEGEND**

1. SOLID LINES, TRANSMISSION BY FRG STAGES 1, 2 AND 3 (FINAL)
2. DOTTED LINES, TRANSMISSION BY U.S.A. (INCLUDED WITH PROPOSED KETENGER DISTRIBUTION REHABILITATION PROJECT)
3. TUNTANG TRANSMISSION. 70 KV ON 150 KV TOWERS AND CONDUCTORS. KETENGER TRANSMISSION AND SEMARANG INTER-CONNECTION - 150 KV.
4. TINEB - KUDAS LINE (NOT SHOWN) - 70 KV DC

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ANNEX II  
Page 1 of 2



ESTIMATED REVENUE

CONSTRUCTIVE SERVICE

YEAR	1st YEAR									2nd YEAR									3rd YEAR									4th YEAR																	
	MONTH	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8
150 KV TRANSMISSION	PEKALONGAN-TEGAL																																												
	TEGAL-PURACKERTO																																												
	PURACKERTO-TJILATJAP																																												
150 KV SUBSTATIONS	TEGAL																																												
	PURACKERTO																																												
	TJILATJAP																																												
DISTRIBUTION REGABILITATION	PEKALONGAN (A)																																												
	TEGAL (B)																																												
	PURACKERTO (C)																																												
TJILATJAP (D)																																													
<p><b>LEGEND</b></p> <p>(A) Incl. Pekalongan and Batang</p> <p>(B) Incl. Brebes and Siawi</p> <p>(C) Incl. Purbolinggo</p> <p>(D) Incl. Sunong and Kebumen</p>																																													

## PROJECT IMPLEMENTATION

### A. Consulting Engineering Services

#### 1. Selection Procedure

The consultant will be chosen by the PLN under the procedures outlined in Chapter 2 of the A.I.D. "Capital Projects Guidelines (M.O. 1441.1).

#### 2. Type of Contract

A 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 Consulting Services

The consultant 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 planned 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 provide a team of individuals composed of reasonably long term personnel supplemented by short-term assistance as needed to provide technical and management assistance and training to PLN Region X personnel. Expertise shall be provided in the form of individuals with considerable on-the-job experience performing similar tasks in operating utilities in such areas as utility management; power system operation and load dispatching; utility system accounting; generating and distribution system maintenance/parts handling, warehousing, and management.

It shall be a principal responsibility of the consultant to coordinate his efforts with those of the IBRD management consultants in Djakarta and to assist in the earliest implementation within Region X of their recommendations.

B. The Construction Contract

1. Advertisement, Bidding, and Award

The consultant 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 (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 materials and equipment to be procured by the construction contractor. However, final design for the transmission and distribution systems 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 consultant will submit, prior to letting the contract for construction, a preliminary design for the new and rehabilitated



electric systems 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 consultant will prepare an invitation for bids for the construction contract which will define the scope of the project, identify the individual construction units 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 component thereof. Award will be based on either the lowest total price or lowest dollar price, depending upon whether the local currency components would more advisably be bid on a fixed unit price or cost reimbursable basis. The consultant will make a recommendation to PLN regarding which basis will be used for bidding the construction contract. 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 Consulting Services

Selection of the consultant who will provide consulting engineering services, technical and management assistance and training, will begin as soon as possible. Conditions precedent to financing consulting services will be kept at a minimum.

The consultant, as first priority, will identify the item and quantities of equipment and materials which need to be procured early in order to permit prompt initiation of the transmission system and distribution rehabilitation, and will prepare IFBs for these items.

#### 2. Consultant's Role

Upon approval of the IFBs, the consultant will purchase the items for PLN on a competitive bid basis in accordance with procedures of

A.I.D. Capital Projects Guidelines

(M.O. 1441.3). The consultant 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 consultant will establish a plan for re-use 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.

3. 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, small 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, proper storage, and utilization of all materials and equipment at the project site, including those furnished by PLN, and for assuring that work performed is in accordance with construction standards and specifications.

#### 4. 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 consultant will be responsible to obtain earliest possible delivery of 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 the materials and equipment purchased for PLN's account and that which he accepts from PLN, 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.

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 which shall be provided as a condition precedent to early

procurement shall include a plan for movement of commodities through customs.

5. Technical and Management Assistance and Training

a. Objective

Broad management consulting services will be provided to PLN central organization as part of the IDA loan for Djakarta rehabilitation. The technical and management 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.

b. Arrangements for Technical and Management Assistance and Training

To permit flexibility, management control and continuity for this electric utility system, we believe it is desirable that the project engineering service, and technical and management assistance and training be included in a single contract. All of the training will be completed during the period of the rehabilitation project (4 years).

An important aspect of the management services will be coordination with the IBRD management consultants working with the PLN central organization on broad management and institutional reforms, and this is part of the scope of work for the consulting engineer.

c. Scope of Technical and Management Assistance and Training

The consultant will provide general utility specialists who will train PLN personnel at the operational level. The consultant will furnish and supervise long term specialists to assist with the training program if required.

The consultant's specialists will have broad experience in distribution and transmission system operation, maintenance, diesel operation and maintenance, systems management and operation, accounting, parts management, inventory and record keeping, rate and billing procedures and evaluation, and system communications.

**a. Participant Training**

It is planned to train selected PLN personnel, **principally** through work experience at operating utilities, in U.S. to develop **skills in systems operations and maintenance equipment procurement and accountability, and utility accounting.** The training period for any employee will probably not exceed three months.

Participant training is recommended for the following classifications of personnel:

Distribution Systems Superintendent  
Transmission System Superintendent  
Accountant  
Equipment and Supply Management Control Superintendent  
Systems Operation Superintendent

		FIE Region X Cash Flow (\$000) 1971-2003				ANNEX IV Page 1 of 1 A										
		1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
<b>Cash Requirements</b>																
Fuel	2880	2930	2380	3180	885	1485	2985	427	427	2977	2896	3819	3889	3889	3889	3889
Freight	800	800	300	300	47	47	51	51	51	60	60	60	60	60	60	60
Transmission	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
General & Administrative/	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250
Sub total	3930	3980	3330	4130	1182	1782	3486	728	728	3277	3206	4139	4139	4139	4139	4139
<b>Rate Service/</b>																
-	-	276	1548	4764	8748	10524	11136	12219	12512	13900	14880	14740	13620	12620	11620	10620
<b>Total</b>		3930	3806	3418	3994	11888	13768	14722	16312	17812	17983	15680	15720	15740	15740	15740
<b>Rate Requirements</b>																
Rate in Millions MW/	802.7	815.1	822.0	835.4	847.1	857.4	865.0	870.8	874.5	876.7	876.0	874.0	871.0	867.0	862.0	856.0
Revenue at 1.82114/MW	4000	4000	3000	3700	7800	7800	7800	7800	7800	7800	7800	7800	7800	7800	7800	7800
Revenue at 2.02114/MW	3880	3880	3000	3400	7200	7200	7200	7200	7200	7200	7200	7200	7200	7200	7200	7200
Revenue at 2.47214/MW	5021	5021	3969	4884	9884	9884	9884	9884	9884	9884	9884	9884	9884	9884	9884	9884
Revenue at 2.78214/MW	3600	3600	3126	3409	3977	4136	4282	4406	4506	4587	4647	4687	4717	4737	4747	4747

Includes distribution costs.  
 Calculated on basis of external financing for all capital expenditures at terms of 30 years, 5 year grace period and interest at 12% per annum.  
 Based on C.Y. this most probable load forecast.  
 Average rate based on hypothetical C.Y. this rate schedule applied to all new customers together existing actual rate applied to all present customers.  
 Average rate based on hypothetical C.Y. this rate schedule applied to all FIE Region X customers.  
 Average rate which, over a 30 year period, will yield revenues equal to all cash requirements assuming debt service on all capital additions at 12%.  
 o: average rate derived on the basis of above and including 12% profit.





POPULATION FORECAST FOR PLN DISTRICT & SERVICE AREA

UNCLASSIFIED  
ANNEX V, PAGE 1 OF 1

	1961	%/Yr.	1969	%/Yr.	1971	%/Yr.	1976	%/Yr.	1981	%/Yr.	1985	%/Yr.	1991	%/Yr.	1996
<b>Area #1</b>															
Pekalongan	102.4	.70	108.0	.70	111	.70	115	.77	118	.75	124	.71	130	.68	133
Tegal	89.0	1.92	103.7	1.92	100	1.92	118	1.90	120	1.88	133	1.75	138	1.60	140
Rural Districts	3210	1.42	3595	1.42	3690	1.42	3960	1.41	4235	1.37	4530	1.30	4800	1.20	5150
% PLN Districts			23.2		23.2		23.3		24.4		25.1		26.4		27.2
PLN Districts			<u>835.2</u>		<u>860</u>		<u>920</u>		<u>1020</u>		<u>1100</u>		<u>1200</u>		<u>1300</u>
Total PLN			1047.8		1070		1150		1207		1260		1320		1380
<b>Area #2</b>															
Rural Districts	4160	1.19	4574	1.19	4684	1.19	4969	1.18	5269	1.15	5579	1.09	5900	.99	6107
% PLN Districts			20.0		20.0		20.0		20.6		20.8		21.2		21.1
Total PLN			913.3		937		994		1065		1160		1237		1305
<b>Kecenderungan System</b>															
Municipal	191.4	1.32	212.6	1.33	219	1.35	233	1.38	249	1.40	267	1.34	284	1.27	301
PLN Districts		1.30	<u>1748.5</u>		<u>1796</u>		<u>1915</u>		<u>2123</u>		<u>2322</u>		<u>2520</u>		<u>2720</u>
Total PLN		1.30	1961.1		2015		2148		2372		2589		2804		3021
<b>District X</b>															
Municipal	1529.4	2.08	1802.8	2.12	1880	2.14	2090	2.16	2325	2.14	2586	2.04	2880	1.92	3161
Rural Districts	19235	1.47	21627		22271		23964		25776		27670		29591		31667
Total	20764	1.52	23430		24150	1.530	26054		28101		30255		32451	1.295	34680
PLN Districts			<u>3990.7</u>		<u>4107</u>		<u>4415</u>		<u>5132</u>		<u>5990</u>		<u>6721</u>		<u>7576</u>
Total PLN			5793.5*		5987*		6505*		7457*		8485*		9581*		10719*
<b>Cent. Java &amp; Iogya</b>															
Total Population	20648	1.52	23302	1.52	24019	1.53	25914	1.52	27951	1.49	30096	1.41	32283	1.30	34430

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Ketenger Electrical Transmission/Distribution SystemEconomic Considerations.1. General Economic Conditions in the Ketenger Electrical System Area.

The area to be served by this transmission/distribution system covers the Western portion of Central Java and has a population of approximately 8.5 million. The principal municipalities are Pekalongan (109,000) and Tegal (104,000), with population densities in the 15-20,000 per square mile range and Tjilatjap, Furwokerto and Pemalang. Each of these serves as a commercial and industrial center for a larger population in the surrounding area.

Although the cities and larger towns are generally connected by good all-weather highways, only dirt roads extend to the outlying villages. The area is also covered by a railroad system which is an important factor in the movement of freight in the area. In combination, the area's highways and railways comprise a transportation system which can be improved and extended as necessary to meet the requirements of an expanding economy. From the viewpoint of export or inter-island commerce, the area currently suffers from the absence of a fully developed port. Tjilatjap has great potential, however, and port development is underway which may eventually turn it into a major port. Its major limitation is its South Coast location which is out of the way for inter-island commerce, even though well suited for international trade.

The economy of the area is predominantly agricultural. The fishing industry is relatively small, and there is presently very little mining in this part of Java. However, there have been some potentially valuable iron sands deposits discovered in the area east of Tjilatjap and development for export is underway. Home industry, or handicraftsmanship, employs many workers in the production of hand batik, wood and ivory carving, metal working and other native arts.

There are also several types of industrial plants, including mills for the processing of agricultural products; service industries such as foundries, machine shops and railway shops; and manufacturing plants. The latter include small shipyards, paper mills, machine batik plants, and cotton textile plants, some of which are fairly large and modern. However, in relation to the population and the size of the work force in the area, industrial development is at a very low level.

## 2. Economic Growth Projections.

Total real income in Indonesia as a whole increased at about 2.3% per year between 1958 and 1966. Since this growth was roughly equivalent to population growth, there was no significant increase in real income per capita. After a moderate gain in 1967, total income increased 4.6% in 1968. In 1969 the increase in total real income was again 4.6%. Thus for 1968 and 1969, assuming a 2.0% annual increase in national population, there was an increase of 2.6% per year in real income per capita, the first significant improvement in purchasing power for many years. Informed Indonesian economists believe that the 1968-69 increase can be maintained for real income per capita, and that this rate of growth is reasonable for future planning.

Real income per capita for the area served by the Ketenger Electrical System is not capable of being broken out statistically from the data for Java as a whole, but compared to the rest of the island, it is more predominantly agricultural, has a higher population density, and fewer natural resources. Its future economic prospects appear encouraging, however, although still slightly behind its neighbors. There are many plans to increase production and employment when electric power is made available; some new plants have been built, others are scheduled, and some are in the planning stage. Harbor improvements are underway at Tjilatjap which has the potential of becoming a fine deep-water port; Australia is interested in this "front door" to Indonesia and is engaged in development planning for the area. As a result of these factors a real income per capita increase for this area of 2.25% per year has been calculated.

**Table 3.1: Balance of Payments Estimates, 1969/70-1971/72**

(in millions of US dollars)

	<u>1969/70</u>	<u>1970/71</u>	<u>1971/72</u>
<b><u>Exports of Goods and Services</u></b>			
Gross oil exports	380	447	580
Non-oil exports	659	749	840
<b>Total Exports</b>	<b>1,039</b>	<b>1,196</b>	<b>1,420</b>
<b><u>Imports of Goods and Services</u></b>			
Foodgrains	212	149	143
Other food	53	53	60
Non-food consumer goods	158	185	210
<b>Total Consumer Goods</b>	<b>423</b>	<b>387</b>	<b>413</b>
Agricultural inputs	56	26	30
Industrial inputs	234	247	270
Investment related goods (excl. oil)	394	560	733
Oil sector goods & services	121	139	175
Investment income payments	109	134	182
Non-factor services (excl. oil)	106	119	123
<b>Total Imports</b>	<b>1,443</b>	<b>1,612</b>	<b>1,926</b>
<b><u>Current Account Deficit</u></b>	<b><u>404</u></b>	<b><u>416</u></b>	<b><u>506</u></b>
<b><u>Financing:</u></b>			
Project aid <sup>b/</sup>	52	110	175
Program aid <sup>c/</sup>	307	291	370
Direct private investment	51	103	135
Suppliers' credits	-17	-30	-
Short-term credits	-	37	-
<b>Total</b>	<b>393</b>	<b>511</b>	<b>680</b>
Debt service payments <sup>a/</sup>	-85	-120	-147
Monetary movements (excl. SIDR)	78	13	-27
<b>Total capital and monetary movements</b>	<b>382</b>	<b>404</b>	<b>506</b>
Net errors and omissions	22	12	-

a/ Including debt service and hire-purchase payments of the oil sector.

b/ Based on L/C's opened for commitments since 1967 and arrivals for pre-1967 project aid.

c/ Based on L/C's opened.

**Table 4.2: Outstanding Liabilities of Pre-1967 Debt  
as of January 1, 1970 1/ 2/**

(In millions of US dollars)

	<u>Original interest</u>		<u>Moratorium interest</u>		<u>Total</u>		
	<u>Principal</u>	<u>Resched.</u>	<u>outst.</u>	<u>Accrued</u>	<u>Outst.</u>	<u>Principal</u>	<u>Interest</u>
	(1)	(2)	(3)	(4)	(5)	(1+2+4)	(3+5)
<b>I. Participating countries<sup>3/</sup></b>							
1. France	77.6	10.1	1.4	3.8	17.8	91.5	19.2
2. Germany	106.0	9.7	6.6	3.1	17.0	118.8	23.6
3. Netherlands	26.8	2.2	0.9	0.6	3.9	29.6	4.8
4. Italy	110.4	8.0	3.1	4.7	23.7	123.1	26.8
5. Japan	69.4	3.6	2.2	3.4	13.5	76.4	15.7
6. U.S.A.	156.8	20.6	14.2	3.7	19.5	181.1	33.7
7. U.K.	20.2	2.3	0.2	1.2	5.5	23.7	5.7
	<u>567.2</u>	<u>56.5</u>	<u>28.6</u>	<u>20.5</u>	<u>100.9</u>	<u>644.2</u>	<u>129.5</u>
<b>II. CMEA countries, Yugoslavia and Mainland China</b>							
1. U.S.S.R.	675.5			76.8	53.9	752.3	53.9
2. Hungary	17.1			0.3	1.5	17.4	1.5
3. Czechoslovakia	64.5			1.3	12.7	65.8	12.7
4. Germany Democ. Rep.	45.7			0.3	16.6	46.0	16.6
5. Poland	94.2			0.1	32.4	94.3	32.4
6. Bulgaria	1.4			-	0.2	1.4	0.2
7. Rumania	13.1			-	2.6	13.1	2.6
8. Mainland China	21.0			0.5	0.7	21.5	0.7
9. Yugoslavia	95.1			0.6	24.5	95.7	24.5
	<u>1,027.6</u>			<u>79.9</u>	<u>145.1</u>	<u>1,107.5</u>	<u>145.1</u>
<b>III. Other Countries<sup>3/</sup></b>							
1. Pakistan	9.5	2.5	-	-	1.7	12.0	1.7
2. India	3.7	-	-	-	-	3.7	-
3. United Arab Rep.	3.6	-	0.8	-	-	3.6	0.8
4. Austria	2.5	-	-	-	-	2.5	-
	<u>19.3</u>	<u>2.5</u>	<u>0.8</u>	<u>-</u>	<u>1.7</u>	<u>21.8</u>	<u>2.5</u>
<b>Total</b>	<u>1,614.1</u>	<u>59.0</u>	<u>29.4</u>	<u>100.4</u>	<u>247.7</u>	<u>1,773.5</u>	<u>277.1</u>

1/ Subject to rescheduling based on agreed minutes April 1970 of participating countries and Protocol of August 1970 between Indonesia and U.S.S.R.

2/ All liabilities have been converted into US\$ based upon exchange rates to which parity change since December 1966 have been realized, except CMEA Countries, Mainland China and Yugoslavia.

3/ Excluded Non Guaranteed Debts.

Table 4.3: Debt Service, Pre-1967 Debt After Rescheduling Without Use of Bisque Clause /1  
(In millions of US dollars)

Year	Participating Countries /2			USSR, Eastern & Non-participating Other Countries /3			All Countries		
	Prin- cipal	Interest	Total	Prin- cipal	Interest	Total	Prin- cipal	Interest	Total
1970	21.4	-	21.4	37.6	-	37.6	59.0	-	59.0
1971	-	-	-	-	-	-	-	-	-
1972	-	-	-	-	-	-	-	-	-
1973	-	-	-	-	-	-	-	-	-
1974	-	-	-	-	-	-	-	-	-
1975	-	-	-	-	-	-	-	-	-
1976	-	-	-	-	-	-	-	-	-
1977	21.4	-	21.4	-	-	-	-	-	-
1978	21.5	-	21.5	-	-	-	59.0	-	59.0
1979	-	-	-	-	-	-	59.1	-	59.1
1980	-	-	-	-	-	-	-	-	-
1981	-	-	-	-	-	-	-	-	-
1982	-	-	-	-	-	-	-	-	-
1983	-	-	-	-	-	-	-	-	-
1984	-	-	21.5	-	-	-	-	-	-
1985	-	8.6	30.1	-	-	37.6	-	-	59.1
1986	-	-	-	37.6	9.8	47.4	-	18.4	77.5
1987	-	-	-	37.7	-	47.4	59.1	-	77.5
1988	-	-	-	-	-	47.5	59.2	-	77.6
1989	-	-	-	-	-	-	-	18.4	77.6
1990	-	-	-	-	-	-	-	18.5	77.7
1991	-	-	-	-	-	-	-	-	-
1992	-	-	-	-	-	-	-	-	-
1993	-	-	-	-	-	-	-	-	-
1994	-	8.6	30.1	-	9.8	47.5	-	-	-
1995	-	8.7	30.2	-	9.9	47.6	-	18.5	-
1996	-	-	-	-	-	-	-	-	-
1997	-	-	-	-	-	-	-	-	-
1998	-	-	-	-	-	-	-	-	-
1999	21.5	8.7	30.2	37.7	9.9	47.6	59.2	18.5	77.7
2000	-	-	-	-	-	-	-	-	-
<b>Total</b>	<b>644.2</b>	<b>129.5</b>	<b>773.7</b>	<b>1,129.3</b>	<b>147.6</b>	<b>1,276.9</b>	<b>1,773.5</b>	<b>277.1</b>	<b>2,050.6</b>

/1 Option to defer part of the principal payments.

Source: Bank Indonesia

Table 4.4: Debt Service, Pre-1967 Debt After Rescheduling with Full Use of Misco Clause  
(In millions of US dollars)

Year	Participating Countries				USSR, Eastern and Non-participating Other Countries				All Countries			
	Principal	Interest	Deferment Int.	Total	Principal	Interest	Deferment Int.	Total	Principal	Interest	Deferment Int.	Total
1970	10.7	-	-	10.7	23.5	-	-	23.5	34.2	-	-	34.2
1971	-	-	0.4	11.1	-	-	0.2	23.7	-	-	0.6	34.8
1972	-	-	0.9	11.6	-	-	0.4	23.9	-	-	1.3	35.5
1973	-	-	1.3	12.0	-	-	0.6	24.1	-	-	1.9	36.1
1974	10.7	-	1.7	12.4	-	-	0.8	24.3	34.2	-	2.5	36.7
1975	17.8	-	2.1	19.9	-	-	0.9	24.4	41.3	-	3.0	44.3
1976	17.8	-	2.3	20.1	-	-	1.1	24.6	41.3	-	3.4	44.7
1977	17.9	-	2.4	20.3	23.5	-	1.3	24.8	41.4	-	3.7	45.1
1978	21.5	-	2.6	24.1	37.6	-	1.5	39.1	59.1	-	4.1	63.2
1979	-	-	-	-	-	-	-	-	-	-	-	-
1980	-	-	-	-	-	-	-	-	-	-	-	-
1981	-	-	-	-	-	-	-	-	-	-	-	-
1982	-	-	-	-	-	-	-	-	-	-	-	-
1983	-	-	-	-	-	-	-	-	-	-	-	-
1984	-	-	-	24.1	-	-	-	39.1	-	-	-	63.2
1985	-	8.6	-	32.7	-	-	-	48.9	-	-	-	81.6
1986	-	-	-	-	37.6	9.8	-	48.9	59.1	18.4	-	81.6
1987	-	-	-	-	37.7	-	-	49.0	59.2	-	-	81.7
1988	-	-	-	-	-	-	-	-	-	-	-	-
1989	-	-	-	-	-	-	-	-	-	-	-	-
1990	-	-	-	-	-	-	-	-	-	-	-	-
1991	21.5	-	-	32.7	37.7	-	-	49.0	59.2	-	4.1	81.7
1992	29.5	-	2.6	40.7	51.8	-	1.5	71.7	81.3	-	12.7	112.4
1993	-	-	2.2	40.3	-	-	10.1	71.5	-	-	12.1	111.8
1994	-	8.6	1.9	40.0	-	9.8	9.9	71.4	18.4	18.5	11.6	111.4
1995	-	8.7	1.6	39.8	-	9.9	9.7	71.2	18.6	18.6	11.1	111.0
1996	-	-	1.3	39.5	-	-	9.5	71.1	-	-	10.7	110.6
1997	29.5	-	1.0	39.2	-	-	9.4	70.9	61.3	-	10.2	110.1
1998	29.6	-	0.6	38.9	-	-	9.2	70.7	81.4	-	9.6	109.6
1999	29.6	8.7	0.3	38.6	51.8	9.9	9.0	70.5	81.4	18.6	9.1	109.1
2000	-	-	-	-	-	-	8.8	-	-	-	-	-
Total	644.2	129.5	59.0	832.7	1,129.3	147.6	101.9	1,378.8	1,773.5	277.1	160.9	2,211.5

✓ Option to defer part of Principal Payments - up to 50% for participating countries and 37.5% for remaining countries.

Source: Bank Indonesia

Indonesia: Payments Due on External Debts  
Contracted from July 1, 1966 Through December 31, 1970<sup>1/</sup>  
(In millions of U.S. dollars)

	Principal	Interest	Total
1971	10.9	26.6	37.5
1972	11.6	30.8	42.4
1973	11.7	33.1	44.8
1974	15.2	33.4	48.6
1975	22.2	32.9	55.1
1976	25.9	32.4	58.3
1977	38.7	31.2	69.9
1978	47.1	30.1	77.2
1979	51.6	29.8	81.4
1980	59.7	28.3	88.0
1981	63.9	28.9	92.8
1982	64.2	27.8	92.0
1983 and after	<u>1,030.9</u>	<u>24.5</u>	<u>1,355.4</u>
Total	1,453.6	689.8	2,143.4

Source: Data supplied by the Indonesian authorities.

<sup>1/</sup> Excludes service payments due on \$20.0 million for which data are not yet available.

## KETENGER SYSTEM FORECAST

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	1969	1971	1977 Potential	%/Yr.	1981	%/Yr.	1986	%/Yr.	1991	%/Yr.	1996
<b><u>Residential</u></b>											
#Customers(1000)	33.412	34.0			60.0		69.5		78.7		88.9
Kwh/Customer	758.	768.			1160		1450		1810		2220
Millions Kwh	25.338	26.1	46.3		69.8	7.57	100.5	7.24	142.4	6.78	197.3
<b><u>Commercial</u></b>											
Millions Kwh	2.839	3.0	4.1		6.5		10.1		15.3		22.7
<b><u>Government</u></b>											
	5.224	5.5	7.6		8.6		10.0		11.6		13.4
<b><u>Industrial</u></b>											
	4.999	5.1	73.7		107.5		134.		168.		211.
<b><u>St. &amp; Traffic Lights</u></b>											
	1.353	1.4	2.2	10.0	3.5	9.0	5.4	8.0	7.9	7.0	11.1
<b><u>Total Sales</u></b>											
Millions Kwh	39.753	41.1	133.9		195.9	5.85	260.0	5.84	345.2	5.71	455.7
<b><u>Substa. Use E.</u></b>											
% Sales	.16	.2	.2		.4		.6		.7		.9
<b><u>Unaccounted for</u></b>											
% Sales	21.6	21.5	15.0		15.0		15.0		15.0		15.0
Millions Kwh E	8.585	8.9	20.1		29.4		39.0		51.8		68.4
<b><u>Net Production</u></b>											
Millions Kwh	48.400	50.1	154.2		225.7		299.6		387.7		523.8
<b><u>Sta. Use</u></b>											
Kwh (E)	.640										
<b><u>Gross Prod.</u></b>											
HU of Net Peak	49.045										
	6205		5430		5273		5340		5393		5429
<b><u>Net Peak MW</u></b>											
	7.8	8.4	28.4		42.8		56.1		73.7		96.7



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PLN DISTRICT X  
COMBINED TUNTANG & KETENGER FORECASTS

	1969	1971	1976 Tuntang Forecast Ketenger Estimate	1977 Forecast	1981	1986	1991	1996
<b>RESIDENTIAL</b>								
☛ Customers (1000)	153.662	158.5			266	321	379	444
KWH/Customer	767	782			1293	1671	2128	2637
Millions KWH	117.922	124.0		220	344	536	806	1171
<b>COMMERCIAL</b>								
Millions KWH	17.045	18.1		27	40	61	93	140
<b>GOVERNMENT</b>								
	27.533	29.5		41	47	57	68	81
<b>INDUSTRIAL</b>								
	24.855	29.1		215	323	404	508	640
<b>ST. &amp; TRAFFIC LIGHTS</b>								
	4.872	5.0		8	12	19	28	39
<b>TOTAL SALES</b>								
Millions KWH	192.227	205.7		511	766	1077	1503	2071
Substa. Use (E)	.298	.4		1	2	2	3	4
<b>Unaccounted For</b>								
Millions KWH	53.518	57.4		75	113	159	223	308
% Sales	27.8	27.9		14.6	14.8	14.8	14.9	14.9
<b>NET PRODUCTION</b>								
Millions KWH	246.043	263.5	481	587	881	1238	1729	2383
Hours Use of Net Peak	5929	5880	5100	5100	4980	5090	5170	5220
Net Peak, MW	41.5	45	94	115	177	243	335	457

1. Residential.

In preparing demand forecasts it was essential to consider changing conditions. Assuming a continuing restrictive policy during the period while the distribution systems are being rehabilitated under the proposed project, no improvement was made in the projected customers-per-household ratio between 1969 and 1977, but in 1977 this ratio was increased to reflect the addition of the residential customer waiting list. (Actually, portions of the waiting list will be added starting in 1972 as distribution systems in successive areas are rehabilitated, and continuing through 1976.) It was also assumed that a significant reduction in connection and capacity charges would be made by 1976, per Section 5.2(b) of AID Loan Agreement 497-H-019, bringing the cost of PLM service within reach of more households. Since the economic outlook for the area assumed an improvement in real income per capita of 2.25% per year, a 1.25% annual improvement in the ratio of customers to population has been assumed between 1976 and 1996 in all areas.

As the combined result of all these factors, the residential forecast for the Ketenger Electrical System indicates an increase in customers from 33,412 in 1969 to 88,900 in 1996, and in demand from 25.3 million KWH in 1969 to 46.3 million in 1977 and 197.5 million in 1996. See Annex VI.

In 1969, the estimated average annual use of S-1 customers varied from 607 to 717 KWH (out of a possible maximum of 960), while average annual use by R-1 and R-2 customers ranged from 1440 to 2185 KWH; 92% of residential customers were served on the S-1 rate and 8% on R-1 and R-2 rates. The average use of S-1 rate customers was calculated to hold constant until 1977, while R rate use was allowed to increase by a nominal 1% per year. Assuming that distribution system rehabilitation will be complete in 1976, the average use on both S and R rates has been lifted in 1977 to allow for the effect of voltage improvement. Subsequently, the increase in R rate use (excluding new customers diverted from the S rate by the anticipated revised rate policy) was set at 4% per year through 1981, and then cut back very slowly through 1996.

The final consideration in forecasting consumption per customer is the reasonableness of the level of use at the end of the study period. For R-rate customers (excluding those acquired by restricting the S rate) 1996 average use will range from 3800 KWH to 5,550 KWH. These levels are comparable to the average consumption of customers without electric water heating in many areas of the United States today. These levels can be reached but certainly not exceeded.

Average consumption for R-rate customers diverted by the S-rate restriction was estimated at a much lower level, increasing to 2400 KWH by 1996. While the estimated consumption of these customers hardly equals the lower fringe of the range for the other R-rate customers, it represents a significant load increment which would not have been realized without S-rate restriction.

ii. Commercial.

The forecast of commercial load was based on the assumption that revised commercial rates will be equitable and promotional by 1976, as assumed in the revised tariff schedule above. For 1977, allowance is made for serving customers on the waiting list and for increased use due to voltage improvement. After 1981 the increase in commercial consumption was maintained at a constant rate of 6% to 8% per year, depending on the municipality or rural area. The totals, however, are and will remain small, ranging from 2.8 million KWH in 1969 to 22.7 million KWH in 1996.

iii. Government.

This class of load is composed of sales to military complexes and to national, provincial and district government departments. In 1969, sales to the government were 5.2 million KWH compared to commercial sales of 2.8 million KWH and industrial sales of 5.0 million KWH. PLN has had difficulty in collecting promptly and in full for such services, but it was agreed between the GOI and the World Bank in IDA Development Credit Agreement 165 IND that any arrears would be paid and that these charges will be handled hereafter on a completely businesslike current basis systemwide.

The size of this load indicates that it must have grown rapidly in past years, but in the opinion of informed local sources future growth will be at a much slower rate of 3 to 4% per year. On this basis, sales to government in 1996 are forecast to be 13.4 million KWH.

iv. Industrial.

Industrial activity in the area served by the Ketenger Electrical System is low in relation to the work force. Some of the basic problems of the area, such as overpopulation and competition from other areas will continue for many years. However, other problems, such as the existing shortage of electric power, will be overcome as a result of this project, the FRG transmission project, and the proposed Semarang Steam Station.

Industrial sales in 1969 were 5.0 million KWH, only 12.5% of total sales. This consumption was limited by two types of restrictions during the daily peak period: 1) no consumption during peak hours by plants with self-generating capability (parallel operation not permitted), and 2) consumption permitted at other plants during such hours only at special penalty rates.

It is estimated that total industrial self-generating capability in the Ketenger Electrical System area is approximately 10 MW. The magnitude and importance of this existing industrial potential is underscored when compared to the current system peak of about 7.8 MW. Some of this unconnected potential is on the PLN waiting list and other plant owners or managers would apply for service if it were made available to them. Since small high-speed diesels burn expensive fuel and have a rather short life, the balance of this potential will be realized either when PLN power becomes available or as soon thereafter as units require replacement.

The result of field investigations has been the confirmation that heavy industrial load increases can be expected in 1977, or as soon thereafter as 100% load capability is attained. The combined result of all factors, including longer hours of operation, is expected to be an increase from 1971-77 of about 1400% in industrial sales, to 73.7 million KWH. In the next four years, by 1981, annual growth and PLN backdown of additional industrial generation is expected to result in a further increase of about 45% above the 1977 level, i.e., to 107.5 million KWH. After 1981, growth of industrial sales has been estimated at 5% per year. This growth rate is compatible with the combined requirements of a work force increasing at about 1.3% per year, a 2.5% increase in real income per capita, and an allowance of about 3% to cover greater mechanization of production. By 1996, total industrial demand is projected at 211 million KWH.

#### Peak Load Projections.

In 1969, the net peak load in the Ketenger Electrical System was 7.8 MW. Net generation for calendar year 1969 of 48.4 million KWH represented a load factor of 70.8%.

There are two basic causes for this high load factor: 1) daily restriction of industrial load during peak hours, and 2) the large number of S-1 customers who habitually leave lights burning all night, partly for security, partly to inhibit rats and roaches and partly because they pay a flat monthly charge depending on volt-ampere demand rather than on energy consumption. By 1976, removal of industrial restrictions and freezing of the S-1 rate should tend to lower the system load factor.

However, the potential industrial load will require power usage for long hours for 2- to 3- shift operation. Also the residential forecast assumes an increase in consumption per customer partly realized by an increase in the use of refrigerators and other

long-hour-use appliances. These changes will tend to prevent a reduction in system load factor.

It is estimated that the result of these conflicting influences will be an initial reduction of 8.8% in load factor, down to 62%, when 100% load capability is attained. The low point in 1981 will be followed by a moderate improvement up to 1996, which covers the balance of the period under study.

#### Current Power Costs

Tariff schedules are established on a national basis. Until the beginning of relative economic stability in 1968, tariff schedules changed frequently and bore little relationship to cost of service. The latest revision (April 1968) established a complex schedule which was a preliminary step toward a more rational tariff structure. The principal classes of customers, social, residential, industrial, and commercial have considerably different average costs of power. The average cost/KWH for these classes\* is:

S-1 Unmetered Residential (approx.)	1.0¢/KWH
S-2 Hospitals, Churches, etc	0.8¢/KWH
R-1 and 2 Metered Residential	2.5¢/KWH
P Industrial **	3.0¢/KWH
K-1, 2 and 3 Commercial	4.7¢/KWH

The Chas. T. Main illustrative rate structured for PLN, discussed in Section II.D.3, appears in Annex VI-B following.

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\* 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.

ILLUSTRATIVE MONTHLY RATES FOR ELECTRIC POWER SERVICE  
(Chas. T Main)

Residential & Small Power Rate:

8.8 Rp/KWH for 1st 50 KWH/month  
8.3 Rp/KWH for next 50 KWH/month  
7.8 Rp/KWH for next 100 KWH/month  
7.3 Rp/KWH for all over 200 KWH/month

Large Power Rate:

Demand: 1st 50 KW @1200 Rp/KW/month  
next 450 KW @1100 Rp/KW/month  
next 500 KW @1000 Rp/KW/month

All over 1000 KW @ 900 Rp/KW/month

Energy: 1st 150 hours use of demand 4.0 Rp/KWH/month  
next 150 hours use of demand 3.6 Rp/KWH/month

All over 300 hours use of demand 3.2 Rp/KWH/month

## ANNEX VI - C

PLN REGION X  
Investment Expenditures  
((\$000))

<u>Project</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>Total</u>
AID Loan 497-H-019 (Tuntang Rehab.)								
A. US\$	300	2,900	6,300	5,300	2,000			16,800
B. Third Country	700	200						900
C. Local Currency	100	1,300	1,900	1,200				4,500
Semarang Steam Plant								
A. US\$		600	2,000	11,100	6,000			19,700
B. Local Currency		100	1,200	3,500	1,000			5,800
Ketenger Rehabilitation & Transmission								
A. US\$								
B. Local Currency		2,700	6,500	7,800	4,000			21,000
FRG Transmission Project		900	2,000	2,400	1,200			6,500
A. Third Country	1,000	3,500	3,500	1,500	500			10,000
B. Local Currency	200	900	900	400	100			2,500
<b>Total Project Costs by Year</b>	<b>2,300</b>	<b>13,100</b>	<b>24,300</b>	<b>33,200</b>	<b>14,800</b>	<b>0</b>	<b>0</b>	<b>87,700</b>
<b>Accumulated Project Costs</b>	<b>2,386</b>	<b>14,558</b>	<b>38,670</b>	<b>77,918</b>	<b>88,535</b>	<b>90,165</b>	<b>90,165</b>	<b>90,165</b>

KETENGER TRANSMISSION AND DISTRIBUTION REHABILITATIONCOUNTRY 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 consonant with the overall United States objectives in Indonesia. Therefore the Country Team recommends approval thereof.



Richard M. Cashin  
Director, USAID Indonesia



Peter A. Seip  
Counselor for Economic Affairs



KETENGER TRANSMISSION AND DISTRIBUTION REHABILITATIONCERTIFICATION PURSUANT TO SECTION 611 (e) OF THE  
FOREIGN ASSISTANCE ACT OF 1961, AS AMENDED

I, Richard M. Cashin, 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 PLN organization and a thorough reform of PLN's management, operations, rate structure, etc.;
- B. the inclusion in an existing AID capital assistance project of substantial management and operating assistance to PLN Region X plus covenants to implement reforms derived from those carried out by Central PLN under the IBRD project;
- C. the inclusion in subject capital assistance project of substantial training for system supervision, operation and maintenance;
- D. the inclusion in subject capital assistance project of provisions for project implementation and local currency availability;
- E. 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 are taking or have 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.

*R. M. Cashin*

Richard M. Cashin  
Director, USAID Indonesia

AID-DLC/P-975/A Draft

LOAN AUTHORIZATION

A.I.D. Loan

Project No. 497-22-220-213

CAPITAL ASSISTANCE LOAN AUTHORIZATION

Provided from: Development Loan Funds  
(Indonesia: Perusahaan Listrik Negara;  
Ketenger Transmission and Distribution 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 Twenty One Million Dollars (\$21,000,000) to assist in financing the foreign exchange costs of equipment, materials and services necessary for the construction of certain steam generation electric power facilities of Perusahaan Listrik Negara (hereinafter called "Beneficiary") located in Semarang, 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. Unless A.I.D. should otherwise agree in writing, equipment, materials, and services financed under this loan shall have their source and origin in countries under A.I.D. Geographic Code 941 (Selected Free World).

b. The GOI will lend the proceeds of this loan 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 equipment necessary for spare and replacement parts for diesel generator and other equipment maintenance.

(2) Beneficiary will establish a reserve fund in Indonesian currency equivalent to the total Indonesian currency costs of the project for the upcoming six months as estimated by the consultant, said funds to be replenished to the appropriate level quarterly, or more often in the said estimates, or such lesser amount as A.I.D. shall agree to in writing, which shall be used for the execution of the project until the project is completed.

(3) Beneficiary shall institute reforms pursuant to recommendations of a management consultant made in accordance with a Project Agreement between Beneficiary and the International Development Association.

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

\_\_\_\_\_  
John A. Hannah

\_\_\_\_\_  
Date

Clearances:

STATUTORY CHECKLISTI. COUNTRY PERFORMANCEA. 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 favorable climate for foreign and domestic private enterprise and investment.

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

(a) Indonesia is giving priority attention to projects which aim at increasing food production, particularly the production of rice. The Government has included over 70 technical and capital assistance projects in the fields of Agriculture and Irrigation in its priority list of projects for fiscal year 1971/1972. The majority of the above projects are directly concerned with increasing food production, and improved food storage, distribution and marketing.

(b) The GOI enacted a comprehensive law with built-in incentives for encouraging foreign capital investment, concluded an Investment Guaranty Agreement with the U.S., and enacted banking legislation which will permit foreign banks to open branches in Indonesia. Credits are extended at favorable terms to importers of capital goods and up to five-year tax credits may be obtained for new investment in plant and facilities subject to negotiation.

(c) Although the Government owns the majority of the large enterprises the Government is encouraging private domestic investment. Officials of State Enterprises are receiving more freedom in management and some State Enterprises are being converted to private corporations. Political parties have been active, press has had considerable freedom and national

elections are scheduled for July 1971. The Parliament is playing a significant role in the budgetary process inasmuch as the annual budget must be authorized by Parliament and expenditures reported in an "Annual Report of Budgetary Accounts".

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

(d) With the ending of confrontation with Malaysia in 1966 the Suharto Administration reversed the foreign interventionist policy of the Sukarno regime. Military expenditures have been sharply reduced as the government has concentrated the nation's domestic resources -- and foreign aid receipts -- on achieving economic stability and starting an ambitious development program.

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

(e) The cooperating Government will contribute local currency from the development budget to meet the local currency expenditure requirement of the project. In addition, the GOI has contributed local currency and logistic support for contractor personnel conducting feasibility studies and housing, local transportation and per diem of USAID technicians through contributions to the USAID trust fund.

(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.

(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. Inflation has been curbed and the country has stabilized prices and exchange rates. Effective December 9, 1970 the GOI established one uniform exchange rate for all types of foreign exchange. The rate has remained stable at Rp.378/US\$1. The rate of inflation has been reduced from 636.8 percent per annum in CY 1966

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

to 9.4 and 8.8 percent in calendar year 1969 and 1970 respectively. Tax revenue in real terms have increased each year at the rate of 10 to 40 percent since 1967 and are projected at the rate 25 to 30 percent for FY 71/72. Approximately 16 percent of the development budget is devoted to the social field which includes education, health, family planning, housing, manpower, social welfare, drinking water supply, culture and religion. The cooperating Government has encouraged self-help projects such as Food for Work and other irrigation and road building projects carried out through its Department of Manpower.

B. Relations with the United States

1. FAA §620(c). Is the government indebted to any U.S. citizen for goods or service 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?

4. FAA §620(j). Has the country permitted, or failed to take adequate measure 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?

5. FAA §620(1). Has the government instituted an investment guaranty program under FAA §2 (b)(1) for the specific risks of inconvertibility and expropriation or confiscation?

620(e)(1). The majority of businesses and property owned by U.S. citizens which was nationalized during the Sukarno regime (principally in 1964 and early 1965) has been returned to U.S. owners or mutually acceptable settlement negotiated. The Government of Indonesia has indicated its willingness to return the remaining nationalized assets in a Presidential Decree dated December 14, 1966.

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

620(1). 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). 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; however, repayment of one FAA loan has been rescheduled by Bilateral agreement dated 3/16/71 in accordance with terms of the Paris Agreed Minutes of April 24, 1970.

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.

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 receiving U.S. assistance?

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



2. FAA §620(a), 620(n), 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?

3. FAA §620(u); App. §108. 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(a). We have no information of any such action by Indonesia.

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 A.I.D. Geographic Code 941 (Selected Free World).

#### 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.

2. FAA §620(s). What is (a) the percentage of the country's budget devoted to military purposes, (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). (a) The Department of Defense portion of the State Budget has ranged from a high of 33% in CY 1967 to a low of 24% in the FY 1971/72 draft budget.

(b) We have no knowledge of any significant expenditures of foreign exchange for the military. Less than 10% of the military budget is allocated for foreign exchange purchases. Moreover, the Department of Defense budget includes substantial amounts for construction of roads, bridges and other civil work projects.

(c) We are aware of no such purchases. The cooperating country is currently distributing P.L. 480, Title I rice and cotton yarn to the armed forces. The rice distributed to the armed forces is part of the total distribution of rice allowance to Government employees and their dependents. The departments (including the military) and State Enterprises currently pay for the rice through budget transfers

\*and (c) has the country spent money for sophisticated weapons systems purchased since the statutory limitation became effective?

at the rate of Rp.45/Kg. which approximates the local market price. As much as 50% of P.L. 480 Title I rice may be distributed to the military forces. Cotton yarn P.L. 480, Title I valued at approximately \$8 million imported during the past three years has been utilized by the military to make uniforms. The military pays for the cotton yarn at prices approximating the local market price. Although the military utilize these commodities we are of the opinion that use of the commodities does not constitute diversion of development assistance inasmuch as the transaction is similar to a commercial sale and does not permit the military to expand its operation beyond that which can be accomplished through use of it's budget allocation. Local currency sales proceeds of P.L. 480 imports are channeled through the development budget which is used almost entirely for economic and social development.

The government is placing primary emphasis on economic development and not diverting it's own resources for unnecessary military expenditures.

## II. CONDITION OF THE LOAN

### A. General Soundness

#### Interest and Repayment

1. FAA §§201(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). Although Indonesia's debt burden is 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, but a comprehensive agreement providing for the consolidation and rescheduling of Indonesia's pre-1966 debts has been made between Indonesia and its Free World creditors, including the U.S. 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. The rate of interest is not higher than the country's applicable legal rate of interest.

#### 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-Government 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(c). 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(c). This loan will finance goods and services for improved facilities for electric power service. Facilities are expected to be effectively utilized and it is expected that the system will be operated in a sound manner. The Government has entered into an agreement with a management consultant to make recommendations regarding governing laws, asset revaluation, traffic schedule, employment practices and operating procedures. This loan agreement provides for training and technical assistance in implementation of these reforms.
2. FAA §611(a)(1). Have engineering, financial, and other plans necessary to carry out assistance, and a reasonable firm estimate of the cost of assistance to the U.S., been completed?

611(a)(1). "Yes.
3. FAA §611(b); App. §101. If the loan or grant is for a water or related land-resources 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-resources construction project.
4. FAA §611(c). 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(c). The certification of the USAID Director is in Annex VIII.

**B. Relation to Achievement of  
Country and Regional Goals**

**Country Goals**

**1. FAA §§207, 281(a).  
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. Additional assistance is being provided to the PLN central organization under IDA loan. These loans will require establishment of PLN as a fully autonomous institution. Development of capability by PLN personnel will be a key step in bringing about economic development through the initiative of people within Central Java. Moreover, the provision of adequate electricity itself will provide a means for participation by the people in the task of economic development.

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 PIN Region X will be carried out as part of this project.

d. Developing programs to meet public health needs.

No direct relation. Indirect benefits to public health will be obtained by making available to the public such things as refrigeration, hot water, etc.

e. Assisting other important economic, political, and social development activities, including industrial development; growth of free labor unions; co-operatives 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 commercial and industrial enterprises. 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 providing reliable and increased electrical power.

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. The provision of adequate electric power will promote economic development by encouraging new commercial and industrial enterprises.

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?

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.

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?

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

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 project will make possible training in basic technical and managerial skills for additional personnel.

601(a). The loan will facilitate purchase by the country of needed equipment and services. The project will stimulate industrial and commercial activities in such areas as agriculture, business, intermediate processing of agriculture products, and small manufacturing, which will increase the probable quantity and value of commodities available for export, will assist Indonesia in developing more sophisticated products which may be competitive in international trade and create a demand for many new products and equipment required for new commercial and industrial enterprises and private consumption; (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.

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 §619. 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 §209. 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 ICGI). The assistance is being coordinated with the advice of the IBRD.



C. Relation to U.S. Economy

Employment, Balance of  
Payments, Private Enter-  
prise

1. FAA §5201(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). The goods and services financed by this loan will be obtained from A.I.D. Geographic Code 941 (Selected Free World). It is anticipated that the U.S. will supply a substantial amount of goods and services under the loan. In addition, increased electrical power availability will create a demand for industrial and consumer goods which may be imported from the U.S.A.
2. FAA §612(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. E115. 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 will be from A.I.D. Geographic Code 941.

4. FAA §608(a). Provide information 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 PLN 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. The Loan Agreement will contain a provision that American small business will have an opportunity to participate in furnishing eligible items.

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 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, construction and commodity procurement will be awarded on a competitive basis.

#### Procurement

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

602(a). Yes, procurement is limited to A.I.D. Geographical Code 941.

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. §106. Does the loan agreement provide, with respect to capital projects, for U.S. approval of contract terms and firms? 106. Yes.

3. FAA §620(k). If the loan is for construction of a production 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). Has the  
President determined  
that the country is not  
dominated or controlled  
by the international  
Communist movement? If  
the country is a Commu-  
nist 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?

620(b), 620(f); App. 109(b). Yes,  
the required determination has been  
made.

5. 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, pro-  
motes or assists the  
foreign aid projects of  
the Communist-bloc  
countries?

620(h). The loan agreement will  
contain a provision covering this  
requirement.

6. App. §118. Will any  
funds be used to finance  
procurement of iron and  
steel products for use in  
Viet-Nam other than as  
contemplated by §118?

110. No.

7. FAA §636(1). Will any part of this loan be used in financing non-U.S.-manufactured automobiles? If so, has the required waiver been obtained?

636(1). No.

8. 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.

9. FAA §620(g). 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.

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

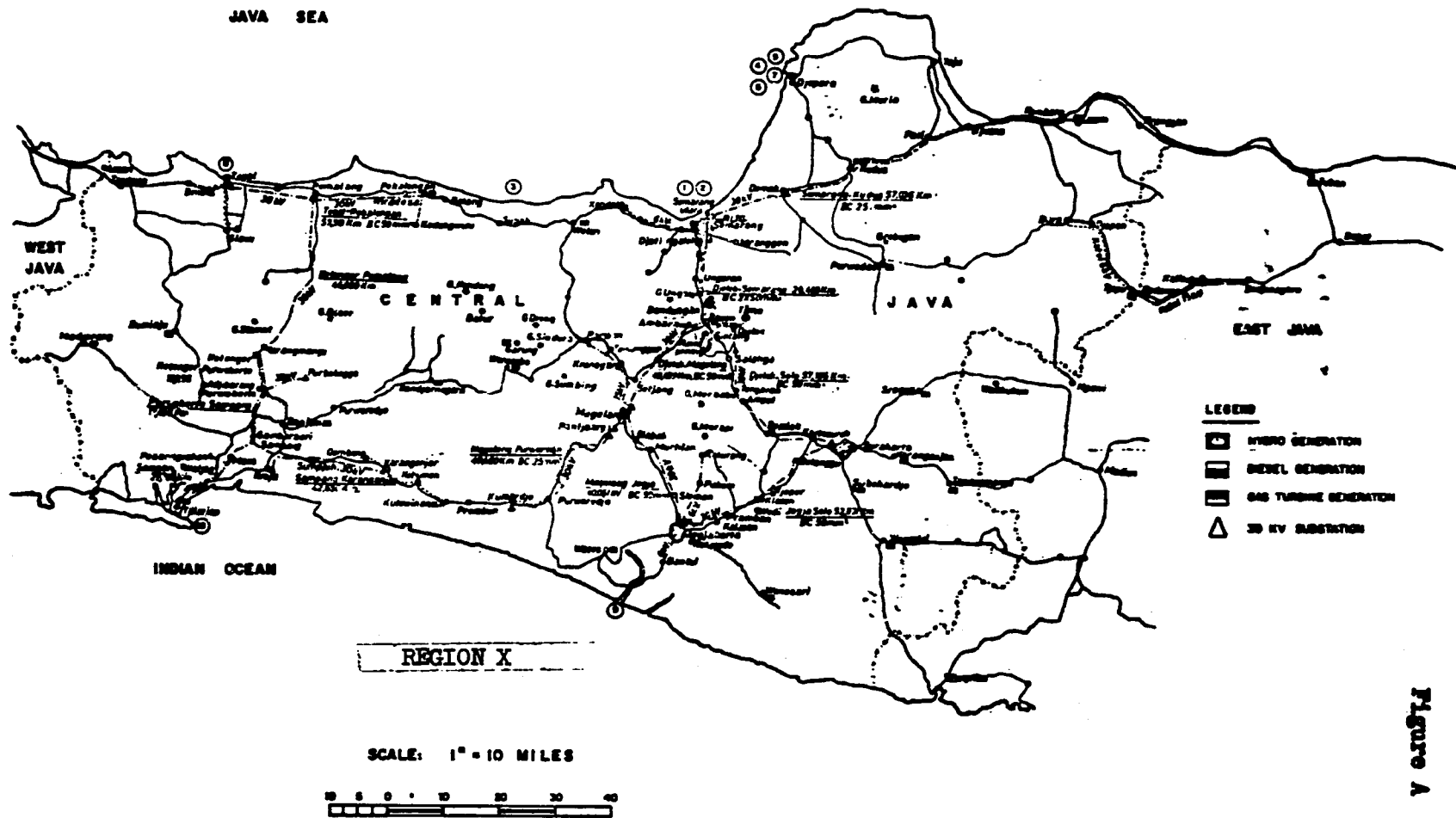
201(f). It is anticipated that a portion of the work will be accomplished through direct hire of personnel and subcontract with private firms in the recipient country.

11. 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.

13. MMA § 901.b. Does the loan agreement provide for compliance with U.S. shipping requirements, that at least 50% of the gross tonnage of all commodities financed with funds made available under this loan (computed separately by geographic area for dry bulk carriers, dry cargo liners, and tankers) be transported on privately owned U.S.-flag commercial vessels to the extent such vessels are available at fair and reasonable rates for U.S. flag vessels?

MMA § 901.b. Yes.



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FIGURE A

Figure A

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