A G R E E M E N T

No. PJ. 007 /PST/ 1987

between

PERUSAHAAN UMUM LISTRIK NEGARA

and

TOKYO ELECTRIC POWER SERVICES CO., LTD.

in association with

P.T. YODYA KARYA

for

ENGINEERING SERVICES

for

KOTAPANJANG HYDROELECTRIC POWER PROJECT

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A_P_P_E_N_D_I_C_E_S

AGREEMENT

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P.T. YODYA KARYA

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ENGINEERING SERVICES

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KOTAPANJANG HYDROELECTRIC POWER PROJECT

This Agreement made and entered into this ....15th.... day of the month January in the year 1987 by and between PERUSAHAAN UMUM LISTRIK NEGARA (hereinafter referred to as "PLN") with its main office located at Jalan Trunojoyo Blok M I/135, Kebayoran Baru, Jakarta Selatan, Indonesia, on the one part, and TOKYO ELECTRIC POWER SERVICES CO., LTD. with its main office located at No. 1-4, Uchisaiwai-cho 2-chome, Chiyoda-ku, Tokyo, Japan in association with P.T. Yodya Karya with its main office located at Jalan D.I. Panjaitan - Kaveling 8, Cawang, Jakarta, Indonesia (hereinafter referred to as "the ENGINEER") on the other part.

WITNESSETH

Whereas, PLN intends to execute the engineering design of Kotapanjang Hydroelectric Power Project (hereinafter referred to as "the PROJECT");

Whereas, the Overseas Economic Cooperation Fund of Japan (hereinafter referred to as "the FUND") has agreed to provide foreign currency financing support for the SERVICES by Loan Agreement No. IP - 293 dated February 15, 1985 between the GOVERNMENT and the FUND, and the GOVERNMENT has agreed to provide Rupiah financing required for the SERVICES.

Whereas, PLN desires to employ the ENGINEER to furnish the engineering services for the PROJECT (hereinafter referred to as "the SERVICES"); and

Whereas, the ENGINEER represents himself to be technically qualified and experienced in the type of work to be undertaken and has offered to undertake and perform the SERVICES;

NOW THEREFORE, the parties hereto mutually agree as follows :

ARTICLE__1

DEFINITIONS

Unless the context otherwise requires, the following terms whenever used in this AGREEMENT have the respective meaning :

"AGREEMENT" means the contract together with all APPENDICES attached hereto and forming an integral part hereto entered into between PLN and the ENGINEER to provide engineering services to carry out the PROJECT all as described in this document.

"PLN" means Perusahaan Umum Listrik Negara, a Perusahaan Umum (state owned public corporation), duly established and existing under the laws of the Republic of Indonesia, with its principal offices at Jalan Trunojoyo Blok M I/135, Kebayoran Baru, Jakarta Selatan, Indonesia, which shall include its legal successors and assigns.

"ENGINEER" means Tokyo Electric Power Services Co., LTD. with its principal offices at No. 1-4 , Uchisaiwai-cho 2-chome, Chiyoda-ku, Tokyo, Japan (hereinafter referred to as "TEPSCO") in association with P.T. Yodya Karya with its main office located at Jl. D.I. Panjaitan-Kaveling 8, Cawang, Jakarta, Indonesia (herein after referred to as "Y.K.") who renders the SERVICES for the PROJECT whereby TEPSCO is solely responsible firm.

"GOVERNMENT" means Government of the Republic of Indonesia as represented by Directorate General of Electric Power and New Energy, Ministry of Mines and Energy.

"FUND" means Overseas Economic Cooperation Fund of Japan.

"SERVICES" means the engineering services for the PROJECT to be furnished to PLN by the ENGINEER ,s qualified and experienced personnel under this AGREEMENT.

"PROJECT" means Kotapanjang Hydroelectric Power Project.

"PROJECT SITE" means the lands and places on, under, in or through where the SERVICES of the PROJECT is to be executed.

"PERSONNEL" means the experts, of the ENGINEER (HOME OFFICE PERSONNEL and FIELD PERSONNEL) who are qualified and experienced to be assigned to perform the SERVICES, and administrative staff.

"FIELD PERSONNEL" means the Y.K. personnel and TEPSCO expatriate personnel deputed to Indonesia for the performance of the SERVICES.

"HOME OFFICE PERSONNEL" means all TEPSCO experts assigned for the HOME OFFICE work for the purpose of performing the ENGINEER's obligation under the AGREEMENT.

"PROJECT DIRECTOR" means the ENGINEER's senior representative who will direct, supervise and coordinate all works carried out in connection with the PROJECT by the ENGINEER's PERSONNEL and have overall responsibility of the SERVICES and shall liaise with PLN.

"PLN PROJECT MANAGER" means the PLN Pemimpin Proyek who will have final authority at the PROJECT SITE on behalf of PLN.

"RESIDENT ENGINEER" means FIELD PERSONNEL stationed in Indonesia for a period of 6 months or more consecutively, for the performance of the SERVICES.

"RESIDENT MANAGER" means the person designated by the ENGINEER to direct and coordinate the execution of the SERVICES in Indonesia.

"HOME OFFICE" means the TEPSCO's principal office in Japan, where the home office work is to be carried out.

"FIELD OFFICE" means the offices of the ENGINEER in Indonesia to be established by the ENGINEER for the performance of the SERVICES.

"AUTHORIZED REPRESENTATIVE" means the person duly authorized by PLN or the ENGINEER as the case may be, in connection with the execution of the SERVICES.

"MONTHLY RATE" means the billing rate of the ENGINEER which comprises basic salary, social charge, overhead, overseas allowances and fee.

"HOURLY RATE" means the HOME OFFICE MONTHLY RATE divided by 162.5.

"DAILY RATE' means MONTHLY RATE divided by 30.

"LOCAL CONSULTANT" (excluded Y.K.) and "LOCAL CONTRACTOR" means Indonesian firm or firms, to which works in Indonesia are subcontracted by the ENGINEER with the approval of PLN.

"DEPENDENTS" means a spouse and a maximum of two (2) unmarried children under eighteen (18) years of age.

"DAY", "WEEK", "MONTH", "YEAR", shall mean calendar day, calendar week, calendar month, calendar year respectively.

"Man-Month" shall mean a period of one month worked by one person.

"Writing" or "Written" means any type-written, or printed statement and/or letter duly signed by the AUTHORIZED REPRESENTATIVE of PLN or the ENGINEER and cablegram or telex, as the case may be.
Urgent messages may be handwritten, subject to typewritten confirmation.

Should the same word appear in several parts of this AGREEMENT and will there be any ambiguity in the interpretation thereof, the word shall be construed in accordance with the context.

Words indicating the singular number include the plural number and vice versa where the context requires.

ARTICLE 2

OBJECTIVE

The objective of the SERVICES is to execute the engineering services for the efficient implementation of the PROJECT as described in APPENDIX-B attached hereto.

ARTICLE 3

DESCRIPTION OF THE PROJECT

The description of the PROJECT is set forth in APPENDIX-A attached hereto.

ARTICLE 4

SERVICES

4.1. Scope of the SERVICES

The scope of the SERVICES to be performed by the ENGINEER is described in detail in APPENDIX-B attached hereto.

4.2. Period and Time Schedule of the SERVICES

The ENGINEER shall commence the SERVICES within 4 (four) weeks from the date of signing of this AGREEMENT. However, this AGREEMENT is subject to the approval of the GOVERNMENT and the FUND.
The SERVICES shall end within 16 (sixteen) months thereafter as stipulated in the schedule of services shown in APPENDIX-C attached hereto.
In case of Change, Modification, Amendment or Force Majeure, as defined in ARTICLES 9 & 11.15 of this AGREEMENT, the period of the SERVICES may be reasonably extended upon mutual written agreement.

ARTICLE 5

ORGANIZATION AND ASSIGNMENT OF PERSONNEL

5.1. Organization

The ENGINEER shall establish a project organization, under the overall direct management and supervision of a PROJECT DIRECTOR who will be assisted by a RESIDENT MANAGER and will staff the organization with an adequate component of qualified and experienced PERSONNEL as required for the efficient and timely execution of the SERVICES.
The ENGINEER shall designate a RESIDENT MANAGER from the ENGINEER's PERSONNEL as an AUTHORIZED REPRESENTATIVE to represent and act for the ENGINEER in performing the SERVICES in Indonesia, subject to the approval of PLN.

5.2. Assignment of PERSONNEL

(a) The ENGINEER shall assign its PERSONNEL to the PROJECT whose names and their respective schedules are shown in APPENDIX-D-1 attached hereto.
In case the ENGINEER shall have to substitute its PERSONNEL with other than those whose names are specified in APPENDIX-D-1, the ENGINEER shall submit curriculum vitae of such PERSONNEL whose qualification and experience is equal or better than the PERSONNEL to be substituted and to be received by PLN at least 30 (thirty) days before their scheduled assignment.
Substitution for such PERSONNEL shall not be made without prior written approval of PLN.
All cost of replacement shall be borne by the ENGINEER.

(b) PLN reserves the right to request the ENGINEER in writing to replace any of its PERSONNEL whose services and/or activities in PLN judgement are found unsatisfactory or for reasons of misconduct, misbehaviour or illness. The ENGINEER shall take necessary action to comply with such request, and all cost incurred for such replacement, (including travelling expenses and transportation cost of personal effects together with that for their DEPENDENT if any), shall be borne by the ENGINEER.
In the event that, contrary to expectations, any of the assigned PERSONNEL has to be withdrawn from the SERVICES, the ENGINEER

shall substitute at its cost, suitable PERSONNEL of equivalent or better qualifications with prior written approval of PLN.

(c) None of the PERSONNEL shall be withdrawn from their assignment without prior written approval of PLN. Any request for replacement shall be accompanied by a curriculum vitae for the replacement and must be received by PLN at least thirty (30) days prior to his schedule of replacement.
When the approval required for replacement of PERSONNEL has been granted in writing by PLN, the ENGINEER shall allow two weeks overlap to prevent any loss of continuity.
All cost of such replacement shall be borne by the ENGINEER.

(d) PERSONNEL should speak and write English.

(e) The ENGINEER shall obtain medical reports confirming that PERSONNEL and any authorized DEPENDENTS assigned to Indonesia for a period of 90 (ninety) days or more are physically fit prior to their departure for Indonesia.

(f) The RESIDENT MANAGER will be interviewed by PLN before taking up his assignment.

(g) All PERSONNEL shall be permanent employees of the ENGINEER or such other special experts as PLN may approve. They shall have held successfully the same position and responsibility for at least one similar project and shall have the capability, authority and responsibility to make decisions/modifications.

(h) In addition to their technical qualifications, the ENGINEER's FIELD PERSONNEL shall :
- Have a cleared past record.
- Be familiar with the metric system.
- Fully understand the ENGINEER's responsibilities for the SERVICES.
- Be capable and willing to adapt to and understand local conditions and customs.

5.3. Man-Months

To fulfil the SERVICES, the ENGINEER shall mobilize its well qualified and experienced PERSONNEL as specified in APPENDIX-D-1 attached hereto.

5.4. Travel, Leave and Disability

(a) PERSONNEL assigned to the SERVICES in Indonesia shall be paid round trips by air, IATA-economy class, to Jakarta by the most practicable direct route.
For each leg of the trip they shall be allowed 10 (ten) kg of excess baggage. The travel time between HOME OFFICE and Jakarta and vice-versa shall not exceed 2 (two) days each way.

(b) All PERSONNEL's travel to be paid for under this AGREEMENT shall be subject to prior written approval of PLN.

(c) FIELD PERSONNEL shall be entitled to all Indonesian statutory holidays, which time shall be considered as time worked on the SERVICES.

(d) The ENGINEER's company policy covering physical disability will apply to FIELD PERSONNEL under this AGREEMENT and as provided for in the employment contracts between the FIELD PERSONNEL and the ENGINEER. Disability allowances paid by the ENGINEER to the FIELD PERSONNEL are not reimbursable under this AGREEMENT.

(e) RESIDENT ENGINEER assigned for 12 (twelve) consecutive months or more shall be granted 12 (twelve) working days leave annually, at times approved by PLN and consistent with the PROJECT schedule.

(f) FIELD PERSONNEL shall be granted a maximum cumulative 12 (twelve) days sick leave (or 1 (one) month in case of hospitalization) for each full year of continuous service in Indonesia.
This sick leave shall be considered as time worked and the FIELD PERSONNEL shall be entitled to full pay.

(g) RESIDENT ENGINEER assigned for more than 24 (twenty-four) months continuous services in Indonesia, will be entitled to an annual home leave of 4(four) weeks from the second year on.

However, the ENGINEER will not be reimbursed for the part of its home leave in excess of the normal leave (as per ARTICLE 5.4.(e)). RESIDENT ENGINEER will be entitled to the extra return trip only if his return to Indonesia is scheduled to serve for a further period of not less than 6 (six) consecutive months.
For carrying out this home leave the RESIDENT ENGINEER will be entitled to be accompanied by its DEPENDENTS, and the cost of the trip will be reimbursed.

(h) The ENGINEER shall maintain current leave records of the FIELD PERSONNEL and the ENGINEER shall submit monthly statements to PLN of any leave taken.

ARTICLE 6.

UNDERTAKINGS OF THE ENGINEER

6.1. Responsibities of the ENGINEER

(a) In performing the SERVICES, the ENGINEER shall, following the normal code of ethics for engineers always act in the interest of PLN, with due diligence and efficiency and in conformity with sound engineering, public utility, administrative and financial practices for the full and satisfactory completion of the SERVICES.

(b) The ENGINEER shall act at all times so as to protect the interests of PLN and will always take all reasonable steps for the PROJECT legally, technically and administratively to keep engineering costs to a minimum, consistent with sound engineering practices.

(c) The ENGINEER shall also implement and carry out the SERVICES according to General Approach and Work Plan as contained in APPENDIX-I, as amended and modified as shown in Minutes of Meeting in APPENDIX-J.

6.2. Cooperation of the ENGINEER

In performing the SERVICES the ENGINEER shall cooperate with PLN and other agencies and contractors retained by PLN for the satisfactory completion of the SERVICES and shall also furnish all information relating to the SERVICES and the PROJECT which PLN may from time to time reasonably request.

6.3. Specifications, Designs and Reports

(a) The ENGINEER shall discuss with PLN during the preparation of design reports, specifications and designs to ensure embodying the latest design criteria including PLN standards as far as available and applicable.
All documents shall be in presentable form and thoroughly checked before submission to PLN.

(b) The ENGINEER shall ensure that the specifications and designs and all documentation relating to the procurement of goods, construction works and SERVICES for the PROJECT are prepared on an impartial basis so as to promote international competitive bidding.

(c) The ENGINEER shall specify technical standards which are accepted and well known among industrial nations. PLN standards shall be used as far as available and applicable.

(d) The ENGINEER shall ensure that any documents relating to the procurement of goods and services for the PROJECT will be in conformity with the FUND's guidelines and PLN's requirements for procurement.

(e) Reports and documents which must be prepared by the ENGINEER are specified in APPENDIX-G.

(f) The ENGINEER shall assist PLN in supplying relevant information and preparing reports required by the GOVERNMENT and the FUND during the period of the SERVICES and shall follow all aplicable rules and regulations of both.

(g) The ENGINEER will promptly inform PLN the occurence of any event or condition that might delay or prevent completion of the SERVICES in accordance with the schedule in APPENDIX-C indicating what steps are being taken or suggested by the ENGINEER to meet the situation.

(h) In case of failure of the ENGINEER to meet any contractual obligations such as lack in performance, incomplete reporting, delay of submission of reports/documents, failure to report delays promptly etc, PLN shall withhold all related payments due to the ENGINEER until all obligations are met and assurance given that steps have been taken to guarantee the future compliances.

6.4. Records and Audit

(a) The ENGINEER certifies that the representations made to PLN at the time of the negotiation of this AGREEMENT as to actual MONTHLY RATES and other charges and benefits paid or incurred by the ENGINEER are true and correct to the

best of the ENGINEER's knowledge, and the ENGINEER acknowledges that PLN relies on this certification.

(b) The ENGINEER shall keep accurate and systematic records and accounts in respect of the SERVICES in such form and detail as is customary and as shall be sufficient to establish accurately that the costs and expenditures referred to in ARTICLE 8 have been duly incurred.

(c) The ENGINEER shall permit, or obtain permission for, duly AUTHORIZED REPRESENTATIVE(S) of PLN, the GOVERNMENT's Directorate of State Accounts and/or the FUND (including any auditor or auditing firm appointed by any of them) to inspect from time to time the records and accounts referred to in paragraph (b) above and the records and accounts which verify the representations referred to in paragraph (a) above, to make copies thereof and from time to time to audit such accounts and records.

(d) In the event that such inspection or audit by PLN, GOVERNMENT's Directorate of State Accounts and/or the FUND or their AUTHORIZED REPRESENTATIVES reveals that

(i) there has been a misrepresentation by the ENGINEER at the time of negotiation of this AGREEMENT as to the matters referred to in paragraph (a) hereof ; or

(ii) the cost or expenditures referred to in ARTICLE 8 which had been the basis for charges made to PLN had not been duly incurred, and as a result PLN has made payments in excess of payments which would otherwise have been made if no such misrepresentation had been made or if the said costs or expenditures had been duly incurred, then the ENGINEER shall reimburse PLN promptly for any such overpayment.

6.5. Working Hours and Days

Working hours and days of the FIELD PERSONNEL shall be subject to the Site Working Regulations as mentioned in ARTICLE 11.4. of this AGREEMENT.

6.6. Indemnifications

The ENGINEER agrees to indemnify, protect and defend at its own expense PLN and their AUTHORIZED REPRESENTATIVE(S) from and against all actions, claims and liabilities arising out of acts done by the ENGINEER or its PERSONNEL in the performance of this AGREEMENT including the use and violation of any copyright works or literary property or patented invention, article or appliance etc.

6.7. Insurance

(a) The ENGINEER shall for the purpose of the SERVICES take out and maintain adequate insurance against loss of or damage equipment purchased in whole or in part with funds provided by PLN.

(b) The ENGINEER shall take out and maintain adequate insurance against claims resulting from acts performed by the ENGINEER or its PERSONNEL in carrying out the SERVICES.

(c) PLN undertakes no responsibility in respect of life, health, accident, travel and other insurance coverage for the PERSONNEL and personnel of LOCAL CONTRACTORS or LOCAL CONSULTANTS of the ENGINEER or for the DEPENDENTS of any such person.

ARTICLE 7.

UNDERTAKINGS OF PLN

7.1. Representative of PLN

PLN shall designate its AUTHORIZED REPRESENTATIVE(S) for the SERVICES to represent and act for PLN with respect to technical and field operations and administrative matters under this AGREEMENT.
The AUTHORISED REPRESENTATIVE(S) of PLN shall thus appointed shall coordinate discussions and communications and cause prompt action and approvals of all documents and other submissions to PLN by the ENGINEER as required for smooth and timely execution of the SERVICES.
However, approval by PLN or their AUTHORIZED REPRESENTATIVE(S) shall not release the ENGINEER of its responsibility under this AGREEMENT.

7.2. PROJECT Data

In connection with the SERVICES of the ENGINEER which require cooperation with GOVERNMENT agencies, PLN shall furnish the ENGINEER free of charge, all available relevant data, information, drawings, documents and the like as necessary for the ENGINEER to perform the SERVICES. The ENGINEER upon prior written approval by PLN, could gather them and expenses shall be reimbursed on actual costs.

7.3. Taxes and Duties

7.3.1. Provided that the established GOVERNMENT procedures and regulations are followed, PLN shall ensure that the following privileges are given to the ENGINEER and any of its FIELD PERSONNEL (other than personnel who are citizen or permanent resident of the Republic of Indonesia) as the case may be.

(a). 1. The ENGINEER's Personnel shall be liable for the payment of Personal Income Tax for all SERVICES performed in Indonesia.

2. The ENGINEER shall be liable for Corporation Tax on Rupiah portion payment for the performance of the SERVICES.

3. The stamp duty shall be paid by and on account of the ENGINEER prior to signing of this AGREEMENT.

4. Local taxes such as road taxes, registration fees on personnel automobiles, etc., shall be paid according to the prevailing regulations.

(b) The ENGINEER shall be relieved from custom duties, taxes, and licence fees on all equipments, materials and supplies brought into, and subsequently withdrawn from Indonesia for official use in performing the SERVICES, provided that the kind, quality and quantity thereof are previously approved by PLN in writing.

(c) In the event the ENGINEER, would not withdraw, but dispose of its equipment and materials in Indonesia upon which duties and taxes are relieved according to item (b) above, the ENGINEER shall bear such custom duties and taxes in conformity with the regulations of the GOVERNMENT.

(d) The ENGINEER and its FIELD PERSONNEL shall be relieved from custom duties, taxes and licence fees on all household appliances and materials brought into and subsequently withdrawn from Indonesia, provided that the kind, quality and quantity thereof are previously approved by PLN in writing.

(e) In the event that the FIELD PERSONNEL would not withdraw, but dispose of their household appliances, or material in Indonesia upon which custom duties and taxes are relieved according to ARTICLE 7.3.1.(d) the ENGINEER shall bear or cause the FIELD PERSONNEL to bear such custom duties and taxes in conformity with the regulations of the GOVERNMENT.

(f) Should any governmental law, order, regulations and/or by-law having the force of law in existence as on the date of this AGREEMENT and/or those, which may be enacted or promulgated thereafter, result in the imposition of other taxes on the SERVICES of the ENGINEER and its FIELD PERSONNEL, this AGREEMENT shall be amended accordingly.

(g) Custom duties and taxes, if any imposed on the equipment and materials which the ENGINEER transfer to PLN on the completion of the SERVICES upon consent of PLN, shall be paid by PLN. In the case where equipment and materials which are imported into Indonesia by the ENGINEER with exemption of custom duties and taxes, are damaged due to the negligence of the ENGINEER, the ENGINEER shall bear the duties and taxes for the replacement of such equipment and materials in conformity with regulations of the GOVERNMENT.

7.4. Customs and Immigration

PLN shall assist in facilitating and expediting customs procedures in connection with the importation of equipment and materials by the ENGINEER and its FIELD PERSONNEL for the purpose of performing the SERVICES, provided that the kind and amount thereof is previously approved by PLN in writing. PLN shall assist by supporting documents in facilitating the formalities for entry into, stay and work in and depart from Indonesia for the ENGINEER's FIELD PERSONNEL.

7.5. Access to Site

PLN shall provide the ENGINEER free of charge, with the right of access to lands at the PROJECT SITE required for the execution of the SERVICES. PLN shall arrange that the ENGINEER's FIELD PERSONNEL may have free access to lands as required in performing the SERVICES, and will assume liability for damage to lands and properties, unless such damage is caused by the negligence or fault of the ENGINEER or its FIELD PERSONNEL.

7.6. Security

PLN shall exert its best efforts to avert any factor that may disturb the works and performance of the SERVICES and shall promptly take necessary action at its own expenses to remove any such factor to protect the ENGINEER and its FIELD PERSONNEL against any loss such factor may cause.

7.7. Services, Facilities and Equipment

PLN shall make available to the ENGINEER and its FIELD PERSONNEL, for the purposes of the SERVICES and free of any charge, the services, facilities and equipment described in APPENDIX-H. The costs of services and facilities described in APPENDIX-H are not included in ARTICLE 8 of this AGREEMENT. In case PLN does not provide these services and facilities, they may be furnished by the ENGINEER, with prior written approval of PLN, who will be reimbursed by PLN from local currency funds to the ENGINEER on actual cost basis.

7.8. Official Permissions for Field Investigations

PLN shall assist in obtaining official permissions from the authorities concerned for execution of geological and topographical investigations at the PROJECT SITE, for aerophotographing at the PROJECT SITE and also for use and storage of explosives and percussion caps to be used for seismic prospecting, geological investigations, excavation of test pits and for other investigations to be carried out at the PROJECT SITE in relation with the performance of the SERVICES.

ARTICLE 8

REMUNERATION AND PAYMENTS

8.1. Remuneration

The total estimated cost of the SERVICES payable in foreign currency is set forth in APPENDIX-E-1 and shall be provided by PLN from the loan proceeds financed by the FUND under loan No. IP - 293.
The estimated cost of the SERVICES payable in local currency is set forth in APPENDIX-E-2 and shall be provided by PLN from the GOVERNMENT.
Notwithstanding anything provided elsewhere in the AGREEMENT, the total payments under this Article shall, however, not exceed the foreign currency ceiling amount of Yen 819,600,000 (Eight Hundred Nineteen Million Six Hundred Thousand Yen) and total local currency ceiling amount of Indonesian Rupiah 2,070,623,000 (Two Billion Seventy Million Six Hundred Twenty Three Thousand Rupiah).

8.2. Payment of Foreign Currency Portion

Payment to the ENGINEER in foreign currency up to the amount of Japanese Yen 819,600,000 (Eight Hundred Nineteen Million Six Hundred Thousand Yen) shall be made once in every two (2) months except an advance payment, after the AGREEMENT has become effective. Such payments shall be made in accordance with the payment procedures of the FUND by establishing an irrevocable Letter of Credit of Bank Indonesia, Jakarta through the Bank of Tokyo, Ltd., Tokyo, Japan in favour of the ENGINEER up to the amount of Japanese Yen 819,600,000 (Eight Hundred Nineteen Million Six Hundred Thousand Yen) with the validity until ninety (90) days after the scheduled completion of the SERVICES. The said Letter of Credit shall be payable against bill of exchange of the ENGINEER on the basis of Bank Indonesia's Notice to the Bank of Tokyo, Ltd., Japan to the effect that a Statement of Performance which is required for all payments except for an advance payment has been issued by PLN.

8.2.1. The foreign currency portion shall cover the items as set out in APPENDIX-E-1.

(a) MONTHLY RATES

MONTHLY RATES shall be determined on the basis of the time actually spent by the PERSONNEL as supported by time sheets and by the applicable rates as

set forth in the item 1.1 of APPENDIX-E-1 and in accordance with ARTICLE 8.5 below.

(b) Out-of-Pocket Expenses

(i) International Round Air Trip

The cost of International Round Air Trip, IATA economy class transportation by the most direct practicable route from the point of origin and back, for the purpose of performing the SERVICES by the ENGINEER, together with the cost of Excess Baggage not exceeding 10 (ten) kilograms per leg shall be paid on an actual reimbursement basis with ceiling number of trip as set forth in the item 1.2 (1) a. and b. of APPENDIX-E-1. Mobilization Cost, Surface Transportation Cost and Per Diem Allowance during Travel shall be paid on the basis of actual trip at the fixed unit rates as set forth in the item 1.2(1) c. and d. of APPENDIX-E-1.

(ii) Communication and Mail

International Communication Cost, International Transportation Cost and Transportation Cost for Report shall be paid on monthly fixed unit rate basis with ceiling amount as set forth in the item 1.2 (2) a. b. and c. of APPENDIX-E-1.

(iii) Office Supply

Cost of Office Supply shall be paid at monthly fixed unit rate basis with ceiling amount as set forth in the item 1.2 (3) of APPENDIX-E-1.

(iv) Printing

Cost of Printing shall be paid on monthly fixed unit rate basis with ceiling amount as set forth in the item 1.2 (4) of APPENDIX-E-1.

(v) Computer Charge

Machine Rental Charge and Data Processing Expenses shall be paid on monthly fixed unit rate basis with ceiling amount as set forth in the item 1.2 (5) of APPENDIX E-1.

(vi) Various Analyses and Tests

Cost for Various Analyses and Tests shall be paid at a lump sum costs as set forth in item 1.2 (6) of APPENDIX-E-1 in conformity with the schedule of payment in APPENDIX-E-3.

(vii) Drawing and Tracing

Cost for Drawing and Tracing shall be paid on monthly fixed unit rate basis with ceiling amount as set forth in the item 1.2 (7) of APPENDIX-E-1.

(viii) Aerial Photogrammetry Mapping

Cost for Aerial Photogrammetry Mapping shall be paid on presentation basis at lump sum costs as set foth in the item 1.2 (8) of APPENDIX-E-1.

(ix) Equipment for Investigation Works

Cost for Equipment for Investigation Works shall be paid on delivery basis at fixed unit cost as set forth in the item 1.2 (9) of APPENDIX-E-1.

(x) Participation of PLN Personnel to the SERVICES

Cost for Participation of PLN Personnel to the SERVICES shall be paid on actual reimbursement basis (Air Fare and Excess Baggage) and at fixed unit rate (other items) as set forth in the item 1.2 (10) of APPENDIX-E-1 at the time of trip and stay actually spent by PLN Personnel.

(xi) Documentary Film

Cost for Documentary Film shall be paid at a lump sum cost as set forth in the item 1.2 (11) of APPENDIX-E-1 in conformity with the schedule of payment in APPENDIX-E-3.

(xii) Per Diem Allowance for TEPSCO FIELD PERSONNEL without Residence

Per Diem Allowance for TEPSCO FIELD PERSONNEL without Residence shall be paid on actual allocation basis at fixed unit rate for man-month with ceiling amount as set forth in the item 1.2 (12) of APPENDIX-E-1.

(xiii) Per Diem Allowance for TEPSCO Duty Trip

Per Diem Allowance for TEPSCO Duty Trip shall be paid on duty trip basis at fixed unit rate with ceiling amount as set forth in the item 1.2 (13) of APPENDIX-E-1.

(xiv) Per Diem Allowance for TEPSCO Field Trip

Per Diem Allowance for TEPSCO Field Trip shall be paid on field trip day basis at fixed unit rate with ceiling amount as set forth in the item 1.2 (14) of APPENDIX-E-1.

(xv) Office Rental at Pekanbaru

Cost of Office Rental at Pekanbaru shall be paid on monthly fixed unit rate basis as set forth in the item 1.2 (15) of APPENDIX-E-1.

(xvi) Car Expenditure

Car Expenditure shall be paid at fixed car-month rate as set forth in the item 1.2 (16) of APPENDIX-E-1 in accordance with APPENDIX-E-3, schedule of payment.

8.2.2. A contingency amount to cover unanticipated additional services, the disposal of which shall be as stipulated in ARTICLE 8.4.

8.2.3. The payments under the FUND's procedure in foreign currency shall be made to the ENGINEER in the following manner :

(a) Advance Payment at about 20 (twenty) percent against MONTHLY RATES, and Out-of-Pocket Expenses in the amount of Japanese Yen 153,317,000 (One Hundred Fifty Three Million Three Hundred Seventeen Thousand Yen) shall be made upon establishment of Letter of Credit against a simple original receipt of the ENGINEER and a Letter of Guarantee issued by Government Bank approved by PLN. This advance payment shall be recovered by deducting about 20 (twenty) percent of each amount of MONTHLY RATES, and Out-of-Pocket Expenses in succeeding invoices up to the amount of Advance Payment.
In case the full amount of advance payment cannot be recovered, an adequte adjusment shall be made in the final invoice.

(b) Within 60 (sixty) days after receipt by PLN of the bi-monthly invoice attached with supporting documents i.e. :
detailed itemized statement of the cost in foreign currency portion (already approved and corrected by PLN) as set forth in ARTICLE 8.2.1. hereof and in accordance with the performance of activities specified in APPENDICES-B and C, assuming there is agreement between the two parties regarding the eligibility of the expenses listed in the invoice, the corresponding amount shall be paid against a simple original receipt of the ENGINEER accompained by a Statement of Performance to be issued by PLN.

(c) In case the two parties cannot agree within the above mentioned period on the eligibility of the expenses listed in the invoice, PLN shall deduct those expenses which are still in dispute and within 30 (thirty) days from the date it has received the invoice, PLN will issue a Statement of Performance for

disbursement of the balance of the invoice (original amount less disputable expenses). Expenses thus held in abeyance will be added to subsequent invoices if PLN subsequently agrees that they are eligible.

8.2.3.

(d) The final payment will be due after the Engineering Report has been accepted and certified by PLN and the FUND.

8.2.4. A tentative payment schedule for Foreign Currency Portion is set forth in APPENDIX-E-3.

8.3. Payment of the Indonesian Rupiah Portion.

Payment to the ENGINEER in Indonesian Rupiah up to the amount of Rp. 2,070,623,000 (Two Billion Seventy Million Six Hundred Twenty Three Thousand Rupiah) shall be made after the effectiveness of this AGREEMENT by the GOVERNMENT against simple original receipt of the ENGINEER and according to the GOVERNMENT's regulation and procedure and after receiving certificate of performance and statement of performance to be issued by PLN.

8.3.1. The Indonesian Rupiah Portion shall cover the following items as set forth in APPENDIX E-2.

(a) MONTHLY RATES for Y.K.

MONTHLY RATES for Y.K. shall be paid on the basis of the time actually spent by the Y.K. PERSONNEL as supported by time sheets and by the applicable rates as set forth in the item 2.1 of APPENDIX-E-2 and in accordance with ARTICLE 8.5 below.

(b) Out-of-Pocket Expenses

(i) Mobilization and Demobilization Cost

Air Fare (JKT/PKU/JKT) together with cost of Excess Baggage not exceeding 10 (ten) kilograms per leg shall be paid on actual reimbursement basis with ceiling number of trips as set forth in the item 2.2 (1) a. and b. of APPENDIX-E-2.

Taxi Charge shall be paid on the basis of actual trip at the fixed unit rates as set forth the item 2.2 (1) c. of APPENDIX-E-2.

Mobilization Cost for Y.K. shall be paid in accordance with the schedule of payment in APPENDIX-E-4 at a lump sum cost as set forth in the item 2.2 (1) d. of APPENDIX-E-2.

Exit Tax shall be paid on the basis of the time of trip acctually spent by the RESIDENT ENGINEER at the unit rate as set forth in the item 2.2 (1) e. of APPENDIX-E-2.

(ii) Duty_Trip_Expenses

Air Fare (PKU/JKT/PKU) shall be paid on actual reimbursement basis with ceiling number of trips as set forth in the item 2.2 (2) a. of APPENDIX-E-2.

Taxi Charge (JKT) shall be paid on duty trip basis at fixed unit rate as set forth in the item 2.2 (2) b. of APPENDIX-E-2.

(iii) Per_Diem_Allowance_for_Y.K._Field Trip

Per Diem Allowance for Y.K. Field Trip shall be paid on field trip day basis at fixed unit rate with ceiling amount as set forth in the item 2.2 (3) of APPENDIX-E-2.

(iv) Per_Diem_Allowance_for_Y.K._FIELD PERSONNEL_without_Residence

Per Diem Allowance for Y.K. FIELD PERSONNEL without Residence shall be paid on actual allocation basis at fixed unit rate for man-month with ceiling amount as set forth in the item 2.2 (4) of APPENDIX-E-2.

(v) Office_and_House_Rental

Cost for Office Rental at PROJECT SITE shall be paid on monthly fixed unit rate basis with ceiling amounmt as set forth in the item 2.2 (5) a. of APPENDIX-E-2.
Cost for House Rental at PROJECT SITE shall be paid at monthly fixed unit rates with ceiling amount as set forth in the item 2.2 (5) b. of APPENDIX-E-2.

(vi) Office_Expenditure

Office Expenditure shall be paid in accordance with the schedule of payment in APPENDIX-E-4, with ceiling amount in total as set forth in the item 2.2 (6) of APPENDIX-E-2.

(vii) Communication_and_Mail

Cost for Communication and Mail shall be paid at monthly fixed unit rate with ceiling amount as set forth in the item 2.2 (7) of APPENDIX-E-2.

(viii) Helicopter_Expenses

Helicopter Expenses shall be paid on actual reimbursement basis with ceiling amount as set forth in the item 2.2 (8) of APPENDIX-E-2.

(ix) Drawing_and_Tracing

Cost for Drawing and Tracing shall be paid at monthly fixed unit rate with ceiling amount as set forth in the item 2.2 (9) of APPENDIX-E-2.

(x) Salary_for_Local_Employees

Salary for Local Employees shall be paid in accordance with the schedule of payment in APPENDIX-E-4, with ceiling amount in total as set forth in the item 2.2 (10) of APPENDIX-E-2.

(c) Survey Works

Cost for Survey Works shall be paid on actual reimbursement basis with ceiling amount in total as set forth in the item 2.3 of APPENDIX-E-2.

(d) Geological Investigation Works

Cost for Geological Investigation Works shall be paid on actual reimbursement basis with ceiling amount in total as set forth in item 2.4 of APPENDIX-E-2.

(e) Test Works

Cost for Test Works shall be paid on actual reimbursement basis with ceiling amount as set forth in the item 2.5 of APPENDIX-E-2.

8.3.2. A contingency amount to cover unanticipated additional services, the disposal of which shall be as stipulated in ARTICLE 8.4.

8.3.3. The payment of the Indonesian Rupiah Portion shall be made to the ENGINEER in the following manner :

a) Advance Payment at about twenty (20) percent against MONTHLY RATES, Out-of-Pocket Expenses, Survey Works, Geological Investigation Works and Test Works in the amount of Indonesian Rupiah 390,682,000 (Three Hundred Ninty Million Six Hundred Eighty Two Thousand Rupiah) shall be made upon the effectiveness of the AGREEMENT against a simple original receipt of the ENGINEER and a letter of Guarantee issued by a Goverment Bank approved by PLN. This advance payment shall be recovered by deducting about twenty (20) percent of each amount of the succeeding invoices.
In case the full amount of advance payment cannot be recovered, an adequate adjustment shall be made in the final invoice.

b) Within 60 (sixty) days after receipt by PLN of an invoice with itemized statement of the cost in Indonesian Rupiah Portion as set forth in ARTICLE 8.3.1. hereof, the corresponding amount shall be paid to the ENGINEER.

8.3.4. A tentative payment schedule for Indonesian Rupiah Portion is set forth in APPENDIX-E-4.

8.4. Payment from Contingency Amount

The amount of Yen 53,010,700 (Fifty Three Million Ten Thousand Seven Hundred Yen) and Rp. 117,205,100 (One Hundred Seventeen Million Two Hundred Five Thousand One Hundred Rupiah) may be payable to the ENGINEER for any additional SERVICES rendered by the ENGINEER upon request by PLN, on an actual basis and at the same rate as specified in APPENDICES-E-1 and E-2. The use of this Contingency Amount shall be at PLN's discretion based upon mutual agreement by the parties hereto under a separate Memorandum, which is an integral part of this AGREEMENT.

8.5. Man-Month and Per-Diem Allowance Calculation

For the purpose of calculation of MONTHLY RATES and per diem subsistence allowances in foreign currency and Indonesian Rupiah, the SERVICES of PERSONNEL despatched for the field work shall start with the date of their departure from the HOME OFFICE and end with the date of their return to the HOME OFFICE.
Cost of PERSONNEL for periods of less than 1 (one) month shall be calculated on a calendar basis 1 (one) day being equivalent to 1/30th of a month.
The travel time between HOME OFFICE and Indonesia vice-versa shall not exceed 2 (two) days each way.
Calculation of MONTHLY RATES and per diem subsistence allowance of Y.K. for the field work shall start with the date of their departure from Jakarta and end with the date of their departure from the PROJECT SITE to Jakarta.
The travel time between Jakarta and the PROJECT SITE and vice-versa shall not exceed 1(one) day each way.

8.6. Currency Conversion

Whenever it shall be necessary to determine the equivalent of an amount in one currency in term of another for the purpose of making payments in respect of reimbursable expenses, the conversion shall be made at such rate as the GOVERNMENT shall determine, having regard to the currencies utilized in and at the date and place of the original expenditure of transaction.

ARTICLE 9

CHANGE, MODIFICATION OR AMENDMENT

9.1. Change in Contract Amount

The scope and period of the SERVICES shall not be changed without mutual written agreement.
If such changes agreed mutually cause any increase or decrease in the amount under this AGREEMENT, or in the period for its performance, an equitable adjustment shall be made by mutual written agreement and this AGREEMENT shall be modified accordingly in a form of a Memorandum which shall be integrated as part of the AGREEMENT, provided that such adjustment shall be approved by the GOVERNMENT and the FUND.

9.2. Modification or Amendment

Any changes, modifications or amendments to this AGREEMENT except as specifically provided for herein, shall be made only by mutual agreement in writing between the parties hereto. This may be done in a form of a Memorandum which shall be integrated as a part of this AGREEMENT. Amendment of the contract price of the AGREEMENT in both Local and/or Foreign Currency and/or the total MAN-MONTHS of PERSONNEL and subsequent cost increase or decrease caused by such changes and/or due to variation of unit prices in the contract price shall be made only by mutual agreement in writing between the parties hereto. Such modification or amendment shall be effective only upon approval by the GOVERNMENT and the FUND.

ARTICLE 10

OWNERSHIP OF

REPORTS, RECORDS AND EQUIPMENT

10.1. Proprietary Rights of PLN in Reports and Records

Final versions of reports and all relevant data such as maps, diagrams, flow charts, plans, statistics and supporting records or materials compiled or prepared in the course of the SERVICES shall be the absolute property of PLN and shall not be used by the ENGINEER for purposes unrelated to this AGREEMENT without the prior written approval of PLN. The ENGINEER agrees to deliver all these materials to PLN upon completion of the AGREEMENT, however the ENGINEER shall be permitted to retain copies thereof for its own files, provided that these copies shall not be used by the ENGINEER for purpose unrelated to this AGREEMENT.

10.2. Proprietary Rights of PLN in Equipment

(a) Equipment supplied by PLN for the SERVICES shall remain at all times the property of PLN and shall be returned by the ENGINEER in accordance with procedures to be determined by PLN.

(b) Equipment purchased by PLN or by the ENGINEER for PLN for the purposes of the SERVICES shall be deemed to be property of PLN.

(c) The equipment and tools brought into Indonesia by the ENGINEER and its PERSONNEL either for the SERVICES or their personal use shall remain the property of the same and shall be reexported in accordance with the existing GOVERNMENT regulations.

(d) Upon completion of the SERVICES, the ENGINEER shall deliver equipment and vehicles to PLN at the PROJECT SITE in acordance with the instruction of PLN in good condition, subject to normal wear and tear, the full cost of which has been paid under this AGREEMENT.

(e) The equipment referred to in ARTICLE 10.2 (b) shall as far as practicable be marked as being the property of PLN and such markings should be clearly and readily visible.

ARTICLE 11

GENERAL PROVISIONS

11.1. Rights and Obligations

The rights and obligations of this AGREEMENT shall be governed in all respects by laws of the Republic of Indonesia.

11.2. Conformity to Laws

The ENGINEER shall use its best efforts to ensure that the ENGINEER's PERSONNEL while in Indonesia, and local employees, will respect and abide by all applicable laws and regulations of Indonesia and political subdivisions thereof. The ENGINEER shall obtain the working licences for the ENGINEER's FIELD PERSONNEL as required by regulations of the GOVERNMENT, with the assistance of PLN.

11.3. Transfer of Knowledge

One of the important aspects of the ENGINEER's work in these SERVICES will be the transfer of knowledge to PLN counterpart staff and other Indonesian personnel in all fields related to the work concerned. The ENGINEER, therefore, is obliged to transfer of knowledge to PLN counterpart staff and other Indonesian personnel. The Program of Transfer of Knowledge and Knowhow and Participation of Indonesian Personnel to the SERVICES is described in APPENDIX-F.

Monthly Reports have to be prepared and submitted to PLN by the ENGINEER, stating the execution of the transfer of knowledge and participation program during the previous month (according to PLN's Form).

1.1.4. Site Working Regulations

PLN and the ENGINEER shall confer and agree upon written "Site Working Regulations" which will stipulate the organization and procedure especially between the ENGINEER's FIELD PERSONNEL and PLN's staff in connection with the SERVICES.

11.5. Warranty

The ENGINEER represents and warrants that it is located in and is a national of Japan, and that the SERVICES under this AGREEMENT will be supplied from this country.

11.6. Assignment of LOCAL CONSULTANTS and LOCAL CONTRACTORS

(a) Except with the prior written approval of PLN and the FUND, the ENGINEER shall not assign or transfer this AGREEMENT or any part thereof nor engage any independent Consultant and/or Contractor to perform any part of the SERVICES.

(b) Any LOCAL CONSULTANT and/or LOCAL CONTRACTOR engaged shall be subject to prior approval by PLN.

(c) The approval by PLN of the assignment of any part of this AGREEMENT or to the engagement by the ENGINEER or LOCAL CONSULTANTS or other experts to perform any part of the SERVICES shall not relieve the ENGINEER of any of its responsibility and obligations under this AGREEMENT.

11.7. Confidentiality

Except with the prior consent of PLN the ENGINEER and its PERSONNEL shall not at any time communicate to any person or entity any confidential information disclosed to them for the purpose of the SERVICES or discovered by them in the course of the SERVICES, nor shall the ENGINEER or its PERSONNEL make public any information as to the recommendations formulated in the course of or as a result of the SERVICES.

11.8. Prohibition on Association

The ENGINEER agrees that, during and after the conclusion of this AGREEMENT until it is terminated, the ENGINEER limits its role to the provision of the SERVICES and hereby disqualifies itself and any other contractor, consulting engineer or manufacturer with which the ENGINEER is associated or affiliated from the provision of goods or services in any capacity with regard to the PROJECT except as PLN and the FUND any otherwise agree.

11.9. Prohibition on Conflicting Activities

No member of the PERSONNEL assigned to the SERVICES under this AGREEMENT shall be engaged, directly or indirectly, either in its name or through the ENGINEER in any other business or professional activities in Indonesia other than the performance of its duties or assignment under this AGREEMENT.

11.10. Language_and_Measurement_System

All written communications between PLN and the ENGINEER under this AGREEMENT shall be prepared and delivered in English.
Technical plans, designs, specifications and other documents shall be prepared in English with Arabic numbers in metric measurement system.
The ruling language will be English.

11.11. Suspension

11.11.1. If any of the following events shall have happened and be continuing, PLN may by written notice to the ENGINEER suspend in whole or in part payments for the respective payment period to the ENGINEER under this AGREEMENT.

(a) The FUND shall have suspended disbursement from the Loan.

(b) A default shall have occurred in the performance of any obligation of the ENGINEER under this AGREEMENT.

(c) Any other condition which have arisen and which in the reasonable opinion of PLN, interferes or threatens to interfere, with the successful execution of the SERVICES or the accomplishment of the purposes of this AGREEMENT.

(d) Force Majeure.

11.11.2. If PLN or GOVERNMENT suspends, delays or interrups the SERVICES of the ENGINEER and does not cure the suspension, delay or interruption within 30 (thirty) days after receipt of notice from the ENGINEER specifying such suspension, delay or interruption, the ENGINEER may, by written notice to PLN, suspend in whole or in part this AGREEMENT.

11.11.3. Suspension by either party in no way affects the right of either party to terminate the AGREEMENT.

11.11.4. During any period of suspension, PLN will pay all fees and other costs and expenses incurred by the ENGINEER as a result of or relating to such suspension. Reasonable efforts will be made to minimize all such costs and expenses.

11.12 Termination_of_the_AGREEMENT_by_PLN

(a) If any of the following events shall have occured and be continuing, PLN may, by written notice to the ENGINEER, terminate this AGREEMENT :

(1) Any conditions referred to in ARTICLE 11.11. which continue for a period of thirty (30) days after PLN has given written notice to the ENGINEER of suspention of payments to the ENGINEER under this AGREEMENT.

(2) The Loan Agreement shall have terminated in accordance with its terms.

(b) In any event, PLN may terminate this AGREEMENT by giving written notice to the ENGINEER not less than 30 (thirty) days.

11.13. Termination_of_the_AGREEMENT_by_the_ENGINEER

The ENGINEER shall promptly notify PLN in writing of any situation or of the occurence of any event beyond the reasonable control of the ENGINEER which makes it impossible for the ENGINEER to carry out its obligations hereunder.
Upon confirmation in writing by PLN of the existence of any such situation or event, or upon failure of PLN to respond to such notice within 15 (fifteen) days of receipt thereof, the ENGINEER shall be relieved from all liability from the date of such receipt for failure to carry out such obligations, and the ENGINEER may thereupon terminate this AGREEMENT by giving not less than thirty (30) days written notice thereof.

11.14. Termination_Procedure

(a) Upon termination of this AGREEMENT under ARTICLE 11.12 (a) receipt of notice of termination under ARTICLE 11.12 (b) or the giving of notice of termination under ARTICLE 11.13 the ENGINEER shall take immediate steps to terminate the SERVICES in a prompt and orderly manner and to reduce losses and to keep further expenditures to a minimum.

(b) Upon termination of this AGREEMENT, unless such termination have been occasioned by the default of the ENGINEER, the ENGINEER shall only be entitled to be reimbursed in full for such costs as shall have been duly incurred prior to the date of such termination and for reasonable costs incident to the orderly termination of the SERVICES including the return travel of PERSONNEL.

11.15. Force_Majeure

(a) If either party is temporarily unable by reason of force majeure to meet any of its obligation under this AGREEMENT and if such party gives to the other party written notice of the event within 14 (fourteen) days after its occurence, such obligations of the party as it is unable to perform by reason of the event shall be suppended as stipulated in AGREEMENT 11.11.

(b) Neither party shall be liable to the other party for loss or damage sustained by such other party arising from any event referred to in ARTICLE 11.15. (a) or delays arising from such event.

(c) If by virtue of ARTICLE 11.15 (a) either party shall be excused from the performance or punctual performance of any obligation for a continuous period of 6 (six) months, then the parties shall consult together with a view to agreeing what action should, in the circumstances, be taken.

(d) The term "force majeure", as employed herein shall mean acts of God, strikes, lock-outs or other industrial disturbances, acts of the public enemy, wars, blockades, insurrection, riots, epidemics, landslides, earthquakes, storms, lightning, flood, washouts, civil

disturbances, explosions, and any other similar events, beyond the control of either party and which by exercise of due diligence neither party is able to overcome.

11.16. Defence_of_Suit_

In case any action in court is brought against PLN or any AUTHORIZED REPRESENTATIVE of PLN, for the failure, omission or neglect of the ENGINEER to perform any of the covenants, acts, matter or thing by this AGREEMENT undertaken, or for injury or damage caused by alleged negligence of the ENGINEER or its PERSONNEL, the ENGINEER shall indemnify and save harmless PLN and its AUTHORIZED REPRESENTATIVE, from all losses, damages, costs, expenses, judgement or decrees arising out of such action.

11.17. Settlement_of_Disputes

Any dispute or differences arising out of the AGREEMENT which can not be amicably settled between the parties shall be finally settled under the Rules of Conciliation and Arbritration of the International Chamber of Commerce in Paris by one or more arbitrators appointed thereunder.
The arbitration shall be under auspices of the BANI (Badan Arbitrase Nasional Indonesia) and shall take place in Jakarta. The resulting award shall be final and binding on the parties and shall be in lieu of any other remedy.

11.18. Special_Undertaking

Unless otherwise specified in this AGREEMENT and in the event of the failure or neglect of either party under this AGREEMENT to perform any obligations and undertakings under the AGREEMENT, such failure of any party shall be immediately corrected after notification by the other party so that the AGREEMENT can be performed smoothly and efficiently as scheduled.

11.19. Integrity_and_Degree_of_Care

The ENGINEER agrees to use its best efforts in connection with the SERVICES and to exercise good faith and such degree of care which a competent consulting engineer should exercise in the conduct of its business.

11.20. Liability of the ENGINEER

(a) The ENGINEER shall be liable for consequences of errors and omissions on its part or on the part of its employees to the extent of 100 percent of the respectiive local and foreign currency ceiling amounts in ARTICLE 8.1 hereof.

(b) The ENGINEER shall be covered by professional liability insurance.

(c) The liability of the ENGINEER shall expire after one year from the date of the issue of the final certificate of completion of the SERVICES or its extension thereof.

(d) The ENGINEER shall have no liability whatsoever for any part of the works not designed by him or not under his responsibility.

(e) The ENGINEER shall at its own cost be responsible for eliminating errors or omissions incurred in its design works, as identified by PLN.

ARTICLE 12

NOTICES, REQUESTS AND COMMUNICATIONS

Any notice or request required or permitted to be given or made under this AGREEMENT shall be in writing in the English language. Such notice or request shall be deemed to be duly given or made when it shall have been delivered by hand, mail, cable or telex to the party to which it is required to be given or made at such address as specified below or to others as either party may specify in writing.

For PLN

Name : Director of Planning
PERUSAHAAN UMUM LISTRIK NEGARA

Address : Jalan Trunojoyo Blok M I/135
Kebayoran Baru - Jakarta

Cable : PLNPST JAKARTA

Telex : 47156 PLNPST IA

For the ENGINEER

Name : Managing Director, Project Director
TOKYO ELECTRIC POWER SERVICES CO., LTD.

Address : No. 1-4, Uchisaiwai-cho 2 chome,
Chiyoda-ku, Tokyo, Japan

Cable : TEPSCOJAPAN

Telex : TEPSCO J 25675

ARTICLE 13

TERM OF THE AGREEMENT AND EFFECTIVENESS

13.1. Term of the AGREEMENT

This AGREEMENT shall become binding on both parties on the date when it is signed, however, the AGREEMENT is subject to approval by the GOVERNMENT and the FUND, and shall be in full force until the SERVICES and the payment thereof has been satisfactorily fulfilled.
At such time the parties hereto shall be mutually released from any obligations under this AGREEMENT.

13.2. Effectiveness

This AGREEMENT shall become effective on the date of notification of approval by the GOVERNMENT and the FUND. The SERVICES performed and expenses incurred by the ENGINEER, at the request of PLN, Pertinent to the objectives of this AGREEMENT and prior to its effective date shall, for the purpose of payment, be deemed to have been performed or incurred after the effective date.

IN WITNESS WHEREOF, the parties hereto have caused this AGREEMENT to be signed in their respective names as of the day and year first above written.

For and on behalf of
TOKYO ELECTRIC POWER
SERVICES CO., LTD.

Motoisune Iwata

Dr. MOTOTSUNE IWATA
Managing Director

For and on behalf of
PERUSAHAAN UMUM LISTRIK NEGARA

METERAI TEMPEL 1000 SERIBU RUPIAH

DIREKSI

IR. MOHD. SINGGIH
Acting President Director

POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS:

That we, Tokyo Electric Power Services Co., Ltd., a company organized and existing under the laws of Japan, having its office at 1-4, Uchisaiwai-cho 2-chome, Chiyoda-ku, Tokyo 100, Japan do hereby make, appoint Dr. MOTOTSUNE IWATA, Managing Director, our true and lawful attorney in fact to act for us, on our behalf, and in our name, by investing him with the following powers for implementation of the Engineering Services for Design on Kotapanjang Hydro-electric Power Project;

1. To make any negotiation, and sign the agreement and its relative documents.

2. To receive and accept all documents issued under/ upon the agreement.

3. To appoint his substitute(s) to act on his behalf with the powers and authorities hereby conferred upon him.

IN WITNESS WHEREOF, we have caused this POWER OF ATTORNEY to be executed in our name by our President SETSUZO NAKANO, 1st day of August, 1986, signed at Tokyo, 28th July, 1986.

TOKYO ELECTRIC POWER SERVICES CO., LTD.

Setsuzo Nakano

Setsuzo Nakano
President

Signature Verified
by
THE TOKYO CHAMBER OF COMMERCE & INDUSTRY

JUL. 28. 1986

No. X-007876

DESCRIPTION OF THE PROJECT

1. PROJECT Area

In the Province of Riau, the big four rivers, namely the Rokan River, Siak River, Kampar River and Indragiri River originating respectively from the Barisan Range, run in the northeastern or eastern direction and empty into the Straits of Malacca. Among these rivers, the Kampar River is the largest with a catchment area of 21,530 Km^2 and mainly consists of the river basins of Kampar Kanan River and Kampar Kiri River.

The Kampar Kanan River has its headwaters at Mt. Amas (El. 2,271m), Mt. Hidjau (El. 2,274m), etc. belonging to the Barisan Range, and, while collecting a number of tributaries through a steep mountain zone, it runs slowly on the quasi-plain plataeu. After joining the Mahat River at Muara Mahat, the river reaches the Kotapanjang dam site. Near Rantau Berangin, the river runs on a flat alluvial plain, and joins the Kampar Kiri River around Langgam about 30 Km southeast of Pekanbaru.

The Kotapanjang dam site is located about 10 Km down-stream of Muara Mahat at the confluence of the Kampar Kanan River and Mahat River. In other words, the dam site is about 85 Km from Pekanbaru, the capital city of Riau Province and about 20 Km from Bankinang.
The dam site is easily accessible through the Bukittinggi - Pekanbaru trunk road running on the left bank.
At the dam site, the Kampar River has a catchment area of 3,337 Km^2 and its annual discharge is 173.5 m^3/S.

The climate in the PROJECT area is typical monsoon climate with the rainy season from October to May and the dry season during the remainder of the year.
The average annual rainfall is 3,000 - 3,500 mm in the PROJECT area. The daily tempratures in the PROJECT area vary between 22 to 36 °C.

2. PROJECT Features

The power installed capacity of Perusahaan Umum Listrik Negara (PLN) in the Province of Riau is only 35.6 MW as of April 1985. The power distribution network is also inadequate, the region having a low electrification rate of only 10.2% (1984/1985). The actual power demand is mainly in the urban area and their vicinity, with the power being supplied all by means of independent diesel engine generators.

The power demand placed on PLN in Riau in recent years has shown high growth rates of 23% over the eleven-year period from 1973 to 1984, and 12.8% over the three-year period from 1981 to 1984, except for Kepulauan Riau, and annual growth of electric power demand is forecast at 19.2% from 1985 to 1995.

In order to meet the increasing power demand, PLN has considered utilization of the abundant water resources in the Province, and is actively engaged in the promotion of power project developments such as water resources and establishment of main transmission network systems.

The development of water resources will undoubtedly contribute greatly to the national economy by conserving its petroleum reserves to a large extent. Thus, this PROJECT can help lower the amount of oil domestically consumed and thereby make it available for export.

Against this background, it was proposed that the PROJECT be carried out in the middle reaches of the Kampar River, as the first hydroelectric power project in Riau Province. The Feasibility Study carried out in 1981 - 1983 proved that the PROJECT is economically and technically feasible.

The general features of the PROJECT is presented as below.

Dam Type	: Concrete Gravity Type
Dam Hight	: 58.0 m
Crest Length	: 267.0 m
Max. High Water Level	: 85.0 m
Min. Low Water Level	: 73.5 m
Annual Average Discharge	: 173.5 m^3/S
Max. Discharge	: 348.0 m^3/S
Max. Output	: 111.0 MW
Average Energy	: 495.0 GWh/Year

TERMS OF REFERENCE

1. BACKGROUND OF THE PROJECT

The province of Riau is located in the central region of Sumatera, the largest oil producing province in Indonesia with an annual output of approximately 150 million barrels almost one half of the total petroleum of the country. The province has an extensive land area of 94,562 km^2 in which four major rivers including the Kampar River are found. Despite abundant resources, the economy of Riau is relatively underdeveloped compared with other provinces.

The Government of Indonesia, however, is promoting the Third Five Year Plan (1979/80 to 1983/84, REPELITA III) in order to improve the quality of living of the general public and to ensure balanced regional development, and is planning to promote a Fourth Five Year Plan (1984/85 to 1988/89, REPELITA IV) to follow. It is expected, therefore, that regional development, including the strengthening of social infrastructure, an industrial location plan, and transmigration programs in Riau will be accelerated rapidly once such regional development projects are implemented.
On the other hand, power facilities of the Perusahaan Umum Listrik Negara (PLN) in the Province of Riau generated only 38,580 kW as of December 1984.

Since the power demand in Riau in recent year has shown very high growth, therefore in order to meet increasing power demand, PLN has noted the abundant water resources in the province and is actively engaged in the promotion of power project developments such as water resources and establishment of main transmission network systems.

The development of water resources will undoubtedly contribute greatly to the national economy through petroleum conservation on a large scale.

Development of Hydroelectric Power Project can contribute to decrease the oil consumption and enable as much oil to be switched for export.

Based on the background as mentioned above, the Kotapanjang Hydroelectric Power Station (KHPS) in the middle reach of the Kampar River, is selected as the first hydroelectric power project. The KHPS is a highly economic project consisting of a medium scale dam with the maximum capacity of 111 MW, a height of 85 m and gross storage capacity of 1,454 x 10^6 m^3.

The Government of Indonesia, having recognized the necessity and urgency of the Project, requested the Government of Japan to provide technical cooperation for a feasibility study on the Kotapanjang Hydroelectric Power Development Project in 1981. In response to this request, the Government of Japan appointed the Japan International Cooperation Agency (JICA) as the executing body to implement this feasibility study.

In continuing the feasibility study, PLN wishes to have a consultant to do the engineering design for the project which will be financed by OECF.

The main features of the Project are as follows :

1. Capacity of the power plant

Maximum out put	: 111,000 kW (37,000 kW x 3 units)
Firm peak out put	: 99,000 kW
Maximum discharge	: 348 m^3/sec
Effective head	: 38.1 m
Annual generated energy	: 495 x 10^6 kWh

2. Reservoir

Reservoir capacity	: 1,454 x 10^6 m^3
Active storage capacity	: 1,040 x 10^6 m^3
Normal high water level	: 85.0 m
Low water level	: 73.5 m
Effective depth	: 11.5 m
Surface area	: 124 km^2
Catchment area	: 3,337 km^2
Annual average inflow	: 173.52 m^3/sec

3. Dam

Type		: Concrete gravity type
Height		: 58.0 m
Freeboad		: 2.5 m
Crest length		: 267.0 m
Crest width		: 5.0 m
Elevation of nonoverflow crest		: 87.5 m
Elevation of overflow crest		: 67.5 m
Overflow depth		: 17.5 m
Overflow length		: 72.0 m
Dam volume		: 337,000 m^3
Base width		: 55.1 m
Surface slope	Upstream	: 1 : 0.15
	Downstream	: 1 : 0.80

4. Spillway

Type		: overflow, chute and dentated sill type
Design flood		: 9,000 m^3/sec (200-year flood)
Gate	Type	: Roller gate
	H x W x units	: 18.0 m x 12.0 m x 5 units

5. Diversion work

Diversion tunnel	Unit	: I unit
	Length	: 470 m
	Diameter	: 9.5 m
	Capacity	: 1,000 m^3/sec

6. Intake

Type		: Pressure type
Elevation of intake bed		
Gate	Type	: Roller gate
	H x W x units	: 9 m x 13 m x 3 units
Screen	H x W x units	: 20 m x 13 m x 3 units

7. Penstock

Type	: Burried type
Length	: 77 m
Units	: 3 units
Diameter	: 5.00 m - 4.18 m
Thickness	: 15 mm - 13 mm
Material	: 40 kg/mm² tensile strength class
Design pressure	: 6 kg/ cm²

8. Powerhouse

Type	: Ground type
Length	: 79.5 m
Width	: 26.5 m
Height	: 41.0 m

9. Tailrace

Type	: Open channel type
Length	: 80.0 m
Gradient	: 1 : 32
Section	: Trapezium
Width	: 43 m

10. Turbine

Type	: Vertical shaft Kaplan type
Installed Capacity	: 37,000 kW x 3 units
Rated discharge	: 116 m³/sec/units
Effective head	: 38.1 m
Number of revolutions	: 167 r.p.m.

11. Generator

Type	: 3-phase AC generator
Capacity	: 44,000 kVA x 3 units
Voltage	: 11 kV
Frequency	: 50 Hz

12. Main transformer

Type	: Outdoor 3-phase oil filled air forced
Capacity	: 44,000 kVA x 3 units
Voltage	: 11/150 kV

13. Transmission line

Section	: From power house to Pekanbaru Substation
Length	: 70 km
Phase	: 3- phase system
Voltage	: 150 kV
Number of circuits	: Double
Conductor	: ACSR 330 m²
Support	: Steel tower

14. Substation

Location	: Pekanbaru
Type	: 3-phase oil natural transformer with forced air circulation
Capacity	: 25 MVA x 2 units
Voltage	: 150/20 kV

2. OBJECTIVE

Objective of the engineering services will be

i) to collect all available data and informations including the feasibility study report for review, study and analizing;

ii) to undertake, study/analize and to conclude all the site investigation works for the design purpose;

iii) to prepare the basic design and the detailed design for all the structural components;

iv) to prepare inception report, design report, cost estimate, technical specification, tender and prequalification documents, the detailed implementation program for construction of the plant, prepare guidance for operation and maintenance of the plant, undertake studies and prepare reports on aspects which relates to the construction and operation of the plant, the monthly progress reports and to transfer knowledge and technology to the PLN staffs concerned during the period of services.

3. SCOPE OF SERVICES

The scope of the services to be performed by the consultant shall include but not necessarily be limited to the following :

3.1 Inception Report

The consultant shall after study/review of feasibility study and all the relevant data obtained, prepare an inception report.
It contains findings and recommendations, the economic study/analysis and technical justification for optimization of the plant, the environmental aspect, the project cost estimate, the tentative project schedule, the scope and location of the site investigation works to be conducted, the route for access, in situ road for construction and in plant view maps.

3.2. Investigation Works and Studies

Undertake detailed investigation works (by hiring local contractors) and studies which include at least the following :

(a) The detailed geological investigation at the area for dam, for all the facilities and all other main structures of the plant, the seismic prospecting, core borings, grouting, additing and the tests shall be analized and concluded for design data..

(b) To conclude/find out the material used for the construction, concerning quality and quantity, the quarry blasting test and the detailed material investigation for embankment and concrete aggregate.

(c) The seismic intensity, both the vertical and horizontal, adopted for the design.

(d) Aerial survey and photogrammetry mapping to the extent accurate for design purpose.

(e) The detailed topographical survey, particularly of the dam site, power station site and their vicinity and produce maps to the extent accurate for design purpose.

(f) To analize additional collected hydrological data (incooperation with PLN/owner) and to be concluded for the design purpose.

(g) To conclude the water quality analysis for the design data, concrete mixtures, drinking water and other construction purposes.

(h) The hydraulic model test to conclude the design of the major hydraulic structures of the plant.

(i) Detailed survey/investigation to conclude the transmission line route and the substation(s) location.

(j) Detailed survey/investigation to conclude the access road and in situ construction road routes and bridge(s), the road relocation if any.

(k) The detailed investigation for possible landslides at the project area and along the proposed access road route and the in situ construction road route and state the measures taken to protect and mitigate landslides/ damages.

(l) The investigation works and conclusion for preparing the reservoir cleaning plan (desilting works).

(m) To assist PLN (owner) in performing the detailed survey and investigation activities for land acquisition.
State findings and recommendations.

(n) Provide documentary film of the work process and progress in cooperation with PLN (owner).

(o) Prepare report on the environmental aspect in line with the government's regulation by undertaking study and investigations which shall include but not be limited to the following :

- the possible epidemic by water borne and arthroped borne diseases in communities in the vicinity of the plant
- relocation of people from areas to be inundated
- search of rare and endangered species and archeological sites
- reconnaissance survey of areas to be inundated by the reservoir, specified into desa (villages), kecamatan and catagorizing the ownerships and the respective land use

- study the influence of reservoir impounding to the people's wells in the vicinity
- water vegetation disturbances

3.3. Design Criteria and Basic Design

The consultant shall, in meeting the plant/system target requirement set up the criteria or boundary parameter on which the structural design of the plant will be based, stating the reasons and argumentation, analysis and compu- tation, supplemented by sketch drawings and all the relevant informations.

Based on the criteria, the basic design of all the structural components of the plant, Generating Equipment, metal works and Transmission Line shall be prepared including the access road/bridges, the in situ construction road/bridge and the base camp and relocation road/bridges and other site facilities.

3.4. Detailed Design

The detailed design shall be prepared based on the basic design and considering the economic study/analysis.

The design report shall contain all the layouts and structural drawings, specifications/dimensions of the structural components of the plant which are the following :

(a) Preparatory works : the base camp, workshop, electric power supply, warehouse, water supply, communication facilities, field laboratory, safety facilities, medical facilities, etc.

The access road and in situ construction road including the bridges and if any, the relocation of the existing road and bridges to be inundated and its design.

(b) Civil Works structures : the diversion tunnel, coffer dam, main dam, spillway, intake structure, headrace tunnels, surge tank, penstock route, power house and tailrace, switchyard, substation building.

(c) Metal Works : penstock/steel lining, gates, screems and valves

(d) Mechanical and electrical equipment of the plant.

(e) Transmission line (material and towers) and substation equipment.

(f) Flood forecasting and warning system and telemetering devices, respectively for safety of the downstream area and the dam.

(g) Radio Communication System

(h) Prepare the justification and specification of heavy equipment (owner's property) to support the smooth progress of the construction works, i.e. for access road and in situ road and also for maintenance purposes thereafter.

The design report shall also contain the projected construction schedule indicating the key dates/mile-stones and particularly the critical paths.

3.5. Preparation of Terms of Reference for Consultant Services for Construction Stage of the Project

The Consultant will prepare the draft terms of reference for the consultant services for the construction stage of the project, which will provide a base for the negotiations of contract. Into the draft terms of reference will be incorporated, the working items which will have been identified for inlcusion in the engineering work at the construction stage based upon the results of the detailed design which should be completed by that time. In the draft terms of reference, the consultant will include the proposed training of PLN plant operation and maintenance personnel.

3.6. Implementation Program

The consultant shall prepare an implementation program for construction of the plant. The report shall describe the sequence and construction method of all the structural components (civil & electromechanical works) of the plant including the overall schedule and the key dates and all the relevant maps/drawings. The report shall also contain the economic/ financial justification, the B/C and the IRR.

3.7. Project Cost Estimate

The consultant shall prepare the project cost estimate based on the technical specifications/dimensions of all the structural components of the plant including the preparatory works for construction (see item 1.4) and also the engineering costs for construction supervision.
The unit prices used shall be those prevailing at the time when the cost estimate is prepared (the base price) adding the physical contingencies, the financial contingencies and price escalation during the projected construction period.
The cost estimate shall from time to time be updated as PLN (owner) may require.

3.8. Prequalification Questionaire

For the civil works construction and for the penstock (if required), the consultant shall prepare prequalification questionaire documents for selecting firms to be invited for the International tender.

3.9. Tender Document

The consultant shall prepare tender documents for the International and the local tender which contain :
The description of the project, general condition, instructions to tenderers, technical specification, bill of quantity and price list, maps, drawing and all the relevant documents (survey/investigations data) and the overall schedule of the Project in terms of bar chart schedule and key dates/milestones.

3.10. Operation and Maintenance

Prepare criteria for reservoir operation including the operation and maintenance of the plant.

3.11. Engineering Report

At the final stage of the services, the consultant shall prepare the Engineering Report summarizing the whole services undertaken, state their conclusion and recommendation including all other relevant information related to the services.

3.12. Monthly Progress Report

Shall be submitted starting one month after submission of the Inception Report.
The report shall contain, the detailed progress of the services, both in the home office and at job site (including bar charts indicating work accomplished versus work scheduled), reasons for the delay, if any, and proposed measures to be taken, cost expenditures and balances, etc. Examples of forms of the report will be provided by PLN.

4. SCHEDULE OF SERVICES

The services shall be completed within 16 months starting from the date of contract signing.

5. METRIC SYSTEM AND LANGUAGE

The metric system shall be used in all the design works, drawings and calculation.
All the reports and documents shall be written in English.

6. ADDITIONAL SERVICES

In case additional services requested in writing by PLN (owner), for up to 10% of the total man-month in the contract, the same unit rates shall be applied.

7. TRANSFER OF KNOWLEDGE

The consultant is obliged to transfer knowledge effectively to PLN and the local consultant (local partner) in the course of rendering the services. To foster the transfer of knowledge, besides the day to day close cooperation in all the activities, full participation/ training of PLN staff in the consultant's home office and at the job site shall be conducted effectively. In this respect, a full participation/ training program of PLN Staff shall be prepared by the Consultant and discussed with PLN.

8. DOCUMENTARY FILM

In this respect, the consultant shall prepare the program/schedule and propose the subjects for the shooting.
The films shall be provided, one in English and one in the Indonesian narrative.

9. DOCUMENTS TO BE SUBMITTED

Specification of these documents are hereto attached.
The consultant shall first submit the drafts and finalize the documents after discussion with PLN.

10. SPECIFICATION AND NUMBER OF DOCUMENTS/REPORTS TO BE SUBMITTED

Document's Titles	Copies
1. Draft Inception Report	10 copies
2. Final Inception Report	15 copies
3. Specification and Program for Site Investigation Works	5 copies
4. Final Specification and Program for Site Investigation Works	5 copies
5. Draft Design Criteria for all the structural components of the Plant imcluding for the Preparatory Works (access road, base camp, etc).	10 copies

Document's Titles	Copies	
6. Final Design Criteria	15 copies	
7. Full participation/training for PLN personnel	5 copies	
8. Draft design for all the Structural Components of the Plant and Preparatory Works including all the calculations and drawings.	10 copies	
9. Final Design Report	15 copies	
10. Project Cost Estimate	10 copies	
11. Draft Prequalification Document for Civil Works International Tender and for Penstock, if required	10 copies	
12. Final Prequalification Document(s)	30 copies	
13. Draft Tender Document for International Tender and Local Tender	10 copies	each Lot *)
14. Final Tender Documents	30 copies	each Lot *)
15. Draft Terms of Reference Engineering Services for construction supervision	5 copies	
16. Final Terms of Reference	5 copies	
17. Draft Implementation Program	10 copies	
18. Final Implementation Program	15 copies	
19. Draft Environmental Study	5 copies	
20. Final Environmental Study	10 copies	
21. Draft Reservoir Operation Study	5 copies	
22. Final Reservoir Operation Study	10 copies	
23. Guidance for Operation and Maintenance of the Plant	5 copies	
14. Monthly Progress Report	15 copies	

Note : **) see Lot specification on the next page.

KOTAPANJANG HYDRO POWER PROJECT

SPECIFICATION OF TENDER LOTS

International Tender (ICB)

- Civil Works - Lot I

  Dam/weir, diversion tunnel, spillway, power house, tailrace, switchyard civil works and civil works of the penstock allignment.

- Metal Works - Lot II

  Penstock, gates screen and valves

- Generating Equipment - Lot III

  III A : Hydraulic Turbines, electric overhead travelling crane and anciliary equipment

  III B : Generator units and anciliary equipment + control equipment

  III C : Switchgear and substation equipment + PLC line protection

  III D : Power transformers, stepdown transformers and anciliary transformers

- Transmission Line - Lot IV

  Lot IV : Transmission Line Materials

  IV A : Steel Towers

  IV B : Conductor

  IV C : Insulator

- Equipment - Lot V

  V A : Diesel Power Plant for Construction

  V B : Flood Forecasting and warning system and Telemetering

  V C : Maintenance / special equipment, radio communication + PABX (during construction)

- Relocation Road and Bridge - Lot VI

Local Tender (LCB)

- Lot 1 : Access road & bridges
- Lot 2 : In situ construction road & bridges
- Lot 3 : Base camp, workshop etc. (site facilities)
- Lot 4 : Distribution network for construction and lighting of site
- Lot 5 : Foundation and erection of the transmission line towers and transmission line stringing
- Lot 6 : Civil works substation buildings

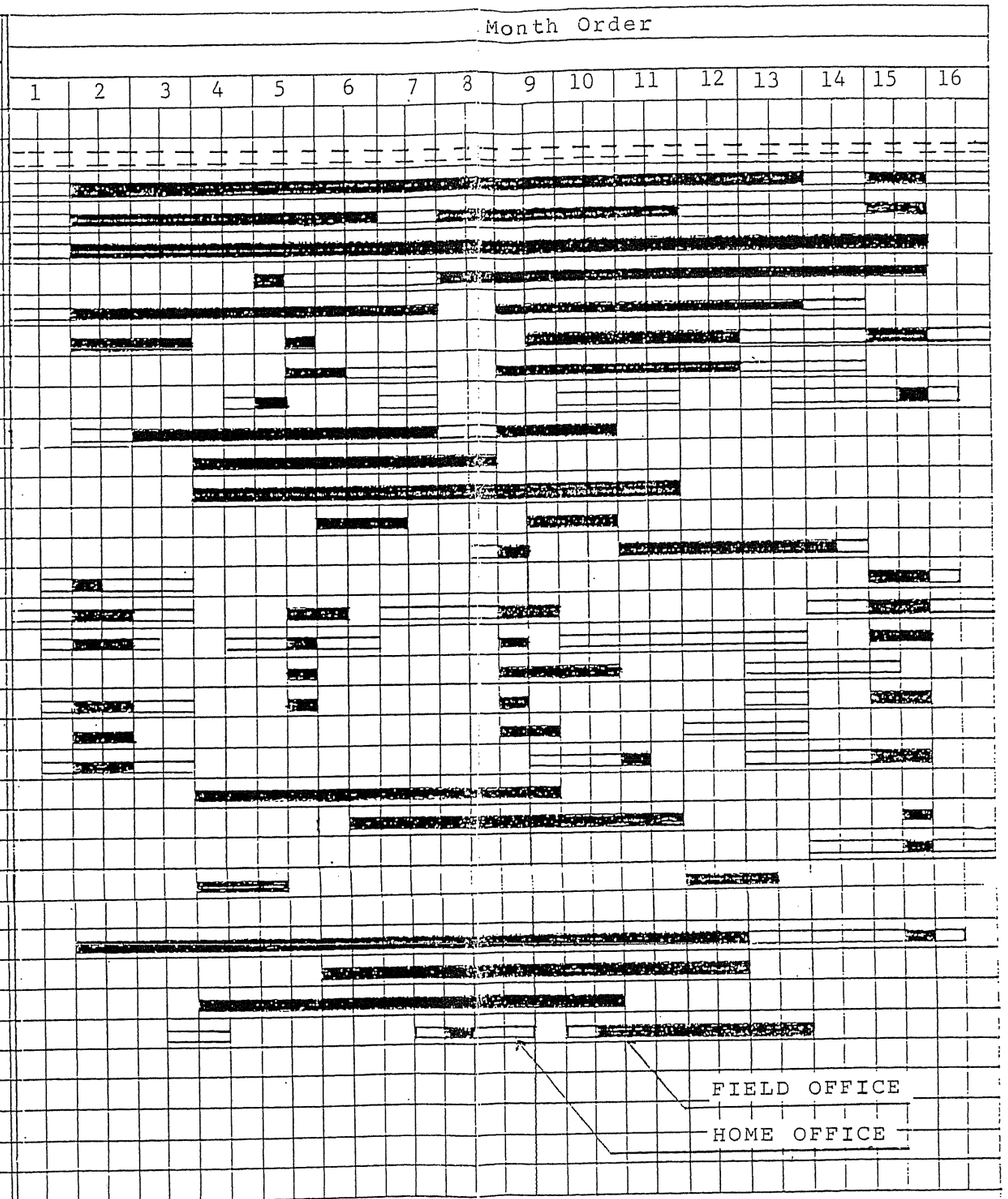
SCHEDULE OF SERVICES

Item of Services	Number of Month																Remarks
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
Division I Inception Report																	
Review of F/S Report																	
Preparation of Inception Report																	
Preparation of Spec. & Program for Investigation																	
Works																	
Division II Investigation Works & Study																	
Geological Investigation																	
Construction Material Investigation																	
Aerial Photogrammetry Mapping and Topographic Survey																	
Meteo-Hydrological Investigation																	
Hydraulic Model Test																	
Transmission Line Route and Substation Site Survey																	
Road Route Survey																	
Landslide Investigation																	
Miscellaneous Surveys																	
Environmental Study																	
Preparation of Investigation Work Report																	
Division III Design and Cost Estimate																	
Design Criteria																	
Basic Design																	
Detailed Design																	
Project Cost Estimate																	
Preparation of Implementation Program																	
Operation and Maintenance Criteria																	
Division IV Tender Documents																	
Preparation of Prequalification Questionnaire																	
Preparation of Tender Documents																	
Preparation of T.O.R. on E/S for Construction																	
Supervision																	
Others																	
Transfer of Knowledge																	
Preparation of Monthly Progress Report																	
Preparation of Engineering Report																	
Documentary Film																	

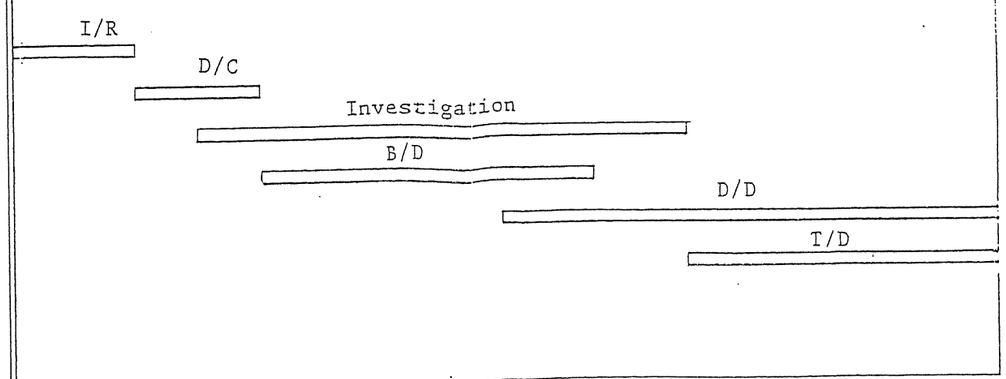
△ First General Meeting △ Second General Meeting △ Third General Meeting

MANNING SCHEDULE (TEPSCO)

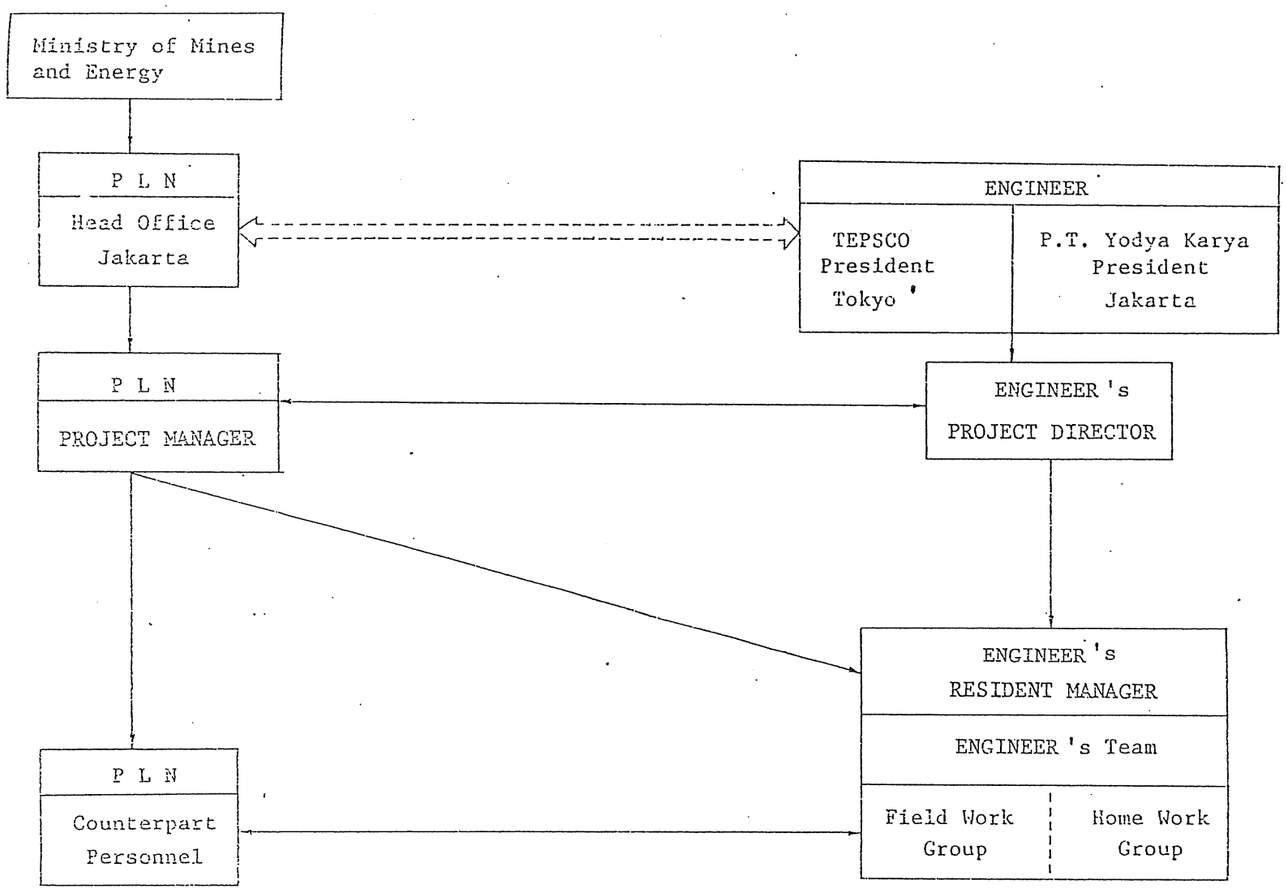
	Position	Name	Trip	Man-Month		
				Field	Home	Total
1	Project Director	M. Iwata	2	1	0	1
2	Resident Manager	H. Sasaki	2	13	3	16
3	Dam Engineer (1)	J. Itoh	3	10	5	15
4	Dam Engineer (2)	T. Hamada	1	14	1	15
5	Dam Engineer (3)	T. Tejima	2	8.5	2.5	11
6	Dam Engineer (4)	Y. Yoshida	2	11	2	13
7	Power Station Civil Engineer (1)	K. Terao	4	7	3	10
8	Power Station Civil Engineer (2)	M. Nambu	2	5	3.5	8.5
9	Metal Engineer	T. Kodama	2	1	6	7
10	Geologist	M. Fujieda	2	7	2	9
11	Boring and Seismic Engineer	K. Nakamata	1	5	0	5
12	Survey Engineer	S. Shirahama	1	8	0	8
13	Aggregate & Concrete Test Engineer	S. Kitamura	2	3	0	3
14	Hydraulic Model Test Engineer	A. Okada	2	4	1	5
15	Power Station Engineer/System Analyst	Y. Shiono	2	1.5	2.5	4
16	Power Station Engineer/Electric Engineer	K. Matsushima	4	4	6	10
17	Power Station Engineer/Mech. Engineer	T. Ohta	4	3	7	10
18	Architect/Building Engineer	K. Yamanouchi	2	2.5	2.5	5
19	Substation Engineer	T. Murata	4	3	2.5	5.5
20	Civil Engineer/Foundation of T/L & S/S	H. Kimura	2	2	2	4
21	Transmission Line Engineer	R. Kashimura	3	2.5	5	7.5
22	Transmission Line Survey Engineer	R. Takamura	1	6	0	6
23	Construction Engineer	Y. Miura	2	6	0	6
24	Economist	R. Suzuki	1	0.5	2.5	3
25	Enviromental Engineer	J.R.Prosser	2	3	0	3
26	Road Engineer (1)	J.Nagamura	2	11.5	3	14.5
27	Road Engineer (2)	H. Tsutsumi	1	7	0	7
28	Road Survey Engineer	S. Noguchi	1	7	0	7
29	Bridge Design Engineer	S. Kohda	2	4	3	7
30	Engineering Coordinator (1)	E. Goto				
31	Engineering Coordinator (2)	Y. Fukao				
32	On-Call Engineer		5	6.5		6.5
	Total		66	167.5	65	232.5



Remarks:
- I/R : Inception Report
- D/C : Design Criteria
- B/D : Basic Design
- D/D : Detailed Design
- T/D : Tender Document



ORGANIZATION CHART



SUMMARY OF COST

1. FOREIGN CURRENCY PORTION

1.1	MONTHLY RATES	¥ 491,603,700
1.2	Out-of-Pocket Expenses	¥ 274,985,600
1.3	Contingency	¥ 53,010,700
	Total	¥ 819,600,000

BREAKDOWN OF COST

1. FOREIGN CURRENCY PORTION

Total of Foreign Currency Portion		¥ 819,600,000
1.1 MONTHLY RATES		¥ 491,603,700
(1) MONTHLY RATES for TEPSCO		¥ 473,797,500
a. HOME OFFICE	65.0 M.M.	¥ 126,864,000
b. FIELD OFFICE	167.5 M.M.	¥ 346,933,500
(See the Attachment 3.1)		
(2) MONTHLY RATES for Y.K.		¥ 17,806,200
FIELD OFFICE	71.0 M.M.	¥ 17,806,200
(See the Attachment 3.2)		
1.2 Out-of-Pocket Expenses		¥ 274,985,600
(1) International Round Air Trip		¥ 37,294,700
(Actual reimbursement basis)		
a. Air Fare (TKY/JKT/PKU/JKT/TKY)		
¥ 372,700/Trip x 66 Trips =		¥ 24,598,200
(See the APPENDIX D-1)		
b. Excess Baggage		
¥ 2,740/kg x 20kg/Trip x 66 Trips =		¥ 3,616,800
c. Mobilization Cost		
- First Trip		
¥ 67,700/Trip x 29 Trips =		¥ 1,963,300
- Second Trip		
¥ 53,200/Trip x 37 Trips =		¥ 1,968,400

- Surface Transportation	
¥ 63,000/Trip x 66 Trips =	¥ 4,158,000
d. Per Diem Allowance during Travel	
¥ 7,500/Day x 2 Days/Trip x 66 Trips=	¥ 990,000
(2) Communication and Mail	¥ 15,456,000
(Monthly fixed unit rate)	
a. International Communication Cost	
(Telex, telegram, telephone and postage)	
¥ 320,000/Month x 16 Months =	¥ 5,120,000
b. International Transportation Cost	
(Reference data, drawing, equipment, supplies, etc.)	
¥ 260,000/Month x 16 Months =	¥ 4,160,000
c. Transportation Cost for Reports	
¥ 1,930/0.5 kg x 100 kg/Month x 16 Months =	¥ 6,176,000
(3) Office Supply	¥ 4,000,000
(Monthly fixed unit rate)	
¥ 250,000/Month x 16 Months =	¥ 4,000,000
(4) Printing	¥ 28,000,000
(Monthly fixed unit rate)	
¥ 1,750,000/Month x 16 Months =	¥ 28,000,000
(5) Computer Charge	¥ 28,000,000
(Fixed unit rate)	
a. Machine Rental Charge	
¥ 250,000/Hour x 3.5 Hours/Month x 16 Months =	¥ 14,000,000
b. Data Processing Expenses	
¥ 250,000/Hour x 3.5 Hours/Month x 16 Months =	¥ 14,000,000

(6)	Various Analyses and Tests	¥ 29,000,000
	a. Structural Analysis	¥ 5,000,000
	b. Bridge Structural Analysis	¥ 5,000,000
	c. Grouting Result Analysis	¥ 3,000,000
	d. Rock Mechanical Analysis	¥ 4,000,000
	e. Electric System Analysis	¥ 3,000,000
	f. Concrete Test	¥ 9,000,000
(7)	Drawing and Tracing	¥ 26,400,000
	(Monthly fixed unit rate)	
	¥ 1,650,000/Month x 16 Months =	¥ 26,400,000
(8)	Aerial Photogrammetry Mapping	¥ 20,500,000
	a. Relocation Road Route (40 Km^2, S=1/10,000)	¥ 2,500,000
	b. Transmission Line Route (165 Km^2, S=1/10,000)	¥ 8,000,000
	c. Dam Site Area (60 Km^2, S=1/5,000)	¥ 10,000,000
(9)	Equipment for Investigation Works	¥ 33,062,000
	(See the Attachment 3.3)	
(10)	Participation of PLN Personnel to the SERVICES	¥ 13,863,000
	(See the Attachment 3.4)	
(11)	Documentary Film	¥ 15,000,000
(12)	Per Diem Allowance for TEPSCO FIELD PERSONNEL without Residence	¥ 9,702,000
	(Fixed unit rate)	
	¥ 7,700/Day x 30 Days/Month x 42 Man.Months =	¥ 9,702,000

(13)	Per Diem Allowance for TEPSCO Duty Trip	¥ 571,200
	¥ 3,400/Day x 3 Days/Trip x 56 Trips =	¥ 571,200
(14)	Per Diem Allowance for TEPSCO Field Trip	¥ 723,900
	¥ 1,900/Day x 30 Days/Month x 12.7 Months =	¥ 723,900
(15)	Office Rental at Pekanbaru	¥ 1,830,400
	¥ 1,430/M^2 x 80 M^2/Month x 16 Months =	¥ 1,830,400
(16)	Car Expenditure	¥ 11,582,400
	¥ 76,200/Car.Month x 152 Car.Months =	¥ 11,582,400
1.3	Contingency	¥ 53,010,700

MONTHLY RATES FOR YODYA KARYA

POSITION	NAME	1 st Year			2 nd Year			3 rd Year			Total	
		M.M.	Rate	Amount	M.M	Rate	Amount	M.M	Rate	Amount	M.M	Amount
			¥	¥		¥	¥		¥	¥		¥
1. Co-Project Director	Machmud Ali	0.3	260,000	78,000	0.5	260,000	130,000	0.2	260,000	52,000	1	260,000
2. Co-Resident Manager	Edi Paminto	1	257,200	257,200	5	257,200	1,286,000				6	1,543,200
3. Dam Design Engineer	Ryanto				9	231,500	2,083,500				9	2,083,500
5. Powerstation Civil Engineer	L.M. Pangabean				5	221,900	1,109,500				5	1,109,500
9. Survey Engineer (3)	Endang A. Dimyati				5	247,200	1,236,000				5	1,236,000
10. Hydraulic Model Test Engineer (2)	Soetarto H.M.				3	257,200	771,600				3	771,600
12. Architect/Building Engineer (2)	Barani Harahap				6	257,200	1,543,200				6	1,543,200
14. Transmission Line Engineer (2)	Gustian Halim	1	257,200	257,200	7.5	257,200	1,929,000	0.5	257,200	128,600	9	2,314,800
20. Road Design Engineer (1)	Soetiyono	1	257,200	257,200	9	257,200	2,314,800				10	2,572,000
21. Road Design Engineer (2)	Fachri Ludin				9	257,200	2,314,800				9	2,314,800
23. Bridge Design Engineer (2)	Asikin				4	257,200	1,028,800				4	1,028,800
24. On-Call Engineer					4	257,200	1,028,800				4	1,028,800
Total		3.3		849,600	67		16,776,000	0,7		180,600	71	17,806,200
			Rp.	Rp.		Rp.	Rp.		Rp.	Rp.		Rp.
4. Hydrologist	Irzal S.	1	1,490,000	1,490,000	6	1,650,000	9,900,000				7	11,390,000
6. Geologist (2)	Jatma Sujatma	2	1,335,000	2,670,000	5	1,490,000	7,450,000				7	10,120,000
7. Soil Mechanics Engineer	Sri Hadiwinarto				2	2,290,000	4,580,000				2	4,580,000
8. Survey Engineer (2)	Sadono				5	1,335,000	6,675,000				5	6,675,000
11. Power Station Engineer	Fauzie Arief				2.5	1,648,000	4,120,000				2.5	4,120,000
13. Civil Eng./ Foundation of T/L,S/S(2)	Bambang Kurniadi				5	1,980,000	9,900,000	0.5	2,050,000	1,025,000	5.5	10,925,000
15. Construction Engineer (2)	Moh. Wafroni				2	1,330,000	2,660,000				2	2,660,000
16. Environmental Engineer (2)	Bambang Purwono				3	2,060,000	6,180,000				3	6,180,000
17. Geodetic Engineer (1)	Bambang Gunarso				7	1,648,000	11,536,000				7	11,536,000
18. Geodetic Engineer (2)	A.A. Tarman				6	1,490,000	8,940,000				6	8,940,000
19. Geotechnical Engineer	F. Widaryanto				5.5	2,200,000	12,100,000				5.5	12,100,000
22. Road Design Engineer (3)	Wien Setiawan				8	2,138,000	17,104,000				8	17,104,000
Total		3		4,160,000	57		101,145,000	0.5		1,025,000	60.5	106,330,000

EQUIPMENT FOR INVESTIGATION WORKS

1. Investigation and Survey Equipment

(1) Electro-Optical Distance Meter with Ceodrite and Tripod (GTS-2B 10) ¥ 3,560,000/Set x 2 Sets =	¥ 7,120,000
(2) Transit with Tripod ¥ 800,000/Set x 4 Sets =	¥ 3,200,000
(3) Level with Tripod ¥ 200,000/Set x 4 Sets =	¥ 800,000
(4) Staff (5 m) ¥ 24,000/Unit x 8 Units =	¥ 192,000
(5) Plane Table with Tripod and Alidade ¥ 130,000/Set x 4 Sets =	¥ 520,000
(6) Compass ¥ 90,000/Set x 2 Sets =	¥ 180,000
(7) Mirror Stereoscope ¥ 200,000/Set x 1 Set =	¥ 200,000
(8) CBR Testing Set for Field Use (TS-428 with Sample Tube) ¥ 555,000/Set x 4 Sets =	¥ 2,220,000
(9) Hydraulic Model	¥ 9,489,000
- Current Meter Calibration System L.S.	¥ 6,200,000
- Current Meter VO-301A ¥ 420,000/Set x 1 Set =	¥ 420,000
- Current Meter VOT2-100-05 ¥ 150,000/Pc x 3 Pcs =	¥ 450,000

- Wave Height Meter Senser C-500	
¥ 80,000/Pc x 2 Pcs =	¥ 160,000
- Wave Height Meter Cable	
¥ 15,000/Pc x 1 Pc =	¥ 15,000
- Pitot Tube	
¥ 72,000/Pc x 12 Pcs =	¥ 864,000
- Orifice Meter	
¥ 115,000/Pc x 12 Pcs =	¥ 1,380,000
2. Office Equipment	
(1) Planimeter	
¥ 55,000/Unit x 2 Units =	¥ 110,000
(2) Voltage Adjuster	
¥ 110,000/Unit x 2 Units =	¥ 220,000
(3) Programable Desk Computer with Printer	
¥ 2,432,000/Set x 3 Sets =	¥ 7,296,000
- System Unit	
¥ 1,290,000/Unit x 3 Units =	¥ 3,870,000
- Key Board	
¥ 83,000/Unit x 3 Units =	¥ 249,000
- Display	
¥ 220,000/Unit x 3 Units =	¥ 660,000
- Interface	
¥ 135,000/Unit x 3 Units =	¥ 405,000
- Plotter	
¥ 456,000/Unit x 3 Units =	¥ 1,368,000
- Printer	
¥ 210,000/Unit x 3 Units =	¥ 630,000
- Voltage Adjuster	
¥ 28,000/Unit x 3 Units =	¥ 84,000
- Cable	
¥ 10,000/Unit x 3 Units =	¥ 30,000

(4) Drafting Equipment	
¥ 450,000/Set x 3 Sets =	¥ 1,350,000
(5) Distilled Equipment	
¥ 55,000/Set x 3 Sets =	¥ 165,000
Total	¥ 33,062,000

Participation of PLN Personnel to the SERVICES

Senior Staff : 4 Persons (4 M/M)

1.	Air Fare (JKT/TKY/JKT) ¥ 353,300/Trip x 4 Trips =	¥ 1,413,200
2.	Excess Baggage ¥ 2,540/Trip x 20 Kg x 4 Trips =	¥ 203,200
3.	Travel Allowance ¥ 35,000/Man-day x 30 Days x 4 M/M =	¥ 4,200,000
4.	Inland Travel Cost in Japan ¥ 6,000 x 30 Days x 4 M/M =	¥ 720,000
5.	Attendant's Cost (1 Person x 3 Months)	
	a. Travel Allowance for Inspection Tour ¥ 33,000/Man-day x 20 Days =	¥ 660,000
	b. Attendants ¥ 2,089,000 x 3 Months =	¥ 6,267,000
6.	Material for PLN Participation ¥ 99,900 x 4 Persons =	¥ 399,600
	T o t a l	¥ 13,863,000

SUMMARY OF COST
2. INDONESIAN RUPIAH PORTION

2.1	MONTHLY RATES for Y.K.	Rp.	106,330,000
2.2	Out-of-Pocket Expenses	Rp.	584,856,400
2.3	Survey Works	Rp.	456,422,900
2.4	Geological Investigation Works	Rp.	373,867,600
2.5	Test Works	Rp.	431,941,000
2.6	Contingency	Rp.	117,205,100
	Total	Rp.	2,070,623,000

BREAKDOWN OF COST

2. INDONESIAN RUPIAH PORTION

Total of Indonesian Rupiah Portion		Rp. 2,070,623,000
2.1 MONTHLY RATES for Y.K.		Rp. 106,330,000
FIELD OFFICE	60.5 M.M.	Rp. 106,330,000
(See the Attachment 3.2)		
2.2 Out-of-Pocket Expenses		Rp. 584,856,400
(1) Mobilization and Demobilization Cost		Rp. 28,573,400
a. Air Fare (JKT/PKU/JKT)		
(Actual reimbursement basis)		
Y.K. Rp. 203,200/Trip x 43 Trips =		Rp. 8,737,600
(See the APPENDIX D-1)		
b. Excess Baggage		
Y.K. Rp. 2,030/Kg x 20 Kg/Trip x 43 Trips =		Rp. 1,745,800
c. Taxi Charge		
- Jakarta (Air Port - Hotel)		
TEPSCO Rp. 18,000/Way x 4 Ways/Trip x 66 Trips =		Rp. 4,752,000
Y.K. Rp. 18,000/Way x 2 Ways/Trip x 43 Trips =		Rp. 1,548,000

- Pekanbaru (Air Port - Site)		
TEPSCO Rp. 30,000/Way x 2 Ways/Trip x 66 Trips =		Rp. 3,960,000
Y.K. Rp. 30,000/Way x 2 Ways/Trip x 43 Trips =		Rp. 2,580,000
d. Mobilization Cost for Y.K. L.S.		Rp. 2,500,000
e. Exit Tax		
TEPSCO Rp. 250,000/Trip x 11 Trips =		Rp. 2,750,000
(2) Duty Trip Expenses (Trip number basis)		Rp. 24,768,000
a. Air Fare (PKU/JKT/PKU)		
(Actual reimbursement basis)		
TEPSCO Rp. 203,200/Trip x 56 Trips =		Rp. 11,379,200
Y.K. Rp. 203,200/Trip x 34 Trips =		Rp. 6,908,800
b. Taxi Charge (JKT)		
TEPSCO Rp. 72,000/Trip x 56 Trips =		Rp. 4,032,000
Y.K. Rp. 72,000/Trip x 34 Trips =		Rp. 2,448,000
(3) Per Diem Allowance for Y.K. Field Trip (Fixed unit rate and actual trip number basis)		Rp. 9,060,000
Rp. 20,000/Day x 30 Days/Month x 15.1 Months =		Rp. 9,060,000
(4) Per Diem Allowance for Y.K. FIELD PERSONNEL without Residence (Fixed unit rate)		Rp. 15,225,000
Rp. 35,000/Man Day x 30 Days/Month x 14.5 Man. Months =		Rp. 15,225,000

(5) Office and House Rental — Rp. 197,575,000

a. Office Rental at PROJECT SITE
Rp. 15,000/m^2 x 270 m^2/Month
x 14 Months = — Rp. 56,700,000

b. House Rental at PROJECT SITE
TEPSCO Rp. 850,000/House.Month
x 125.5 House.Month = — Rp. 106,675,000
Y.K. Rp. 300,000/House.Month
x 114 House.Month = — Rp. 34,200,000

(6) Office Expenditure — Rp. 168,000,000

a. Office Facilities

- Telex and Tape Puncher
Rp. 300,000/Unit.Month x 2 Units
x 16 Months + Rp. 150,000/Unit.
Month x 16 Unit.Months = — Rp. 12,000,000

- Communication Facility
(Kotapanjang - Pekanbaru -
Bukittinggi)
Rp. 14,000,000/Unit x 3 Units = — Rp. 42,000,000

- Xerox Copying
Rp. 600,000/Unit.Month
x 44 Unit.Months = — Rp. 26,400,000
(Site Office 2 Units x 14 Months
= 28 Unit.Months
PKU Office 1 Unit x 16 Months
= 16 Unit.Months)

- Blue Copy Machine Copying
Rp. 1,500,000/Unit.Month x 14 Unit.
Months = — Rp. 21,000,000

- Typewriter
Rp. 150,000/Unit.Month x 58 Unit.
Months = — Rp. 8,700,000

b. Office Furniture
Rp. 2,800,000/Month x 16 Months = — Rp. 44,800,000

c. Office Supply and Consumables
Site Office Rp. 650,000/Month
x 14 Months = — Rp. 9,100,000
PKU Office Rp. 250,000/Month
x 16 Months = — Rp. 4,000,000

(7) Communication and Mail — Rp. 13,360,000
(Monthly fixed unit rate)
Rp. 835,000/Month x 16 Months = — Rp. 13,360,000

(8) Helicopter Expenses — Rp. 21,025,000
(Actual reimbursement basis)

(9) Drawing and Tracing — Rp. 24,000,000
Rp. 1,500,000/Month x 16 Months = — Rp. 24,000,000

(10) Salary for Local Employees — Rp. 83,270,000

a. Office Administrator
Site Office Rp. 700,000/Man.Month
x 2 Men x 14 Months = — Rp. 19,600,000
PKU Office Rp. 300,000/Man.Month
x 1 Man x 16 Months = — Rp. 4,800,000

b. Secretary
Site Office Rp. 450,000/Man.Month
x 3 Men x 14 Months = — Rp. 18,900,000

c. Typist
Site Office Rp. 250,000/Man.Month
x 2 Men x 14 Months = — Rp. 7,000,000

d. Office Boy

Site Office Rp. 120,000/Man.Month
x 4 Men x 14 Months = Rp. 6,720,000

PKU Office Rp. 120,000/Man.Month
x 1 Man x 16 Months = Rp. 1,920,000

e. Assistant Road Design Engineer

Site Office Rp. 700,000/Man.Month
x 3 Men x 5.5 Months = Rp. 11,550,000

f. Telex and Telecommunication Operator
Rp. 250,000/Man.Month x 2 Men
x 15 Months = Rp. 7,500,000

g. Janitor

Site Office Rp. 120,000/Man.Month
x 2 Men x 14 Months = Rp. 3,360,000

PKU Office Rp. 120,000/Man.Month
x 1 Man x 16 Months = Rp. 1,920,000

2.3 Survey Works Rp. 456,422,900

a. Ground Survey
Rp. 22,926,000/Km^2 x 4.61 Km^2 = Rp. 105,688,900

b. Transmission Line Survey
Rp. 2,060,000/Km x 70 Km = Rp. 144,200,000

c. Relocation Road Survey
Rp. 2,335,000/Km x 75 Km = Rp. 175,125,000

d. Hydrological and Meteorological Servey Rp. 31,409,000

2.4 Geological Investigation Works Rp. 373,867,600

(1) Seismic Prospecting
Rp. 11,739,000/Km x 3.17 Km = Rp. 37,212,600

(2) Boring Rp. 327,730,000

a. Rock (Depth 0 - 40 m)
Rp. 137,000/m x 1,390 m = Rp. 190,430,000

b. Rock (Depth 40 - 60 m)
Rp. 160,000/m x 290 m = Rp. 46,400,000

c. Rock (Depth 60 m)
Rp. 189,000/m x 60 m = Rp. 11,340,000

d. Soil (Depth 0 - 40 m)
Rp. 102,000/m x 780 m = Rp. 79,560,000

(3) Trench Excavation (Sand) Rp. 8,925,000
Rp. 2,500/m^3 x 3,570 m^3 = Rp. 8,925,000

2.5 Test Works Rp. 431,941,000

(1) Permeability Test Rp. 5,922,000
Rp. 63,000/Time x 94 Times = Rp. 5,922,000

(2) Standard Penetration Test Rp. 20,790,000
Rp. 33,000/Test x 630 Tests = Rp. 20,790,000

(3) Test Adit Rp. 243,100,000
Rp. 748,000/m x 325 m = Rp. 243,100,000

(4) Test Pit Rp. 462,000
Rp. 14,000/m x 33 m = Rp. 462,000

(5) In-situ Rock Test Rp. 22,770,000
Rp. 3,795,000/Time x 6 Times = Rp. 22,770,000

(6) Laboratory Test Rp. 22,389,000
L.S.

(7) Water Quality Test — Rp. 6,325,00
L.S.

(8) Aggregate and Concrete Test — Rp. 38,279,00
L.S.

(9) Hydraulic Model Test — Rp. 70,150,00
L.S.

(10) Electrical Logging Test — Rp. 1,754,00
L.S.

2.6 Contingency — Rp. 117,205,10

8,894
10,431
136,530

414,124
1,133,040
1547

167,220

のりブケのため分り / 原本のとおり

122,744
289,232
411,976

070623
136,530
1,834,093

	up to Jan 88, No. 6.	Feb~Mar No 7	No. 8		Contr
2.1	~~90,205.4~~ 52,832.4	7373.	4410.3	11,714.3	106,33
2.2	~~534,891.85~~ 473,816.85	61,075	~~49,964.55~~ ~~11,110~~	0	584,85
2.2~2.5	~~944,634~~ 859,651.73	84,982.47	~~222,183~~ 307,166.07	10430.98	1262,23
conti 2.6	0	0		117,205.1	117,205
	Rp 1,416,300.73	Rp 153,430.97 / 122,744 E-2-8	361,540.97 / 289,232	Rp 137,350.33 / Rp 167,220	2,070 / 212
Rp 390,682.	Rp 1,133,040 (1523.9)	Rp 122,745	Rp 289,233.	Rp 143,728	

SCHEDULE OF PAYMENT

FOREIGN CURRENCY PORTION

(Unit: ¥ 1,000)

Item \ Period of Payment	Advance	1st	2nd	3rd	4th	5th	6th	7th	8th	Total
1.1 MONTHLY RATES	98,321	33,331	40,012	54,820	55,823	68,201	53,875	50,385	36,835.7	491,603.7
(1) MONTHLY RATES for TEPSCO	94,760	32,960	38,901	52,408	53,131	65,529	51,092	48,738	36,278.5	473,797.5
(2) MONTHLY RATES for Y.K.	3,561	371	1,111	2,412	2,692	2,672	2,783	1,647	557.2	17,806.2
1.2 Out-of-Pocket Expenses	54,996	22,588	47,847	19,982	18,082	37,161	27,505.9	27,111.2	19,712.5	274,985.6
(1) International Round Air Trip	7,459	3,210	459	4,080	2,740	5,410	4,516	2,693	6,727.7	37,294.7
(2) Communication and Mail	3,092	1,546	1,545	1,546	1,545	1,546	1,545	1,546	1,545	15,456
(3) Office Supply	800	400	400	400	400	400	400	400	400	4,000
(4) Printing	5,600	2,800	2,800	2,800	2,800	2,800	2,800	2,800	2,800	28,000
(5) Computer Charge	5,600	2,800	2,800	2,800	2,800	2,800	2,800	2,800	2,800	28,000
(6) Various Analyses and Tests	5,800	0	2,400	2,400	0	8,000	10,400	0	0	29,000
(7) Drawing and Tracing	5,280	2,640	2,640	2,640	2,640	2,640	2,640	2,640	2,640	26,400
(8) Aerial Photogrammetry Mapping	4,100	0	16,400	0	0	0	0	0	0	20,500
(9) Equipment for Investigation Works	6,612	7,304	11,584	0	0	7,562	0	0		33,062
(10) Participation of PLN Personnel to the SERVICES	2,773	0	2,772	0	2,773	0	0	5,545	0	13,863
(11) Documentary Film	3,000	0	2,400	0	0	2,400	0	7,200	0	15,000
(12) Per Diem Allowance for TEPSCO FIELD PERSONNEL	1,940	1,109	185	1,109	278	1,478	924	554	2,125	9,702
(13) Per Diem Allowance for TEPSCO Duty Trip	144	48	114	65	65	81	65	19.2	0	571.2
(14) Per Diem Allowance for TEPSCO Field Trip	144	0	68	161	182	155	13.9	0	0	723.9
(15) Office Rental at Pekanbaru	366	183	183	183	183	183	183	183	183.4	1,830.4
(16) Car Expenditure	2,316	548	1,097	1,798	1,676	1,706	1,219	731	491.4	11,582.4
Total	153,317	55,919	87,859	74,802	73,905	105,362	81,380.9	77,496.2	56,548.2	766,589.3

Note : The contingency amount is not included in the schedule.

SCHEDULE OF PAYMENT

INDONESIAN RUPIAH PORTION

(Unit: Rp. 1,000)

Item \ Period of Payment	Advance	1st	2nd	3rd	4th	5th	6th	7th	8th	Total
2.1 MONTHLY RATES for Y.K.	21,266	2,260	11,082	18,885	26,738	16,740	6,920	824	1,165	106,330
2.2 Out-of-Pocket Expenses	116,970	63,926	54,069	65,636	69,969	86,656	58,017	42,352	27,261.4	584,856.4
(1) Mobilization and Demobilization Cost										
- Items a, b, c, and e	5,214	2,098	2,008	3,396	2,464	3,298	2,943	2,120	2,532.4	26,073.4
- Item d	500	0	400	800	800	0	0	0	0	2,500
(2) Duty Trip Expenses	4,953	1,320	3,522	2,201	3,522	4,403	3,742	880	225	24,768
(3) Per Diem Allowance for Y.K. Field Trip	1,812	0	1,147	2,227	2,251	1,623	0	0	0	9,060
(4) Per Diem Allowance for Y.K. FIELD PERSONNEL without Residence	3,045	252	840	420	4,200	2,520	2,100	1,680	168	15,225
(5) Office and House Rental	39,515	8,160	21,040	28,120	28,260	30,360	24,120	12,560	5,440	197,575
(6) Office Expenditure	33,600	43,920	13,360	13,360	13,360	13,360	13,360	13,360	10,320	168,000
(7) Communication and Mail	2,672	1,336	1,336	1,336	1,336	1,336	1,336	1,336	1,336	13,360
(8) Helicopter Expenses	4,205	0	0	0	0	16,820	0	0	0	21,025
(9) Drawing and Tracing	4,800	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	24,000
(10) Salary for Local Employees	16,654	4,440	8,016	11,376	11,376	10,536	8,016	8,016	4,840	83,270
2.3 Survey Works	91,284	0	62,890	125,875	133,823	40,816	1,734.9	0	0	456,422.9
2.4 Geological Investigation Works	74,774	0	0	115,060	96,663	87,370.6	0	0	0	373,867.6
2.5 Test Works	86,388	0	0	129,892	112,593	50,044	33,705	19,319	0	431,941
Total	390,682	66,186	128,041	455,348	439,786	281,626.6	100,376.9	62,495	28,876.4	1,953,417.9

Note : The contingency amount is not included in the schedule.

PROGRAM OF TRANSFER OF KNOWLEDGE AND KNOWHOW AND PARTICIPATION OF INDONESIAN PERSONNEL TO THE SERVICES

1. General

For the purpose of the effective transfer of knowledge and knowhow for the duration of the limited period of the SERVICES, it will be conducted in the manners of on-the-job training as the main part and off-duty training as the supplemental part.

The participation to the SERVICES at the FIELD and HOME OFFICES is aiming at the promotion of understanding and ability-development of PLN and Y.K. members on analyses and decision making of the SERVICES at a design stage of a hydroelectric power project.

Moreover, technical discussions and work cooperation will be made at the HOME OFFICE by PLN and the ENGINEER relating to the main items at every stage of the SERVICES for design criteria, basic design, detailed design and tender documents.

2. Implementation Program

2.1 FIELD OFFICE

During the eight (8) months of the Investigation Works, the ENGINEER and PLN personnels will work closely together at the FIELD OFFICE at the PROJECT SITE. The works include the schedule control and supervision of the Investigation Works and data processing and analyses of the result of the Investigation Works. The ENGINEER and PLN will be able to have ideal opportunities for the transfer of knowledge and knowhow through these activities.

Moreover, in order to complete the Investigation Works within the very tight schedule, it is necessary for the ENGINEER and PLN to have the same level of engineering background for the PROJECT.
Thus, the ENGINEER proposes to arrange " Field Technology Transfer Day " once a month to give a lecture on the subjects related to the Investigation Works as shown in Table-1. The lecturers, therefore, will be appointed and selected from the FIELD PERSONNELS.

Table-1 Transfer of Knowledge at the PROJECT SITE

Subject	Items	Remarks
Hydropower planning	Basic knowledge of hydropower planning	·Hydropower planning ·Topography of project area ·Geology of project area ·Hydrology of project area
Topographic survey	Survey for dam Survey for road	·Mapping and dam design ·Mapping and survey for road
Geological investigation	Field investigation	·Drilling ·Permeability test ·Seismicprospecting
	Laboratory test for material	·Aggregate test ·Concrete test
Dam design	Basic design of dam	·Type of dam ·Foundation and construction material
Road planning	Basic knowledge of road planning	·Planning of road system ·Invesigation work for road engineering ·Structure of road
Transmission line planning	Basic knowledge of transmission line	·Planning of T/L system ·Investigation work ·Design of T/L foundation

2.2 HOME OFFICE

The purpose of the technical discussion, participation and the cooperative work at HOME OFFICE in Tokyo is ;

- To prepare the specification in detail advised by PLN in the Design Criteria
- To determine the scale and the development scheme of power station in the Basic Design
- Directly to reflect PLN's opinion about the Detailed Design and be able to implement training through the cooperative work with the ENGINEER
- Directly to reflect PLN's opinion into Tender Documents so as to carry out tendering and supervising the PROJECT smoothly.

The ENGINEER will arrange a training course in Japan with respect to general planning and basic design as well as system analysis and computer operation. The ENGINEER will accept four (4) engineers selected by PLN for the total Man-Month of four (4) M/M. The subjects will be spread over for several aspects of the PROJECT as shown in Table - 2.

Site trips will be also organized to visit Tokyo Electric Power Company's facilities and hydro project sites where the ENGINEER performed or will be performing engineering services.

Table-2 Transfer of knowledge at HOME OFFICE

Subject	Items	Remarks
Hydropower planning	Topographic study	·Site selection ·Mapping
	Geological study	·Geology and foundatuion conditions
	Hydrological study	·Water availability ·Design flood ·Data processing
	Power planning	·Type of power generation ·Estimation of generated energy
Engineering geology	Foundation of dam	·Strength of foundation ·Impermeability of foundation ·Treatment of foundatoin
	Construction material	·Field and laboratory test
Dam design	Selection of dam type	·Comparative study of various type dams
	Stability of dam	·Stability analisys
	Foundation	·Foundation requirement and treatme
	Spillway	·Design flood ·Selection of type of spillway ·Hydraulics of control structure
	Diversion and coffer dam	·Design flood for diversion ·Methods of diversion ·Design of coffer dam
Design of waterway	Penstock	·Maximum hydraulic pressure ·Design of penstock
	Surge tank	·Type of surge tank ·Calculation of surging ·Design of surge tank
		·Metal work
Electrical design	Transmission line	·Transmission system planning ·Type of T/L tower
	Subsation	·Site selection ·Layout of subsation
Mechanical design	Desin of generating equipment	·Turbine ·Generator
Computer	System analysis	·Flow chart and algorithm
	Programming	·FORTRAN and BASIC
	Operation	·TEPSCO's IBM 4381 system

3. Training of Yodya Karya Members

The transfer of knowledge and knowhow to the Y.K members will be realized through day-by-day services by organizing working groups with TEPSCO engineers for respective technical fields. "Field Technology Transfer Day" is also available for Y.K. members.

4. Report

The progress of the participation will be reported in a Monthly Progress Report to PLN.

5. Schedule

The tentative schedule of PLN participation in Japan is shown in the attached sheet.

6. Cost for Participation

The proposed costs for PLN participation in Japan is shown in the item 1.2 (10) of APPENDIX-E-1.

SHEET _____ OF _____

TEPSCO

MESSRS.

SCHEDULE OF Cooperative Work in Japan for the Kotapanjang Project

NO.

DATE

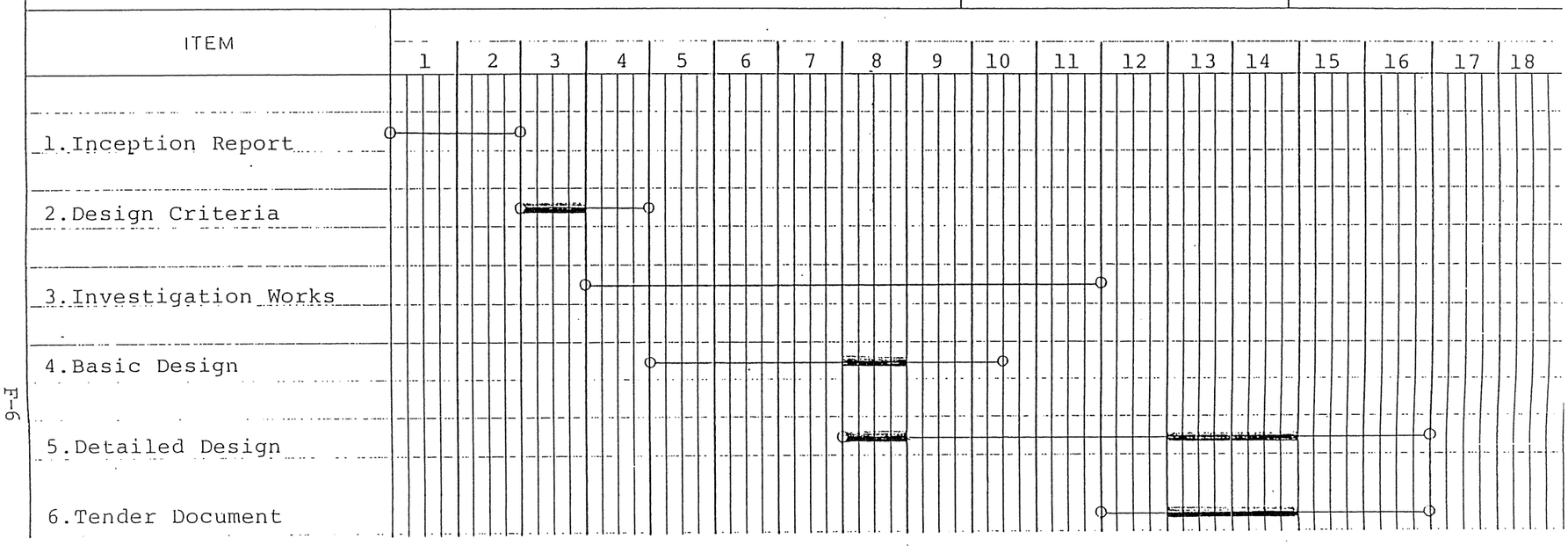
DIV.

CHECKED BY

PROJECT: CONTRACT NO.

KOTAPANJANG HYDRO ELECTRIC POWER PROJECT

TEPSCO PROJECT NO.



: Cooperative Work In Japan

F-6

Attachment

REPORTS AND DOCUMENTS TO BE PREPARED BY THE ENGINEER

Document's Titles	Copies	
1. Draft Inception Report	10 copies	
2. Final Inception Report	15 copies	
3. Specification and Program for Site Investigation Works	5 copies	
4. Final Specification and Program for Site Investigation Works	5 copies	
5. Draft Design Criteria for all the structural components of the Plant including for the Preparatory Works (access road, base camp, etc.)	10 copies	
6. Final Design Criteria	15 copies	
7. Pariticipation of PLN Personnel to the SERVICES	5 copies	
8. Draft design for all the Structural Components of the Plant and Preparatory Works including all the calculations and drawings	10 copies	
9. Final Design Report	15 copies	
10. Project Cost Estimate	10 copies	
11. Draft Prequalification Document for Civil Works International Tender and for Penstock, if required	10 copies	
12. Final Prequalification Document(s)	30 copies	
13. Draft Tender Document for International Tender and Local Tender	10 copies	each Lot *)
14. Final Tender Documents	30 copies	each Lot *)

15.	Draft Terms of Reference Engineering Services for construction supervision	5 copies
16.	Final Terms of Reference	5 copies
17.	Draft Implementation Program	10 copies
18.	Final Implementation Program	15 copies
19.	Draft Environmental Study	5 copies
20.	Final Environmental Study	10 copies
21.	Draft Reservoir Operation Study	5 copies
22.	Final Reservoir Operation Study	10 copies
23.	Guidance for Operation and Maintenance of the Plant	5 copies
24.	Monthly Progress Report	15 copies

Note : *) see Lot specification on the next page.

SPECIFICATION OF TENDER LOTS

International Tender (ICB)

- Civil Works - Lot I

  Dam/weir, diversion tunnel, spillway, power house, tailrace, switchyard civil works and civil works of the penstock allignment.

- Metal Works - Lot II

  Penstock, gates and valves

- Generating Equipment - Lot III

  III A : Hydraulic Turbines, electric overhead travelling crane and anciliary equipment

  III B : Generator units and anciliary equipment + control equipment

  III C : Switchgear and substation equipment + PLC line protection

  III D : Power transformers, stepdown transformers and anciliary transformers

- Transmission Line - Lot IV

  Lot IV : Transmission Line Materials

  IV A : Steel Towers

  IV B : Conductor

  IV C : Insulator

- Equipment - Lot V

  V A : Diesel Power Plant for Construction

  V B : Flood Forecasting and warning system and Telemetring

  V C : Maintenance / special equipment, radio communication + PABX (during construction)

- Relocation Road and Bridge - Lot VI

Local Tender (LCB)

- Lot 1 : Access road & bridges
- Lot 2 : In situ construction road & bridges
- Lot 3 : Base camp, workshop etc. (site facilities)
- Lot 4 : Distribution network for construction and lighting of site
- Lot 5 : Foundation and erection of the transmission line towers and transmission line stringing
- Lot 6 : Civil works substation buildings

SERVICES AND FACILITIES TO BE PROVIDED BY PLN

1. Counterpart Personnel

   PLN will station the counterpart personnels at the FIELD OFFICE for the SERVICES.

2. Draftsmen

   PLN will provide the draftsmen at the FIELD OFFICE.

3. Information

   PLN will make available to the ENGINEER documents, drawings, maps, statistics, data and any other informations related to the PROJECT.

4. Permits, Authorization, Approval of the GOVERNMENT

   PLN will take measures, arrangements and procedures to obtain the necessary permits, authorizations, approvals of the GOVERNMENT and the GOVERNMENTAL agencies in connection with the execution of the SERVICES including land clearance, access to and unconditional right of alteration of the PROJECT SITE, and reports.

GENERAL APPROACH AND WORK PLAN

1. General Approach

The ENGINEER will carry out the SERVICES in accordance with PLN interests and opinions, and make fair and precise judgements.

The ENGINEER pledges the transfer of technical knowledge to Indonesian engineers, and will exert its best effort to execute and complete the SERVICES to the complete satisfaction of PLN.

As the period of the Services is strictly limited, the ENGINEER will place particular emphasis on the following approaches.

1.1 Association of TEPSCO and P.T. Yodya Karya

To execute the many items of the SERVICES, overcoming the severe conditions inherent in hydroelectric power projects and for effective technology transfer, TEPSCO and P.T. Yodya Karya have formed an associated relationship. In this association, TEPSCO will head the association and assume full responsibility to PLN for fulfillment of all obligations under the contract for the SERVICES.

The merits of this association lie in the combination of extensive TEPSCO knowledge and experience in investigation, design and construction supervision of numerous dams and power plants, and the rich experience and capability of P.T. Yodya Karya in development projects for PLN and PU in Indonesia.

1.2 Full Use of Knowledge obtained through Past Studies of the PROJECT

In 1979 and 1980, TEPSCO undertook Reconnaissance Surveys and Prefeasibility Studies of the main river basins in Riau Province, that is, the Kampar, Rokan and Indragiri Kuantan Rivers, at its own cost.

From January 1982 until March 1984, TEPSCO executed the Feasibility Study of the PROJECT upon commission by the Japan International Cooperation Agency (JICA).

Furthermore, after completion of the Feasibility Study, the ENGINEER carried out additional investigation on the relocation road route, quarry sites, etc., for the purpose of contributing to smooth progress of the SERVICES.

The ENGINEER will effectively utilize the know-how and data acquired through these studies.

1.3 Expeditious Services for Investigation and Design Works

The ENGINEER considers that it is imperative to complete the SERVICES within 16 months after signing of the contract.

To realize this, the Investigation Works and Design Services should proceed as expeditiously as possible and all SERVICES should be executed in the most effective manner.

For this purpose, the following measures shall be taken.

(1) Within two months of conclusion of the contract for the SERVICES, the ENGINEER will select contractors for Investigation Works by taking the most effective procedures approved by the GOVERNMENT, so that the Investigation Works can commence from the beginning of the fourth month.

(2) The ENGINEER has developed new computer programs for structures which be intended to utilize for the design services. The ENGINEER will carry out the SERVICES which are executable in Indonesia to the greatest extent practicable. Remaining works which require coordination among technical fields of civil, electrical, etc., and calculations requiring the use of large capacity computers will be undertaken at the TEPSCO HOME OFFICE.

1.4 Close Cooperation with PLN and Transfer of Knowledge

TEPSCO members will carry out the SERVICES in close coordination and collaboration with PLN and the staff of P.T. Yodya Karya at the FIELD OFFICE, placing particular emphasis on transfer of knowledge by adopting "man-to-man" and "learn-by-doing" methods.

As the TEPSCO staff have extensive know-how of overall power development and TEPSCO has an open policy regarding this knowledge, PLN and P.T. Yodya Karya will be able to obtain this knowledge if they so desire.

At the HOME OFFICE, know-how related to certain selected themes from among basic and detailed designs of the main structures can be transferred to engineers of PLN by working together with TEPSCO HOME OFFICE engineers.

1.5 Due Consideration to Electric Power System Development Project in Central Sumatra

In determination of plant specifications and operation conditions for the PROJECT, TEPSCO will take into consideration the feasibility study of the Electric Power System Development Project in Central Sumatra.

2. Work Plan

The services required for the SERVICES comprise the items stipulated in the Terms of Reference and those described in Fig I-1.

For the purpose of planning the methodology of the SERVICES, it is proposed that such items be combined and grouped into the following four main divisions.

Division	I	Inception Report
Division	II	Investigation Work and Studies
Division	III	Design and Cost Estimate
Division	IV	Tender Documents

Division I is scheduled to start simultaneously with the contract signing of the SERVICES.

Division II is scheduled to be executed continuously after and on the basis of Division I.

Division III is scheduled to be undertaken in parallel with Division II. The basic design and cost analysis in Division III is scheduled to be completed just before completion of Division II. The detailed design service for respective design services is immediately to follow.

Division IV is scheduled to be carried out in parallel with the detailed design service in Division III.

2.1 Time Schedule of the SERVICES

The ENGINEER understands that urgent mobilization and timely completion of the SERVICES are of primary importance for the promotion of the PROJECT.

To complete the SERVICES within the instructed time schedule, each critical path in the proposed time schedule in APPENDIX-C should be strictly maintained by the ENGINEER and PLN, particularly for those in the following.

(1) The contractors who will carry out the Investigation Works should be selected by the end of the second month of the SERVICE period so that they can commence the works from the fourth month. PLN is kindly firmly requested to fulfill the necessary conditions for this, such as immediate approval of the specifications of Investigation Works, etc.

(2) PLN is kindly requested to grant the ENGINEER unobstructed access to all PROJECT SITES and unconditional right for alteration of them with regard to carrying out the SERVICES.

(3) All official permissions from GOVERNMENT authorities concerned, which are necessary for performance of the SERVICES including permission for Investigation Works, etc., are kindly requested to PLN.

(4) Facilities and services to be provided by PLN should be prepared punctually or in advance, and should be in good condition and at due locations.

(5) Timely discussions, decisions, determinations or approvals should be given by the PLN on all documents and other presentations prepared by the ENGINEER.

(6) The rainy season in the region occurs between October and April of the following year. During this season, the head of the river flow rises very high, so that Investigation Works at the dam site, as well as obtainment of river bed sand and gravel to be used for aggregate material becomes difficult.

Therefore, Investigation Works should not commence at the beginning of the rainy season as this will hinder punctual completion of the SERVICES.

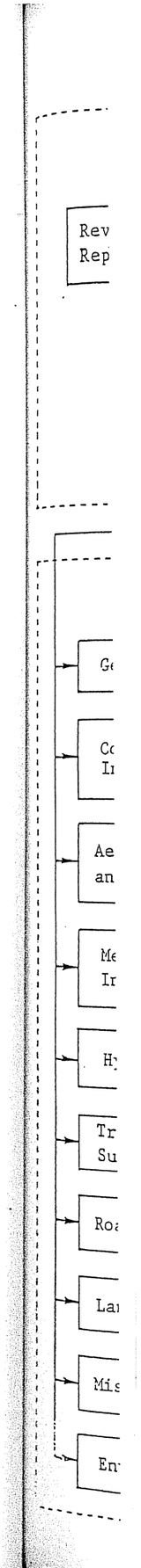
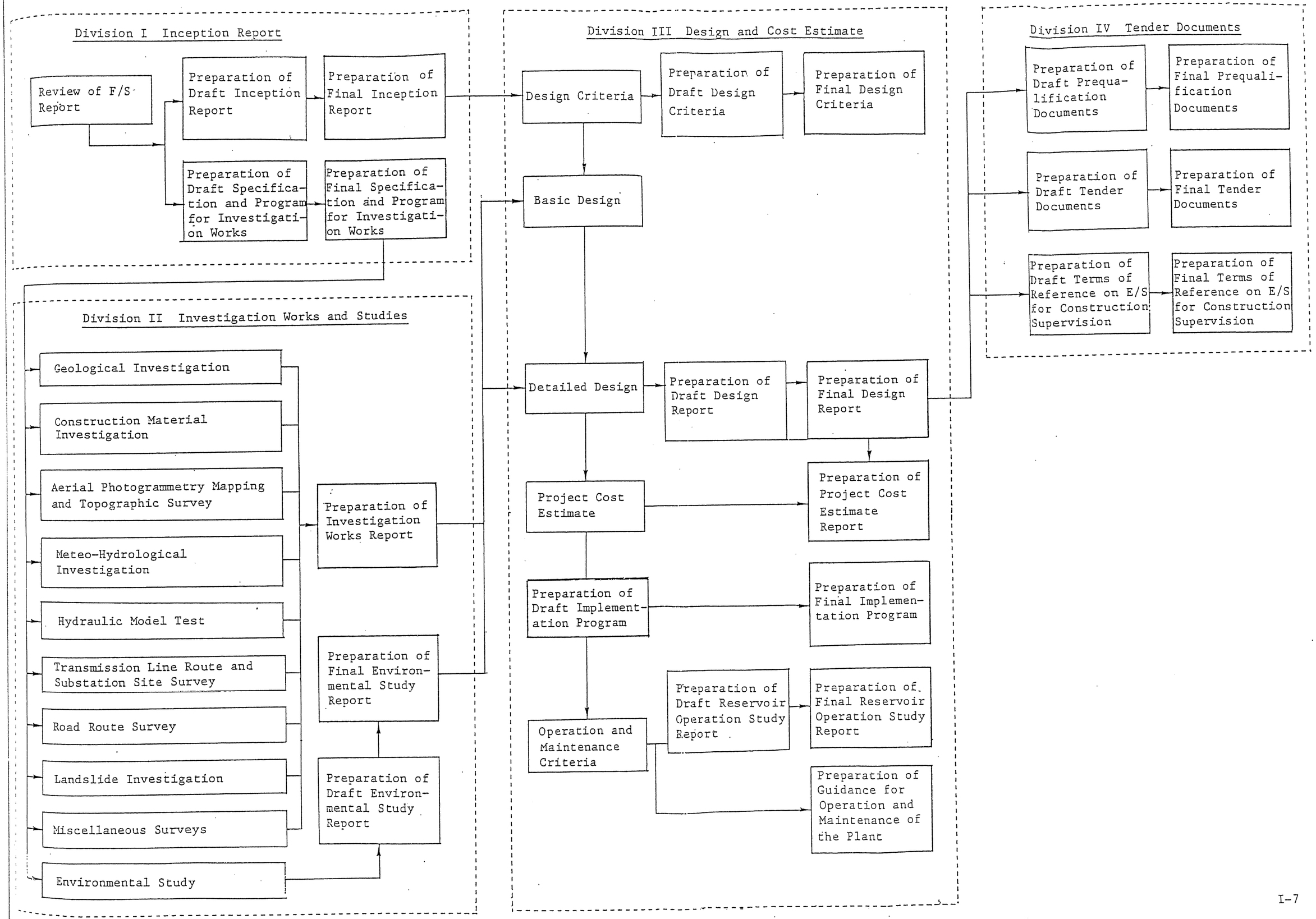


Fig. I-1 Flow Chart of the SERVICES



2.2 Division I: Inception Report

Review of the Feasibility Study and study on all the relevant data newly obtained will be carried out, and the Inception Report will be prepared based on the study/review results. The work will be completed within two (2) months from commencement of the SERVICES.
The work items involved in Division I are as follows.

2.2.1 Review of Feasibility Study Report

In the Feasibility Study, feasibility design, construction program, construction cost and economic and financial analyses are prepared for the basic design service.

As the feasibility design, location, type and scale of respective PROJECT features are determined based upon the results of comparative study of the basic data.

Particularly, the specifications of main structures, dam and powerhouse are determined based upon the results of studies of topography, geology, material, flood discharge, construction efficiency and economic efficiency conditions.

Thus, the ENGINEER will review the Feasibility Study for the basic design service by applying data which has become available since completion of the Feasibility Study.

As for the construction program, the ENGINEER will arrange a tentative PROJECT schedule on the basis of a review of feasibility design and additional checks of topography, geology, hydrology, meteorology, construction efficiency, economic efficiency and other PROJECT conditions.

Concerning construction costs, the ENGINEER will review the rough estimate of overall PROJECT costs, including direct construction costs, management costs, engineering fees, contingencies, escalation costs, interest during the construction period and others.

Furthermore, the ENGINEER will analyze economic and financial justifiability of the PROJECT on the basis of the estimated construction cost and the tentative PROJECT schedule.

The ENGINEER will recommend and propose technical and economic themes of the PROJECT, and settle the detailed execution program of Investigation Works required for detailed design.

The work will be completed within two (2) months from commencement of the SERVICES.

The ENGINEER considers that the work items given here are needed, and that these works can be performed according to the basic time schedule shown in APPENDIX - C.

The ENGINEER will prepare a detailed schedule for the SERVICES and detailed work assignments for the personnel of the ENGINEER by incorporating all PROJECT requirements and by reflecting all conditions given above.

2.2.2 Preparation of Inception Report

The Inception Report, which has been prepared based on the study/review results, will be submitted to PLN for finalizing by the end of the second month from the commencement of the SERVICES. The Inception Report will contain findings and recommendations, economic study/analysis and technical justification for optimization of the plant, environmental aspects, project cost estimate, tentative project schedule, scope and location of the Investigation Works to be conducted, and route for the in-situ construction road in plant view maps.

2.2.3 Preparation of Specifications and Program for Investigation Works

The ENGINEER will propose, on the basis of review works of the Feasibility Report and relevant data, the requirements of surveys, investigations, tests and studies (Investigation Works).

The specification documents will be prepared and presented for respective Investigation Works. The specifications, however, may be modified in quantity and location should requirements so demand.

Such modifications may be done in cases where requirements of design appear generally. The ENGINEER will have the results of Investigation Works reflected in the design works without delay and proceed effectively with the works.

Investigation Works considered to be required for the SERVICES are described DIVISION II, page I-11.

2.3 Division II: Investigation Works and Studies

To supplement the site investigation works carried out at the feasibility study stage, Investigation Works will be conducted for the purpose of detailed design.

The detailed items and scopes of Investigation Works will be specified through the study/review works in Division I. Most Investigation Works will be completed by the eleventh month from commencement of the SERVICES.

The Investigation Works to be undertaken in Division II are as follows.

(1) Geological Investigation
(2) Construction Material Investigation
(3) Aerial Photogrammetry Mapping and Topographic Survey
(4) Meteo-Hydrological Investigation
(5) Hydraulic Model Test
(6) Transmission Line Route and Substation Site Survey
(7) Road Route Survey
(8) Landslide Investigation
(9) Miscellaneous Surveys
(10) Environmental Study

Among the Investigation Works listed above, a major part of geological investigation, construction material investigation, topographic survey, hydrological investigation, hydraulic model test and, transmission line route and substation site survey will be carried out by Indonesian contractors under the responsibility of the ENGINEER.

The results of the Investigation Works will be compiled in the Engineering Report which will be submitted to PLN at the end of the SERVICE period.

The requirements of Investigation Works are as follows.

(1) The approach to the dam site is easy, utilizing a national road along the left bank of the river. Countermeasures to ensure traffic safety shall be planned carefully for the national road during the period of Investigation Works.

(2) No road exists along the right bank of the river at the dam site. Some temporary facilities such as boats on barges, are necessary for transportation across the river of equipment and laborers required for the Investigation Works.

(3) The national road and the provincial road should be used for the approach to the relocation road route. From time to time, during the rainy season, the provincial road becomes impassable, and this could affect timely completion of the SERVICES.

For effective execution of the Investigation Works, which encompasses widespread fronts, the effect of the rainy season on the schedule should be taken into consideration, Also, countermeasures, such as increasing staff and/or early commencement of works, should be instituted, if required.

The content of each work will be as explained hereunder.

2.3.1 Geological Investigation

The geological investigation to be conducted this time will supplement the previous investigation and make clear some questions and problems revealed in the course of the previous Feasibility Study.

The geological investigation will be completed within eight (8) months from commencement of the works.

The work items and quantities are tentatively estimated as follows.

(1) Dam Site Area

(a) Test aditing:	5 aditing	225 m
-Right abutment:	2 aditing	100 m
-Left abutment:	3 aditing	125 m
(b) Drilling:	15 holes	790 m
-Dam site:	6 holes	410 m
-Powerhouse:	4 holes	150 m
-Diversion tunnel:	2 holes	80 m
-Others:	3 holes	150 m
(c) Seismic prospecting:	8 lines	1,970 m
-Dam site:	5 lines	1,070 m
-Powerhouse:	3 lines	900 m
(d) Permeability test:	9 holes	94 times
-Dam site:	6 holes	76 times
-Powerhouse:	3 holes	18 times
(e) In-situ rock test:		6 times
-Dam site Rock deformation test:		6 times

(f) Laboratory test of sample from drilling core.

(2) Quarry Site

(a) Test aditing:	1 aditing	100 m
(b) Drilling:	4 holes	180 m
(c) Seismic prospecting:	6 lines	1,200 m

(d) Laboratory test carried out through construction material investigation

(3) Gravel Pit

(a) Drilling:	12 holes	180 m
(b) Trench excavation:	3,600 m^3	
(c) Test pit:	10 pits	30 m

(d) Laboratory test carried out through construction material investigation

(4) Switchyard and Substation Site

(a) Drilling:	7 holes	210 m
(b) Standard penetration test:	5 holes	150 m
(c) Electrical logging test		6 times

(d) Laboratory test of sample from drilling core

(5) Transmission Line Tower Site

(a) Drilling:	33 holes	480 m
(b) Test pit	1 pit	3 m
(c) Standard penetration test:	33 holes	480 m

(d) Laboratory test of sample from drilling core

(6) Relocation Road

(a) Drilling:	16 holes	680 m
° Bridge site:	12 holes	600 m
° Road route:	4 holes	80 m

(b) Laboratory test of sample from drilling core

2.3.2 Construction Material Investigation

Construction material investigation at the Feasibility Study stage was carried out at quarry sites and gravel pits near the dam site.

The construction material investigation are planned for obtaining the quality and extractable quantity of aggregate, the quality of cement and concrete mixing design.

The investigation is scheduled to be completed within seven months after commencement.

The ENGINEER has planned the testing in so that most can be carried out in Indonesia, taking into consideration the fostering of Indonesian contractors. The place for testing will be determined through discussion with PLN. In case testing can not be carried out in Indonesia, they will be executed at the HOME OFFICE.

The planned work items are as follows.

(1) Drilling, test pits, trench excavation and test aditing for quarry sites and gravel pit as shown in Division II, 2.3.1.

(2) Laboratory test of samples from test pits, drilling core, trench excavation and test adit.

(3) Laboratory test of cement samples available from cement industries in Indonesia.

(4) Concrete mixing test with aggregate samples extracted from quarry sites and gravel pits.

2.3.3 Aerial Photogrammetry Mapping and Topographic Survey

The aerial photogrammetry mapping and photographic survey at the Feasibility Study stage were undertaken for the reservoir area, including the dam site. However, those for the transmission line route, switchyard, substation site and some parts of the relocation road have not been carried out.

The ENGINEER is now in possession of topographic maps of the PROJECT as shown in Table I-1.

Table I-1 Topographic Maps Completed

Kind	Area	Scale	Number
Topographic Map	Overall Project area	1:500,000	4
"	"	1:250,000	8
"	"	1:100,000	32
"	"	1:50,000	35
"	Reservoir area	1:10,000	34
"	Dam site	1:1,000	4
"	Kuok gravel pit	1:1,000	1
Longitudinal Profile	Dam site	1:500	5

The scope of supplemental survey necessary for detailed design service will be determined with due consideration to the existing topographic maps.

The detailed specifications for survey will be determined through review of the Feasibility Study Report in Division I and the Investigation Works in Division II, survey will be done by Indonesian contractors.

The ENGINEER will select the contractor in advance, will have him arrange an execution plan, and will dispatch personnel to the site for supervision of the survey.

The work will commence immediately after the task forces of local contractors become available, and it is scheduled to be completed within eight (8) months from commencement of the Investigation Works.

The work items and quantities are tentatively estimated as follows.

(1) Aerial photogrammetry mapping

Upon completion of the Feasibility Study, aerial photogrammetry mapping had been completed only for the reservoir area, including the dam site. Topograph maps of 1:50,000 scale were the largest scale for the transmission line route and part of the relocation road.

Aerial mapping for some parts of the relocation road (40 km^2) at scale of 1 : 10,000 necessary for selection of the route, will be carried out utilizing the aerial photographs taken at the time of the Feasibility Study stage.

Therefore, topographic mapping for selection of the transmission line route must be carried out at the initial stage of the SERVICES by utilizing the existing aerial photographs and the coordinate values of the established triangulation stations.

. Object area of mapping: Transmission line route
L 55 km x W 3.0 km = 165 km^2
(Kuok - Pekanbaru)

. Reduction scale: S = 1:10,000

Topographic mapping for the dam site (60 km^2) at a scale of 1:5,000 necessary for the project planning map will be carried out utilizing the aerial photographs taken at the time of the Feasibility Study stage.

(2) Topographic Survey

The ENGINEER will carry out topographic survey for the dam site, switchyard, substation site and survey for transmission line and road routes as part of the SERVICES described in Divison II 2.3.6 and 2.3.7, page I-20 and I-21 respectively.

The work items and quantities are tentatively estimated as follows.

(a) The existing topographic maps of the dam site are of 1:1,000 scale, covering an area of 0.77 km^2. These are too small in scale and area for execution of detailed designing and temporary facility planning. Therefore, topographic surveying for a mapping scale of 1:500 and an area of approximately 2.27 km^2 must be carried out.

(b) The largest existing aerial photogrammetry map of the proposed quarry site is of 1:10,000 scale. A topographic survey of mapping scale 1:500 covering an area of 0.33 km^2 is required for the quarrying plan and associated temporary facilities plan.

(c) The existing topographic map of the gravel pit is of 1:10,000 scale. For the quarrying plan and associated temporary facilities plan, topographic survey of 1:500 scale for an area of approximately 0.78 km^2 must be carried out.

2.3.4 Meteo-Hydrological Investigation

PLN and other authorities in Indonesia have been carrying out hydrological observations in the PROJECT area.

In the Feasibility Study, new rain gauge stations and a new flow gauging station were installed to obtain data on rainfall in the catchment area and river discharge immediately downstream of the dam site.

The meteo-hydrological data and information used for the Feasibility Study will be updated by adding the data obtained from rain gauges and stream flow gauges installed in the Kampar Kanan River basin during the Feasibility Study stage, and the previous hydrological study will be reviewed. The study will cover flood analysis, runoff analysis, sediment analysis and water quality analysis.

The study results will be compiled in the Engineering Report.

The ENGINEER will check the rating curve of data from the gauging stations of Rantau Berangin (immediately donwstream of the dam site), Lubuk Sipopay (on the Mahat River, a tributary of the Kampar River) and Tanjung (upstream of the Kampar Kanan) where PLN (LMK) conducts regular observations, and confirm the discharge curves of the respective gauging stations.

Particularly, observation data on high water levels is not sufficient so that the ENGINEER will perform concerted and frequent observations of high water levels during flooding in cooperation with PLN.

The aim of the water quality analysis is to determine the suitability of water for concrete production, the influence on erosion of power plants (gate, penstock, turbine, etc), and the suitability of drinking water for camps (stream water,underground water) on the basis of Indonesian Standard and Japan Industrial Standard.

For collection of data to be used for construction supervision and operation and maintenance control after completion, a meteorological station will be installed in the vicinity of the dam site.

2.3.5 Hydraulic Model Test

Hydraulic model test will be carried out to examine hydraulic properties of the hydraulic structures and to confirm that no problem exists regarding their shape.

After authorizing basic design, the ENGINEER will make a model of the hydraulic structure, check the hydraulic properties of the respective parts of the structure, and incorporate the results in the detailed design.

Particularly, the shape of the inlet must be designed after thorough examination of protection measures for vortex flow (cavitation countermeasures).

The ENGINEER will examine this with model tests, and determine the appropriate hydraulic structures.

The test encompasses construction of a model and testing work at the PLN (LMK) office. The ENGINEER will dispatch experts and supervise hydraulic model testing.

The test results will be compiled in the Engineering Report.

2.3.6 Transmission Line Route and Substation Site Survey

Through field reconnaissance survey, the route of the transmission line (T/L) from the Kotapanjang power station to the Pekanbaru Substation (about 70 km) and location of the substation in Pekanbaru will be determined, and topographic survey together with geological investigation will be conducted at T/L tower sites and substation sites.

For the transmission line route, a center line survey, longitudinal profile survey and plane survey will be executed along the route immediately after selection of the route based on aerial photogrammetry mapping. A plane map showing the boundary lines of the land required will also be prepared. Furthermore, topographic surveys for tower sites will be carried out immediately after selection of siting points based on the route survey results.

The transmission line route to be surveyed is approximately 70 km in length 200 m in width, the mapping horizontal scale 1:2,000, the vertical scale 1:400, tower sites approximately 0.58 km^2, mapping scale 1:100, respectively.

As for the switchyard, substation and incidental access roads, only a topographic map of 1:10,000 scale for the switchyard is available. There is no map for the substation site. Topographic surveying of mapping scale 1:500 for on area of approximately 0.33 km^2 is necessary for design works for the switchyard, substation and incidental access roads.

2.3.7 Road Route Survey

Prior to planning and detailed design of the access roads, in-situ construction road and relocation road (about 75 km), site exploration for the expected route of each road will be made by road engineers to grasp the site conditions.

The relocation road survey will be done in parallel with the design works. The ENGINEER will carry out the survey by dividing the 75 km route into three work divisions and groups.

The survey work will be divided into two steps, the first step for tentative center line settlement, and the second step for wooden stake settlement along the fixed center line, longitudinal profile and cross section survey, and topographic survey for the bridge sites.

The flow chart of the survey and design for the relocation road is as shown in Fig. I-2 .

The access road, as the transportation route for construction materials and equipment of the PROJECT, will be surveyed with emphasis on the following items.

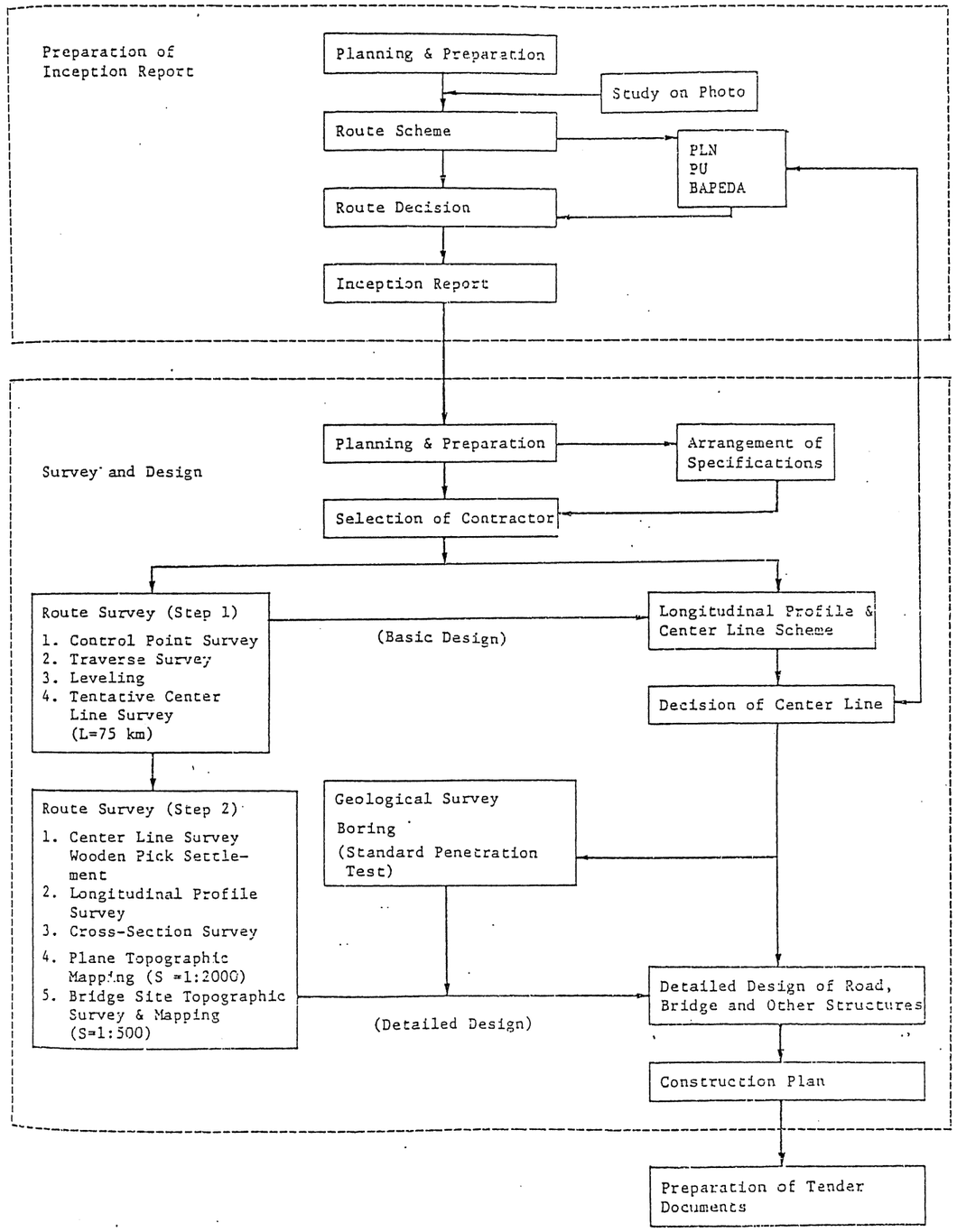
(a) Survey of design specifications of road and bridge load allowances, and study for improvement and reinforcement measures thereof.

(b) Survey for mooring, unloading and warehouse capacities at Dumai, Pekanbaru and Padang Ports.

2.3.8 Landslide Investigation

The possibility of landslide will be investigated round the reservoir area, at the dam site and along the routes of access road, in-situ construction road, relocation road. Countermeasures for landslide will be studied and adopted, if required.

Fig. I-2 Flow Chart of Survey and Design for Relocation Road



The work will be carried out by a geologist in parallel with the geological investigation.

2.3.9 Miscellaneous Surveys

(1) Collection and study of seismic data

To establish the design conditions for structures considering seismic motion as one of the forces, the ENGINEER will collect and study seismic data in the vicinity of the PROJECT SITE.

(2) Data collection and study for power demand and supply and system analysis, taking into consideration the study through Electric Power System Development Project in Central Sumatra.

(3) Survey of construction materials, equipment and costs

(a) Listing up of construction materials and equipment available in Indonesia, and their costs

(b) Survey of actual situation of specifications, qualities and costs (including those for transportation) of construction materials and equipment, especially at other projects in Indonesia

(4) Survey of Indonesian regulations, PLN standards and criteria

The ENGINEER will study and confirm regulations for import/export, taxes and duties, civil codes, standards and criteria in force in Indonesia regarding hydroelectric power projects.

2.3.10 Environmental Study

For the study on the environmental aspect of the PROJECT, the investigation on the following items will be conducted during the Investigation Work period.

- Existence of possible epidemic diseases in the vicinity of the PROJECT area
- Relocation of people from areas to be inundated by the reservoir
- Search of rare and endangered species and archaeological sites
- Reconnaissance survey of areas to be inundated by the reservoir, specified into desa (villages), kecamatan (district) and categorized by ownership and respective land use
- Influence of reservoir impounding on wells in the vicinity
- Water vegetation disturbance

Results of the study will be compiled in the Environmental Report.

As for archaeological sites, the Buddhist ruins of Muara Takus Temple along the Kampar Kanan River exist.

As the SERVICES, the ENGINEER will only execute topographic survey and mapping of the ruins, expecting the Indonesian Government to take measures for their preservation.

During the Feasibility Study, it has been decided that the Muara Takus Buddhist remains, presumably built during the Sriwijaya Kingdom and located in the vicinity of Muara Takus Desa, should be preserved.

Therefore, a topographic survey of mapping scale 1:1,000 for an area of approximately 0.9 km^2 for the temple remains and surrounding area must be carried out.

The Buddhist ruins of Muara Takus are found approximately 1 km to the south of Muara Takus Desa along the upstream of the kampar Kanan River.

The ruins are an important national cultural property both archaeologically and historically.

In parallel with the Feasibility Study of the PROJECT, PLN (LMK) and Andalas University surveyed the ruins. The "Environmental Study Report concerning the Kotapanjang Hydro-Power Project" was prepared by PLN (LMK) in March, 1983 and the "Environmental Impact Analysis of the Kotapanjang Hydro-Electric Power Development Project" was prepared by Andalas Univeristy in July, 1984.

The ruins were discovered in 1900, and successive surveys determined that they had been built between the eleventh and twelfth centuries. The ruins are presumably from the Sriwidyaya Kingdom, which extended its prosperity throughout Sumatra Island in ancient times.

Since their discovery, archaeological surveys of the ruins have been carried out, (Description of the Buddhist Temple at Muara Takus" prepared by J.W. Yzerman in 1889). Recently, a joint study by ASEAN countries has also been in progress since 1979.

The Muara Takus ruins comprise six temples - the Mahligai Stupa (14.45 m tall), Tua, Bungsu, Palangka (small), Pembakaran Mayat and Temuan Baru - and 45,000 m^2 of cleared land surrounding the actual ruins.

From an archaeological viewpoint (according to the LMK report), the area covers about 14 km^2 and extends to Batu Bersurat Desa.

The ruins were neglected until 1977, and consequently, most were badly weathered. Since 1977, however, renovation work has been carried out by the Diretorate General of Culture, and by 1983 the Mahligai Stupa Temple and Temuan Baru Temple were renovated at a cost of US$188,259. Renovation work continues.

As for the topography, the elevation level around the main ruins of Mahligai Stupa Temple is EL 86.25 - EL 87.3 m. The Kampar Kanan River is 200 m to the west of the Temple (EL 75 m).

Another 350 m away is the Movsh River, a tributary. The ruins are thus surrounded by rivers on the north, west and east sides.

2.3.11 Preparation of Investigation Work Report

The results of Investigation Works will be compiled in respective investigation work reports when each Investigation Work is completed. However, all results of Investigation Works will be compiled in the Engineering Report planned for submittal at the final stage of the SERVICES.

2.4 Division III: Design and Cost Estimate

Division III consists of the SERVICES for design criteria, basic design, detailed design, project cost estimate, implementation program and operation and maintenance criteria.

Generally speaking, basic design will be undertaken at the HOME OFFICE, design criteria and detailed design (except for electric, metal and mechanical plants) will be performed at the FIELD OFFICE, and cost estimate will be executed both at the FIELD and HOME OFFICE.

The SERVICES in Division III will be carried out in parallel with the Investigation Works in Division II. The ENGINEER will exert every effort to hold close exchange of information between the HOME OFFICE and the FIELD OFFICE, so as to obtain the latest results of Investigation Works.

The technical approaches of Division III are described below.

2.4.1 Design Criteria

Prior to the design works, design criteria containing the criteria on boundary parameters from which structure designing will be executed will be prepared for all structural components based upon existing and available data and current technical information through discussion with PLN.

A design criteria report will be prepared.

2.4.2 Basic Design

Based on the results of study/review of preliminary design in the Feasibility Study and Investigation Works, the basic design of all structural components will be prepared, and the basic layout and major features of the PROJECT will be determined so as to enable de-

tailed design. The definite scales of the spillway, waterway and diversion system will be determined through hydraulic study by taking into account the river flow characteristics, discharge capacity allocated to each structure, geological, topographical, soil mechanical conditions, etc. The comparative study will be made for the prospective structures, and the optimum type and scale will be determined from technical and economical points of view.

Special attention shall be given to the optimization of the PROJECT features.

Optimization of the PROJECT features will be studied both on dam scale and powerhouse scale, and adjustment will be made with due consideration to the results of the feasibility study on the Electric Power System Development Project in Central Sumatra.

In the Feasibility Study, studies of dam scales with high water levels of 76 m, 86 m and 100 m were carried out. It was determined that the 100 m high water level would be optimum on the basis of B/C and B-C estimations.

A 85 m high water level was finally selected in consideration of environmental factors.

Concerning the scale of the powerhouse, the greater the increase in installed capacity, the greater the increase in B/C and B-C.

The Kotapanjang power plant, however, will need to bear both a base load as well as meet a future peak load. Thus, the installed capacity is determined to be 111 MW in view of the load factor.

In the SERVICES, the ENGINEER will restudy optimization of the PROJECT features on the basis of reviewed hydrological data, power demand, geological data and topographic data.

As the Feasibility Study results indicate, however, optimization of Kotapanjang power plant is subject to limitations in view of preservation measures for the Muara Takus ruins and/or Pangkalan Kotabaru upstream on the Mahat River (population 8,572). Further discussion of these matters with PLN is necessary.

2.4.3 Detailed Design

In accordance with the basic design approved respectively by PLN, the ENGINEER will carry out detailed design service on the basis of Investigation Works by paying special attention to the following points.

(a) Provisions for sufficient safety of all structures
(b) Ease of construction and maintenance
(c) Total economy of structures, including construction and maintenance
(d) Availability of local materials and technology
(e) Standardization of minor structures
(f) Flexibility against changes in conditions

From the above viewpoints, all elements of the structures will be optimized.

Technically, the optimum flow diversion program for dam construction against the huge river discharge and dam concrete design are to receive special consideration. Additionally, the design and planning of the relocation road, which will replace the existing road to be submerged, will also be carefully considered.

The result of detailed design together with that of basic design will be compiled in a design report to be presented soon after the completion of the design services.

(1) Preparatory Works

The ENGINEER will design the base camp by selecting its location on the basis of basic design and the basic construction program, and by taking into consideration topography, water supply, etc.

Furthermore, the ENGINEER will prepare the specifications and perform detailed design for the in-situ construction road which will run around the dam site by selecting the optimum route on the basis of the basic construction program and the results of geological and topographic investigations.

- Access Road and Bridges
- In-situ Construction Road and Bridges
- Base Camp, Workshop, etc. (Site Facilities)
- Distribution Network for Construction and Lighting of Site
- Diesel Power Plant for Construction
- Maintenance/Special Equipment, Radio Communication + PABX

(2) Diversion Tunnel and Coffer Dam

The flow diversion program will be determined from results of basic design, topographical, geological and hydrological studies, while the shape of the coffer dam and diversion tunnel will be determined by hydraulic calculation. The position and method of plug work of the diversion tunnel will be determined based on studies of basic design, geological conditions and the grouting plan.

(3) Dam

The ENGINEER will determine the bedrock excavation line on the basis of the integrated geological analysis chart (incorporating Investigation Works results), and by taking into consideration basic design, topography and geology.

Furthermore, the dam plane location will be selected, stability calculations will be made by taking into consideration design conditions, and the cross sectional shape of the block system will be determined.

Bedrock analysis will be carried out by referring to data from shearing and deformation tests.

The ENGINEER will determine the dam bedrock treatment area and depth, and interval of the grouting on the basis of geological data. Statistical analysis of grouting tests will be referred to.

(4) Spillway (including Energy Dissipator)

The type, layout and shape of the spillway will be determined from the results of basic design and hydraulic calculations and by taking into account topographic, geological and hydrological conditions.

Additionally, the main types and dimensions of the energy dissipator and gate valve will be determined based on the results of hydraulic model tests.

(5) Intake and Tailrace

Types, layouts and shapes of the intake on the dam body and tailrace will be determined.

(6) Penstock Alignment

Civil engineering works for installation of the penstock will be designed.

(7) Powerhouse

Detailed design of foundation structures, house air conditioning and ventilation systems, and water supply and drainage systems for the powerhouse will be carried out.

(a) Foundation design
(b) Building design
(c) Utility design

(8) Relocation Road and Bridge

On the basis of the center line plotted at the time of the basic design stage, detailed designing of the relocation road route will be carried out.

Furthermore, structure and reinforcement bar arrangement for foundations and piers of long bridges planned to span the Kampar Kanan and Mahat Rivers along the relocation road route will be designed.

(9) Metal Works

Detailed design for metal equipment will be worked out in accordance with the definite features of the Project during the basic design stage, among others:

(a) Spillway gate
(b) Closure gate of diversion tunnel
(c) Outlet valve
(d) Inlet gate, screen, trashrack
(e) Penstock
(f) Outlet gate

(10) Turbine, Generator and Auxiliary

On the basis of basic design, main plants in the powerhouse will be designed to the tendering extent. The erection and installation methods, powerhouse systems for operation, control, protection, main circuit and excitation will be designed and incorporated in the tender documents, among others:

(a) Turbine, generator and auxiliary equipment
(b) Operation, control and protection systems
(c) Main circuit and excitation systems
(d) Station service circuit
(e) Insulator, conductor, steel structure earthing
(f) Telecommunication system
(g) Overhead crane
(h) Ventilation, lighting, fire fighting
(i) Feed and drainage water systems
(j) Layout for powerhouse facilities
(k) Power supply facility for emergency
(l) Grounding system of powerhouse

(11) Transmission Line

For the transmission line, towers and tower foundations will be designed in accordance with the basic route determined in the basic design service and topographic maps, plane cross sectional longitudinal profile drawings of the route, tower site maps and geological analysis prepared during investigation, among others:

(a) Transmission tower
(b) Insulator strings, ground wire and conductor
(c) Tower foundation

(12) Switchyard and Substation

A switchyard adjacent to the dam site and a substation in Pekanbaru city will be designed, among others:

(a) Main transformer, circuit breaker, disconnecting switch, lightning arrester and others
(b) System of busbar, protection and control
(c) Station service circuit
(d) Insulator, conductor, steel structure earthing
(e) Telecommunication system
(f) Lighting, fire protection
(g) Layout in switchyard and substation
(h) Foundation in switchyard and substation
(i) Substation building

(13) Flood Forecasting and Warning System and Telemetering Devices

The flood forecasting and warning system and telemetering devices for safety of the downstream area and dam site will be worked out, and the detailed design of warning stations will be prepared along with selection of the measuring devices.

2.4.4 Project Cost Estimate

(1) Construction Program

For the detailed cost estimate, the construction program including studies on construction methods, construction time schedule and site facilities layout, is required.

For the construction method, the work method by the local contract system and the contract system by international tendering will be contemplated with due consideration of work volume and work capability so as to reduce the amount of funding required for PROJECT implementation. When work is entrusted to a contractor, the selection of the construction method will be the option and responsibility of the contractor. However, the ENGINEER will prepare methods which he considers practical on the basis of the detailed design and with due consideration of the site conditions, the construction capacities of probable contractors and labor conditions in Indonesia.

The work will cover the following.

(a) Layout plan
(b) Study of number of days required for construction
(c) Selection of construction methods
(d) Quantifying the construction materials including labor requirements
(e) Determination of type and number of construction plant and equipment, together with time schedule of requirement
(f) Basic planning construction facilities including roads, temporary housing and storage areas, lighting system, water supply, electricity, sanitary systems and other related facilities
(g) Transportation program

(2) Calculation of Work Quantity

During the SERVICE period, temporary "bills of quantities" will be prepared and reviewed according to the progress of design works.

These bills will be applicable for studies of construction costs, construction programs, etc.

The bills of quantities will be completed on the basis that detailed design and construction programs for civil engineering works, metal electrical and mechanical works, etc., are finalized. Completed bills will be classified into tender lots due.

(3) PROJECT Construction Schedule

The PROJECT construction schedule will be prepared by the ENGINEER based on the detailed design and construction program.

The PROJECT construction schedule will be made with due consideration to co-relationships between the PROJECT works, capacities of each construction facility, etc.

Shipping and unloading periods for imported facilities, etc., will be described in the schedule.

Key dates and critical paths will also be indicated in the schedule so that no work progress delays occur.

(4) Cost Estimate

The cost estimate will be made mainly with emphasis on unit costs. The unit construction cost will be assessed on the basis of the construction method aforementioned and the cost of material, labor and equipment. Reference will be made to the current construction costs of similar projects in Indonesia as well as recent international tendering experiences. In assessment of the unit cost, effects caused by recent inflation will be duly taken into account for both the foreign currency and local currency portions.

The detail cost estimate will include the cost for PROJECT construction cost, transmigration, land acquisition, environmental aspect and the cost for Engineering Services during the construction stage. Customs, duties and value added taxes will be shown separately, and costs will be broken down into foreign and local currency portions. Provisional sums will be made to cover the interest during construction, and physical and price contingencies.

The construction cost will be broken down into annual fund requirement both in foreign and local currency portions on the basis of the construction schedule. The results of cost estimate will be compiled in the PROJECT cost estimate report and submitted.

2.4.5 Preparation of Implementation Program

An implementation program in sufficient details so as to obtain approval by financial sources for the project loan for the construction stage will be prepared by making use of the results of the design services.

The implementation program will include the following.

(1) Summary of the PROJECT

(2) Overall PROJECT construction schedule, in which key dates are specified

(3) Construction schedule for each works

(4) General construction methods for the PROJECT works

(5) Drawings and maps

(6) Economic and financial analyses through cost-benefit analysis (B/C), economic internal rate of return (EIRR), and financial internal rate of return(FIRR)

2.4.6 Operation and Maintenance Criteria

A reservoir operation program will be prepared for safe and effective operation, and will emphasize the following items.

(1) Flood forecasting and downstream warning system

(2) Gate operation regulations

(3) Dam discharge system

Operation and maintenance manuals for the powerhouse, transmission line and substation facilities will be prepared to ensure safe and maximum facility operation, and will emphaisze the following items.

(1) Dam monitoring and control system

(2) Operation manuals for powerhouse and substation

(3) Maintenance control manual (preparation of check lists)

For study of the above items, similar Indonesian hydro power projects will be referred to, and manuals and operation methods now utilized at TEPCO facilities will also be considered.

2.5 Division IV: Tender Documents

2.5.1 Preparation of Prequalification Questionnaire

For the main civil works, penstock and generating plant, subject to requirement, the ENGINEER will prepare prequalification questionnaire documents for selecting firms to be invited for international tenderings.

2.5.2 Preparation of Tender Documents

The ENGINEER will prepare tender documents for international and local tenderings for each tender lot.

The following items will be included in the documents.

(1) Summary of the Project

(2) General conditions of contract

(3) Instructions to tenderer

(4) General specifications

(5) Technical specifications

(6) Bill of quantities and price list

(7) Maps and drawings

(8) Overall construction schedule

(9) Other relevant documents

The PROJECT construction works will be divided into several tender lots as stipulated in the terms of reference of the SERVICES. However, the lot division will be studied again at the basic design stage for possible amendment so as to enable more effective implementation of the construction works.

(1) International Tendering

- Civil Works - Lot I

  Dam/weir, diversion tunnel, spillway, powerhouse, tailrace, switchyard civil works, and civil works of the penstock alignment.

- Metal Works -Lot II

  Penstock, gates screen and valves

- Generating Equipment - Lot III

  III A : Hydraulic turbines, electric overhead travelling crane and ancillary equipment

  III B : Generator units and ancillary equipment + control equipment

  III C : Switchgear and substation equipment + PLC line protection

  III D : Power transformers, stepdown transformers and ancillary transformers

- Transmission Line - Lot IV

  Lot IV: Transmission Line Materials

  IV A : Steel towers

  IV B : Conductor

  IV C : Insulator

- Equipment - Lot V

  V A : Diesel power plant for construction

  V B : Flood forecasting and warning system and telemetering

  V C : Maintenance/special equipment, radio communication + PABX (during construction)

- Relocation Road and Bridge - Lot VI

(2) Local Tendering

- Lot 1 : Access roads and bridges
- Lot 2 : In situ construction road and bridges
- Lot 3 : Base camp, workshop, etc. (site facilities)
- Lot 4 : Distribution network for construction and lighting of site
- Lot 5 : Foundation and erection of the transmission line towers and transmission line stringing
- Lot 6 : Substation buildings (civil works)

All international tender documents shall be prepared in conformity with the standards recommended by "Federation Internationale Des Ingeniurs Conseils (FIDIC)" while local tender documents shall be made in accordance with the GOVERNMENT regulations.

The draft tender documents will be prepared by the end of the fifteenth month from the commencement of the SERVICES, and will be finalized within one (1) month after receipt of the comments on the said draft documents from PLN.

2.5.3 Preparation of Terms of Reference on Engineering Services for Construction Supervision

The ENGINEER will prepare terms of reference (TOR) on the Engineering Services for construction supervision of the PROJECT

The following items will be included in the TOR.

(1) Scope of work, specifications and methods

(2) Assignment schedule

(3) Necessary fees

(4) Tendering and evaluation methods

(5) Approval procedures for drawings, etc.

(6) Claim procedures

(7) Supervision plan for construction works and construction schedule

(8) Training program of PLN personnel for plant operation and maintenance

2.6. Others

2.6.1 Preparation of Monthly Progress Report

Presentation of monthly progress reports will begin one (1) month after presentation of the inception report.

Progress situation details of the SERVICES, all Investigation Work, the actual assignment situation of personnels, payment situation and payment balance, etc., will be described in the reports.

The form of the reports will be determined through discussion with PLN.

2.6.2 Preparation of Engineering Report

At the time of completion of the SERVICES, the ENGINEER will present the report, in which the results of the SERVICES throughout the period are given.

Technical and economic analyses of the PROJECT studied during the SERVICES will be clearly documented in the report.

2.6.3 Documentary Film

The ENGINEER will make a film of the situation during the SERVICES period.

A program of the documentary film service will be prepared at an early stage of the SERVICES, and will be presented to PLN as a part of the inception report.

The films will be in the Indonesian and English languages (two films) and presented to PLN on completion of the SERVICES.

2.6.4 Reporting

Although a part of the reports to be prepared during the SERVICE period was described in the foregoing paragraphs, the reports to be finally submitted in accordance with the Terms of Reference are summarized hereunder. All draft reports, except training programs and progress reports, will be submitted for the comments and approval of PLN before issuance of the final report, and these will be finalized after discussion with PLN.

(1) Inception Report

The ENGINEER will prepare the Inception Report describing the results of study/review of the feasibility study and the detailed program of further works, and submit to PLN 10 copies of draft reports and 15 copies of final reports within two (2) months after commencement of the SERVICES.

(2) Specifications and Program for Investigation Works

The Specifications and Program for the Investigation Works will be prepared within two (2) months after commencement of the SERVICES in order to start the Investigation Works at the earliest time. They will be submitted to PLN in 5 copies each of draft and final reports.

(3) Program for Participation of Indonesian Personnel to the SERVICES

The ENGINEER will make the Program for Participation of Indonesian Personnel to the SERVICES on the basis of APPENDIX-F for finalizing the items, methods, schedule and members as an implementation program. This program will be submitted in 5 copies within two (2) months after commencement of the SERVICES.

(4) Design Criteria

Prior to commencement of the design work, the ENGINEER will establish the design criteria for the structural components based on the previous data and current technical information, and submit to PLN for approval 10 copies of draft reports and 15 copies of final reports within four (4) months after commencement of the SERVICES.

(5) Design Report

The ENGINEER will prepare the Design Report, which is one of the major tasks of the SERVICES, containing the design drawing and design calculation sheets and geological report. The draft design report will be submitted to PLN in 10 copies by the fifteenth month after the commencement of the SERVICES and the final reports will be submitted in 15 copies after receipt of the comments by PLN.

(6) Cost Estimate Report

The Cost Estimate Report for the PROJECT budget will be independently submitted to PLN in 10 copies by the fifteenth month after commencement of the SERVICES.

(7) Prequalification Documents

The ENGINEER will prepare the Prequalification Documents for civil works of international tender and for penstock, generating equipment in conformity with the international evaluating method required. The Prequalification Documents will be submitted to PLN in 10 copies of draft reports and 15 copies of final reports by the fifteenth month after commencement of the SERVICES.

(8) Tender Documents

The Tender Documents for the international and local tenders for construction works will be prepared by each tender lot. The draft Tender Documents will be submitted to PLN in 10 copies by the

fifteenth month after commencement of the SERVICES and will be finalized within one month after receipt of the comment by PLN. The final documents will be submitted in 30 copies.

(9) Terms of Reference

The ENGINEER will prepare the Terms of Reference for the Engineering Services for construction supervision of the PROJECT. The Terms of Reference will be submitted to PLN in 5 copies each of draft reports and final reports by the end of the fifteenth month after commencement of the SERVICES.

(10) Implementation Program

The Implementation Program for the construction of the PROJECT will be prepared containing the construction schedule, construction method, construction cost, economic/financial justification, etc. The ENGINEER will make utmost efforts to submit the draft Implementation Program to PLN by the end of fourteenth month. The final Implementation Program will be submitted to PLN by the end of fifteenth month. The draft and final Implementation Program will be prepared in 10 and 15 copies, respectively.

(11) Environmental Study Report

The ENGINEER will prepare the Environmental Study Report describing environmental impact due to implementation of the PROJECT. This report will be submitted to PLN in 5 copies of draft report and 10 copies of final report by the end of the fifteenth month after commencement of the SERVICES.

(12) Reservoir Operation Criteria

The ENGINEER will prepare the Reservoir Operation Study Report which presents the criteria for reservoir operation. This report will include the hydrological report and will be submitted to PLN in 5 copies of draft reports and 10 copies of final reports by the end of the sixteenth month after commencement of the SERVICES.

(13) Engineering Report

The ENGINEER will prepare the Engineering Report summarizing all SERVICES undertaken, except the matters involved in the reports listed above. This report will be submitted to PLN in 5 copies of draft reports and 10 copies of final reports by the end of the sixteenth month after commencement of the SERVICES.

(14) Monthly Progress Reports

The Progress Report for the works carried out by the ENGINEER will be submitted monthly to PLN in 15 copies describing all the work contents, progress and schedule, activity of the PERSONNEL, etc.

APPENDIX-J

MINUTES OF MEETING

TEPSCO

MINUTES

NO. KTM - 001

TEPSCO PROJECT NO. PC 6008

MESSRS. PERUSAHAAN UMUM LISTRIK NEGARA PUSAT

PROJECT: CONTRACT NO.

Kotapanjang Hydroelectric Power Project

DATE August 7, 1986 | PLACE PLN Pusat

SUBJECT: Contract Negotiation for Engineering Services for Kotapanjang Hydroelectric Power Project (the 1st)

ATTENDANTS:

P L N	TEPSCO	YODYA KARYA
Mr. K. Samadikun	Mr. H. Sasaki	Mr. Wahyu Baskoro
Mr. Januar Muin	Mr. K. Aota	Mr. Hermono
Mr. Oentoro	Mr. E. Goto	Mr. Eddy Paminto
Mr. Achiral S.	Mr. Y. Yoshida	Mr. Soedardjo
Mr. Masni Kamal	Mr. T. Tejima	
Mr. S. Aritonang	Mr. J. Miyasaka	
Mr. P. Butarbutar		
Ms. Asistia J.S.		
Mr. Harris Soewarso		
Mr. Basoeki B.		
Mr. Soehartomo		
Mr. Sulistiyono		
Mr. Yossi Yosobroto		

1. Macroscopic comments about the TEPSCO's (ENGINEER'S) proposal were given by PLN to the ENGINEER. PLN asked the ENGINEER to review the proposal based on these comments. The comments given by PLN are as follows.

COPY TO:

NOTE:

FORM 05

(1) The total man-month as proposed by the ENGINEER and therefore expected related costs for implementing the services will be compared to similar projects like Singkarak Hydro Power Project and Asahan No. 3 Hydro Power Project.

(2) PLN also explained to the ENGINEER that limited allocation of the Rupiah budget for this project has to be taken into consideration and will therefore be discussed in more detail during the cost negotiations.

2. The comments on the Technical Proposal were given by PLN to the ENGINEER. PLN requested that the ENGINEER should prepare clarification and explanation against those comments.

3. Based on PLN's general comments as explained in item 1, PLN requested the ENGINEER to consider having second thoughts on its original proposal and resubmit its proposal to PLN taking economy and efficiency into consideration for further negotiations with PLN.

   The ENGINEER agreed to resubmit its proposal on Saturday, August 9, 1986.

4. The next meeting (the 2nd) was agreed to be held on Monday, August 11, 1986.

For and on behalf of
ENGINEER

Hirotoshi Sasaki

For and on behalf of
PERUSAHAAN UMUM LISTRIK NEGARA

Ir. Achiral Sjahrudin

Comments on the Technical Proposal

No.	Page	Article	PLN's comment
1.	2-12	2.3,(1)	- Explain why Quarry blasting test is not necessary at this stage.
2.	2-12	2.3,(2)	- At this stage it is too early to decide whether Kotapanjang Dam will be a concrete gravity type.
3.	2-12	2.3,(5)	- Any statement on headrace tunnel and a surge tank, if any, should be made after the review study has been finalised.
4.	3-3	3.3,(2)	- PLN reminded the ENGINEER that in accordance with GOI's policy the ability of the Local Consultant (Association Firm) in the field of architecture has to be utilized to a maximum extent.
5.	4-1	4.1.1	- "Cost analysis" shall be included in the phrase "The basic design service .... before completion of Division II."
6.	4-2	4.1.2,(1)	- Delete "approval of direct appointment procedures for contractor selection" because of the Government regulation.
7.	4-2	4.1.2,(3)	- PLN will only issue necessary letters to the respective authorities, if required. Necessary arrangement at site similar to Feasibility Study stage will be provided by PLN.
8.	4-2	4.1.2,(5)	- Delate " ...Project Manager at Project Site".

No.	Page	Article	PIN's comment
9.	4-4	Fig.4-1	- Review and clarify the Flow Chart Div. V "Transfer of Knowledge and Other."
10.	4-5	Fig.4-2	- Delete "Month No." and its space below
11.	4-5	4.2.2	- Is the relocation road included in "the insitu construction road in plant view maps." ?
12.	4-8	4.2.4	- Elaborate "Training Program" and its cost. PIN will provide further information on the required training and the ENGINEER is,then, required to prepare the detailed Training Programme and its cost.
13.	4-9	4.3,(5)	- This item will be done by PIN/LMK.
14.	4-14	4.3.3	- Between the 2nd and the 3rd paragraph, insert the 2nd paragraph of item (2) of page 4-15.
15.	4-17	4.3.4	- Indonesian Standards shall be added to JIS.
16.	4-17	4.3.5	- This item shall be done by PIN/LMK. The cost for this item shall be included in the cost proposal.
17.	4-18	4.3.6	- "300 m in width" is too wide and it will be expensive. It shall be 200 m.
18.	4-20	Fig.4-3	- All matters on the relocation road shall have to be taken up with Bina Marga, P.U. under PIN's guidance.

No.	Page	Article	PIN's comment
19.	4-24	4.4	- "architectural" shall be done by local consultant.
20.	4-25	4.4.2	- "B - C" shall be explained more in detail.
21.	4-26	4.4.2	- "(population 8,572)" shall be reconfirmed.
22.	4-29	4.4.3,(9)	- Add ",among others:" at the end of the paragraph.
23.	4-29	4.4.3,(10)	- Add",among others:" at the end of the paragraph. - Delete "House" of item (f) - Add "Overhead" at the beginning of item (g) - "grounding system of power house" shall be included.
24.	4-30	4.4.3,(11)	- Add ",among others:" at the end of paragraph.
25.	4-30	4.4.3,(12)	- Add ",among others:" at the end of paragraph. - "lightening" of item (f) shall be corrected as "lightning".
26.	4-31	4.4.4,(1)	- In item (f), "lightning" shall be corrected as "lighting".
27.	4-36	4.4.6,(2)	- "The tender documents will be ..... (FIDIC)" shall be revised as "All international tender documents will be ..... (FIDIC) while local tender documents shall be made in accordance with Government of Indonesia regulation."

No.	Page	Article	PLN's comment
28.	4-37	4.5.3,(3)	- Additional explanation is necessary for "(3) Necessary fees".
29.	4-38	4.6.1	- This item shall be related with the detailed training program.
30.	4-43	4.7,(5)	- "geological report" shall be added after the first sentence as "..... calculation sheets and geological report."
31.	4-45	4.7,(12)	- The second sentence: "This report will be ....." shall be revised as "This report which includes a hydrological report will be ....."

TEPSCO

MINUTES

NO. KTM - 002

TEPSCO PROJECT NO. PC 6008

MESSRS. PERUSAHAAN UMUM LISTRIK NEGARA PUSAT

PROJECT: Kotapanjang Hydroelectric Power Project CONTRACT NO.

DATE August 11, 1986 PLACE PLN Pusat

SUBJECT: Contract Negotiation for Engineering Services for Kotapanjang Hydroelectric Power Project (the 2nd)

ATTENDANTS:

P L N	TEPSCO	YODYA KARYA
Mr. Achiral S.	Mr. H. Sasaki	Mr. Wahyu Baskoro
Mr. Yossi Yosobroto	Mr. K. Aota	Mr. Hermono
Mr. Harris Soewarso	Mr. E. Goto	Mrs. A. Sugi Yunde
Mr. Masni Kamal	Mr. Y. Yoshida	
Mr. Bambang Basoeki	Mr. T. Tejima	
Mr. Agus Tasdik	Mr. J. Miyasaka	
Mr. Sulistiyono		
Mr. P. Butarbutar		

1. The minutes of meeting for the first meeting was confirmed between PLN and the ENGINEER.

2. PLN gave following comments and requests on the revised manning schedule resubmitted by the ENGINEER. PLN also requested the ENGINEER to fill out MAN-MONTH WORK SHEET based on those comments and requests.

   The ENGINEER agreed to do it and submit it by August 14, 1986.

COPY TO:

NOTE:

Manning Schedule for TEPSCO

(1) The listed engineer No.15 (Survey Engineer-2), No.19 (Road Engineer-2) and No.25 (Power Station Engineer-3) shall be deleted.

(2) As the listed engineer No.24 (Power Station Engineer-2) will take care of System Analysis according to the explanation by TEPSCO, the position of this engineer shall be called as "Power Station Engineer/System Analyst".

(3) The listed engineer No.30 (Architect/Building Engineer-1) shall be re-listed although it was deleted in the revised schedule.

(4) Please indicate who will take care of mechanical engineering.

Manning Schedule for YODYA KARYA

(1) The number of Road Design Engineer shall be reduced from six (6) to three (3).

(2) The listed engineer No.23 (Environment Expert) shall be deleted, however, it shall be listed in TEPSCO's schedule. TEPSCO should provide Environment Expert who has broad experience.

(3) The listed engineer No. 27 (Boring Expert) and No. 28 (Aditting Expert) shall be deleted because the activities under these jobs are considered to be mainly included in the sub-contracts.

(4) PLN requested the ENGINEER to carefully consider the replacement of Yodya Karya's engineers in order to avoid possible overlapping of assigned personnel on ongoing PLN and other projects.

(5) The listed engineer No.29, Transmission Line Expert shall be revised as Transmission Line Engineer.

3. At PLN's request, the ENGINEER agreed to incorporate PLN's comments, revisions and other correction as a result of the technical discussions so far in its General Approach and Work Plan.
This revised General Approach and Work Plan shall be made as an attachment to the AGREEMENT.

For and on behalf of
ENGINEER

Hirotoshi Sasaki

For and on behalf of
PERUSAHAAN UMUM LISTRIK NEGARA

Ir. Achiral Sjahrudin

TEPSCO

MINUTES

NO. KTM - 003

TEPSCO PROJECT NO. PC 6008

MESSRS. PERUSAHAAN UMUM LISTRIK NEGARA

PROJECT: Kotapanjang Hydroelectric Power Project CONTRACT NO. ____

DATE: August 19, 1986 PLACE: PLN Pusat

SUBJECT: Contract Negotiation for Engineering Services for Kotapanjang Hydroelectric Power Project (the 3rd)

ATTENDANTS:

P L N	TEPSCO	YODYA KARYA
Mr. Achiral S.	Mr. H. Sasaki	Mr. Wahyu Baskoro
Mr. Yossi Y.	Mr. K. Aota	Mr. Hermono
Ms. Asistia J.S.	Mr. T. Murata	Mrs. Sug Yunde
Ms. Sri Prabantari	Mr. E. Goto	
Mr. Agus Tasdik	Mr. Y. Yoshida	
Mr. Harris Soewarso	Mr. T. Tejima	
Mr. Sulistiyono	Mr. J. Miyasaka	
Mr. Masni Kamal		
Mr. P. Butarbutar		
Mr. Bamabang Basoeki		

1. The minutes of meeting No. 2 was reviewed and minor correction were agreed.

2. PLN requested the ENGINEER to rearrange its work schedule and Manning schedule by separating the activities for this project as under two main items, i.e :

   a. Hydro Power Project

   b. Relocation road/bridges.

3. Upon confirmation from the ENGINEER that the material mentioned under item 2 will be ready, the next meeting was tentatively scheduled to be held on August 20,1986.

For and on behalf of ENGINEER

Hirotoshi Sasaki

For and on behalf of PERUSAHAAN UMUM LISTRIK NEGARA

Ir. Achiral Sjahrudin

COPY TO:

NOTE:

FORM 05

TEPSCO

MINUTES

NO. KTM - 004

TEPSCO PROJECT NO. PC 6008

MESSRS. PERUSAHAAN UMUM LISTRIK NEGARA

PROJECT: Kotapanjang Hydroelectric Power Project CONTRACT NO. ____

DATE: August 20, 1986 PLACE: PLN Pusat

SUBJECT: Contract Negotiation for Engineering Services for Kotapanjang Hydroelectric Power Project (the 4th)

ATTENDANTS:

P L N	TEPSCO	YODYA KARYA
Mr. Achiral S.	Mr. H. Sasaki	Mr. Wahyu Baskoro
Mr. S. Aritonang	Mr. K. Aota	Mr. Hermono
Ms. Asistia J.S.	Mr. T. Murata	Mr. Soedardjo
Ms. Sri Prabantari	Mr. E. Goto	Mr. Bambang Gunarso
Mr. Agus Tasdik	Mr. Y. Yoshida	
Mr. Harris Soewarso	Mr. T.Tejima	
Mr. Sulistiyono	Mr. J. Miyasaka	
Mr. Yossi Y.		
Mr. Masni Kamal		
Mr. P. Butarbutar		
Mr. Bambang Basoeki		

1. The purpose of the meeting was to discuss the Manning Schedule submitted by the ENGINEER on August 20, 1986.

2. PLN advised the ENGINEER that it is of the opinion that the total number of 457 man-months as proposed by the ENGINEER could be reduced considerably, considering the following.

   - PLN's experience in similar projects in the same area
   - Scope of work
   - Number of Engineer's personnel
   - The ratio of man-month in the HOME and FIELD OFFICES

   Furthermore, PLN also advised that, for implementing the services under this project, the total number of man-months required was estimated to be 295.5 M/M. The ENGINEER was also requested when reducing the total number of man-months, the maximum involvement of the local consultant shall be also considered.

COPY TO:

NOTE:

FORM 05

3. The ENGINEER replied to PLN that since the total number of man-month offered by PLN was out of their expectation, they required some time to study this matter carefully for further discussion with PLN later on.

For and on behalf of
ENGINEER

Hirotoshi Sasaki

For and on behalf of
PERUSAHAAN UMUM LISTRIK NEGARA

Ir. Achiral Sjahrudin

TEPSCO

MINUTES

NO. KTM - 005

TEPSCO PROJECT NO. PC 6008

MESSRS. PERUSAHAAN UMUM LISTRIK NEGARA

PROJECT: Kotapanjang Hydroelectric Power Project

CONTRACT NO.

DATE: August 26, 1986

PLACE: PLN Pusat

SUBJECT: Contract Negotiation for Engineering Services for Kotapanjang Hydroelectric Power Project (the 5th)

ATTENDANTS:

P L N	TEPSCO	YODYA KARYA
Mr. Januar Muin	Mr. H. Sasaki	Mr. Machmud Ali
Mr. Oentoro	Mr. E. Goto	Mr. Wahyu Baskoro
Mr. Achiral S.	Mr. T. Murata	Mr. Hermono
Mr. S. Aritonang	Mr. Y. Yoshida	
Mr. Masni Kamal	Mr. T. Tejima	
Mr. P. Butarbutar	Mr. J. Miyasaka	
Mr. Sulistijono		
Mr. Harris Soewarso		
Ms. Sri Prabantari		
Mr. Bambang Basoeki		
Mr. Yossi Yosobroto		
Mr. Benny R. Sinaga		

1. As a result of discussions between PLN and the ENGINEER, the total number of man-months of the ENGINEER for providing services under this project was agreed as below.

	Home	Field	Total
TEPSCO	65	167.5	232.5
YODYA KARYA	0	131.5	131.5
Total	65	299	364

COPY TO:

NOTE:

2. PLN opened the cost proposal and requested the ENGINEER to revise it based on the agreed manning schedule and other matters discu - ssed during the technical negotiations.
The ENGINEER agreed to resubmit it to PLN on August 28, 1985.

For and on behalf of	For and on behalf of
ENGINEER	PERUSAHAAN UMUM LISTRIK NEGARA
Hirotoshi Sasaki	Ir. Achiral Sjahrudin

MEMORANDUM NO. 1

TO AGREEMENT NO. PJ 007/PST/1987, DATED JANUARY 15, 1987

between
PERUSAHAAN UMUM LISTRIK NEGARA
and
TOKYO ELECTRIC POWER SERVICES CO.,LTD.
in association with
P.T. YODYA KARYA

for
ENGINEERING SERVICES
for
KOTAPANJANG HYDROELECTRIC POWER PROJECT

This Memorandum made and entered into this 12th day of the month January in the year 1988 between PERUSAHAAN UMUM LISTRIK NEGARA (hereinafter referred to as "PLN") with its main office located at Jalan Trunojoyo Blok M I/135, Kebayoran Baru, Jakarta Selatan, Indonesia, on the one part, and TOKYO ELECTRIC POWER SERVICES CO.,LTD. with its main office located at No. 1-4, Uchisaiwai-cho 2 Chome, Chiyoda-ku, Tokyo, Japan in association with P.T. Yodya Karya with its main office located at Jalan D.I. Panjaitan, Kaveling 8, Cawang, Jakarta, Indonesia (hereinafter referred to as the "ENGINEER") on the other part, and considering that a clarification on MONTHLY RATE application to invoices is required, witnesseth that both parties covenant, promise and agree that in accordance with Article 9 - Change, Modification or Amendment, the following amendment is made to the AGREEMENT :

1. For invoices of the SERVICES' period from February, 1987 to March, 1987, the MONTHLY RATES of the 1st Year in the Attachments 3.1 and 3.2, pages E-1-6 and E-1-7 respectively, of the AGREEMENT shall be applied.

2. For invoices of the SERVICES' period from April, 1987 to March, 1988, the MONTHLY RATES of the 2nd Year in the Attachments 3.1 and 3.2, pages E-1-6 and E-1-7 respectively, of the AGREEMENT shall be applied.

3. For invoices of the SERVICES' period from April, 1988 to June, 1988, the MONTHLY RATES of the 3rd Year in the Attachments 3.1 and 3.2, pages E-1-6 and E-1-7 respectively, of the AGREEMENT shall be applied.

4. The total cost estimated for the MONTHLY RATES shall be the same as in the AGREEMENT.

5. All other terms and conditions of the AGREEMENT No. PJ 007/PST/1987 remain unchanged and shall be in force.

6. This Memorandum is an integral part of the AGREEMENT No. PJ 007/PST/1987 and is therefore binding.

In witness whereof, PLN and the ENGINEER have caused this Memorandum to be signed by their duly authorized representatives as of the day and year written above.

For and on behalf of
TOKYO ELECTRIC POWER SERVICES CO.,LTD.

Mr. Tatsuo Kita
General Manager

For and on behalf of
PERUSAHAAN UMUM LISTRIK NEGARA

Ir. Sardjono
President Director

TOKYO ELECTRIC POWER SERVICES CO., LTD.

HIBIYA CHUNICHI BLDG.
1-4, UCHISAIWAI-CHO, 2-CHOME,
CHIYODA-KU, TOKYO 100, JAPAN
TEL. (03) 506-6000

TELEX:TEPSCO J25674
CABLE ADDRESS:TEPSCO JAPAN
TELFACS: (03)501-7880

Tokyo, January , 1987

POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS:

That we, Tokyo Electric Power Services Co., Ltd., a company organized and existing under the laws of Japan, having its office at 1-4, Uchisaiwai-cho 2-chome, Chiyoda-ku, Tokyo, Japan, do hereby make, appoint Mr. TATSUO KITA Representative in Indonesia, our true and lawful attorney in fact to act for us, on our behalf, and in our name, by investing him with the following powers for implementation of the Engineering Services for Design on Kotapanjang Hydro-electric Power Project.

To make sign of the Agreement as well as its relative documents regarding engineering consulting services.

IN WITNESS WHEREOF, we have caused this POWER OF ATTORNEY to be executed in our name by our Managing Director, MOTOTSUNE IWATA, thereunto duly authorized, in Tokyo, Japan 1st day of August, 1986.

TOKYO ELECTRIC POWER SERVICES CO., LTD.

Mototsune Iwata

DR. MOTOTSUNE IWATA
Managing Director

POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS;

That we,Tokyo Electric Power Services Co.,Ltd.,a company organized and existing under the laws of Japan,having its office at 1-4,Uchisaiwai cho 2-chome,Chiyoda-ku,Tokyo 100,Japan do hereby make,appoint Mr.HIROTO SASAKI,Acting General Manager of Civil Engineering No.1 Operation Center our true and lawful attorney in fact to act us,on our behalf,and in our by investing him with the following powers for implementation of the Engineering Services for Design on Kotapanjang Hydroelectric Power Proj

1. To make any negotiation,and sign the relative documents to the agreement.
2. To receive and accept all documents issued under/upon the agreement.

IN WITNESS WHEREOF,We have caused this POWER OF ATTORNEY to be executed in our name by our Managing Director,MOTOTSUNE IWATA,thereunt duly authorized,in Tokyo,Japan,1st day of August,1986.

TOKYO ELECTRIC POWER SERVICES CO.,LTD.

Mototsune Iwata

MOTOTSUNE IWATA

Managing Director

TEPSCO

MEMORANDUM NO. 2

TO AGREEMENT NO. PJ 007/PST/1987, DATED JANUARY 15, 1987

between

PERUSAHAAN UMUM LISTRIK NEGARA

and

TOKYO ELECTRIC POWER SERVICES CO., LTD.

in association with

P.T. YODYA KARYA

for

ENGINEERING SERVICES

FOR

KOTAPANJANG HYDROELECTRIC POWER PROJECT

This Memorandum made this ....13th..... day of the month .....June..... in the year 1988 between PERUSAHAAN UMUM LISTRIK NEGARA (hereinafter referred to as "PLN") a Perusahaan Umum (State Owned Public Corporation) duly established and existing under the laws of the Republic of Indonesia with its main office located at Jalan Trunojoyo Blok M I/135, Kebayoran Baru, Jakarta Selatan, Indonesia, on the one part, and TOKYO ELECTRIC POWER SERVICES CO., LTD. with its main office located at No. 1-4, Uchisaiwai-cho 2 Chome, Chiyoda-ku Tokyo, Japan in association with P.T. Yodya Karya with its main office located at Jalan D.I. Panjaitan Kaveling 8, Cawang, Jakarta, Indonesia (hereinafter referred to as the "ENGINEER"), on the other part, and considering that the rearrangements in the number of PLN participation and the Manning Schedule of the ENGINEER are required for the PROJECT, witnesseth that both parties covenant, promise and agree that in accordance with Article 9 - Change, Modification or Amendment, the following amendment is made to the AGREEMENT :

I. To keep the SERVICES' schedule for effective detailed discussion in overall technical field of the SERVICES, and considering that "One of important aspects of the ENGINEER'S work in the SERVICES is the transfer of knowledge" as described in Article 11.3 of the AGREEMENT, it shall be determined to rearrange the application of the foreign currency allocation for "Participation of PLN Personnel to the SERVICES".

The breakdown of the original allocation in the AGREEMENT and the new arrangement are included in Annex 1 hereto.

II. The amount for the Participation increased Y 3,689,000.- from the original Y 13,863,000.- to Y 17,552,000.- as the result of participant man-month increase aforesaid.

The increased amount Y 3,689,000.- shall be covered by the balance amount from the revision of the Manning Schedule as shown in Annexes 2-1 and 2-2 hereto.

The summary of the new remaining balance of Foreign Currency Portion in the AGREEMENT after Memorandum No. 2 is as shown in Annex 3 hereto.

III. This Memorandum No.2 will not cause any additional cost to the AGREEMENT No. PJ 007/PST/1987.

IV. All other terms and conditions of the AGREEMENT No. PJ 007/PST/1987.remain in force except as amended herein.

VI. This Memorandum is as integral part of the AGREEMENT No. PJ 007/PST/1987 and is therefore binding.

In witness whereof, PLN and the ENGINEER have caused this Memorandum to be signed by their duly authorized representatives as of the day and year written above.

For and on behalf of
the ENGINEER

NOMO ELECTRIC POWER SERVICES CO., LTD. TEPSCO JAKARTA

Mr. Hirotoshi Sasaki
Resident Manager

For and on behalf of
Perusahaan Umum Listrik Negara

METERAI TEMPEL 1000 SERIBU RUPIAH

DIREKSI

Ir. Mohd. Singgih
Director of Planning

POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS;

That we,Tokyo Electric Power Services Co.,Ltd.,a company organized and existing under the laws of Japan,having its office at 1-4,Uchisaiwa cho 2-chome,Chiyoda-ku,Tokyo 100,Japan do hereby make,appoint Mr.HIROTO SASAKI,Acting General Manager of Civil Engineering No.1 Operation Cente our true and lawful attorney in fact to act us,on our behalf,and in our by investing him with the following powers for implementation of the Engineering Services for Design on Kotapanjang Hydroelectric Power Proj

1. To make any negotiation,and sign the relative documents to the agreement.
2. To receive and accept all documents issued under/upon the agreement.

IN WITNESS WHEREOF,We have caused this POWER OF ATTORNEY to be executed in our name by our Managing Director,MOTOTSUNE IWATA,thereunt duly authorized,in Tokyo,Japan,1st day of August,1986.

TOKYO ELECTRIC POWER SERVICES CO.,LTD.

Mototsune Iwata

MOTOTSUNE IWATA

Managing Director

Table of Annex

Participation of PLN Personnel to the SERVECES

Original AGREEMENT

Senior Staff : 4 Man-Months

1. Air Fare (JKT/TKY/JKT)
   ¥ 353,300/Trip x 4 Trips = ¥ 1,413,200
2. Excess Baggage
   ¥ 2,540/Trip x 20 Kg x 4 Trips = ¥ 203,200
3. Travel Allowance
   ¥ 35,000/Man-day x 30 Days x 4 M/M = ¥ 4,200,000
4. Inland Travel Cost n Japan
   ¥ 6,000 x 30 Days x 4 M/M = ¥ 720,000
5. Attendant's Cost (1 Person x 3 Months)
   a. Travel Allowance for Inspection Tour
      ¥ 33,000/Man-day x 20 Days = ¥ 660,000
   b. Attendants
      ¥ 2,089,000 x 3 Months = ¥ 6,267,000
6. Material for PLN Participation
   ¥ 99,900 x 4 Persons = ¥ 399,600

Total ¥ 13,863,000

Revised AGREEMENT

Senior Staff Group No.1 : 2.5 Man-Months

Senior Staff Group No.2 : 4.5 Man-Months

1. Air Fare (JKT/TKY/JKT)
   ¥ 353,300/Trips x 11 Trips = ¥ 3,886,300
2. Excess Baggage
   ¥ 2,540/Trip x 20 Kg x 6 Trips = ¥ 304,800
3. Travel Allowance
   ¥ 35,000/Man-day x 14 Days x 5 Persons = ¥ 2,450,000
   ¥ 28,000/Man-day x (30 Days x 5 Persons + 14 Days x 1 Person) = ¥ 4,592,000
4. Inland Travel Cost in Japan
   ¥ 6,000 x (14 x 6 + 30 x 5) Days = ¥ 1,404,000
5. Attendant's Cost (3 Persons)
   a. Travel Allowance for Inspection Tour
      ¥ 33,000/Man-day x 20 Days = ¥ 660,000
   b. Attendants
      ¥ 2,089,000 x 1.75 Months = ¥ 3,655,500
6. Material for PLN Participation
   ¥ 99,900 x 6 Persons = ¥ 599,400

Total ¥17,552,000

Annex 1

Manning Schedule (TEPSCO) - 1

Bar Chart : As of April 30,1988
Figure : As of March 31,1988

No.	POSITION	ORIGINAL / PROPOSED / ACTUAL	NAME	TRIP	MAN-MONTH F.O.	H.O.	TTL	Assignment Schedule 1987 F M A M J J A S O N D / 1988 J F M A M J	Cost Balance (A)Approved (P)Proposed
1	Project Director	O	M. Iwata	2	1	0	1		
		P							
		A	M. Iwata	1	0.3	0	0.3		
2	Resident Manager	O	H. Sasaki	2	13	3	16		(A) M. 16.752(7.10.87) ± 0
		P	H. Sasaki	3	13	3	16		
		A	H. Sasaki	2.5	11.6	2.133	13.733		
3	Dam Engineer (1)	O	J. Itoh	3	10	5	15		(A) M/U No.1 (A) 241/DIVDA/88(28.4.88) + ¥ 540,500
		P	S. Matsushita	3	9.77	5	14.77		
		A	S. Matsushita	3	9.3	4.0	13.3		
4	Dam Engineer (2)	O	T. Hamada	1	14	1	15		
		P							
		A	T. Hamada	1.5	12.233	1	13.233		
5	Dam Engineer (3)	O	T. Tejima	2	8.5	2.5	11		
		P							
		A	T. Tejima	1.5	6.633	2.5	9.133		
6	Dam Engineer (4)	O	Y. Yoshida	2	11	2	13		(A) M.075/KPPE/88 (18.4.88) - ¥ 1.190.000
		P	Y. Yoshida		12	2	14		
		A	Y. Yoshida	1.5	10.733	1	11.733		
7	Power Station Civil Engineer (1)	O	K. Terao	4	7	3	10		(A) 241/DIVDA/88(28.4.88) + ¥ 13,700
		P	K. Terao	3	9.7	0	9.7		
		A	K. Terao	2.5	8.4	0	8.4		

Figure : As of March 31, 1988

No.	POSITION	ORIGINAL / PROPOSED / ACTUAL	NAME	TRIP	MAN-MONTH F.O.	H.O.	TTL	Assignment Schedule 1987 FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC / 1988 JAN FEB MAR APR MAY JUN	Cost Balance (A)Approved (P)Proposed
9	Metal Engineer	O	T. Kodama	2	1	6	7		(A) 241/DIVDA/88(28.4.88) + ¥ 1,175,000
		P	T. Kodama	1	0.5	6	6.5		
		A	T. Kodama	0	0	5.5	5.5		
10	Geologist	O	M. Fujieda	2	7	2	9		(A) M.18.247(2.11.87) (A) 241/DIVDA/88(28.4.88) - ¥ 1,266,300
		P	M. Fujieda	2	7.7	2	9.7		
		A	M. Fujieda	2	7.7	2	9.7		
11	Boring and Seismic Engineer	O	K. Nakamata	1	5	0	5		(A) M.16.750(7.10.87) (A) 241/DIVDA/88(28.4.88) - ¥ 2,170,800
		P	K. Nakamata	2	6.2	0	6.2		
		A	K. Nakamata	2	6.2	0	6.2		
12	Survey Engineer	O	S. Shirahama	1	8	0	8		
		P							
		A	S. Shirahama	1	8.033	0	8.033		
13	Aggregate and Concrete Test Engineer	O	S. Kitamura	2	3	0	3		(A) M/U No.1 + ¥ 1,473,000
		P	M. Imbe	2	3	0	3		
		A	M. Imbe	1.5	3.0	0	3.0		
14	Hydraulic Model Test Engineer	O	A. Okada	2	4	1	5		(A) M/U No.3
		P	H. Nakamura	2	4	1	5		
		A	H. Nakamura	1.5	2.733	0.5	3.233		
15	Power Station Engineer /System Analyst	O	Y. Shiono	2	1.5	2.5	4		(A) M/U No.1 + ¥ 375,000
		P	K. Matsushima	2	1.5	2.5	4		
		A	K. Matsushima	2	1.733	2.467	4.2		
16	Power Station Engineer /Electric Engineer	O	K. Matsushima	4	4	6	10		(A) M/U No.1 (A) 241 DIVDA/88(28.4.88) + ¥ 2,250,000
		P	M. Takada	3	3	6	9		
		A	M. Takada	2	1.901	6	7.901		

Bar Chart : As of April 30, 1988
Figure : As of March 31, 1988

Manning Schedule (TEPSCO) - 3

No	POSITION	ORIGINAL / PROPOSED / ACTUAL	NAME	TRIP	MAN-MONTH F.O.	H.O	TTL	Assignment Schedule 1987 FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC / 1988 JAN FEB MAR APR MAY JUN	Cost Balance (A)Approved (P)Proposed
									M/U : Minutes of Undrstndng
17	Power Station Engineer /Mechanical Engineer	O	T. Ohta	4	3	7	10		(A) M/U No.1 + ¥ 5,241,000
		P	M. Mizusawa	4	3	7	10		
		A	M. Mizusawa	3	2.1	7.0	9.1		
18	Architect	O	K. Yamanouchi	2	2.5	2.5	5		(A) M.075/KPPE/88 (18.4.88) + ¥ 2,099,250
		P	K. Yamanouchi		1.567	2.5	4.567		
		A	K. Yamanouchi	1	0.567	2.5	3.067		
19	Substation Engineer	O	T. Murata	4	3	2.5	5.5		
		P							
		A	T. Murata	3	2.1	2.5	4.6		
20	Civil Engineer/Foundation of T/L and S/S	O	H. Kimura	2	2	2	4		(A) 241/DIVDA/88(28.4.88) + ¥ 904,500
		P	H. Kimura	2	1.5	2	3.5		
		A	H. Kimura	1	1	2	3.0		
21	Transmission Line Engineer	O	R. Kashimura	3	2.5	5	7.5		
		A	R. Kashimura	2	1.666	5	6.666		
22	Transmission Survey Engineer	O	R. Takamura	1	6	0	6		(A) M/U No. 1 and M.20.447(14.12.87)
		P	H. Mekata S. Takahashi	2	6	0	6		
		A	H. Mekata S. Takahashi	2	5.033	0	5.033		
23	Construction Engineer	O	Y. Miura	2	6	0	6		(A) 241/DIVDA/88(28.4.88) - ¥ 3,375,000
		P	Y. Owada	2	7.5	0	7.5		
		A	Y. Owada	0.5	7.133	0	7.133		
24	Economist	O	R. Suzuki	1	0.5	2.5	3		
25	Environmental Engineer	O	J.R. Prosser	2	3	0	3		
		P	K. Inagaki	2	4	0	3		(A) M/U No.3 (A) M.075/KPPE/88 - ¥ 1,443,000 (18.4.88)
		A	K. Inagaki	1	2.466	0	2.466		
26	Road Engineer (1)	O	J. Nagamura	2	11.5	3	14.5		
		A	J. Nagamura	2.5	11.634	0.733	12.367		
27	Road Engineer (2)	O	H. Tsutsumi	1	7	0	7		(A) M/U No.1
		P	T. Tateishi	1	7	0	7		
		A	T. Tateishi	0.5	7.0	0	7.0		
28	Road Survey Engineer	O	S. Noguchi	1	7	0	7		(A) M/U No.1 (A) 241/DIVDA/88(28.4.88) + ¥ 610,170
		P	N. Akasaka	1	6.67	0	6.67		
		A	N. Akasaka	1	6.667	0	6.667		
29	Bridge Design Engineer	O	S. Kohda	2	4	3	7		
		A	S. Kohda(Kota)	1.5	4.366	3	7.366		
30	On-Call Engineer	O		5	6.5	0	6.5		(A) M.075/KPPE/88 (18.4.88) + ¥ 1,443,200
		P			5.844	0	5.844		
		A		0	0	0	0		
	Total	O		66	167.5	65	232.5		Balance (+) ¥ 6,680,220
		P		66	171.451	62	233.451		
		A		46	147.331	54.066	201.397		

FORM 04

Kotapanjang Hydroelectric Power Project
E/S Agreement No.PJ.007/PST/87
ENGINEER's Personnel Re-Arrangement

M/U : Minutes of Understanding
1st,2nd,3rd : Year Order
H.O. : Home Office
F.O. : Field Office

Ref. Letter No. TEPSCO	Proposed Personnel Re-Arrangement			Total M/M Ref. E/S Agreement	Ref. No. of PLN's Approval Letter	Balance
	Position	Name and Monthly Rate (Ref. E/S Agreement)	Name and Monthly Rate for Re-Arrangement			
TEPSCO/KT-27 (Mar. 3, '87)	Power Station Engineer / System Analyst	Y. Shiono F.O. 1st ¥ 2,350,000 2nd ¥ 2,350,000 H.O. 1st ¥ 2,115,000 2nd ¥ 0 3rd ¥ 2,115,000	K. Matsushima F.O. 1st ¥ 2,250,000 2nd ¥ 2,250,000 H.O. 1st ¥ 2,025,000 2nd ¥ 0 3rd ¥ 2,025,000	F.O. 0.5 M/M 1.0 M/M H.O. 2.0 M/M 0 M/M 0.5 M/M	M.3173/SUBDIT-TEK/87 (Mar. 4, '87) M/U No.1	F.O. (+) ¥ 150,000 H.O. (+) ¥ 225,000 (+) ¥ 375,000
TEPSCO/KT-27 (Mar. 3, '87)	Power Station Engineer / Electrical Engineer	K. Matsushima F.O. 1st ¥ 2,250,000 2nd ¥ 2,250,000 H.O. 1st ¥ 2,025,000 2nd ¥ 2,025,000 3rd ¥ 2,025,000	M. Takada F.O. 1st ¥ 2,250,000 2nd ¥ 2,250,000 H.O. 1st ¥ 2,025,000 2nd ¥ 2,025,000 3rd ¥ 2,025,000	F.O. 1.0 M/M 3.0 M/M H.O. 2.0 M/M 3.0 M/M 1.0 M/M	M.3173/SUBDIT-TEK/87 (Mar. 4, '87) M/U No.1	F.O. ¥ 0 H.O. ¥ 0
TEPSCO/KT-27 (Mar. 3, '87)	Power Station Engineer / Mechanical Engineer	T. Ohta F.O. 1st ¥ 2,194,000 2nd ¥ 2,250,000 H.O. 1st ¥ 1,975,000 2nd ¥ 2,205,000	M. Mizusawa F.O. 1st ¥ 1,722,000 2nd ¥ 1,809,000 H.O. 1st ¥ 1,550,000 2nd ¥ 1,628,000	F.O. 1.0 M/M 2.0 M/M H.O. 1.0 M/M 6.0 M/M	M.3173/SUBDIT-TEK/87 (Mar. 4, '87) M/U No.1	F.O. (+) ¥ 472,000 (+) ¥ 882,000 H.O. (+) ¥ 425,000 (+) ¥ 3,462,000 (+) ¥ 5,241,000

02

TOKYO ELECTRIC POWER SERVICES CO., LTD.

FORM 04

Ref. Letter No. TEPSCO	Proposed Personnel Re-Arrangement			Total M/M Ref. E/S Agreement	Ref. No. of PLN's Approval Letter	Balance
	Position	Name and Monthly Rate (Ref. E/S Agreement)	Name and Monthly Rate for Re-Arrangement			
TEPSCO/KP-0003 (Mar. 17, '87)	Dam Engineer (1)	J. Itoh F.O. 1st ¥ 2,350,000 2nd ¥ 2,350,000 H.O. 1st ¥ 2,115,000 2nd ¥ 2,115,000	S. Matsushita F.O. 1st ¥ 2,350,000 2nd ¥ 2,350,000 H.O. 1st ¥ 2,115,000 2nd ¥ 2,115,000	F.O. 10 M/M H.O. 5 M/M	M.4495/SUBDIT-TEK/87 (Mar. 30,'87) M/U No.1	F.O. ¥ 0 H.O. ¥ 0
SSK-1001/TEPSCO (Apr. 24, '87)	Aggregate and Concrete Test Engineer	S. Kitamura F.O. 1st ¥ 0 2nd ¥ 2,300,000	M. Imbe F.O. 1st ¥ 0 2nd ¥ 1,809,000	F.O. 3 M/M	M.7330/SUBDIT-TEK/87 (Jun. 3, '87) M/U No.1	F.O. (+) ¥ 1,473,000
SSK-1001/TEPSCO (Apr. 24, '87)	Transmission Line Survey Engineer	R. Takamura F.O. 1st ¥ 0 2nd ¥ 1,809,000	H. Mekata F.O. 1st ¥ 0 2nd ¥ 1,809,000	F.O. 6 M/M	M.7330/SUBDIT-TEK/87 (Jun. 3, '87) M/U No.1	F.O. ¥ 0
SSK-1001/TEPSCO (Apr. 24, '87)	Construction Engineer	Y. Miura F.O. 1st ¥ 0 2nd ¥ 2,250,000	Y. Owada F.O. 1st ¥ 0 2nd ¥ 2,250,000	F.O. 6 M/M	M.7330/SUBDIT- (Jun. 3, '87) M/U No.1	F.O. ¥ 0

TOKYO ELECTRIC POWER SERVICES CO., LTD.

Annex 2-2

FORM 04

TOKYO ELECTRIC POWER SERVICES CO., LTD.

Ref. Letter No. TEPSCO	Proposed Personnel Re-Arrangement			Total M/M Ref. E/S Agreement	Ref. No. of PLN's Approval Letter	Balance
	Position	Name and Monthly Rate (Ref. E/S Agreement)	Name and Monthly Rate for Re-Arrangement			
SSK-1001/TEPSCO (Apr. 24, '87)	Road Engineer (2)	H. Tsutsumi F.O. 1st ¥ 0 2nd ¥ 2,300,000	T. Tateishi F.O. 1st ¥ 0 2nd ¥ 2,300,000	F.O. 7 M/M	M.7330/SUBDIT-TEK/87 (Jun. 3, '87) M/U No.1	F.O. ¥ 0
SSK-1001/TEPSCO (Apr. 24, '87)	Road Survey Engineer	S. Noguchi F.O. 1st ¥ 0 2nd ¥ 1,849,000	N. Akasaka F.O. 1st ¥ 0 2nd ¥ 1,849,000	F.O. 7 M/M	M.7330/SUBDIT-TEK/87 (Jun. 3, '87) M/U No.1	F.O. ¥ 0

Ref.Letter No of TEPSCO	Proposed Personnel Re-Arrangement			Man-Month		Ref.Letter No. of PLN Approval	Amount Balance
	Position	Name and Monthly Rate (Original)	Name and Monthly Rate (Rearranged)	Original	Revised		
TEPSCO/SSK-1042 (Sept. 18,'87) 1243/TEPSCO/88 (Feb. 1,'88)	Borring and Seismic Engineer	K. Nakamata F.O. 1st 0 2nd ¥ 1,809,000	K. Nakamata F.O. 1st 0 2nd ¥ 1,809,000	F.O. 5.0 M/M	F.O. 6.2 M/M	M.16.750/SUBDITTEK/87(Oct.7.'87) 241/DIVDA/88 (Apr.28,'88)	F.O. 0 (-) ¥ 2,170,800
1134/TEPSCO/87 (Sept.29,'87)	Resident Manager	H. Sasaki F.O. 1st ¥ 2,450,000 2nd ¥ 2,450,000 H.O. 1st ¥ 2,205,000 2nd ¥ 2,205,000 3rd ¥ 2,205,000	H. Sasaki F.O. 1st ¥ 2,450,000 2nd ¥ 2,450,000 H.O. 1st ¥ 2,250,000 2nd ¥ 2,205,000 3rd ¥ 2,205,000	F.O. 2.0 M/M 11.0 M/M H.O. 1.0 M/M 1.0 M/M 1.0 M/M	F.O. 2.0 M/M 11.0 M/M H.O. 1.0 M/M 1.07M/M 0.93M/M	M.16.752/SUBDITTEK/87(Oct.7,'87)	F.O. 0 0 H.O. 0 (-) ¥ 154,350 (+) ¥ 154,350
TEPSCO/SSK-1070 (Nov. 1,'87) 1243/TEPSCO/88 (Feb.1,'88)	Geologist (1)	M. Fujieda F.O. 1st ¥ 1,722,000 2nd ¥ 1,809,000 H.O. 1st ¥ 1,550,000 2nd ¥ 1,628,000	M. Fujieda F.O. 1st ¥ 1,722,000 2nd ¥ 1,809,000 H.O. 1st ¥ 1,550,000 2nd ¥ 1,628,000	F.O. 1.0 M/M 6.0 M/M H.O. 1.0 M/M 1.0 M/M	F.O. 1.0 M/M 6.7 M/M H.O. 1.0 M/M 1.0 M/M	M.18.247/SUBDITTEK/87(Nov.2,'87) 241/DIVDA/88 (Apr.28,'88)	F.O. 0 (-) ¥ 1,266,300 H.O. 0 0
TEPSCO/SSK-1096 (Dec.2,'87)	Transmission Line Survey Engineer	M. Mekata F.O. 1st 0 2nd ¥ 1,809,000	S. Takahashi F.O. 1st 0 2nd ¥ 1,809,000	F.O. 6.0 M/M	F.O. 6.0 M/M	M.20.447/Ka.PPE/87 (Dec.14,'87)	F.O. 0 0
1226/TEPSCO/88 (Jan.19'88)	Power Station Civil Engineer	K. Terao F.O. 1st ¥ 1,739,000 2nd ¥ 1,849,000 H.O. 1st 0 2nd ¥ 1,664,000 3rd ¥ 1,678,000	K. Terao F.O. 1st ¥ 1,739,000 2nd ¥ 1,849,000 H.O. 1st 0 2nd ¥ 1,664,000 3rd ¥ 1, 678,000	F.O. 2.0 M/M 7.0 M/M H.O. 2.0 1.0	F.O. 2.0 M/M 9.7 M/M H.O. 0.0 0.0	241/DIVDA/88 (Apr.28,'88)	F.O. 0 (-) ¥ 4,992,300 H.O. 0 (+) ¥ 3,328,000 (+) ¥ 1,678,000 (+) ¥ 13,700

Ref. Letter No. of TEPSCO Propose	Proposed Personnel Re-Arrangement			Man-Month		Ref. Letter No. of PLN Approval	Amount Balance
	Position	Name and Monthly Rate (Original)	Name and Monthly Rate (Re-arranged)	Original	Revised		
1232/TEPSCO/88 (Jan.25,'88) 1243/TEPSCO/88 (Feb.1,'88)	Construction Engineer	Y. Owada F.O. 1st 0 2nd ¥ 2,250,000	Y. Owada F.O. 1st 0 2nd ¥ 2,250,000	F.O. 6.0 M/M	F.O. 7.5 M/M	241/DIVDA/88 (Apr.28,'88)	F.O. 0 (-) ¥ 3,375,000
1243/TEPSCO/88 (Feb.1,'88)	Dam Engineer(1)	S. Matsushita F.O. 1st ¥ 2,350,000 2nd ¥ 2,350,000 H.O. 1st ¥ 2,115,000 2nd ¥ 2,115,000	S. Matsushita F.O. 1st ¥ 3,350,000 2nd ¥ 2,350,000 H.O. 1st ¥ 2,115,000 2nd ¥ 2,115,000	F.O. 1.0 M/M 9.0 M/M H.O. 1.0 M/M 4.0 M/M	F.O. 1.0 M/M 8.77M/M H.O. 1.0 M/M 4.0 M/M	241/DIVDA/88 (Apr.28,'88)	F.O. 0 (+) ¥ 540,500 H.O. 0 0
1243/TEPSCO/88 (Feb.1,'88)	Metal Engineer	T. Kodama F.O. 1st 0 2nd ¥ 2,350,000 H.O. 1st 0 2nd ¥ 2,115,000	T. Kodama F.O. 1st 0 2nd ¥ 2,350,000 H.O. 1st 0 2nd ¥ 2,115,000	F.O. 1.0 M/M H.O. 6.0 M/M	F.O. 0.5 M/M H.O. 6.0 M/M	241/DIVDA/88 (Apr.28,'88)	F.O. 0 (+) ¥ 1,175,000 H.O. 0 0
1243/TEPSCO/88 (Feb.1.'88)	Power Station Engineer/ Electric	M. Takada F.O. 1st ¥ 2,250,000 2nd ¥ 2,250,000 H.O. 1st ¥ 2,025,000 2nd ¥ 2,025,000 3rd ¥ 2,025,000	M. Takada F.O. 1st ¥ 2,250,000 2nd ¥ 2,250,000 H.O. 1st ¥ 2,025,000 2nd ¥ 2,025,000 3rd ¥ 2,025,000	F.O. 1.0 M/M 3.0 M/M H.O. 2.0 M/M 3.0 M/M 1.0 M/M	F.O. 0.0 M/M 3.0 M/M H.O. 2.0 M/M 3.0 M/M 1.0 M/M	241/DIVDA/88 (Apr.28,'88)	F.O. (+) ¥ 2,250,000 0 H.O. 0 0 0
1243/TEPSCO/88 (Feb.1,'88)	Civil Engineer/ Foundatio of T/L & S/S	H. Kimura F.O. 1st ¥ 1,722,000 2nd ¥ 1,809,000	H. Kimura F.O. 1st ¥ 1,722,000 2nd ¥ 1,809,000	F.O. 1.0 M/M 1.0 M/M	F.O. 1.0 M/M 0.5 M/M.	241/DIVDA/88 (Apr.28,'88)	F.O. 0 (+) ¥ 904,500
1243/TEPSCO/88 (Feb.1,'88)	Road Survey Engineer	N. Akasaka F.O. 1st 0 2nd ¥ 1,849,000	N. Akasaka F.O. 1st 0 2nd ¥ 1,849,000	F.O. 7.0 M/M	F.O. 6.67 M/M	241/DIVDA/88 (Apr.28,'88)	F.O. 0 (+) ¥ 610,170

Ref.Letter No. TEPSCO	Proposed Personnel Re-Arrangement			Total M/M		Ref. No. of PLN's Approval Letter	Balance
	Position	Name and Monthly Rate (Ref.E/S Agreement	Name and Monthly Rate for Re-Arrangement	Ref.E/S Agreement	Rearrangement		
1295/TEPSCO/88 (Apr.7.'88)	Dam Engineer (4)	Y. Yoshida F.O. 1st Y 1,100,000 2nd Y 1,190,000 H.O. 1st Y 990,000 2nd Y 1,071,000	Y. Yoshida F.O. 1st Y 1,100,000 2nd Y 1,190,000 H.O. 1st Y 990,000 2nd Y 1,071,000	F.O. 2 M/M 9 M/M 1 M/M 1 M/M	F.O 2 M/M 10 M/M 1 M/M 1 M/M	M. 075/KPPE/88 (Apr.18,'88)	F.O. Y 0 (-) Y 1,190,000 H.O. Y 0
1295/TEPSCO/88 (Apr.7.'88)	Architect/ Building Engineer	K. Yamanouchi F.O. 1st Y 0 2nd Y 2,250,000 H.O. 1st Y 0 2nd Y 2,025,000	K. Yamanouchi F.O. 1st Y 0 2nd Y 2,250,000 H.O. 1st Y 0 2nd Y 2,025,000	F.O. 2.5 M/M H.O. 2.5 M/M	F.O. 1.567 M/M H.O. 2.5 M/M	M. 075/KPPE/88 (Apr.18,'88)	F.O. Y 0 (+) Y 2,099,250 H.O. Y 0 Y 0
1295/TEPSCO/88 (Apr.7.'88)	Environmental Engineer	J.R. Prosser F.O. 1st Y 0 2nd Y 1,443,000	K. Inagaki F.O. 1st Y 0 2nd Y 1,443,000	F.O. 3 M/M	F.O. 4 M/M	Minutes of Understanding No. 3 M. 075/KPPE/88 (Apr.18,'88)	F.O. (-) Y 1,443,000
1295/TEPSCO/88	On-Call Engineer	F.O. 1st Y 0 2nd Y 2,200,000	F.O. 1st Y 0 2nd Y 2,200,000	F.O. 6.5 M/M	F.O. 5.844 M/M	M. 075/KPPE/88 (Apr.18,'88)	+ Y 1,443,200

Balance (+)¥ 6,680,220

Summary of the New Remaining Balance of
Foreign Currency Portion in the AGREEMENT
No. PJ 007/PST/1987

No.	Item	Amount
	Memorandum No. 2	
1.2	Out-of-Pocket Expenses	
(10)	Increase Cost for Participation of PLN Personnel	¥ 3,689,000
	AGREEMENT No. PJ 007/PST/1987	
	Balance Amount from the Revision of Manning Schedule of AGREEMENT No. PJ 007/PST/1987	¥ 6,680,220
	New Balance	¥ 2,991,220 *)

*) The New Balance ¥ 2,991,220.- will be used for the future Manning Schedule extension.

MEMORANDUM NO. 3

TO AGREEMENT NO.PJ 007/PST/1987, DATED JANUARY 15, 1987
between

PERUSAHAAN UMUM LISTRIK NEGARA
and
TOKYO ELECTRIC POWER SERVICES CO., LTD.

in association with

P.T. YODYA KARYA

for

ENGINEERING SERVICES
for
KOTAPANJANG HYDROELECTRIC POWER PROJECT

This Memorandum made and entered into this 18th day of the month. June.. in the year 1988 between PERUSAHAAN UMUM LISTRIK NEGARA (hereinafter referred to as "PLN") a Perusahaan Umum (State Owned Public Corporation) duly established and existing under the laws of the Republic of Indonesia with its main office located at Jalan Trunojoyo Blok M I/135, Kebayoran Baru, Jakarta Selatan, Indonesia, on the one part, and TOKYO ELECTRIC POWER SERVICES CO., LTD. with its main office located at No.1-4, Uchisaiwai-cho 2-Chome, Chiyoda-ku, Tokyo, Japan in association with P.T. Yodya Karya with its main office located at Jalan D.I. Panjaitan, Kaveling 8, Cawang, Jakarta, Indonesia (hereinafter referred to as the "ENGINEER") on the other part, and considering that the Period and Time Schedule of the AGREEMENT is required to be extended for completing the SERVICES, witnesseth that both parties covenant, promise and agree that in accordance with Article 9 - Change, Modification or Amendment, the following amendment is made to the AGREEMENT :

I. The Period and Time Schedule of the SERVICES stipulated in Article 4.2 shall be extended from 16 (sixteen) months to 18 (eighteen) months, starting from the date 4 weeks after the date of signing of the AGREEMENT, as shown in Annex 1 of this Memorandum No.3

II. The SERVICES have been started actually on February 11, 1987, therefore, the SERVICES shall be completed August 10, 1988 as the result of the conclusion of this Memorandum No.3.

III. This Memorandum No.3 will not cause any additional cost to the AGREEMENT No.PJ 007/PST/1987.

IV. All other terms and conditions of the AGREEMENT No.PJ 007/PST/1987, remain in force except as amended herein.

V. This Memorandum is as integral part of the AGREEMENT No.PJ 007/PST/1987 and is therefore binding.

In witness whereof, PLN and the ENGINEER have caused this Memorandum to be signed by their duly authorized representatives as of the day and year written above.

For and on behalf of
the ENGINEER

Mr.Tatsuo Kita
Representative
in Indonesia

For and on behalf of
PERUSAHAAN UMUM LISTRIK NEGARA

Ir. Mohd. Singgih
Director of Planning

TOKYO ELECTRIC POWER SERVICES CO., LTD.

HIBIYA CHUNICHI BLDG.
1-4, UCHISAIWAI-CHO, 2-CHOME,
CHIYODA-KU, TOKYO 100, JAPAN
TEL. (03) 506-6000

TELEX:TEPSCO J25674
CABLE ADDRESS:TEPSCO JAPAN
TELFACS: (03)501-7880

Tokyo, January , 1987

POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS:

That we, Tokyo Electric Power Services Co., Ltd., a company organized and existing under the laws of Japan, having its office at 1-4, Uchisaiwai-cho 2-chome, Chiyoda-ku, Tokyo, Japan, do hereby make, appoint Mr. TATSUO KITA Representative in Indonesia, our true and lawful attorney in fact to act for us, on our behalf, and in our name, by investing him with the following powers for implementation of the Engineering Services for Design on Kotapanjang Hydro-electric Power Project.

To make sign of the Agreement as well as its relative documents regarding engineering consulting services.

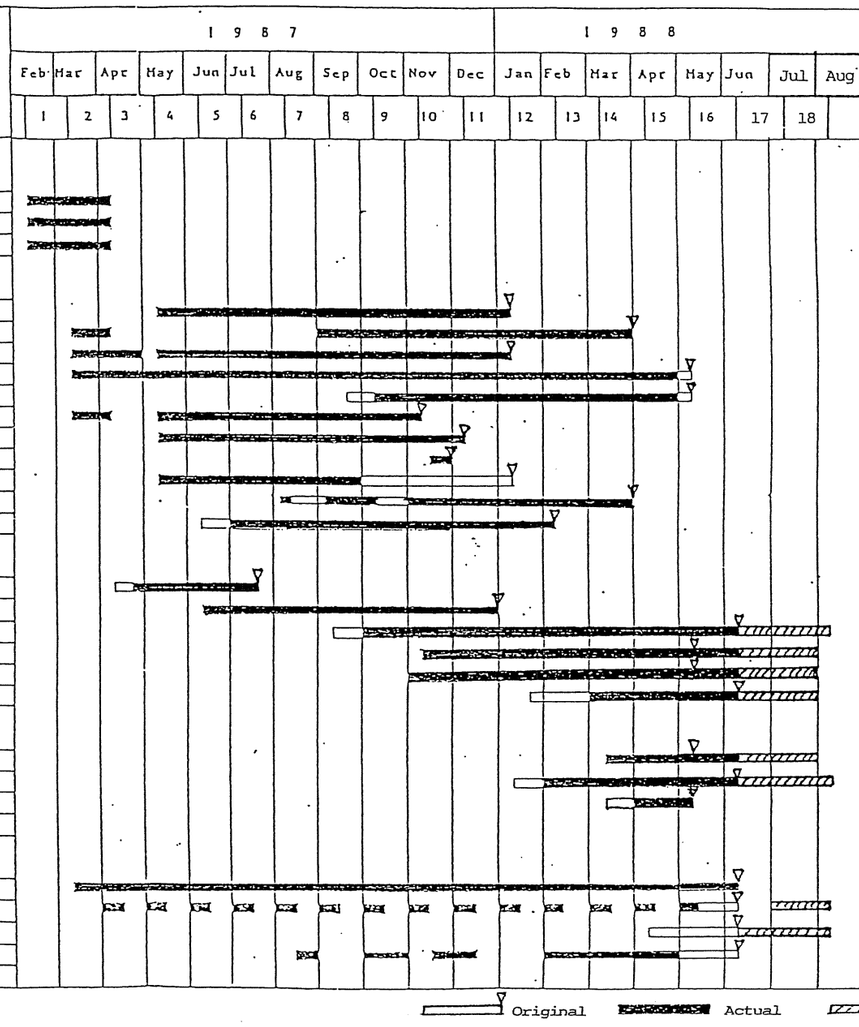
IN WITNESS WHEREOF, we have caused this POWER OF ATTORNEY to be executed in our name by our Managing Director, MOTOTSUNE IWATA, thereunto duly authorized, in Tokyo, Japan 1st day of August, 1986.

TOKYO ELECTRIC POWER SERVICES CO., LTD.

DR. MOTOTSUNE IWATA
Managing Director

TIME SCHEDULE OF SERVICES

ITEM OF SERVICES	REMARKS
DIVISION I INCEPTION REPORT	
Review of F/S Report	
Preparation of Inception Report	
Preparation of Spec. & Program for Investigation Works	
DIVISION II INVESTIGATION WORKS & STUDY	
Geological Investigation	
Construction Material Investigation	
Aerial Photogrammetry Mapping and Topographic Survey	
Meteo-Hydrological Investigation	
Hydraulic Model Test	
Transmission Line Route and Substation Site Survey	
Road Route Survey	
Landslide Investigation	
Miscellaneous Surveys	
Environmental Study	
Preparation of Investigation Work Report	
DIVISION III DESIGN AND COST ESTIMATE	
Design Criteria	
Basic Design	
Detailed Design	
Project Cost Estimate	
Preparation of Implementation Program	
Operation and Maintenance Criteria	
DIVISION IV TENDER DOCUMENTS	
Preparation of Prequalification Questionnaire	
Preparation of Tender Documents	
Preparation of T.O.R. on E/S for Construction Supervision	
OTHERS	
Transfer of Knowledge	
Preparation of Monthly Progress Report	
Preparation of Engineering Report	
Documentary Film	



MEMORANDUM NO. 4

TO AGREEMENT NO.PJ.007/PST/1987, DATED JANUARY 15, 1987

between

PERUSAHAAN UMUM LISTRIK NEGARA

and

TOKYO ELECTRIC POWER SERVICES CO., LTD.
in association with
P.T. YODYA KARYA

for

ENGINEERING SERVICES
for
KOTAPANJANG HYDROELECTRIC POWER PROJECT

This Memorandum made and entered into this 27th day of the month January in the year 1989 between PERUSAHAAN UMUM LISTRIK NEGARA (hereinafter referred to as "PLN") a Perusahaan Umum (State Owned Public Corporation) duly established and existing under the laws of the Republic of Indonesia with its main office located at Jalan Trunojoyo Blok M I/135, Kebayoran Baru, Jakarta Selatan, Indonesia, on the one part, and TOKYO ELECTRIC POWER SERVICES CO., LTD. with its main office located at No.1-4, Uchisaiwai-cho 2-chome, Chiyoda-ku, Tokyo 100, Japan in association with P.T. YODYA KARYA with its main office located at Jalan D.I. Panjaitan, Kaveling 8, Cawang, Jakarta, Indonesia (hereinafter referred to as the "ENGINEER") on the other part, and considering that the confirmation of final Man Month and Cost of the SERVICES are required for the AGREEMENT, witnesseth that

both parties covenant, promise and agree that in accordance with Article 9 - Change, Modification or Amendment, the following amendment is made to the AGREEMENT :

I. The Final Expenditure and Balance are shown in Annexes 1 and 2 attached hereto.

II. The Final Man - Months are shown in Annexes 3, 4 and 5 attached hereto.

III. The Final MONTHLY RATES are shown in Annexes 6, 7, 8 and 9 attached hereto.

IV. The original, final and remaining balance of the costs of Survey Works, Geological Investigation Works and Test Works are shown in Annex 10 attached hereto.

V. All other terms and conditions of the AGREEMENT No.PJ.007/PST/1987, remain in force except as amended herein.

VI. This Memorandum is an integral part of the AGREEMENT No.PJ.007/PST/1987 and is therefore binding.

In witness whereof, PLN and the ENGINEER have caused this Memorandum to be signed by their duly authorized representative as the day and year written above.

For and on behalf of
the ENGINEER

TOKYO ELECTRIC POWER SERVICES CO., LTD. JAKARTA

* TATSUO KITA
Representative in
Indonesia

For and on behalf of
PERUSAHAAN UMUM LISTRIK NEGARA

METERAI TEMPEL SEMBILU RUPIAH

Ir. ERMANSYAH JAMIN
President Director

TOKYO ELECTRIC POWER SERVICES CO., LTD.

HIBIYA CHUNICHI BLDG.
1-4, UCHISAIWAI-CHO, 2-CHOME,
CHIYODA-KU, TOKYO 100, JAPAN
TEL. (03) 506-6000

TELEX:TEPSCO J25674
CABLE ADDRESS:TEPSCO JAPAN
TELFACS: (03)501-7880

Tokyo, January , 1987

POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS:

That we, Tokyo Electric Power Services Co., Ltd., a company organized and existing under the laws of Japan, having its office at 1-4, Uchisaiwai-cho 2-chome, Chiyoda-ku, Tokyo, Japan, do hereby make, appoint Mr. TATSUO KITA Representative in Indonesia, our true and lawful attorney in fact to act for us, on our behalf, and in our name, by investing him with the following powers for implementation of the Engineering Services for Design on Kotapanjang Hydro-electric Power Project.

To make sign of the Agreement as well as its relative documents regarding engineering consulting services.

IN WITNESS WHEREOF, we have caused this POWER OF ATTORNEY to be executed in our name by our Managing Director, MOTOTSUNE IWATA, thereunto duly authorized, in Tokyo, Japan 1st day of August, 1986.

TOKYO ELECTRIC POWER SERVICES CO., LTD.

Mototsune Iwata

DR. MOTOTSUNE IWATA
Managing Director

LIST OF ANNEXES

FINAL EXPENDITURE AND BALANCE FOR LOCAL CURRENCY PORTION

(Unit:Rp)

Item No.	Item	Agreement Amount	Memorandum No.2	Memorandum No.4 (Final Expenditure)	Final Balance
2.1	MONTHLY RATES for Y.K.	106,330,000	106,330,000	106,054,880	275,120
	FIELD OFFICE 60.5 M/M	106,330,000	106,330,000	106,054,880	275,120
2.2	Out-of-Pocket Expenses	584,856,400	584,856,400	576,746,100	8,110,300
(1)	Mobilization and Demobilization Co.	28,573,400	28,573,400	26,156,400	2,417,000
a	Air Fare (JKT/PKU/JKT) (Actual reimbursement basis) Y.K. Rp203,200/Trip x 43 Trips =	8,737,600	8,737,600	8,737,600	0
b	Excess Baggage Y.K. Rp2,030/kg x 20kg/Trip x 43 Trips =	1,745,800	1,745,800	324,800	1,421,000
c	Taxi Charge -Jakarta (Air Port - Hotel)				
	TEPSCO Rp18,000/Way x 4Ways/Trip x 66 Trips =	4,752,000	4,752,000	4,392,000	360,000
	Y.K. Rp18,000/Way x 2Ways/Trip x 43 Trips =	1,548,000	1,548,000	1,422,000	126,000
	-Pekanbaru (Air Port - Site)				
	TEPSCO Rp30,000/Way x 2Ways/Trip x 66 Trips =	3,960,000	3,960,000	3,660,000	300,000
	Y.K. Rp30,000/Way x 2Ways/Trip x 43 Trips =	2,580,000	2,580,000	2,370,000	210,000
d	Mobilization Cost for Y.K.	2,500,000	2,500,000	2,500,000	0
e	Exit Tax TEPSCO Rp250,000/Trip x 11 Trips =	2,750,000	2,750,000	2,750,000	0
(2)	Duty Trip Expenses (Trip number basis)	24,768,000	24,768,000	24,768,000	0
a	Air Fare (PKU/JKT/PKU) (Actual reinbursement basis)				
	TEPSCO Rp203,200/Trip x 56 Trips =	11,379,200	11,379,200	11,379,200	0
	Y.K. Rp203,200/Trip x 34 Trips =	6,908,800	6,908,800	6,908,800	0
b	Taxi Charge (JKT)				
	TEPSCO Rp72,000/Trip x 56 Trips =	4,032,000	4,032,000	4,032,000	0
	Y.K. Rp72,000/Trip x 34 Trips =	2,448,000	2,448,000	2,448,000	0
(3)	Per Diem Allowance for Y.K. FIELD Trip (Fixed unit rate and actual trip number basis) Rp20,000/Day x 30 Days/Month x 15.1 Months =	9,060,000	9,060,000	8,580,000	480,000
(4)	Per Diem Allowance for Y.K. FIELD PERSONNEL without Residence (Fixed unit rate) Rp35,000/Man.Day x 30 Days/Month x 14.5 Man.Months =	15,225,000	15,225,000	11,200,700	4,024,300
(5)	Office and House Rental	197,575,000	197,575,000	197,575,000	0
a	Office Rental at PROJECT SITE Rp15,000/m2 x 270m2/Month x 14 Months =	56,700,000	56,700,000	56,700,000	0
b	House Rental at PROJECT SITE				
	TEPSCO Rp850,000/House.Month x 125.5 Months =	106,675,000	106,675,000	106,675,000	0
	Y.K. Rp300,000/House Month x 114 House Months =	34,200,000	34,200,000	34,200,000	0
(6)	Office Expenditure	168,000,000	168,000,000	168,000,000	0
(7)	Communication and Mail (Monthly fixed unit rate) Rp835,000/Month x 16 Months =	13,360,000	13,360,000	13,360,000	0
(8)	Helicopter Expences (Actual reimbursement basis)	21,025,000	21,025,000	19,836,000	1,189,000
(9)	Drawing and Tracing Rp1,500,000/Month x 16 Months =	24,000,000	24,000,000	24,000,000	0
(10)	Salary for Local Employees	83,270,000	83,270,000	83,270,000	0
2.3	Survey Works	456,422,900	456,422,900	431,317,600	25,105,300
2.4	Geological Investigation Works	373,867,600	373,867,600	473,197,299	(99,329,699)
2.5	Test Works	431,941,000	431,941,000	352,867,131	79,073,869
2.6	Contingency	117,205,100	117,205,100	0	117,205,100
	Total	2,070,623,000	2,070,623,000	1,940,183,010	130,439,990

Original,Final and Remaining Balance of Yen and Rp MONTHLY RATES Annex 6

I.Yen MONTHLY RATES (Unit:Yen)

Item	Agreement Amount	Final Amount	Balance	Remarks
1.TEPSCO				
Home Office	126,864,000	117,860,175	9,003,825	
Field Office	332,633,500	337,948,325	(5,314,825)	Yen 3.689,000
On-call Engi	14,300,000	14,013,729	286,271	transfer to Item
				No.2.2. (10) by
Sub-Total	473,797,500	469,822,229	3,975,271	Memo.No.2 *)
2.PT. YODYA KARYA				
Field Office	16,777,400	16,777,400	0	
On-call Engi	1,028,800	907,097	121,703	
Sub-Total	17,806,200	17,684,497	121,703	
Total	491,603,700	487,506,726	4,096,974	

*) Memo. No.2 = Memorandum No.2 (Dated 13th. June 1988)

II.Rp MONTHLY RATES (Unit:Rp)

Item	Agreement Amount	Final Amount	Balance	Remarks
1.PT. YODYA KARYA				
Field Office	106,330,000	106,054,880	275,120	
Total	106,330,000	106,054,880	275,120	

MEMORANDUM NO. 5

TO AGREEMENT NO.PJ.007/PST/1987, DATED JANUARY 15, 1987

between

PERUSAHAAN UMUM LISTRIK NEGARA

and

TOKYO ELECTRIC POWER SERVICES CO., LTD.
in association with
P.T. YODYA KARYA

for

ENGINEERING SERVICES
for
KOTAPANJANG HYDROELECTRIC POWER PROJECT
(PRE-CONSTRUCTION)

MEMORANDUM NO. 5

TO AGREEMENT NO.PJ.007/PST/1987, DATED JANUARY 15, 1987

between

PERUSAHAAN UMUM LISTRIK NEGARA

and

TOKYO ELECTRIC POWER SERVICES CO., LTD.
in association with
P.T. YODYA KARYA

for

ENGINEERING SERVICES
for
KOTAPANJANG HYDROELECTRIC POWER PROJECT
(PRE-CONSTRUCTION)

This Memorandum made and entered into this 22nd day of the month April in the year 1989 between PERUSAHAAN UMUM LISTRIK NEGARA (hereinafter referred to as "PLN") a Perusahaan Umum (State Owned Public Corporation) duly establish and existing under the laws of the Republic of Indonesia with its main office located at Jalan Trunojoyo Blok M I/135, Kebayoran Baru, Jakarta Selatan, Indonesia, on the one part, and TOKYO ELECTRIC POWER SERVICES CO., LTD. with its main office located at No.1-4, Uchisaiwai-cho 2-chome, Chiyoda-ku, Tokyo 100, Japan in association with P.T. YODYA KARYA with its main office located at Jalan D.I. Panjaitan, Kaveling 8, Cawang, Jakarta, Indonesia (hereinafter referred to as the "ENGINEER") on the other part,

and considering that the SERVICES for additional work of Pre-construction for the PROJECT is required, witnesseth that both parties covenant, promise and agree that in accordance with Article 9, Change, Modification or Amendment, the following amendment is made to the AGREEMENT.

I. The ENGINEER shall provide the SERVICES for the additional work of Pre-Construction for the PROJECT.
The scope of the SERVICES are shown in Annex 1 attached hereto.

II. The shedule of Engineering Services for Kotapanjang Hydro-electric Power Project and the Additional Works as shown in Annexes 2 and 3 attached hereto.
The commencement of the SERVICES shall start within 4 weeks after the date of signing of this Memorandum.

III. Man-Months for the additional work in this Memorandum are as follows :

FOREIGN ENGINEER			LOCAL ENGINEER		
H.O.	F.O.	TOTAL	H.O.	F.O.	TOTAL
2.0 M/M	26.0 M/M	28.0 M/M	0 M/M	19 M/M	19 M/M

The Manning Schedule is shown in Annex 4, attached hereto.

IV. The summary of the total cost estimate for additional work covered by this Memorandum is as follows :

FOREIGN CURRENCY PORTION	LOCAL CURRENCY PORTION
Y 68,583,520.-	Rp.130,602,390.-

The breakdown of these costs estimate for the additional work are shown in Annexes 5 and 6 attached hereto.

V. The total cost included in this Memorandum shall be financed from the Contingency Amount plus the reallocation cost of the AGREEMENT as shown in Annexes 7 and 8 attached hereto.

The schedule of payment is shown in Annex 9 attached hereto.

VI. All other terms and conditions of the AGREEMENT No.PJ.007/PST/1987, remain in force except as amended herein.

VII. This Memorandum is an integral part of the AGREEMENT No.PJ.007/PST/1987 and is therefore binding.

In witness whereof, PLN and the ENGINEER have caused this Memorandum to be signed by their duly authorized representative as the day and year written above.

For and on behalf of
the ENGINEER

TEPSCO JAKARTA

TATSUO KITA
Representative in
Indonesia

For and on behalf of
PERUSAHAAN UMUM LISTRIK NEGARA

PERUSAHAAN UMUM LISTRIK NEGARA DIREKSI

METERAI TEMPEL 1000 SERIBU RUPIAH

IR. MOHD. SINGGIH
Director of Planning

TOKYO ELECTRIC POWER SERVICES CO., LTD.

HIBIYA CHUNICHI BLDG.
1-4, UCHISAIWAI-CHO, 2-CHOME,
CHIYODA-KU, TOKYO 100, JAPAN
TEL. (03) 506-6000

TELEX:TEPSCO J25674
CABLE ADDRESS:TEPSCO JAPAN
TELFACS: (03) 501-7880

Tokyo, January , 1987

POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS:

That we, Tokyo Electric Power Services Co., Ltd., a company organized and existing under the laws of Japan, having its office at 1-4, Uchisaiwai-cho 2-chome, Chiyoda-ku, Tokyo, Japan, do hereby make, appoint Mr. TATSUO KITA Representative in Indonesia, our true and lawful attorney in fact to act for us, on our behalf, and in our name, by investing him with the following powers for implementation of the Engineering Services for Design on Kotapanjang Hydro-electric Power Project.

To make sign of the Agreement as well as its relative documents regarding engineering consulting services.

IN WITNESS WHEREOF, we have caused this POWER OF ATTORNEY to be executed in our name by our Managing Director, MOTOTSUNE IWATA, thereunto duly authorized, in Tokyo, Japan 1st day of August, 1986.

TOKYO ELECTRIC POWER SERVICES CO., LTD.

Mototsune Iwata

DR. MOTOTSUNE IWATA
Managing Director

LIST OF ANNEXES

Scope of the SERVICES for Additional Works

1. OBJECTIVE

Objective of the Pre-construction Engineering Services will be as follows :

1.1. To undertake and study/analyze additional geological investigation works and survey works for the design purpose.

i) In-situ Block Shear Test

To undertake in-situ block shear test in order to confirm the previous test results in the Feasibility Study.

The location of in-situ block shear test is shown in Fig. 1 to Fig. 3.

ii) Topographic Survey for the Dam and Powerhouse

The detailed topographical survey, particularly of the dam site, power station site and their vicinity and produce maps for extending the accuracy for the purpose of design.

iii) Border Line Survey for the Gravel Pits

The detailed border line survey of the gravel pits for land acquisition shall be done by the Engineer.

1.2. Resettlement Investigation

The Engineer's assistance to PLN, in the investigation for the location and land potential of the resettlement area.

1.3. To Prepare Pre-construction Drawings for Civil Works (Lot-I)

The pre-construction drawings which can be prepared for civil works (Lot-I), shall be prepared by the Engineer prior to commencement of the construction works.

1.4. To Prepare Implementation of the Project

The Engineer shall propose a scheme of project management system for the purpose of construction management of the Project.

2. SCOPE OF THE SERVICES

The scope of the services to be performed by the Engineer shall include but not necessarily be limited to the following :

2.1. Additional Geological Investigation and Survey Works

To undertake the additional geological investigation (by hiring local contractor) and survey works which include at least the following :

i) The additional geological investigation at the left bank of test adit of dam axis, the block shear test shall be undertaken, analyzed and concluded for confirmation of the shearing strength.

The test aims to know the shearing strength between concrete and foundation rock.

ii) An accurate site topographical survey and installation of bench marks for design and construction shall be added for the main structures area especially at portal areas of diversion tunnel, dam and power house in order to :

- Provide bench marks for construction
- Reduce the possibility of having to make unexpected design changes.
- To prepare pre-construction drawings for civil works.

iii) The border line survey at the Kuok and Pulau Gadang gravel pits shall be undertaken for the acquisition of land.

The area of acquisition plan prepared by design stage of engineering services.

2.2. Resettlement Investigation

In the design stage of engineering services, PLN and the Engineer shall prepare the enviromental reports, and resettlement area for the submerged area proposed by the reports.

In this stage, the Engineer assistance to PLN for the detailed investigation of the location and land potential.

2.3. Pre-construction Drawings for Civil Works (Lot-I)

Pre-construction drawings for diversion works and gravel pits of Civil Works (Lot-I), shall be prepared by the Engineer prior to commencement of the construction works.

The number of such drawings is estimated to be 50 - 70 sheets. These pre-construction drawings may be modified on site after start of construction so that they meet the site conditions.

2.4. Implementation of the Project.

i) The Engineer shall collect information/data of construction management system utilized in other hydroelectric power development projects in Indonesia, and analyze the systems and the outcome of the application of the systems covering all aspects of construction management of the projects.

The items includes the following :

a. System for controlling progress, through the Project Plan.

b. System for cost estimate and disbursement schedule.

c. System and procedure for supervision based on tender document.

d. Check list and diagrams of inter-relationship, stating the responsibility of PLN as Project Manager, the Engineer and Contractors, indicating dates of completion for each responsibility, flow of documents and flow of decisions.

e. System and procedure of variation work.

f. Reporting system.

g. System of measurement work.

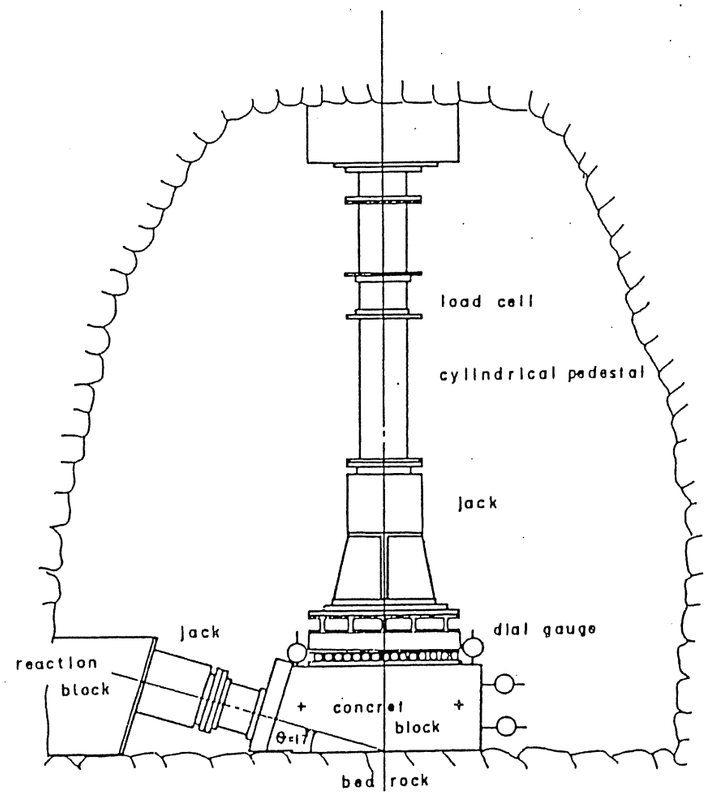
h. Accounting system.

ii) The Engineer shall prepare a procedure of project management system based on the Construction Planning and Program and other relevant documents of the Project.
The detailed work scope shall be determined through discussion between PLN and the Engineer.

2.5. Specification and Number of Documents/Reports to be Submitted

	Document's Titles	Copies
(1)	Specification and Program for Investigation/Survey	5 copies
(2)	Final Specification and Program for Investigation/Survey	5 copies
(3)	Draft Investigation/Survey Reports	10 copies
(4)	Final Investigation/Survey Reports	15 copies
(5)	Draft Pre-construction Drawings for Civil Works	10 copies
(6)	Final Pre-construction Drawings for Civil Work	15 copies
(7)	Draft Project Management Plan	10 copies
(8)	Final Project Management Plan	15 copies

FIG.-3 IN-SITU BLOCK SHEAR TEST



Main Equipment

Name	Unit	Quantity
Hydraulic Jack(100^{ton})	Set	1
Hydraulic Jack(150^{ton})	〃	2
Load cell	〃	3
Strain meter	〃	1
Dial gauge	〃	10

Annex - 3

TENTATIVE SCHEDULE
OF
ADDITIONAL WORKS (PRE-CONSTRUCTION)
OF
ENGINEERING SERVICES
FOR
KOTAPANJANG HYDROELECTRIC POWER PROJECT

YEAR	1989										1990				
MONTH	Feb.	Mar.	Apr.	May	Jun.	July	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May
					Period of Engineering Services								Expire Date of L/A (Feb.15)			
1.Additional Geological Investigation and Survey Works																
1.1.Geological Investigation																
(1) In-situ Block Shear Test																
a) Preparation of Tender Document																
b) Tendering & Contracting																
c) Trimming																
d) Preparation of Test																
e) Test																
f) Cleaning up																
g) Analysis & reporting																
1.2.Survey Works																
(1) Topographic Survey for the Dam and Powerhouse																
a) Preparation of Works																
b) Bench Mark Survey																
c) Topographical Survey for Portal Areas of Diversion Tunnels																
d) Topographical Survey for Dam and Powerhouse																
(2) Border Line Survey for the gravel Pits																
a) Preparation of Works																
b) Bench Mark Survey																
c) Border Line Survey																
2.Resettlement Investigation																
(1) Location Survey																
(2) Land Potential Investigation																
3.Preparation of Pre-construction Drawings																
(1) Drawings for Diversion Works																
a) Diversion Tunnels																
-Excavation																
-Tunnel Works																
-Tunnel Plug Works																
-Inlet																
-Outlet																
b) Cofferdams																
-Primary Cofferdams																
-Main Cofferdams																
-Removal of Cofferdams																
(2) Drawings for Gravel Pits																
-Site Clearing & Grubbing																
-Excavation																
4.Implementation of the Project																
(1) Management Plan																
(2) Manpower Plan																
(3) Management Procedure and Progress																
(4) Preparation of Quantity Control Procedure																
(5) Financial Analysis																

Annex - 4

TENTATIVE MANNING SCHEDULE

Position	Name	Man-Months			Trips		Month Order							
		H.O.	F.O.	TOTAL	Mobilization	Duty Trip	1	2	3	4	5	6	7	8
I.Pre-construction Stage														
1.Additional Geological Investigation , Survey and Landslide Investigation		0.0	13.0	13.0	6	2								
1) Geologist (TEPSCO)	M. Fujieda	0.0	4.0	4.0	2	1	======		July 17	======	======	======		
2) Geologist (YODYA KARYA)	Damai Putra	0.0	4.0	4.0	2	1	======			Aug	Sept	Oct		
3) Surveyor (TEPSCO)	S. Shirahama	0.0	2.0	2.0	1	0	======	======						
4) Surveyor (YODYA KARYA)	Rachmansyah	0.0	3.0	3.0	1	0	======	======	======					
2.Resettlement Investigation		0.0	4.0	4.0	2	0								
1) Environmental Expert (YODYA KARYA)	Soedigdo Wiryowidagdo	0.0	4.0	4.0	2	0		======		======	======	======		
3.Pre-construction Drawings for Civil Works		0.0	13.0	13.0	4	4			======	======	======	======		
1) Civil Engineer (1) (TEPSCO)	H. Mori	0.0	4.0	4.0	1	1			======	======	======	======		
2) Civil Engineer (2) (TEPSCO)	Y. Yoshida	0.0	6.0	6.0	2	2		======	======		======	======	======	======
3) Civil Engineer (3) (YODYA KARYA)	Ari Mahatmanto	0.0	3.0	3.0	1	1			======	======	======			
4.Implementation of the Project		2.0	15.0	17.0	5	6								
1) Procedure and Progress (1) (TEPSCO)	A. Niwa	1.0	4.0	5.0	1	2	------	======	======	======	======			
2) Procedure and Progress (2) (YODYA KARYA)	Sodikin BRE	0.0	3.0	3.0	1	1		======	======	======				
3) Quantity Control Engineer (1) (TEPSCO)	Y. Suzuki	1.0	3.0	4.0	1	2	------	======	======	======				
4) Quantity Control Engineer (2) (YODYA KARYA)	Achmad Zainuddin	0.0	2.0	2.0	1	0			======	======				
5) Financial Analyst (TEPSCO)	T. Hayashi	0.0	3.0	3.0	1	1		======	======	======				
	TEPSCO	2.0	26.0	28.0	9	9								
	YODYA KARYA	0.0	19.0	19.0	8	3								
	TOTAL	2.0	45.0	47.0	17	12								

H.O. : ------
F.O. : ======

NO.	ITEM	ESTIMATED AMOUNT
		(UNIT : YEN)
1.	FOREIGN CURRENCY PORTION	68,583,520
1.1	MONTHLY RATES for TEPSCO	52,865,000
	a.HOME OFFICE 2.0 M.M. (See Annex 5.1)	3,492,000
	b.FIELD OFFICE 26.0 M.M. (See Annex 5.1)	49,373,000
1.2	Out-of-Pocket Expenses	15,622,600
(1)	International Round Air Trip	5,129,800
	a.Air Fare (TKY/JKT/PKU/JKT/TKY) *) Y 372,700/Trip x 9 Trips =	3,354,300
	b.Excess Baggage *) Y 2,740/kg x 20 kg/Trip x 9 Trips =	493,200
	c.Mobilization Cost	
	- First Trip Y 67,700/Trip x 7 Trips =	473,900
	- Second Trip Y53,200/Trip x 2 Trips =	106,400
	- Surface Transportation Y 63,000/Trip x 9 Trips =	567,000
	d.Per Diem Allowance during Travel Y 7,500/Day x 2 Days/Trip x 9 Trips =	135,000
(2)	Communication and Mail (Monthly fixed unit rate)	1,600,000
	a.International Communication Cost Y 100,000/Month x 8 Months =	800,000
	b.International Transportation Cost Y 100,000/Month x 8 Months =	800,000
(3)	Office Supply (Monthly fixed unit rate) Y 150,000/Month x 8 Months =	1,200,000
(4)	Printing (Monthly fixed unit rate) Y 137,500/Month x 8 Months =	420,000 1,100,000
(5)	Per Diem Allowance for Field Personnel without Residence (Actual allocation basis) TEPSCO Y 7,700/Day x 30 Days/Month x 18 Months =	4,158,000
(6)	Per Diem Allowance for TEPSCO Duty Trip (Duty trip basis) Y 3,400/Day x 3 Days/Trip x 9 Trips =	91,800
(7)	Per Diem Allowance for TEPSCO Field Trip (Field trip day basis) Y 1,900/Day x 30 Days/Month x 1 Month =	57,000
(8)	Car Expenditure (Schedule of payment basis) Y 76,200/C.M x 30 C.M.=	2,286,000
1.3	Contingency	95,920

*) IATA Rate subject to change

MONTHLY RATES FOR TEPSCO

Position	Name	Field Office			Home Office			Total
		M.M.	Rate (Yen)	Amount (Yen)	M.M.	Rate (Yen)	Amount (Yen)	Amount (Yen)
I.Pre-construction Stage								
1.Additional Geological Investigation , Survey and Landslide Investigation								
1) Geologist (TEPSCO)	M. Fujieda	4.0	1,996,000	7,984,000	0.0	1,796,000	0	7,984,000
2) Geologist (YODYA KARYA)	Damai Putra	4.0	0	0	0.0	0	0	0
3) Surveyor (TEPSCO)	S. Shirahama	2.0	2,300,000	4,600,000	0.0	2,070,000	0	4,600,000
4) Surveyor (YODYA KARYA)	Rachmansyah	3.0	0	0	0.0	0	0	0
2.Resettlement Investigation								
1) Environmental Expert (YODYA KARYA)	Soedigdo Wiryowidagdo	4.0	0	0	0.0	0	0	0
3.Pre-construction Drawings for Civil Works								
1) Civil Engineer (1) (TEPSCO)	H. Mori	4.0	2,250,000	9,000,000	0.0	2,025,000	0	9,000,000
2) Civil Engineer (2) (TEPSCO)	Y. Yoshida	6.0	1,392,000	8,352,000	0.0	1,253,000	0	8,352,000
3) Civil Engineer (3) (YODYA KARYA)	Ari Mahatmanto	3.0	0	0	0.0	0	0	0
4.Implementation of the Project								
1) Procedure and Progress (1) (TEPSCO)	A. Niwa	4.0	2,250,000	9,000,000	1.0	2,025,000	2,025,000	11,025,000
2) Procedure and Progress (2) (YODYA KARYA)	Sodikin BRE	3.0	0	0	0.0	0	0	0
3) Quantity Control Engineer (1) (TEPSCO)	Y. Suzuki	3.0	1,630,000	4,890,000	1.0	1,467,000	1,467,000	6,357,000
4) Quantity Control Engineer (2) (YODYA KARYA)	Achmad Zainuddin	2.0	0	0	0.0	0	0	0
5) Financial Analyst (TEPSCO)	T. Hayashi	3.0	1,849,000	5,547,000	0.0	1,664,000	0	5,547,000
	TEPSCO	26.0		49,373,000	2		3,492,000	52,865,000
	YODYA KARYA	19.0		0	0		0	0
	TOTAL	45.0		49,373,000	2		3,492,000	52,865,000

COST BREAKDON OF LOCAL CURRENCY PORTION (1/2)

Annex - 6

NO.	ITEM	ESTIMATED AMOUNT
		(UNIT : Rp.)
2.	INDONESIA RUPIAH PORTION	130,602,390
2.1	MONTHLY RATES for Y.K. FIELD OFFICE 19.0 M.M. (See Annex 6.1)	39,429,000 39,429,000
2.2	Out-of-Pocket Expenses	43,902,960
(1)	Mobilization and Demobilization Cost	4,481,760
	a.Air Fare (JKT/PKU/JKT) *) Rp.263,100/Trip x 8 trips =	2,104,800
	b.Excess Baggage *) Rp.2,631/kg x 20kg/Trip x 8 Trips =	420,960
	c.Taxi Charge - Jakarta (Air Port - Hotel) TEPSCO Rp.18,000/Way x 4Ways/trip x 9 Trips =	648,000
	Y.K. Rp.18,000/Way x 2Ways x 8Trips =	288,000
	- Pekanbaru (Air Port - Site) TEPSCO Rp.30,000/Way x 2Ways x 9 Trips =	540,000
	Y.K. Rp.30,000/Way x 2Ways x 8Trips =	480,000
(2)	Duty Trip Expences	4,021,200
	a.Air Fare (PKU/JKT/PKU) TEPSCO Rp.263,100/Trip x9 Trips =	2,367,900
	Y.K. Rp.263,100/Trip x 3 Trips =	789,300
	b.Taxi Charge - Jakarta TEPSCO Rp.72,000/Trip x 9 Trips =	648,000
	Y.K. Rp.72,000/Trip x 3 Trips =	216,000
(3)	Per Diem Allowance for Y.K. Field Trip Rp.20,000/Day x 30 Days/Month x 0.5 Month =	300,000
(4)	Per Diem Allowance for Y.K. FIELD PERSONNEL without Residence Rp.35,000/Day x 30Days/Mon. x 5 Months =	5,250,000
(5)	Office Expenditure (Monthly fixed unit rate)	7,500,000
	a. Xerox Copy Rp.600,000 x 6 Months =	3,600,000
	b. Office Supply and Consumables Rp.650,000/Month x 6 Months =	3,900,000
(6)	Communication and Mail (Monthly fixed unit rate) Rp.835,000/Month x 8 Months =	6,680,000

100,000 Rp/month

*) Garuda Rate subject to change

COST BREAKDON OF LOCAL CURRENCY PORTION (2/2)

NO.	ITEM	ESTIMATED AMOUNT (UNIT : Rp.)
(7)	Drawing and Tracing (Monthly fixed unit rate) Rp.700,000/Month x 6 Months =	4,200,000
(8)	Salary of Local Employees (Schedule of payment basis)	11,470,000
	a.Administrator 1 Persons x Rp.700,000/Month x 6 Months =	4,200,000
	b.Secretary 1 Person x Rp.450,000/Month x 6 Months =	2,700,000
	c.Typist,Operator (1pers.x8Mon.+1Pers.x5Mon.)xRp.250,000/Month =	3,250,000
	d.Office Boy (1Pers.x5Mon.)x Rp.120,000/Month =	600,000
	e.Janitor 1 Persons x 6 Months x Rp.120,000/Month =	720,000
2.3	Survey Works a.Resettlement Investigation	13,419,430
2.4	Geological Investigation .Block shear test	33,851,000
2.5	Test Works	0
2.6	Contingency	0

MONTHLY RATES FOR YODYA KARYA

Annex - 6.1.

Position	Name	Field Office			Home Office			Total
		M.M.	Rate (Rp.)	Amount (Rp.)	M.M.	Rate (Rp.)	Amount (Rp.)	Amount (Rp.)
I.Pre-construction Stage								
1.Additional Geological Investigation , Survey and Landslide Investigation								
1) Geologist (TEPSCO)	M. Fujieda	4.0	0	0	0.0	0	0	0
2) Geologist (YODYA KARYA)	Damai Putra	4.0	1,812,000	7,248,000	0.0	0	0	7,248,000
3) Surveyor (TEPSCO)	S. Shirahama	2.0	0	0	0.0	0	0	0
4) Surveyor (YODYA KARYA)	Rachmansyah	3.0	2,060,000	6,180,000	0.0	0	0	6,180,000
2.Resettlement Investigation								
1) Environmental Expert (YODYA KARYA)	Soedigdo Wiryowidagdo	4.0	2,730,000	10,920,000	0.0	0	0	10,920,000
3.Pre-construction Drawings for Civil Works								
1) Civil Engineer (1) (TEPSCO)	H. Mori	4.0	0	0	0.0	0	0	0
2) Civil Engineer (2) (TEPSCO)	Y. Yoshida	6.0	0	0	0.0	0	0	0
3) Civil Engineer (3) (YODYA KARYA)	Ari Mahatmanto	3.0	1,490,000	4,470,000	0.0	0	0	4,470,000
4.Implementation of the Project								
1) Procedure and Progress (1) (TEPSCO)	A. Niwa	4.0	0	0	1.0	0	0	0
2) Procedure and Progress (2) (YODYA KARYA)	Sodikin BRE	3.0	2,217,000	6,651,000	0.0	0	0	6,651,000
3) Quantity Control Engineer (1) (TEPSCO)	Y. Suzuki	3.0	0	0	1.0	0	0	0
4) Quantity Control Engineer (2) (YODYA KARYA)	Achmad Zainuddin	2.0	1,980,000	3,960,000	0.0	0	0	3,960,000
5) Financial Analyst (TEPSCO)	T. Hayashi	3.0	0	0	0.0	0	0	0
	TEPSCO	26.0		0	2		0	0
	YODYA KARYA	19.0		39,429,000	0		0	39,429,000
	TOTAL	45.0		39,429,000	2		0	39,429,000

Annex - 7

BUDGET STATUS OF FOREIGN CURRENCY PORTION

(Unit : Yen)

Item No.	Item	Agreement Amount	Actual Disbursement up to No.8 Invoice	Balance	Memorandum No.5 (Pre-construction)
1.1	MONTHLY RATES	491,603,700	487,506,726	4,096,974	52,865,000
(1)	MONTHLY RATES for TEPSCO	473,797,500	469,822,229	3,975,271	52,865,000
(2)	MONTHLY RATES for Y.K.	17,806,200	17,684,497	121,703	0
1.2	Out-of-Pocket Expenses	274,985,600	263,509,754	11,475,846	15,622,600
(1)	International Round Air Trip	37,294,700	33,732,554	3,562,146	5,129,800
(2)	Communication and Mail	15,456,000	15,456,000	0	1,600,000
(3)	Office Supply	4,000,000	4,000,000	0	1,200,000
(4)	Printing	28,000,000	28,000,000	0	1,100,000
(5)	Computer Charge	28,000,000	28,000,000	0	0
(6)	Various Analysis and Tests	29,000,000	29,000,000	0	0
(7)	Drawing and Tracing	26,400,000	26,400,000	0	0
(8)	Aerial Photogrammetry Mapping	20,500,000	12,500,000	8,000,000	0
(9)	Equipment for Investigation Works	33,062,000	33,062,000	0	0
(10)	Participation of PLN Personnel to the SERVICES	13,863,000	16,642,000	(2,779,000)	0
(11)	Documentary Film	15,000,000	15,000,000	0	0
(12)	Per Diem Allowance for TEPSCO FIELD PERSONNEL without Residence	9,702,000	7,476,700	2,225,300	4,158,000
(13)	Per Diem Allowance for TEPSCO Duty Trip	571,200	571,200	0	91,800
(14)	Per Diem Allowance for TEPSCO Field Trip	723,900	256,500	467,400	57,000
(15)	Office Rental at Pekanbaru	1,830,400	1,830,400	0	0
(16)	Car Expenditure	11,582,400	11,582,400	0	2,286,000
1.3	CONTINGENCY	53,010,700	0	53,010,700	95,920
	TOTAL	819,600,000	751,016,480	68,583,520	68,583,520

BUDGET STATUS OF LOCAL CURRENCY PORTION

Annex - 8

(Unit:Rp)

Item No.	Item	Agreement Amount	Actual Disbursement up to No.8 Invoice	Balance	Memorandum No.5 (Pre-construction)
2.1	MONTHLY RATES for Y.K.	106,330,000	106,054,880	275,120	39,429,000
2.2	Out-of-Pocket Expenses	584,856,400	576,583,700	8,272,700	43,902,960
(1)	Mobilization and Demobilization Cost	28,573,400	25,994,000	2,579,400	4,481,760
(2)	Duty Trip Expenses	24,768,000	24,768,000	0	4,021,200
(3)	Per Diem Allowance for Y.K. FIELD Trip	9,060,000	8,580,000	480,000	300,000
(4)	Per Diem Allowance for Y.K. FIELD PERSONNEL without Residence	15,225,000	11,200,700	4,024,300	5,250,000
(5)	Office and House Rental	197,575,000	197,575,000	0	0
(6)	Office Expenditure	168,000,000	168,000,000	0	7,500,000
(7)	Communication and Mail	13,360,000	13,360,000	0	6,680,000
(8)	Helicopter Expences	21,025,000	19,836,000	1,189,000	0
(9)	Drawing and Tracing	24,000,000	24,000,000	0	4,200,000
(10)	Salaly for Local Employees	83,270,000	83,270,000	0	11,470,000
2.3	Survey Works	456,422,900	431,317,600	25,105,300	13,419,430
4	Geological Investigation Works	373,867,600	473,197,299	(99,329,699)	33,851,000
2.5	Test Works	431,941,000	352,867,131	79,073,869	0
2.6	Contingency	117,205,100	0	117,205,100	0
	Total	2,070,623,000	1,940,020,610	130,602,390	130,602,390

SCHEDULE OF PAYMENT

Annex - 9

Item No.	Item	Memorandum No.5 (Pre-construction)	1st Invoice	2nd Invoice	3rd Invoice	4th Invoice
1.	FOREIGN CURRENCY PORTION	(Yen)	(Yen)	(Yen)	(Yen)	(Yen)
1.1	MONTHLY RATES	52,865,000	17,209,000	19,346,000	13,526,000	2,784,000
(1)	MONTHLY RATES for TEPSCO	52,865,000	17,209,000	19,346,000	13,526,000	2,784,000
1.2	Out-of-Pocket Expenses	15,622,600	5,149,100	4,932,150	3,672,600	1,868,750
(1)	International Round Air Trip	5,129,800	2,292,800	1,425,750	1,131,900	279,350
(2)	Communication and Mail	1,600,000	400,000	400,000	400,000	400,000
(3)	Office Supply	1,200,000	300,000	300,000	300,000	300,000
(4)	Printing	1,100,000	275,000	275,000	275,000	275,000
(5)	Per Diem Allowance for TEPSCO FIELD PERSONNEL without Residence	4,158,000	1,270,500	1,617,000	808,500	462,000
(6)	Per Diem Allowance for TEPSCO Duty Trip	91,800	20,400	0	71,400	0
(7)	Per Diem Allowance for TEPSCO Field Trip	57,000	57,000	0	0	0
(8)	Car Expenditure	2,286,000	533,400	914,400	685,800	152,400
	TOTAL	68,487,600	22,358,100	24,278,150	17,198,600	4,652,750
2.	LOCAL CURRENCY PORTION	(Rp.)	(Rp.)	(Rp.)	(Rp.)	(Rp.)
2.1	MONTHLY RATES for Y.K.	39,429,000	10,879,000	17,976,000	10,574,000	0
2.2	Out-of-Pocket Expenses	43,902,960	9,398,460	12,841,220	16,107,080	5,556,200
(1)	Mobilization and Demobilization Cost	4,481,760	1,763,160	1,771,020	881,580	66,000
(2)	Duty Trip Expenses	4,021,200	1,005,300	670,200	1,675,500	670,200
(3)	Per Diem Allowance for Y.K. FIELD Trip	300,000	300,000	0	0	0
(4)	Per Diem Allowance for Y.K. FIELD PERSONNEL without Residence	5,250,000	0	1,050,000	4,200,000	0
(5)	Office Expenditure	7,500,000	1,250,000	2,500,000	2,500,000	1,250,000
(6)	Communication and Mail	6,680,000	1,670,000	1,670,000	1,670,000	1,670,000
(7)	Drawing and Tracing	4,200,000	0	1,400,000	1,400,000	1,400,000
(8)	Salaly for Local Employees	11,470,000	3,410,000	3,780,000	3,780,000	500,000
2.3	Survey Works	13,419,430	0	4,025,000	9,394,430	0
2.4	Geological Investigation Works	33,851,000	0	10,155,300	23,695,700	0
2.5	Test Works	0	0	0	0	0
	Total	130,602,390	20,277,460	44,997,520	59,771,210	5,556,200

Note : The contingency amount is not included in the schedule.

MEMORANDUM NO. 6

TO AGREEMENT NO.PJ.007/PST/1987, DATED JANUARY 15, 1987

between

PERUSAHAAN UMUM LISTRIK NEGARA

and

TOKYO ELECTRIC POWER SERVICES CO., LTD.
in association with
P.T. YODYA KARYA

for

ENGINEERING SERVICES
for
KOTAPANJANG HYDROELECTRIC POWER PROJECT

MEMORANDUM NO. 6

TO AGREEMENT NO.PJ.007/PST/1987, DATED JANUARY 15, 1987

between

PERUSAHAAN UMUM LISTRIK NEGARA

and

TOKYO ELECTRIC POWER SERVICES CO., LTD.
in association with
P.T. YODYA KARYA

for

ENGINEERING SERVICES
for
KOTAPANJANG HYDROELECTRIC POWER PROJECT

This Memorandum made and entered into this 23rd day of the month November in the year 1989 between PERUSAHAAN UMUM LISTRIK NEGARA (hereinafter referred to as "PLN") a Perusahaan Umum (State Owned Public Corporation) duly establish and existing under the laws of the Republic of Indonesia with its main office located at Jalan Trunojoyo Blok M I/135, Kebayoran Baru, Jakarta Selatan, Indonesia, on the one part, and TOKYO ELECTRIC POWER SERVICES CO., LTD. with its main office located at No.1-4, Uchisaiwai-cho 2-chome, Chiyoda-ku, Tokyo 100, Japan in association with P.T. YODYA KARYA with its main office located at Jalan D.I. Panjaitan, Kaveling 8, Cawang, Jakarta, Indonesia (hereinafter referred to as the "ENGINEER") on the other part,

and considering that the Prequalification Engineering Services for Lot-I Civil Works of the PROJECT is required, witnesseth that both parties covenant, promise and agree that in accordance with Article 9, Change, Modification or Amendment, the following amendment is made to the AGREEMENT.

I. The ENGINEER shall provide the additional services to assist execution of prequalification for Civil Works Lot-I.

The scope of the SERVICES is defined in detail in Annex 1 of this Memorandum.

II. The Time and Manning Schedules of this Memorandum are enclosed under Annexes 2 and 3.

The SERVICES for Pre-construction Engineering Services have actually been started on April 22, 1989, therefore, the SERVICES shall be completed on May 21, 1990 as the result of the conclusion of this Memorandum No.6.

III. The summary of the total cost estimate for the SERVICES covered by this Memorandum is Rp. 75,000,000,- (excluding VAT).

The breakdown of these costs are given in Annex 4 of this Memorandum.

IV. The total cost for the SERVICES included in this Memorandum will be financed from the budget of PLN (APLN) as shown in Annexes 5 and 6 of this Memorandum.

The Remuneration and Payments for the SERVICES covered by this Memorandum is shown in Annex 7 of this Memorandum.

The schedule of payment is shown in Annex 8 of this Memorandum.

V. VAT (Value Added Tax/PPN) of Rp. 7,500,000,- of this Memorandum will be borne by PLN.

VI. All other terms and conditions of the AGREEMENT No.PJ.007/PST/1987, remain unchanged and shall be in force.

VII. This Memorandum No.6 is an integral part of the AGREEMENT No.PJ.007/PST/1987 and is therefore binding.

In witness whereof, PLN and the ENGINEER have caused this Memorandum to be signed by their duly authorized representatives as of the day and year written above.

For and on behalf of
TOKYO ELECTRIC POWER SERVICES CO., LTD.

YUZO YANO
Representative in Indonesia

For and on behalf of
PERUSAHAAN UMUM LISTRIK NEGARA

IR. MOHD. SINGGIH
Director of Planning

TOKYO ELECTRIC POWER SERVICES CO., LTD.

HIBIYA CHUNICHI BLDG.
1-4, UCHISAIWAI-CHO, 2-CHOME,
CHIYODA-KU, TOKYO 100, JAPAN
TEL. (03) 506-6000

TELEX:TEPSCO J25674
CABLE ADDRESS:TEPSCO JAPAN
TELFACS: (03)501-7880

POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS :

That the undersigned, Tokyo Electric Power Services Co., Ltd., a company duly organized and existing under the laws of Japan, with its principal offices at 1-4, Uchisaiwaicho 2-chome, Chiyoda-ku, Tokyo, Japan, does hereby make, constitute and appoint Mr. Yuzo Yano, acting as its true and lawful attorney-in-fact to represent the undersigned as fully as the undersigned might do if done in its own capacity, as follows :

1. to negotiate, execute and deliver a contract between the undersigned and Perusahaan Umum Listrik Negara providing for the supply by the undersigned of certain engineering services to Perusahaan Umum Listrik Negara for and in connection with the Kotapanjang Hydro-electric Power Project, Republic of Indonesia ; and

2. to receive, accept, execute and deliver further documents and do all other acts and things necessary or advisable to be done under or in connection with the execution of the said contract.

IN WITNESS WHEREOF, the undersigned has caused this instrument to be duly executed by Dr. Mototsune Iwata, thereto duly authorized, in Tokyo, Japan this 24th day of July, 1989.

TOKYO ELECTRIC POWER SERVICES CO., LTD.

by: Mototsune Iwata
Dr. Mototsune Iwata
Director Emeritus,
Technical Assistant to President

LIST OF ANNEXES

SCOPE OF THE SERVICES FOR ADDITIONAL WORKS

1. OBJECTIVES

To assist execution of prequalification for civil works (Lot-I).

The Project will be implemented in accordance with the implementation schedule. Based on the implementation schedule, the prequalification for civil works will be advertised.

PLN wishes the Engineer to assist the execution of prequalification in order to smooth the implementation and keep the schedule of the Project.

2. SCOPE OF SERVICES

The Scope of Services to be performed by the Engineer shall include but not necessarily be limited to the following :

- Assist PLN in performing the Prequalification for the Civil works Lot-I.

- Assist PLN in preparing the material of prequalification and evaluating of contractors document.

The Engineer shall keep a full record of the prequalification to serve as guidance for tendering of the works.

TENTATIVE MANNING SCHEDULE

Annex - 3

ITEM	Name	1989 Nov.	Dec.	1990 Jan.	Feb.	Mar.	Apr.	May	Man-Month F.O.	H.O.	Total	Trip Mobilization
								21				
		Period of Pre-construction Engineering Services ===>										
(1) Financial Evaluation (Financial Analyst)	E. Goto					17==	====== 2.2 M/M	====21	2.2	0	2.2	1
(2) Technical Evaluation * (Civil Engineer)	Y. Yoshida					17==	====== 2.2 M/M	====21	2.2	0	2.2	1
								TOTAL	4.4	0	4.4	2

* Cost of Technical Evaluation (Civil Engineer) will be borne by the ENGINEER.

COST BREAKDOWN OF INDONESIAN RUPIAH PORTION (1/2) Annex - 4
PREQUALIFICATION ENGINEERING SERVICES
FOR
CIVIL WORKS LOT-I

Exchange Rates = Rp. 1234.69766/100 Yen

NO.	ITEM	ESTIMATED AMOUNT
		(Unit:Rp.)
I	MONTHLY RATES	51,610,362
(1)	MONTHLY RATES for Y.K.	0
(2)	MONTHLY RATES for TEPSCO FIELD OFFICE 2.2 M.M. 2.2 M.M. x Y 1,900,000/Month x Rp. 12.3469766/Y =	51,610,362
II	Out-of-Pocket Expenses	23,389,638
(1)	Mobilization and Demobilization Cost	36,000
	a. Air Fare (JKT/PKU/JKT)	0
	b. Excess Baggage	0
	c. Taxi Charge	
	- Jakarta (Air Port - Hotel) TEPSCO Rp. 18,000/Way x 2 Ways/Trip x 1 Trip =	36,000
(2)	Duty Trip Expenses	0
(3)	Per Diem Allowance for Y.K. Field Trip	0
(4)	Per Diem Allowance for Y.K. FIELD PERSONNEL without Residence	0
(5)	Office and House Rental	0
(6)	Office Expenditure (Monthly fixed unit rate)	2,750,000
	a. Xerox Copy Rp. 600,000/Month x 2.2 Months =	1,320,000
	b. Office Supply and Consumables Rp. 650,000/Month x 2.2 Months =	1,430,000
(7)	Communication and Mail (Monthly fixed unit rate) Rp. 500,000/Month x 2.2 Months =	1,100,000
(8)	Helicopter Expenses	0
(9)	Drawing and Tracing	0

COST BREAKDOWN OF INDONESIAN RUPIAH PORTION (2/2) Annex - 4
PREQUALIFICATION ENGINEERING SERVICES
FOR
CIVIL WORKS LOT-I

Exchange Rates = Rp. 1234.69766/100 Yen

NO.	ITEM	ESTIMATED AMOUNT
(10)	Salary for Local Employees (Schedule of payment basis)	1,804,000
	a. Secretary 1 Person x Rp.450,000/Month x 2.2 Months =	990,000
	b. Typist 1 Person x Rp. 250,000/Month x 2.2 Months =	550,000
	c. Office Boy 1 Person x Rp. 120,000/Month x 2.2 Months =	264,000
(11)	International Round Air Trip (Actual reimbursement basis)	5,959,639
	a. Air Fare (TKY/JKT/TKY) Y 286,200/Trip x 1 Trip x Rp. 12.3469766/Y =	3,533,705
	b. Excess Baggage Y 2539/kg x 20 kg/Trip x 1 Trip x Rp. 12.3469766/Y =	626,979
	c. Mobilization Cost - First Trip Y 67,700/Trip x 1 Trip x Rp. 12.3469766/Y =	835,890
	- Surface Transportation Y 63,000/Trip x 1 Trip x Rp. 12.3469766/Y =	777,860
	d. Per Diem Allowance during Travel Y 7,500/Day x 2 Days/Trip x 1 Trip x Rp. 12.3469766/Y =	185,205
(12)	Printing (Monthly fixed unit rate) Y 125,000/Month x 2.2 Months x Rp. 12.3469766/Y =	3,395,419
(13)	Per Diem Allowance for FIELD PERSONNEL without Residence TEPSCO Y 7,700/Day x 30 Days x 2.2 Months x Rp. 12.3469766/Y =	6,274,733
(14)	Car Expenditure Y 76,200/Car.Month x 2.2 Car.Months x Rp. 12.3469766/Y =	2,069,847
III	Total	75,000,000
IV	VAT (PPN) 10%	7,500,000

BUDGET STATUS OF FOREIGN CURRENCY PORTION

Annex - 5
(Unit : Yen)

Item No.	Item	Agreement Amount	Actual Disbursement up to No.8 Invoice	Balance	Memorandum No.5	Memorandum No.6
1.1	MONTHLY RATES	491,603,700	487,506,726	4,096,974	52,865,000	0
(1)	MONTHLY RATES for TEPSCO	473,797,500	469,822,229	3,975,271	52,865,000	0
(2)	MONTHLY RATES for Y.K.	17,806,200	17,684,497	121,703	0	0
1.2	Out-of-Pocket Expenses	274,985,600	263,509,754	11,475,846	15,622,600	0
(1)	International Round Air Trip	37,294,700	33,732,554	3,562,146	5,129,800	0
(2)	Communication and Mail	15,456,000	15,456,000	0	1,600,000	0
(3)	Office Supply	4,000,000	4,000,000	0	1,200,000	0
(4)	Printing	28,000,000	28,000,000	0	1,100,000	0
(5)	Computer Charge	28,000,000	28,000,000	0	0	0
(6)	Various Analysis and Tests	29,000,000	29,000,000	0	0	0
(7)	Drawing and Tracing	26,400,000	26,400,000	0	0	0
(8)	Aerial Photogrammetry Mapping	20,500,000	12,500,000	8,000,000	0	0
(9)	Equipment for Investigation Works	33,062,000	33,062,000	0	0	0
(10)	Participation of PLN Personnel to the SERVICES	13,863,000	16,642,000	(2,779,000)	0	0
(11)	Documentary Film	15,000,000	15,000,000	0	0	0
(12)	Per Diem Allowance for TEPSCO FIELD PERSONNEL without Residence	9,702,000	7,476,700	2,225,300	4,158,000	0
(13)	Per Diem Allowance for TEPSCO Duty Trip	571,200	571,200	0	91,800	0
(14)	Per Diem Allowance for TEPSCO Field Trip	723,900	256,500	467,400	57,000	0
(15)	Office Rental at Pekanbaru	1,830,400	1,830,400	0	0	0
(16)	Car Expenditure	11,582,400	11,582,400	0	2,286,000	0
1.3	CONTINGENCY	53,010,700	0	53,010,700	95,920	0
	TOTAL	819,600,000	751,016,480	68,583,520	68,583,520	0

BUDGET STATUS OF INDONESIAN RUPIAH PORTION

Annex - 6
(Unit:Rp)

Item No.	Item	Agreement Amount	Actual Disbursement up to No.8 Invoice	Balance	Memorandum No.5 Pre-construction	Memorandum No.6 Prequalification (APLN)
2.1	MONTHLY RATES	106,330,000	106,054,880	275,120	39,429,000	51,610,362
(1)	MONTHLY RATES for Y.K.	106,330,000	106,054,880	275,120	39,429,000	0
(2)	MONTHLY RATES for TEPSCO	-	-	-	-	51,610,362
2.2	Out-of-Pocket Expenses	584,856,400	576,583,700	8,272,700	43,902,960	23,389,638
(1)	Mobilization and Demobilization Cost	28,573,400	25,994,000	2,579,400	4,481,760	36,000
(2)	Duty Trip Expenses	24,768,000	24,768,000	0	4,021,200	0
(3)	Per Diem Allowance for Y.K. FIELD Trip	9,060,000	8,580,000	480,000	300,000	0
(4)	Per Diem Allowance for Y.K. FIELD PERSONNEL without Residence	15,225,000	11,200,700	4,024,300	5,250,000	0
(5)	Office and House Rental	197,575,000	197,575,000	0	0	0
(6)	Office Expenditure	168,000,000	168,000,000	0	7,500,000	2,750,000
(7)	Communication and Mail	13,360,000	13,360,000	0	6,680,000	1,100,000
(8)	Helicopter Expences	21,025,000	19,836,000	1,189,000	0	0
(9)	Drawing and Tracing	24,000,000	24,000,000	0	4,200,000	0
(10)	Salary for Local Employees	83,270,000	83,270,000	0	11,470,000	1,804,000
(11)	International Round Air Trip	-	-	-	-	5,959,639
(12)	Printing	-	-	-	-	3,395,419
(13)	Per Diem Allowance for FIELD PERSONNEL without Residence	-	-	-	-	6,274,733
(14)	Car Expenditure	-	-	-	-	2,069,847
2.3	Survey Works	456,422,900	431,317,600	25,105,300	13,419,430	0
2.4	Geological Investigation Works	373,867,600	473,197,299	(99,329,699)	33,851,000	0
2.5	Test Works	431,941,000	352,867,131	79,073,869	0	0
2.6	Contingency	117,205,100	0	117,205,100	0	0
	Total	2,070,623,000	1,940,020,610	130,602,390	* 130,602,390	* 75,000,000

* The total cost of Memorandum No.6 shall be financed from PLN on budget (APLN) and Memorandum No.5 shall be financed from the Contingency amount plus the reallocation cost of AGREEMENT.

Annex - 7

REMUNERATION AND PAYMENTS
FOR
ADDITIONAL WORKS

1. Remuneration

The total estimated cost of additional works payable in total currency is set forth in Annex - 4 and shall be provided by PLN.

Notwithstanding anything provided elsewhere in the Memorandum, the total payments under this Annex shall, however, not exceed the local currency ceiling amount of Indonesian Rupiah Rp. 75,000,000 (Seventy Five Million Rupiah).

2. Payment of the Indonesian rupiah Portion

Payment to the ENGINEER in Indonesia Rupiah up to the amount of Rp. 75,000,000 (Seventy Five Million Rupiah) shall be made after the effectiveness of this Memorandum by the GOVERNMENT against simple original receipt of the ENGINEER and according to the GOVERNMENT's regulation and procedure and after receiving certificate of performance to be issued by PLN.

2.1. The Indonesian Rupiah Portion shall cover the following items as set forth in Annex - 4.

(a) MONTHLY RATES

MONTHLY RATES shall be paid on the basis of the time actually spent by the PERSONNEL as supported by time sheets and by the applicable rates as set forth in the item I (2) of Annex - 4 and in accordance with ARTICLE 8.5 of AGREEMENT.

(b) Out-of Pocket Expenses

(i) Mobilization and Demobilization Cost

Taxi Charge shall be paid on the basis of actual trip at the fixed unit rates as set forth the item II (1) c. of Annex - 4.

(ii) Office Expenditure

Office Expenditure shall be paid in accordance with the schedule of payment in Annex - 8, with ceiling amount in total as set forth in the item II (6) of Annex - 4

(iii) Communication and Mail

Cost for Communication and Mail shall be paid at monthly fixed unit rate with ceiling amount as set forth in the item II (7) of Annex - 4.

(iv) Salary for Local Employees

Salary for Local Employees shall be paid in accordance with the schedule of payment in Annex - 8, with ceiling amount in total as set forth in the item II (10) of Annex - 4.

(v) International Round Air Trip

The cost of International Round Air Trip, IATA economy class transportation by the most direct practicable route from the point of origin and back, for the purpose of performing the SERVICES by the ENGINEER, together with the cost of Excess Baggage not exceeding 10 (ten) kilograms per leg shall be paid on an actual reimbursement basis with ceiling number of trip as set forth in the item II (11) a. and b. of Annex - 4. Mobilization Cost, Surface Transportation Cost and Per Diem Allowance during Travel shall be paid on the basis of actual trip at the fixed unit rates as set forth in the item II (11) c. and d. of Annex - 4.

(vi) Printing

Cost of Printing shall be paid on monthly fixed unit rate basis with ceiling amount as set forth in the item II (12) of Annex - 4.

(vii) Per Diem Allowance for TEPSCO FIELD PERSONNEL without Residence

Per Diem allowance for TEPSCO FIELD PERSONNEL without Residence shall be paid on actual allocation basis at fixed unit rate for man-month with ceiling amount as set forth in the item II (13) of Annex - 4 and in accordance with ARTICLE 8.5 of AGREEMENT.

(viii) Car Expenditure

Car Expenditure shall be paid at fixed car-month rate as set forth in the item II (14) of Annex - 4, in accordance with Annex - 8, schedule of payment.

3. Currency Conversion

Currency Conversion Rate shall be necessary to determine the equivalent of an amount in one currency in term of another for the purpose of making payments in respect of expenses.

The exchange rate to be used for Japanese Yen expenses is Rp. 1234.69766/100 Yen as mention in Annex-4.

MONTHLY RATES FOR TEPSCO

1986 — 1987/88

	Position	Name	1st Year						2rd Year						
			Field Office			Home Office			Field Office			Home Office			
			M.M	Rate	Amount	M.M	Rate	Amount	M.M	Rate	Amount	M.M	Rate	Amount	M.M
				¥	¥		¥	¥		¥	¥		¥	¥	
1	Project Director	M. Iwata U.38	0.5	2,450,000	1,225,000				0.5	2,450,000	1,225,000				
2	Resident Manager	H. Sasaki U.21	2	2,450,000	4,900,000	1	2,205,000	2,205,000	11	2,450,000	26,950,000	1	2,205,000	2,205,000	1
3	Dam Engineer (1)	J. Itoh U.32	2	2,350,000	4,700,000	1	2,115,000	2,115,000	8	2,350,000	18,800,000	4	2,115,000	8,460,000	
4	Dam Engineer (2)	T. Hamada U.15	2	2,194,000	4,388,000	1	1,975,000	1,975,000	12	2,250,000	27,000,000				
5	Dam Engineer (3)	T. Tejima U.9							8.5	1,809,000	15,376,500	2.5	1,628,000	4,070,000	
6	Dam Engineer (4)	Y. Yoshida H1.8	2	1,100,000	2,200,000	1	990,000	990,000	9	1,190,000	10,710,000	1	1,071,000	1,071,000	
7	Power Station Civil Engineer (1)	K. Terao U.13	2	1,739,000	3,478,000				5	1,849,000	9,245,000	2	1,664,000	3,328,000	1
8	Power Station Civil Engineer (2)	M. Nambu U.9							5	1,809,000	9,045,000	3.5	1,628,000	5,698,000	
9	Metal Engineer	T. Kodama U.18							1	2,350,000	2,350,000	5.5	2,115,000	11,632,500	0.5
10	Geologist	M. Fujieda U.10	1	1,722,000	1,722,000	1	1,550,000	1,550,000	6	1,809,000	10,854,000	1	1,628,000	1,628,000	
11	Boring and Seismic Engineer	K. Nakamata U.9							5	1,809,000	9,045,000				
12	Survey Engineer	S. Shirahama U.26							8	2,300,000	18,400,000				
13	Aggregate & Concrete Test Engineer	S. Kitamura U.22							3	2,300,000	6,900,000				
14	Hydraulic Model Test Engineer	A. Okada U.45							4	2,350,000	9,400,000	1	2,115,000	2,115,000	
15	Power Station Engineer/System Analyst	Y. Shiono C.37	0.5	2,350,000	1,175,000	2	2,115,000	4,230,000	1	2,350,000	2,350,000				0.5
16	Power Station Engineer/Electric Engineer	K. Matsushima U.38	1	2,250,000	2,250,000	2	2,025,000	4,050,000	3	2,250,000	6,750,000	3	2,025,000	6,075,000	1
17	Power Station Engineer/Mech. Engineer	T. Ohta H1.25	1	2,194,000	2,194,000	1	1,975,000	1,975,000	2	2,250,000	4,500,000	6	2,025,000	12,150,000	
18	Architect/Building Engineer	K. Yamanouchi U.19							2.5	2,250,000	5,625,000	2.5	2,025,000	5,062,500	
19	Substation Engineer	T. Murata U.15	1	2,194,000	2,194,000	1.5	1,975,000	2,962,500	2	2,250,000	4,500,000	1	2,025,000	2,025,000	
20	Civil Engineer/Foundation of T/L & S/S	H. Kimura U.8	1	1,722,000	1,722,000				1	1,809,000	1,809,000	2	1,628,000	3,256,000	
21	Transmission Line Engineer	R. Kashimura U.38	1	2,350,000	2,350,000	1.5	2,115,000	3,172,500	1.5	2,350,000	3,525,000	3.5	2,115,000	7,402,500	
22	Transmission Line Survey Engineer	R. Takamura U.8							6	1,809,000	10,854,000				
23	Construction Engineer	Y. Miura U.15							6	2,250,000	13,500,000				
24	Economist	R. Suzuki U.37							0.5	2,350,000	1,175,000	1.5	2,115,000	3,172,500	1
25	Enviromental Engineer	J.R.Prosser U.23							3	1,443,000	4,329,000				
26	Road Engineer (1)	J.Nagamura U.21	2	2,250,000	4,500,000				9.5	2,250,000	21,375,000	2.5	2,025,000	5,062,500	0.5
27	Road Engineer (2)	H. Tsutsumi U.15							7	2,300,000	16,100,000				
28	Road Survey Engineer	S. Noguchi H.17							7	1,849,000	12,943,000				
29	Bridge Design Engineer	S. Kohda U.19				0.5	2,025,000	1,012,500	4	2,250,000	9,000,000	2.5	2,025,000	5,062,500	
30	Engineering Coordinator (1)	E. Goto													
31	Engineering Coordinator (2)	Y. Fukao													
32	On-Call Engineer								6.5	2,200,000	14,300,000				
	Total		19		38,998,000	13.5		26,237,500	148.5		307,935,500	46		89,476,000	5.5

MONTHLY RATES FOR TEPSCO

1986 1987/88 1988/89

Name	1st Year Field Office M.M	Rate ¥	Amount ¥	1st Year Home Office M.M	Rate ¥	Amount ¥	2nd Year Field Office M.M	Rate ¥	Amount ¥	2nd Year Home Office M.M	Rate ¥	Amount ¥	3rd Year Home Office M.M	Rate ¥	Amount ¥	TOTAL F.O M.M.	H.O M.M.	Total M.M.	Amount ¥
ata V.38	0.5	2,450,000	1,225,000				0.5	2,450,000	1,225,000							1		1	2,450,000
saki V.31	2	2,450,000	4,900,000	1	2,205,000	2,205,000	11	2,450,000	26,950,000	1	2,205,000	2,205,000	1	2,205,000	2,205,000	13	3	16	38,465,000
oh V.32	2	2,350,000	4,700,000	1	2,115,000	2,115,000	8	2,350,000	18,800,000	4	2,115,000	8,460,000				10	5	15	34,075,000
mada V.15	2	2,194,000	4,388,000	1	1,975,000	1,975,000	12	2,250,000	27,000,000							14	1	15	33,363,000
jima V.9							8.5	1,809,000	15,376,500	2.5	1,628,000	4,070,000				8.5	2.5	11	19,446,500
shida H.8	2	1,100,000	2,200,000	1	990,000	990,000	9	1,190,000	10,710,000	1	1,071,000	1,071,000				11	2	13	14,971,000
rao V.13	2	1,739,000	3,478,000				5	1,849,000	9,245,000	2	1,664,000	3,328,000	1	1,678,000	1,678,000	7	3	10	17,729,000
mbu V.9							5	1,809,000	9,045,000	3.5	1,628,000	5,698,000				5	3.5	8.5	14,743,000
dama V.18							1	2,350,000	2,350,000	5.5	2,115,000	11,632,500	0.5	2,115,000	1,057,500	1	6	7	15,040,000
jieda V.10	1	1,722,000	1,722,000	1	1,550,000	1,550,000	6	1,809,000	10,854,000	1	1,628,000	1,628,000				7	2	9	15,754,000
kamata V.9							5	1,809,000	9,045,000							5		5	9,045,000
irahama V.26							8	2,300,000	18,400,000							8		8	18,400,000
tamura V.22							3	2,300,000	6,900,000							3		3	6,900,000
ada V.45							4	2,350,000	9,400,000	1	2,115,000	2,115,000				4	1	5	11,515,000
iono C.37	0.5	2,350,000	1,175,000	2	2,115,000	4,230,000	1	2,350,000	2,350,000				0.5	2,115,000	1,057,500	1.5	2.5	4	8,812,500
tsushima V.38	1	2,250,000	2,250,000	2	2,025,000	4,050,000	3	2,250,000	6,750,000	3	2,025,000	6,075,000	1	2,025,000	2,025,000	4	6	10	21,150,000
ta H.25	1	2,194,000	2,194,000	1	1,975,000	1,975,000	2	2,250,000	4,500,000	6	2,025,000	12,150,000				3	7	10	20,819,000
manouchi V.9							2.5	2,250,000	5,625,000	2.5	2,025,000	5,062,500				2.5	2.5	5	10,687,500
rata V.15	1	2,194,000	2,194,000	1.5	1,975,000	2,962,500	2	2,250,000	4,500,000	1	2,025,000	2,025,000				3	2.5	5.5	11,681,500
mura V.8	1	1,722,000	1,722,000				1	1,809,000	1,809,000	2	1,628,000	3,256,000				2	2	4	6,787,000
shimura V.38	1	2,350,000	2,350,000	1.5	2,115,000	3,172,500	1.5	2,350,000	3,525,000	3.5	2,115,000	7,402,500				2.5	5	7.5	16,450,000
kamura V.8							6	1,809,000	10,854,000							6		6	10,854,000
ura V.15							6	2,250,000	13,500,000							6		6	13,500,000
zuki V.37							0.5	2,350,000	1,175,000	1.5	2,115,000	3,172,500	1	2,115,000	2,115,000	0.5	2.5	3	6,462,500
rosser V.23							3	1,443,000	4,329,000							3		3	4,329,000
amura V.21	2	2,250,000	4,500,000				9.5	2,250,000	21,375,000	2.5	2,025,000	5,062,500	0.5	2,025,000	1,012,500	11.5	3	14.5	31,950,000
utsumi V.15							7	2,300,000	16,100,000							7		7	16,100,000
guchi H.17							7	1,849,000	12,943,000							7		7	12,943,000
hda V.19				0.5	2,025,000	1,012,500	4	2,250,000	9,000,000	2.5	2,025,000	5,062,500				4	3	7	15,075,000
to																			
kao																			
							6.5	2,200,000	14,300,000							6.5		6.5	14,300,000
	19		38,998,000	13.5		26,237,500	148.5		307,935,500	46		89,476,000	5.5		11,150,500	167.5	65	232.5	473,797,500

346933.5

F.O. ¥2071.24/M > ¥2037.84/M

H.O. ¥1951.75/M

Annex 1

FINAL EXPENDITURE AND BALANCE FOR FOREIGN CURRENCY PORTION

(Unit:Yen)

Item No.	Item	Agreement Amount	Memorandum No.2	Memorandum No.4 (Final Expenditure)	Final Balance
1.1	MONTHLY RATES	491,603,700	487,914,700	487,506,726	4,096,974
(1)	MONTHLY RATES for TEPSCO	473,797,500	470,108,500	469,822,229	3,975,271
a	HOME OFFICE	126,864,000	120,737,220	117,860,175	9,003,825
b	FIELD OFFICE	346,933,500	349,371,280	351,962,054	(5,028,554)
(2)	MONTHLY RATES for Y.K.	17,806,200	17,806,200	17,684,497	121,703
	FIELD OFFICE	17,806,200	17,806,200	17,684,497	121,703
1.2	Out-of-Pocket Expenses	274,985,600	278,674,600	264,419,754	10,565,846
(1)	International Round Air Trip (Actual Round Air Trip)	37,294,700	37,294,700	33,732,554	3,562,146
a	Air Fare (TKY/JKT/PKU/JKT/TKY) Y372,700/Trip x 66 Trips =	24,598,200	24,598,200	21,966,054	2,632,146
b	Excess Baggage Y2,740/kg x 20kg/Trip x 66 Trips =	3,616,800	3,616,800	3,342,800	274,000
c	Mobilization Cost				
	-First Trip Y67,700/Trip x 29 Trips =	1,963,300	1,963,300	1,936,700	26,600
	-Second Trip Y53,200/Trip x 37 Trips =	1,968,400	1,968,400	1,729,000	239,400
	-Surface Transportation Y63,000/Trip x 66 Trips =	4,158,000	4,158,000	3,843,000	315,000
d	Per Diem Allowance during Travel Y7,500/Day x 2 Days/Trip x 66 Trips	990,000	990,000	915,000	75,000
(2)	Communication and Mail (Monthly fixed unit rate)	15,456,000	15,456,000	15,456,000	0
a	International Communication Cost (Telex,telegram,telephone and post) Y320,000/Month x 16 Months =	5,120,000	5,120,000	5,120,000	0
b	International Transportation Cost (Reference data,drawing,equipment, supplies,etc.) Y260,000/Month x 16 Months =	4,160,000	4,160,000	4,160,000	0
c	Transportation Cost for Reports Y1,930/0.5kg x 100kg/Month x 16 Months =	6,176,000	6,176,000	6,176,000	0
(3)	Office Supply (Monthly fixed unit rate) Y250,000/Month x 16 Months =	4,000,000	4,000,000	4,000,000	0
(4)	Printing (Monthly fixed unit rate) Y1,750,000/Month x 16 Months =	28,000,000	28,000,000	28,000,000	0
(5)	Computer Charge (Fixed unit rate)	28,000,000	28,000,000	28,000,000	0
a	Machine Rental Charge Y250,000/Hour x 3.5 Hours/Month x 16 Months =	14,000,000	14,000,000	14,000,000	0
b	Data Processing Expenses Y250,000/Hour x 3.5 Hours/Month x 16 Months =	14,000,000	14,000,000	14,000,000	0
(6)	Various Analysis and Tests	29,000,000	29,000,000	29,000,000	0
a	Structural Analysis	5,000,000	5,000,000	5,000,000	0
b	Bridge Structural Analysis	5,000,000	5,000,000	5,000,000	0
c	Grouting Result Analysis	3,000,000	3,000,000	3,000,000	0
d	Rock Mechanical Analysis	4,000,000	4,000,000	4,000,000	0
e	Electricn System Analysis	3,000,000	3,000,000	3,000,000	0
f	Concrete Test	9,000,000	9,000,000	9,000,000	0
(7)	Drawing and Tracing (Monthly fixed unit rate) Y1,650,000/Month x 16 Months	26,400,000	26,400,000	26,400,000	0
(8)	Aerial Photogrammetry Mapping	20,500,000	20,500,000	12,500,000	8,000,000
a	Relocation Road Route (40Km2 , S=1/10,000)	2,500,000	2,500,000	2,500,000	0
b	Transmission Line Route (165Km2, S=1/10,000)	8,000,000	8,000,000	0	8,000,000
c	Dam Site Area (60Km2, S=1/5,000)	10,000,000	10,000,000	10,000,000	0
(9)	Equipment for Investigation Works	33,062,000	33,062,000	33,062,000	0
		13,863,000	17,552,000	17,552,000	(3,689,000)

	-First Trip Y67,700/Trip x 29 Trips =	1,963,300	1,963,300	1,936,700	26,600
	-Second Trip Y53,200/Trip x 37 Trips =	1,968,400	1,968,400	1,729,000	239,400
	-Surface Transportation Y63,000/Trip x 66 Trips =	4,158,000	4,158,000	3,843,000	315,000
d	Per Diem Allowance during Travel Y7,500/Day x 2 Days/Trip x 66 Trips	990,000	990,000	915,000	75,000
(2)	Communication and Mail (Monthly fixed unit rate)	15,456,000	15,456,000	15,456,000	0
a	International Communication Cost (Telex,telegram,telephone and post) Y320,000/Month x 16 Months =	5,120,000	5,120,000	5,120,000	0
b	International Transportation Cost (Reference data,drawing,equipment, supplies,etc.) Y260,000/Month x 16 Months =	4,160,000	4,160,000	4,160,000	0
c	Transportation Cost for Reports Y1,930/0.5kg x 100kg/Month x 16 Months =	6,176,000	6,176,000	6,176,000	0
(3)	Office Supply (Monthly fixed unit rate) Y250,000/Month x 16 Months =	4,000,000	4,000,000	4,000,000	0
(4)	Printing (Monthly fixed unit rate) Y1,750,000/Month x 16 Months =	28,000,000	28,000,000	28,000,000	0
(5)	Computer Charge (Fixed unit rate)	28,000,000	28,000,000	28,000,000	0
a	Machine Rental Charge Y250,000/Hour x 3.5 Hours/Month x 16 Months =	14,000,000	14,000,000	14,000,000	0
b	Data Processing Expenses Y250,000/Hour x 3.5 Hours/Month x 16 Months =	14,000,000	14,000,000	14,000,000	0
(6)	Various Analysis and Tests	29,000,000	29,000,000	29,000,000	0
a	Structural Analysis	5,000,000	5,000,000	5,000,000	0
b	Bridge Structural Analysis	5,000,000	5,000,000	5,000,000	0
c	Grouting Result Analysis	3,000,000	3,000,000	3,000,000	0
d	Rock Mechanical Analysis	4,000,000	4,000,000	4,000,000	0
e	Electricn System Analysis	3,000,000	3,000,000	3,000,000	0
f	Concrete Test	9,000,000	9,000,000	9,000,000	0
(7)	Drawing and Tracing (Monthly fixed unit rate) Y1,650,000/Month x 16 Months	26,400,000	26,400,000	26,400,000	0
(8)	Aerial Photogrammetry Mapping	20,500,000	20,500,000	12,500,000	8,000,000
a	Relocation Road Route (40Km2 , S=1/10,000)	2,500,000	2,500,000	2,500,000	0
b	Transmission Line Route (165Km2, S=1/10,000)	8,000,000	8,000,000	0	8,000,000
c	Dam Site Area (60Km2, S=1/5,000)	10,000,000	10,000,000	10,000,000	0
(9)	Equipment for Investigation Works	33,062,000	33,062,000	33,062,000	0
(10)	Participation of PLN Personnel to the SERVICES	13,863,000	17,552,000	17,552,000	(3,689,000)
(11)	Documentary Film	15,000,000	15,000,000	15,000,000	0
(12)	Per Diem Allowance for TEPSCO FIELD PERSONNEL without Residence (Fixed unit rate) Y7,700/Day x 30 Days/Month x 42 Man.Months =	9,702,000	9,702,000	7,476,700	2,225,300
(13)	Per Diem Allowance for TEPSCO Duty Trip Y3,400/Day x 3 Days/Trip x 56 Trips	571,200	571,200	571,200	0
(14)	Per Diem Allowance for TEPSCO Field Trip Y1,900/Day x 30 Days/Month x 12.7 Months =	723,900	723,900	256,500	467,400
(15)	Office Rental at Pekanbaru Y1,430/M2 x 80 M2/Month x 16 Months	1,830,400	1,830,400	1,830,400	0
(16)	Car Expenditure Y76,200/Car.Month x 152 Car.Months	11,582,400	11,582,400	11,582,400	0
1.3	CONTINGENCY	53,010,700	53,010,700	0	53,010,700
	TOTAL	819,600,000	819,600,000	751,926,480	67,673,520

HOME OFFICE MAN-MONTHS BALANCE FOR TEPSCO

NO.	POSITION	NAME	1987											1988			
			FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	AP
I	Yen Portion																
1	Project Director	M.Iwata	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.
2	Resident Manager	H.Sasaki	1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.600	0.433	0.100	0.000	0.000	0.000	0.000	0.
3	Dam Engineer(1)	S.Mathushita	1.000	0.000	0.000	0.000	0.000	0.000	0.400	0.167	0.000	0.000	0.000	0.433	1.000	1.000	1.
4	Dam Engineer(2)	T.Hamada	1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.
5	Dam Engineer(3)	T.Tejima	0.000	0.000	0.000	0.000	0.467	0.000	0.100	1.000	0.933	0.000	0.000	0.000	0.000	0.000	0.
6	Dam Engineer(4)	Y.Yoshida	1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.
7	Power Station Civil Engineer(1)	K.Terao	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.
8	Power Station Civil Engineer(2)	M.Nambu	0.000	0.000	0.000	0.000	0.000	0.167	1.000	0.333	0.000	0.000	0.000	0.000	0.233	1.000	0.
9	Metal Engineer	T.Kodama	0.000	0.000	0.000	0.000	0.000	0.167	1.000	0.333	0.000	1.000	1.000	0.000	1.000	1.000	0.
10	Geologist	M.Fujieda	0.733	0.000	0.333	0.000	0.000	0.000	0.000	0.667	0.267	0.000	0.000	0.000	0.000	0.000	0.
11	Boring and Seismic Engineer	K.Nakamata	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.
12	Survey Engineer	S.Shirahama	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.
13	Aggregate and Concrete Test Enginee	M.Imbe	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.
14	Hydraulic Model Test Engineer	H.Nakamura	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.
15	Power Station Engineer/System Analy	K.Matsushima	0.500	0.000	0.733	0.267	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.
16	Power Station Engineer/Electrical	M.Takada	1.000	0.000	0.733	0.267	0.000	0.000	0.233	1.000	0.767	0.000	0.000	0.000	1.000	1.000	0.
17	Power Station Engineer/Mechanical	M.Mizusawa	0.500	0.000	0.434	0.200	0.800	1.000	0.100	0.000	0.000	1.000	0.533	1.000	1.000	0.467	0.
18	Architect	K.Yamanouchi	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.000	1.000	0.500	0.
19	Substation Engineer	T.Murata	0.500	0.000	0.667	0.267	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.667	0.433	0.
20	Civil Engineer/Foundation of T/L	H.Kimura	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.700	1.000	0.300	0.
21	Transmission Line Engineer	R.Kashimura	0.500	0.000	0.733	0.267	0.000	0.000	0.000	0.000	0.200	0.800	0.533	0.000	1.000	1.000	0.
22	Transmission Survey Engineer	H.Mekata/S.Takahashi	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.
23	Construction Engineer	Y.Owada	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.
24	Economist	R.Suzuki	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.500	1.000	1.	
25	Environmental Engineer	K.Inagaki	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.	
26	Road Engineer(1)	J.Nagamura	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.333	0.233	0.000	0.000	0.167	1.
27	Road Engineer(2)	T.Tateishi	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.
28	Road Survey Engineer	N.Akasaka	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.
29	Bridge Design Engineer	S.Kohda	0.000	0.000	0.133	0.867	0.000	0.000	0.000	0.800	0.200	1.000	0.000	0.000	0.000	0.000	0.
30	Contract Document Engineer	E.Goto	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.
31	On-call Engineer																
	TOTAL		7.733	0.000	3.766	2.135	1.267	1.334	2.833	4.900	3.300	4.233	2.299	3.133	8.400	8.867	4

ICE MAN-MONTHS BALANCE FOR TEPSCO

As of August 10th, 1988

1988													
OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	TOTAL	AGREEMENT	BALANCE
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.433	0.100	0.000	0.000	0.000	0.000	0.367	0.200	0.000	0.000	0.000	2.700	3.000	0.300
0.000	0.000	0.000	0.433	1.000	1.000	1.000	0.000	0.000	0.000	0.000	5.000	5.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.000	1.000	0.000
0.933	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.500	2.500	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.367	0.000	0.000	1.367	2.000	0.633
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.000	3.000
0.000	0.000	0.000	0.000	0.233	1.000	0.767	0.000	0.000	0.000	0.000	3.500	3.500	0.000
0.000	1.000	1.000	0.000	1.000	1.000	0.500	0.000	0.000	0.000	0.000	6.000	6.000	0.000
0.267	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.000	2.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.000	1.000	1.000	0.000
0.000	0.000	0.000	0.000	0.000	1.000	0.033	0.000	0.000	0.000	0.000	2.533	2.500	-0.033
0.767	0.000	0.000	0.000	1.000	1.000	0.000	0.000	0.000	0.000	0.000	6.000	6.000	0.000
0.000	1.000	0.533	1.000	1.000	0.467	0.000	0.000	0.000	0.000	0.000	7.034	7.000	-0.034
0.000	0.000	0.000	1.000	1.000	0.500	0.000	0.000	0.000	0.000	0.000	2.500	2.500	0.000
0.000	0.000	0.000	0.000	0.667	0.433	0.000	0.000	0.000	0.000	0.000	2.534	2.500	-0.034
0.000	0.000	0.000	0.700	1.000	0.300	0.000	0.000	0.000	0.000	0.000	2.000	2.000	0.000
0.200	0.800	0.533	0.000	1.000	1.000	0.000	0.000	0.000	0.000	0.000	5.033	5.000	-0.033
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.500	1.000	1.000	0.000	0.000	0.000	0.000	2.500	2.500	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.333	0.233	0.000	0.000	0.167	1.000	1.000	0.267	0.000	0.000	3.000	3.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.200	1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.000	3.000	0.000
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
												0.000	0.000
3.300	4.233	2.299	3.133	8.400	8.867	4.667	1.700	0.634	0.000	0.000	61.201	65.000	3.799

FIELD OFFICE MAN-MONTHS BALANCE FOR TEPSCO

NO.	POSITION	NAME	1987 FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	1988 JAN	FEB	MAR	APR
I	Yen Portion																
1	Project Director	M.Iwata	0.000	0.300	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0
2	Resident Manager	H.Sasaki	0.000	0.733	1.000	1.000	1.000	1.000	1.000	0.400	0.567	0.900	1.000	1.000	1.000	1.000	0.6
3	Dam Engineer(1)	S.Mathushita	0.000	0.733	0.567	1.000	1.000	1.000	0.600	0.833	1.000	1.000	1.000	0.567	0.000	0.000	0.0
4	Dam Engineer(2)	T.Hamada	0.000	0.733	1.000	1.000	1.000	1.000	1.000	1.000	0.600	0.900	1.000	1.000	1.000	1.000	1.0
5	Dam Engineer(3)	T.Tejima	0.000	0.000	0.000	0.000	0.200	1.000	0.900	0.000	0.000	0.533	1.000	1.000	1.000	1.000	1.0
6	Dam Engineer(4)	Y.Yoshida	0.000	0.733	1.000	1.000	1.000	1.000	1.000	0.333	0.000	0.900	1.000	1.000	1.000	0.767	1.0
7	Power Station Civil Engineer(1)	K.Terao	0.000	0.733	1.000	0.300	0.200	1.000	0.900	0.000	0.000	0.267	1.000	1.000	1.000	1.000	1.0
8	Power Station Civil Engineer(2)	M.Nambu	0.000	0.000	0.000	0.000	0.200	0.833	0.000	0.000	0.300	1.000	1.000	1.000	0.767	0.000	0.0
9	Metal Engineer	T.Kodama	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0
10	Geologist	M.Fujieda	0.000	0.000	0.667	1.000	1.000	1.000	1.000	0.333	0.700	1.000	0.800	0.000	0.000	0.000	0.2
11	Boring and Seismic Engineer	K.Nakamata	0.500	0.667	0.000	0.467	1.000	1.000	1.000	1.000	0.566	0.000	0.000	0.000	0.000	0.000	0.0
12	Survey Engineer	S.Shirahama	0.000	0.000	0.000	0.400	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.633	0.000	0.000	0.0
13	Aggregate and Concrete Test Enginee	M.Imbe	0.000	0.000	0.000	0.000	0.000	0.000	0.233	1.000	0.800	0.000	0.000	0.367	0.600	0.000	0.0
14	Hydraulic Model Test Engineer	H.Nakamura	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.200	0.400	0.000	0.133	1.000	1.000	1.0
15	Power Station Engineer/System Analy	K.Matsushima	0.000	0.733	0.267	0.000	0.000	0.000	0.700	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0
16	Power Station Engineer/Electrical	M.Takada	0.000	0.000	0.000	0.000	0.000	0.267	0.767	0.000	0.000	0.200	0.667	0.000	0.000	0.000	0.5
17	Power Station Engineer/Mechanical	M.Mizusawa	0.000	0.733	0.333	0.000	0.000	0.000	0.533	0.000	0.000	0.000	0.467	0.000	0.000	0.000	0.4
18	Architect	K.Yamanouchi	0.000	0.000	0.000	0.000	0.000	0.000	0.567	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.5
19	Substation Engineer	T.Murata	0.000	0.733	0.333	0.000	0.000	0.000	0.533	0.000	0.000	0.000	0.467	0.000	0.000	0.000	0.4
20	Civil Engineer/Foundation of T/L	H.Kimura	0.000	0.733	0.267	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0
21	Transmission Line Engineer	R.Kashimura	0.000	0.733	0.267	0.000	0.000	0.000	0.000	0.000	0.000	0.200	0.433	0.000	0.000	0.000	0.4
22	Transmission Survey Engineer	H.Mekata/S.Takahashi	0.000	0.000	0.000	0.000	0.400	1.000	1.000	1.000	1.000	0.200	0.433	0.000	0.000	0.000	0.4
23	Construction Engineer	Y.Owada	0.000	0.000	0.000	0.000	0.000	0.233	1.000	1.000	1.000	1.000	1.000	0.767	0.900	0.000	0.2
24	Economist	R.Suzuki	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0
25	Environmental Engineer	K.Inagaki	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.933	0.000	0.000	0.533	1.000	1.0
26	Road Engineer(1)	J.Nagamura	0.500	0.667	0.200	1.000	1.000	1.000	1.000	1.000	1.000	0.667	0.767	1.000	1.000	0.833	0.0
27	Road Engineer(2)	T.Tateishi	0.000	0.000	0.000	0.000	0.000	0.533	1.000	1.000	1.000	1.000	1.000	1.000	0.467	0.000	0.0
28	Road Survey Engineer	N.Akasaka	0.000	0.000	0.000	0.000	0.167	1.000	1.000	1.000	1.000	1.000	1.000	0.500	0.000	0.000	0.0
29	Bridge Design Engineer	S.Kohda	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.200	0.800	0.000	0.533	1.000	1.000	0.833	0.0
30	Contract Document Engineer	E.Goto	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0
31	On-call Engineer																
	TOTAL		1.000	8.964	6.901	7.167	9.167	13.866	16.733	11.099	11.533	13.100	15.567	11.967	11.267	8.433	10.

Annex 4

FIELD OFFICE MAN-MONTHS BALANCE FOR TEPSCO

As of August 10th, 1988

87	1988														
AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	TOTAL	AGREEMENT	BALANCE
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.233	0.000	0.533	1.000	0.467
1.000	0.400	0.567	0.900	1.000	1.000	1.000	1.000	0.633	0.800	0.600	0.881	0.000	14.514	13.000	-1.514
0.600	0.833	1.000	1.000	1.000	0.567	0.000	0.000	0.000	0.000	0.470	0.000	0.000	9.770	10.000	0.230
1.000	1.000	0.600	0.900	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	14.233	14.000	-0.233
0.900	0.000	0.000	0.533	1.000	1.000	1.000	1.000	1.000	1.000	0.633	0.734	0.000	10.000	8.500	-1.500
1.000	0.333	0.000	0.900	1.000	1.000	1.000	0.767	1.000	1.000	0.633	1.000	0.134	14.500	11.000	-3.500
0.900	0.000	0.000	0.267	1.000	1.000	1.000	1.000	1.000	1.000	0.533	0.367	0.000	11.300	7.000	-4.300
0.000	0.000	0.300	1.000	1.000	1.000	0.767	0.000	0.000	0.000	0.000	0.000	0.000	5.100	5.000	-0.100
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.500	1.000	0.500
1.000	0.333	0.700	1.000	0.800	0.000	0.000	0.000	0.200	0.000	0.000	0.000	0.000	7.700	7.000	-0.700
1.000	1.000	0.566	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.200	5.000	-1.200
1.000	1.000	1.000	1.000	1.000	0.633	0.000	0.000	0.000	0.000	0.000	0.000	0.000	8.033	8.000	-0.033
0.233	1.000	0.800	0.000	0.000	0.367	0.600	0.000	0.000	0.000	0.000	0.000	0.000	3.000	3.000	0.000
0.000	0.000	0.200	0.400	0.000	0.133	1.000	1.000	1.000	0.167	0.000	0.000	0.000	3.900	4.000	0.100
0.700	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.700	1.500	-0.200
0.767	0.000	0.000	0.200	0.667	0.000	0.000	0.000	0.567	0.300	0.000	0.000	0.000	2.768	4.000	1.232
0.533	0.000	0.000	0.000	0.467	0.000	0.000	0.000	0.433	0.300	0.000	0.000	0.000	2.799	3.000	0.201
0.567	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.233	0.000	1.300	2.500	1.200
0.533	0.000	0.000	0.000	0.467	0.000	0.000	0.000	0.433	0.333	0.000	0.000	0.000	2.832	3.000	0.168
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.433	0.067	0.000	0.000	0.000	1.500	2.000	0.500
0.000	0.000	0.000	0.200	0.433	0.000	0.000	0.000	0.433	0.267	0.000	0.000	0.000	2.333	2.500	0.167
1.000	1.000	1.000	0.200	0.433	0.000	0.000	0.000	0.433	0.267	0.000	0.000	0.000	5.733	6.000	0.267
1.000	1.000	1.000	1.000	1.000	0.767	0.900	0.000	0.233	0.000	0.367	0.000	0.000	7.500	6.000	-1.500
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.500	0.500	0.000
0.000	0.000	0.000	0.933	0.000	0.000	0.533	1.000	1.000	0.467	0.267	0.000	0.000	4.200	3.000	-1.200
1.000	1.000	1.000	0.667	0.767	1.000	1.000	0.833	0.000	0.000	0.000	0.000	0.000	11.634	11.500	-0.134
1.000	1.000	1.000	1.000	1.000	1.000	0.467	0.000	0.000	0.000	0.000	0.000	0.000	7.000	7.000	0.000
1.000	1.000	1.000	1.000	1.000	0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.667	7.000	0.333
0.000	0.200	0.800	0.000	0.533	1.000	1.000	0.833	0.000	0.000	0.000	0.000	0.000	4.366	4.000	-0.366
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.000	1.000	0.000	2.000	0.000	-2.000
														6.500	6.500
16.733	11.099	11.533	13.100	15.567	11.967	11.267	8.433	10.298	6.968	5.503	4.448	0.134	174.115	167.500	-6.615

MAN-MONTHS BALANCE FOR P.T. YODYA KARYA

NO.	POSITION	NAME	1987 FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	1988 JAN	FEB	MAR	APR	MAY	JUN	JU
I	Yen Portion																			
1	Co-Project Director	Donardi	0.000	0.300	0.000	0.000	0.000	0.000	0.133	0.000	0.000	0.000	0.000	0.000	0.134	0.000	0.000	0.000	0.100	0.2
2	Co-Resident Manager	Edi Paminto	0.000	0.700	0.167	0.800	0.000	0.633	0.500	0.000	0.633	0.500	0.067	0.000	0.000	0.600	0.400	0.000	0.000	0.8
3	Dam Design Engineer	Riyanto	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.600	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.400	0.0
5	Power Station Civil Engineer	L.M.Panggabean	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.500	1.000	1.000	1.000	1.000	1.000	0.500	0.0
9	Survey Engineer(3)	Donny Irawan	0.000	0.000	0.000	0.000	0.000	0.633	1.000	1.000	1.000	1.000	0.367	0.000	0.000	0.000	0.000	0.000	0.000	0.0
10	Hydraulic Model Test(2)	Soetarto H.M.	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.333	0.333	0.400	1.000	0.934	0.000	0.000	0.000	0.0
12	Architect/Building Engineer(2)	E.N.Idroes	0.000	0.000	0.000	0.000	0.000	0.000	0.600	0.400	0.000	0.000	0.000	0.000	1.833	1.000	1.000	1.000	0.167	0.0
14	Transmission Line Engineer(2)	Gustian Halim	0.000	0.700	0.233	0.000	0.833	1.000	1.000	1.000	0.100	0.333	0.567	0.000	0.667	1.000	1.000	0.500	0.000	0.4
20	Road Design Engineer(1)	Agus Sarwono	0.000	0.000	0.233	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.767	0.000	0.000	0.000	1.0
21	Road Design Engineer(2)	Ridwan Mulyana	0.000	0.000	0.000	0.633	1.000	0.267	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.600	0.000	0.000	0.000	0.0
23	Bridge Design Engineer(2)	Asikin	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.667	0.166	0.000	0.367	0.933	1.000	0.867	0.000	0.000	0.000	1.0
24	On-call Engineer																			
---	TOTAL		0.000	1.700	0.633	2.433	2.833	3.533	5.233	5.667	4.899	5.166	5.201	5.333	8.634	7.768	4.400	3.500	1.167	3.4
II	Rp. Portion																			
4	Hydrologist	Irzal S.	0.000	0.700	0.500	0.633	1.000	0.833	0.000	0.600	1.000	0.800	1.000	0.967	1.000	1.000	1.000	1.000	1.000	1.0
6	Geologist(2)	Damai Putra	0.000	0.700	1.000	1.000	0.367	0.633	1.000	1.000	1.000	1.000	1.000	0.800	0.000	0.000	0.000	0.000	0.300	0.2
7	Soil Mechanics Engineer	Utomo Pudji	0.000	0.000	0.000	0.000	0.000	0.000	0.133	1.000	0.367	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0
8	Survey Engineer(2)	Suhatril J.	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.767	1.000	1.000	1.000	1.000	0.233	0.000	0.000	0.000	0.000	0.0
11	Power Station Engineer	Donny Irawan	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.267	0.733	0.000	0.667	0.000	0.000	0.000	0.000	1.000	0.333	0.0
13	Civil Eng./Foundation of T/L,S/S(2)	Bambang K.	0.000	0.000	0.000	0.633	0.867	0.000	0.100	0.267	1.000	1.000	0.167	0.000	0.466	1.000	0.000	0.000	0.000	0.8
15	Construction Engineer(2)	Gip Satyawan	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.000	1.000	0.000	0.000	1.000	0.000	0.000	0.0
16	Environmental Engineer(2)	Bambang Purwono	0.000	0.000	0.000	0.000	0.000	0.000	0.200	0.933	0.367	0.100	0.300	0.000	0.100	0.300	0.200	0.200	0.100	0.1
17	Geodetic Engineer(1)	Bambang Gunarso	0.000	0.000	0.000	0.633	1.000	1.000	1.000	1.000	0.000	0.967	1.000	0.400	0.000	0.000	0.000	0.000	0.000	0.0
18	Geodetic Engineer(2)	Nana Sudiana	0.000	0.000	0.000	0.000	0.000	0.633	1.000	1.000	1.000	1.000	1.000	0.367	0.000	0.000	0.000	0.000	0.000	0.0
19	Geotechnical Engineer	Jatma Sujatma	0.000	0.000	0.000	0.000	0.000	0.400	1.000	1.000	1.000	1.000	1.000	0.100	0.000	0.000	0.000	1.000	0.000	0.0
22	Road Design Engineer(3)	Cancelled	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0
---	TOTAL		*0.000*	*1.400*	1.500	2.899	3.234	3.499	4.433	7.834	7.967	6.867	8.134	4.634	1.799	2.300	3.200	2.200	1.733	2.1

MAN-MONTHS BALANCE FOR P.T. YODYA KARYA

As of August 10th, 1988

	1987							1988										
AY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	TOTAL	AGREEMENT	BALANCE
000	0.000	0.000	0.133	0.000	0.000	0.000	0.000	0.000	0.134	0.000	0.000	0.000	0.100	0.200	0.200	1.067	1.000	-0.067
800	0.000	0.633	0.500	0.000	0.633	0.500	0.067	0.000	0.000	0.600	0.400	0.000	0.000	0.800	0.200	6.000	6.000	0.000
000	0.000	0.000	0.000	0.600	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.400	0.000	0.000	9.000	9.000	0.000
000	0.000	0.000	0.000	0.000	0.000	0.000	0.500	1.000	1.000	1.000	1.000	1.000	0.500	0.000	0.000	6.000	5.000	-1.000
000	0.000	0.633	1.000	1.000	1.000	1.000	0.367	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	5.000	5.000	0.000
000	0.000	0.000	0.000	0.000	0.000	0.333	0.333	0.400	1.000	0.934	0.000	0.000	0.000	0.000	0.000	3.000	3.000	0.000
000	0.000	0.000	0.600	0.400	0.000	0.000	0.000	0.000	1.833	1.000	1.000	1.000	0.167	0.000	0.000	6.000	6.000	0.000
000	0.833	1.000	1.000	1.000	0.100	0.333	0.567	0.000	0.667	1.000	1.000	0.500	0.000	0.467	0.000	9.400	9.000	-0.400
000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.767	0.000	0.000	0.000	1.000	0.000	12.000	10.000	-2.000
633	1.000	0.267	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.600	0.000	0.000	0.000	0.000	0.000	9.500	9.000	-0.500
000	0.000	0.000	0.000	0.667	0.166	0.000	0.367	0.933	1.000	0.867	0.000	0.000	0.000	1.000	0.000	5.000	4.000	-1.000
																	4.000	4.000
.433	2.833	3.533	5.233	5.667	4.899	5.166	5.201	5.333	8.634	7.768	4.400	3.500	1.167	3.467	0.400	71.967	71.000	-0.967
.633	1.000	0.833	0.000	0.600	1.000	0.800	1.000	0.967	1.000	1.000	1.000	1.000	1.000	1.000	0.267	14.300	7.000	-7.300
.000	0.367	0.633	1.000	1.000	1.000	1.000	1.000	0.800	0.000	0.000	0.000	0.000	0.300	0.200	0.000	10.000	7.000	-3.000
.000	0.000	0.000	0.133	1.000	0.867	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.000	2.000	0.000
.000	0.000	0.000	0.000	0.767	1.000	1.000	1.000	1.000	0.233	0.000	0.000	0.000	0.000	0.000	0.000	5.000	5.000	0.000
.000	0.000	0.000	0.000	0.267	0.733	0.000	0.667	0.000	0.000	0.000	0.000	1.000	0.333	0.000	0.000	3.000	2.500	-0.500
.633	0.867	0.000	0.100	0.267	1.000	1.000	0.167	0.000	0.466	1.000	0.000	0.000	0.000	0.800	0.000	6.300	5.500	-0.800
.000	0.000	0.000	0.000	0.000	0.000	0.000	1.000	1.000	0.000	0.000	1.000	0.000	0.000	0.000	0.000	3.000	2.000	-1.000
.000	0.000	0.000	0.200	0.933	0.367	0.100	0.300	0.000	0.100	0.300	0.200	0.200	0.100	0.100	0.100	3.000	3.000	0.000
.633	1.000	1.000	1.000	1.000	0.000	0.967	1.000	0.400	0.000	0.000	0.000	0.000	0.000	0.000	0.000	7.000	7.000	0.000
.000	0.000	0.633	1.000	1.000	1.000	1.000	1.000	0.367	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.000	6.000	0.000
.000	0.000	0.400	1.000	1.000	1.000	1.000	1.000	0.100	0.000	0.000	1.000	0.000	0.000	0.000	0.000	6.500	5.500	-1.000
.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	8.000	8.000
.899	3.234	3.499	4.433	7.834	7.967	6.867	8.134	4.634	1.799	2.300	3.200	2.200	1.733	2.100	0.367	66.100	60.500	-5.600

MONTHLY RATES BALANCE FOR HOME OFFICE OF TEPSCO

NO.	POSITION	NAME	1st Year			2nd Year			3rd Year			TOTAL	
			M.M.	Rate	Amount (Thou.Y)	M.M.	Rate	Amount (Thou.Y)	M.M.	Rate	Amount (Thou.Y)	M.M.	Amou (Tho
I	Yen Portion		0.000		0.000	0.000		0.000	0.000		0.000	0.000	0
1	Project Director	M.Iwata	1.000	2205.000	2205.000	1.133	2205.000	2498.265	0.567	2205.000	1250.235	2.700	5953
2	Resident Manager	H.Sasaki	1.000	2115.000	2115.000	3.000	2115.000	6345.000	1.000	2115.000	2115.000	5.000	10575
3	Dam Engineer(1)	S.Mathushita	1.000	1975.000	1975.000	0.000		0.000	0.000		0.000	1.000	1975
4	Dam Engineer(2)	T.Hamada	0.000		0.000	2.500	1628.000	4070.000	0.000		0.000	2.500	4070
5	Dam Engineer(3)	T.Tejima	1.000	990.000	990.000	0.000		0.000	0.367	1071.000	393.057	1.367	1383
6	Dam Engineer(4)	Y.Yoshida	0.000		0.000	0.000		0.000	0.000		0.000	0.000	0
7	Power Station Civil Engineer(1)	K.Terao	0.000		0.000	2.733	1628.000	4449.324	0.767	1628.000	1248.676	3.500	5698
8	Power Station Civil Engineer(2)	M.Nambu	0.000		0.000	5.500	2115.000	11632.500	0.500	2115.000	1057.500	6.000	12690
9	Metal Engineer	T.Kodama	0.733	1550.000	1136.150	1.267	1628.000	2062.676	0.000		0.000	2.000	3198
10	Geologist	M.Fujieda	0.000		0.000	0.000		0.000	0.000		0.000	0.000	0
11	Boring and Seismic Engineer	K.Nakamata	0.000		0.000	0.000		0.000	0.000		0.000	0.000	0
12	Survey Engineer	S.Shirahama	0.000		0.000	0.000		0.000	0.000		0.000	0.000	0
13	Aggregate and Concrete Test Enginee	M.Imbe	0.000		0.000	0.500	2115.000	1057.500	0.500	2115.000	1057.500	1.000	2115
14	Hydraulic Model Test Engineer	H.Nakamura	0.500	2025.000	1012.500	2.000	2025.000	4050.000	0.033	2115.000	69.795	2.533	5132
15	Power Station Engineer/System Analy	K.Matsushima	1.000	2025.000	2025.000	5.000	2025.000	10125.000	0.000		0.000	6.000	12150
16	Power Station Engineer/Electrical	M.Takada	0.500	1550.000	775.000	6.534	1628.000	10637.352	0.000		0.000	7.034	11412
17	Power Station Engineer/Mechanical	M.Mizusawa	0.000		0.000	2.500	2025.000	5062.500	0.000		0.000	2.500	5062
18	Architect	K.Yamanouchi	0.500	1975.000	987.500	2.034	2025.000	4118.850	0.000		0.000	2.534	5100
19	Substation Engineer	T.Murata	0.000		0.000	2.000	1628.000	3256.000	0.000		0.000	2.000	3256
20	Civil Engineer/Foundation of T/L	H.Kimura	0.500	2115.000	1057.500	4.533	2115.000	9587.295	0.000		0.000	5.033	10644
21	Transmission Line Engineer	R.Kashimura	0.000		0.000	0.000		0.000	0.000		0.000	0.000	
22	Transmission Survey Engineer	H.Mekata/S.Takahashi	0.000		0.000	0.000		0.000	0.000		0.000	0.000	
23	Construction Engineer	Y.Owada	0.000		0.000	1.500	2115.000	3172.500	1.000	2115.000	2115.000	2.500	5287
24	Economist	R.Suzuki	0.000		0.000	0.000		0.000	0.000		0.000	0.000	
25	Environmental Engineer	K.Inagaki	0.000		0.000	0.733	2025.000	1484.325	2.267	2025.000	4590.675	3.000	6075
26	Road Engineer(1)	J.Nagamura	0.000		0.000	0.000		0.000	0.000		0.000	0.000	
27	Road Engineer(2)	T.Tateishi	0.000		0.000	0.000		0.000	0.000		0.000	0.000	
28	Road Survey Engineer	N.Akasaka	0.000		0.000	3.000	2025.000	6075.000	0.000		0.000	3.000	6075
29	Bridge Design Engineer	S.Kohda	0.000		0.000	0.000		0.000	0.000		0.000	0.000	
30	Contract Document Engineer	E.Goto	0.000										
31	On-call Engineer												
---	TOTAL		7.733		14278.650	46.467		89684.087	7.001		13897.438	61.201	11786

MONTHLY RATES BALANCE FOR HOME OFFICE OF TEPSCO

Annex 7

ar		2nd Year			3rd Year			TOTAL		Agreement		Balance	
te	Amount	M.M.	Rate	Amount	M.M.	Rate	Amount	M.M.	Amount	M.M.	Amount	M.M.	Amount
	(Thou.Y)			(Thou.Y)			(Thou.Y)		(Thou.Y)		(Thou.Y)		(Thou. Y)
	0.000	0.000		0.000	0.000		0.000	0.000	0.000	0.000		0.000	0.000
.000	2205.000	1.133	2205.000	2498.265	0.567	2205.000	1250.235	2.700	5953.500	3.000	6615.000	0.300	661.500
.000	2115.000	3.000	2115.000	6345.000	1.000	2115.000	2115.000	5.000	10575.000	5.000	10575.000	0.000	0.000
.000	1975.000	0.000		0.000	0.000		0.000	1.000	1975.000	1.000	1975.000	0.000	0.000
	0.000	2.500	1628.000	4070.000	0.000		0.000	2.500	4070.000	2.500	4070.000	0.000	0.000
.000	990.000	0.000		0.000	0.367	1071.000	393.057	1.367	1383.057	2.000	2061.000	0.633	677.943
	0.000	0.000		0.000	0.000		0.000	0.000	0.000	3.000	5006.000	3.000	5006.000
	0.000	2.733	1628.000	4449.324	0.767	1628.000	1248.676	3.500	5698.000	3.500	5698.000	0.000	0.000
	0.000	5.500	2115.000	11632.500	0.500	2115.000	1057.500	6.000	12690.000	6.000	12690.000	0.000	0.000
.000	1136.150	1.267	1628.000	2062.676	0.000		0.000	2.000	3198.826	2.000	3178.000	0.000	-20.826
	0.000	0.000		0.000	0.000		0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000		0.000	0.000		0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000		0.000	0.000		0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.500	2115.000	1057.500	0.500	2115.000	1057.500	1.000	2115.000	1.000	2115.000	0.000	0.000
.000	1012.500	2.000	2025.000	4050.000	0.033	2115.000	69.795	2.533	5132.295	2.500	5287.500	-0.033	155.205
.000	2025.000	5.000	2025.000	10125.000	0.000		0.000	6.000	12150.000	6.000	12150.000	0.000	0.000
.000	775.000	6.534	1628.000	10637.352	0.000		0.000	7.034	11412.352	7.000	14125.000	-0.034	2712.648
	0.000	2.500	2025.000	5062.500	0.000		0.000	2.500	5062.500	2.500	5062.500	0.000	0.000
.000	987.500	2.034	2025.000	4118.850	0.000		0.000	2.534	5106.350	2.500	4987.500	-0.034	-118.850
	0.000	2.000	1628.000	3256.000	0.000		0.000	2.000	3256.000	2.000	3256.000	0.000	0.000
.000	1057.500	4.533	2115.000	9587.295	0.000		0.000	5.033	10644.795	5.000	10575.000	-0.033	-69.795
	0.000	0.000		0.000	0.000		0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000		0.000	0.000		0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	1.500	2115.000	3172.500	1.000	2115.000	2115.000	2.500	5287.500	2.500	5287.500	0.000	0.000
	0.000	0.000		0.000	0.000		0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.733	2025.000	1484.325	2.267	2025.000	4590.675	3.000	6075.000	3.000	6075.000	0.000	0.000
	0.000	0.000		0.000	0.000		0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	0.000		0.000	0.000		0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.000	3.000	2025.000	6075.000	0.000		0.000	3.000	6075.000	3.000	6075.000	0.000	0.000
	0.000	0.000		0.000	0.000		0.000	0.000	0.000	0.000	0.000	0.000	0.000
										0.000	0.000	0.000	0.000
	14278.650	46.467		89684.087	7.001		13897.438	61.201	117860.175	65.000	126864.000	3.799	9003.825

OFFICE OF TEPSCO

NO.	POSITION	NAME	1st Year			3rd Year			TOTAL		Agreement		
			M.M.	Rate	Amount	M.M.	Rate	Amount	M.M.	Amount	M.M.	Amount	M.
					(Thou.Y)			(Thou.Y)		(Thou.Y)		(Thou.Y)	
I	Yen Portion												
1	Project Director	M.Iwata	0.300	2450.000	735.000	0.233	2450.000	570.850	0.533	1305.850	1.000	2450.000	0
2	Resident Manager	H.Sasaki	0.733	2450.000	1795.850	2.914	2450.000	7139.300	14.514	35559.300	13.000	31850.000	-1
3	Dam Engineer(1)	S.Mathushita	0.733	2350.000	1722.550	0.470	2350.000	1104.500	9.770	22959.500	10.000	23500.000	0
4	Dam Engineer(2)	T.Hamada	0.733	2194.000	1608.202	2.000	2250.000	4500.000	14.233	31983.202	14.000	31388.000	-0
5	Dam Engineer(3)	T.Tejima	0.000		0.000	3.367	1809.000	6090.903	10.000	18090.000	8.500	15376.500	-1
6	Dam Engineer(4)	Y.Yoshida	0.733	1100.000	806.300	3.767	1190.000	4482.730	14.500	17189.030	11.000	12910.000	-3
7	Power Station Civil Engineer(1)	K.Terao	0.733	1739.000	1274.687	2.900	1849.000	5362.100	11.300	20813.070	7.000	12723.000	-4
8	Power Station Civil Engineer(2)	M.Nambu	0.000		0.000	0.000		0.000	5.100	9225.900	5.000	9045.000	-0
9	Metal Engineer	T.Kodama	0.000		0.000	0.500	2350.000	1175.000	0.500	1175.000	1.000	2350.000	0
10	Geologist	M.Fujieda	0.000		0.000	0.200	1809.000	361.800	7.700	13929.300	7.000	12576.000	-0
11	Boring and Seismic Engineer	K.Nakamata	1.167	1722.000	2009.574	0.000		0.000	6.200	11114.271	5.000	9045.000	-1
12	Survey Engineer	S.Shirahama	0.000		0.000	0.000		0.000	8.033	18475.900	8.000	18400.000	-0
13	Aggregate and Concrete Test Enginee	M.Imbe	0.000		0.000	0.000		0.000	3.000	5427.000	3.000	6900.000	0
14	Hydraulic Model Test Engineer	H.Nakamura	0.000		0.000	1.167	2350.000	2742.450	3.900	9165.000	4.000	9400.000	0
15	Power Station Engineer/System Analy	K.Matsushima	0.733	2250.000	1649.250	0.000		0.000	1.700	3825.000	1.500	3525.000	-0
16	Power Station Engineer/Electrical	M.Takada	0.000		0.000	0.867	2250.000	1950.750	2.768	6228.000	4.000	9000.000	1
17	Power Station Engineer/Mechanical	M.Mizusawa	0.733	1722.000	1262.226	0.733	1809.000	1325.997	2.799	4999.620	3.000	6694.000	0
18	Architect	K.Yamanouchi	0.000		0.000	0.733	2250.000	1649.250	1.300	2925.000	2.500	5625.000	1
19	Substation Engineer	T.Murata	0.733	2194.000	1608.202	0.766	2250.000	1723.500	2.832	6330.952	3.000	6694.000	0
20	Civil Engineer/Foundation of T/L	H.Kimura	0.733	1722.000	1262.226	0.500	1809.000	904.500	1.500	2649.729	2.000	3531.000	0
21	Transmission Line Engineer	R.Kashimura	0.733	2350.000	1722.550	0.700	2350.000	1645.000	2.333	5482.550	2.500	5875.000	0
22	Transmission Survey Engineer	H.Mekata/S.Takahashi	0.000		0.000	0.700	1809.000	1266.300	5.733	10370.997	6.000	10854.000	0
23	Construction Engineer	Y.Owada	0.000		0.000	0.600	2250.000	1350.000	7.500	16875.000	6.000	13500.000	-1
24	Economist	R.Suzuki	0.000		0.000	0.500	2350.000	1175.000	0.500	1175.000	0.500	1175.000	0
25	Environmental Engineer	K.Inagaki	0.000		0.000	1.734	1443.000	2502.162	4.200	6060.600	3.000	4329.000	-1
26	Road Engineer(1)	J.Nagamura	1.167	2250.000	2625.750	0.000		0.000	11.634	26176.500	11.500	25875.000	-0
27	Road Engineer(2)	T.Tateishi	0.000		0.000	0.000		0.000	7.000	16100.000	7.000	16100.000	0
28	Road Survey Engineer	N.Akasaka	0.000		0.000	0.000		0.000	6.667	12327.283	7.000	12943.000	0
29	Bridge Design Engineer	S.Kohda	0.000		0.000	0.000		0.000	4.366	9823.500	4.000	9000.000	-0
30	Contract Document Engineer	E.Goto	0.000		0.000	2.000	2100.000	4200.000	2.000	4200.000	0.000	0.000	-2
31	On-call Engineer										6.500	14300.000	6
	TOTAL		9.964		20082.367	7.351		53222.092	174.115	351962.054	167.500	346933.500	-4

OFFICE OF TEPSCO

Annex 8

1st Year			3rd Year			TOTAL		Agreement		Balance	
.M.	Rate	Amount	M.M.	Rate	Amount	M.M.	Amount	M.M.	Amount	M.M.	Amount
		(Thou.Y)			(Thou.Y)		(Thou.Y)		(Thou.Y)		(Thou.Y)
.300	2450.000	735.000	0.233	2450.000	570.850	0.533	1305.850	1.000	2450.000	0.467	1144.150
.733	2450.000	1795.850	2.914	2450.000	7139.300	14.514	35559.300	13.000	31850.000	-1.514	-3709.300
.733	2350.000	1722.550	0.470	2350.000	1104.500	9.770	22959.500	10.000	23500.000	0.230	540.500
.733	2194.000	1608.202	2.000	2250.000	4500.000	14.233	31983.202	14.000	31388.000	-0.233	-595.202
.000		0.000	3.367	1809.000	6090.903	10.000	18090.000	8.500	15376.500	-1.500	-2713.500
.733	1100.000	806.300	3.767	1190.000	4482.730	14.500	17189.030	11.000	12910.000	-3.500	-4279.030
.733	1739.000	1274.687	2.900	1849.000	5362.100	11.300	20813.070	7.000	12723.000	-4.300	-8090.070
.000		0.000	0.000		0.000	5.100	9225.900	5.000	9045.000	-0.100	-180.900
.000		0.000	0.500	2350.000	1175.000	0.500	1175.000	1.000	2350.000	0.500	1175.000
.000		0.000	0.200	1809.000	361.800	7.700	13929.300	7.000	12576.000	-0.700	-1353.300
..167	1722.000	2009.574	0.000		0.000	6.200	11114.271	5.000	9045.000	-1.200	-2069.271
.000		0.000	0.000		0.000	8.033	18475.900	8.000	18400.000	-0.033	-75.900
.000		0.000	0.000		0.000	3.000	5427.000	3.000	6900.000	0.000	1473.000
.000		0.000	1.167	2350.000	2742.450	3.900	9165.000	4.000	9400.000	0.100	235.000
.733	2250.000	1649.250	0.000		0.000	1.700	3825.000	1.500	3525.000	-0.200	-300.000
.000		0.000	0.867	2250.000	1950.750	2.768	6228.000	4.000	9000.000	1.232	2772.000
.733	1722.000	1262.226	0.733	1809.000	1325.997	2.799	4999.620	3.000	6694.000	0.201	1694.380
.000		0.000	0.733	2250.000	1649.250	1.300	2925.000	2.500	5625.000	1.200	2700.000
.733	2194.000	1608.202	0.766	2250.000	1723.500	2.832	6330.952	3.000	6694.000	0.168	363.048
.733	1722.000	1262.226	0.500	1809.000	904.500	1.500	2649.729	2.000	3531.000	0.500	881.271
.733	2350.000	1722.550	0.700	2350.000	1645.000	2.333	5482.550	2.500	5875.000	0.167	392.450
.000		0.000	0.700	1809.000	1266.300	5.733	10370.997	6.000	10854.000	0.267	483.003
.000		0.000	0.600	2250.000	1350.000	7.500	16875.000	6.000	13500.000	-1.500	-3375.000
.000		0.000	0.500	2350.000	1175.000	0.500	1175.000	0.500	1175.000	0.000	0.000
.000		0.000	1.734	1443.000	2502.162	4.200	6060.600	3.000	4329.000	-1.200	-1731.600
1.167	2250.000	2625.750	0.000		0.000	11.634	26176.500	11.500	25875.000	-0.134	-301.500
.000		0.000	0.000		0.000	7.000	16100.000	7.000	16100.000	0.000	0.000
.000		0.000	0.000		0.000	6.667	12327.283	7.000	12943.000	0.333	615.717
.000		0.000	0.000		0.000	4.366	9823.500	4.000	9000.000	-0.366	-823.500
.000		0.000	2.000	2100.000	4200.000	2.000	4200.000	0.000	0.000	-2.000	-4200.000
								6.500	14300.000	6.500	14300.000
9.964		20082.367	7.351		53222.092	174.115	351962.054	167.500	346933.500	-6.615	-5028.554

MONTHLY RATES BALANCE FOR P.T. YODYA KARYA

NO.	POSITION	NAME	1st Year			2nd Year			3rd Year			M.M.
			M.M.	Rate	Amount	M.M.	Rate	Amount	M.M.	Rate	Amount	
					(Thou.Y)			(Thou.Y)			(Thou.Y)	
I	Yen Portion											
1	Co-Project Director	Donardi	0.300	260.000	78.000	0.267	260.000	69.420	0.500	260.000	130.000	1.06
2	Co-Resident Manager	Edi Paminto	0.700	257.200	180.040	3.900	257.200	1003.080	1.400	257.200	360.080	6.00
3	Dam Design Engineer	Riyanto	0.000		0.000	6.600	231.500	1527.900	2.400	231.500	555.600	9.00
5	Power Station Civil Engineer	L.M.Panggabean	0.000		0.000	3.500	221.900	776.650	2.500	221.900	554.750	6.00
9	Survey Engineer(3)	Donny Irawan	0.000		0.000	5.000	247.200	1236.000	0.000		0.000	5.00
10	Hydraulic Model Test(2)	Soetarto H.M.	0.000		0.000	3.000	257.200	771.600	0.000		0.000	3.00
12	Architect/Building Engineer(2)	E.N.Idroes	0.000		0.000	3.833	257.200	985.848	2.167	257.200	557.352	6.00
14	Transmission Line Engineer(2)	Gustian Halim	0.700	257.200	180.040	6.733	257.200	1731.728	1.967	257.200	505.912	9.40
20	Road Design Engineer(1)	Agus Sarwono	0.000		0.000	11.000	257.200	2829.200	1.000	257.200	257.200	12.00
21	Road Design Engineer(2)	Ridwan Mulyana	0.000		0.000	9.500	221.905	2108.098	0.000		0.000	9.50
23	Bridge Design Engineer(2)	Asikin	0.000		0.000	4.000	257.200	1028.800	1.000	257.200	257.200	5.00
24	On-call Engineer											
---	TOTAL		1.700		438.080	57.333		14068.323	12.934		3178.094	71.96
					(Thou.Rp)			(Thou.Rp)			(Thou.Rp)	
II	Rp. Portion											
4	Hydrologist	Irzal S.	0.700	1490.000	1043.000	9.333	1650.000	15399.600	4.267	1650.000	7040.600	14.30
6	Geologist(2)	Damai Putra	0.700	1335.000	934.500	8.800	1490.000	13112.000	0.500	1490.000	745.000	10.00
7	Soil Mechanics Engineer	Utomo Pudji	0.000		0.000	2.000	1650.000	3300.100	0.000		0.000	2.00
8	Survey Engineer(2)	Suhatril J.	0.000		0.000	5.000	1335.000	6675.000	0.000		0.000	5.00
11	Power Station Engineer	Donny Irawan	0.000		0.000	1.667	1648.000	2747.200	1.333	1648.000	2196.800	3.00
13	Civil Eng./Foundation of T/L,S/S(2)	Bambang K.	0.000		0.000	5.500	1980.000	10890.080	0.800	2050.000	1640.000	6.30
15	Construction Engineer(2)	Gip Satyawan	0.000		0.000	2.000	1330.000	2660.000	1.000	1330.000	1330.000	3.00
16	Environmental Engineer(2)	Bambang Purwono	0.000		0.000	2.300	2060.000	4738.000	0.700	2060.000	1442.000	3.00
17	Geodetic Engineer(1)	Bambang Gunarso	0.000		0.000	7.000	1648.000	11536.000	0.000		0.000	7.00
18	Geodetic Engineer(2)	Nana Sudiana	0.000		0.000	6.000	1490.000	8940.000	0.000		0.000	6.00
19	Geotechnical Engineer	Jatma Sujatma	0.000		0.000	5.500	1490.000	8195.000	1.000	1490.000	1490.000	6.50
22	Road Design Engineer(3)	Cancelled	0.000		0.000	0.000	2138.000	0.000	0.000		0.000	0.00
---	TOTAL		1.400		1977.500	55.100		88192.980	9.600		15884.400	66.10

MONTHLY RATES BALANCE FOR P.T. YODYA KARYA

t Year		2nd Year			3rd Year			TOTAL		Agreement		Balance	
Rate	Amount	M.M.	Rate	Amount	M.M.	Rate	Amount	M.M.	Amount	M.M.	Amount	M.M.	Amount
	(Thou.Y)			(Thou.Y)			(Thou.Y)		(Thou.Y)		(Thou.Y)		(Thou.Y)
260.000	78.000	0.267	260.000	69.420	0.500	260.000	130.000	1.067	277.420	1.000	260.000	-0.067	-17.420
257.200	180.040	3.900	257.200	1003.080	1.400	257.200	360.080	6.000	1543.200	6.000	1543.200	0.000	0.000
	0.000	6.600	231.500	1527.900	2.400	231.500	555.600	9.000	2083.500	9.000	2083.500	0.000	0.000
	0.000	3.500	221.900	776.650	2.500	221.900	554.750	6.000	1331.400	5.000	1109.500	-1.000	-221.900
	0.000	5.000	247.200	1236.000	0.000		0.000	5.000	1236.000	5.000	1236.000	0.000	0.000
	0.000	3.000	257.200	771.600	0.000		0.000	3.000	771.600	3.000	771.600	0.000	0.000
	0.000	3.833	257.200	985.848	2.167	257.200	557.352	6.000	1543.200	6.000	1543.200	0.000	0.000
257.200	180.040	6.733	257.200	1731.728	1.967	257.200	505.912	9.400	2417.680	9.000	2314.800	-0.400	-102.880
	0.000	11.000	257.200	2829.200	1.000	257.200	257.200	12.000	3086.400	10.000	2572.000	-2.000	-514.400
	0.000	9.500	221.905	2108.098	0.000		0.000	9.500	2108.098	9.000	2314.800	-0.500	206.703
	0.000	4.000	257.200	1028.800	1.000	257.200	257.200	5.000	1286.000	4.000	1028.800	-1.000	-257.200
										4.000	1028.800	4.000	1028.800
	438.080	57.333		14068.323	12.934		3178.094	71.967	17684.497	71.000	17806.200	-0.967	121.703
	(Thou.Rp)			(Thou.Rp)			(Thou.Rp)		(Thou.Rp)		(Thou.Rp)		(Thou.Rp)
490.000	1043.000	9.333	1650.000	15399.600	4.267	1650.000	7040.600	14.300	23483.200	7.000	11390.000	-7.300	-12093.200
335.000	934.500	8.800	1490.000	13112.000	0.500	1490.000	745.000	10.000	14791.500	7.000	10120.000	-3.000	-4671.500
	0.000	2.000	1650.000	3300.100	0.000		0.000	2.000	3300.100	2.000	4580.000	0.000	1279.900
	0.000	5.000	1335.000	6675.000	0.000		0.000	5.000	6675.000	5.000	6675.000	0.000	0.000
	0.000	1.667	1648.000	2747.200	1.333	1648.000	2196.800	3.000	4944.000	2.500	4120.000	-0.500	-824.000
	0.000	5.500	1980.000	10890.080	0.800	2050.000	1640.000	6.300	12530.080	5.500	10925.000	-0.800	-1605.080
	0.000	2.000	1330.000	2660.000	1.000	1330.000	1330.000	3.000	3990.000	2.000	2660.000	-1.000	-1330.000
	0.000	2.300	2060.000	4738.000	0.700	2060.000	1442.000	3.000	6180.000	3.000	6180.000	0.000	0.000
	0.000	7.000	1648.000	11536.000	0.000		0.000	7.000	11536.000	7.000	11536.000	0.000	0.000
	0.000	6.000	1490.000	8940.000	0.000		0.000	6.000	8940.000	6.000	8940.000	0.000	0.000
	0.000	5.500	1490.000	8195.000	1.000	1490.000	1490.000	6.500	9685.000	5.500	12100.000	-1.000	2415.000
	0.000	0.000	2138.000	0.000	0.000		0.000	0.000	0.000	8.000	17104.000	8.000	17104.000
	1977.500	55.100		88192.980	9.600		15884.400	66.100	106054.880	60.500	106330.000	-5.600	275.120

PROGRESS OF PAYMENT FOR SUB-CONTRACTS

SUB-CONTRACT NO. AND ITEM OF BUDGET	AGREEMENT AMOUNT	No.1 INVOICE	No.2 INVOICE	No.3 INVOICE	No.4 INVOICE	No.5 INVOICE	No.6 INVOICE	NO.7 INVOICE	No.8
Lot 1 Topographic Survey		0	0	18,180,000	28,965,000	25,137,000	0	18,617,000	
2.3.		0	0	18,180,000	28,965,000	25,137,000	0	18,617,000	
Lot 2 T/L Survey		0	0	21,000,000	64,125,600	0	19,874,000	0	
2.3		0	0	21,000,000	64,125,600	0	19,874,000	0	
Lot 3 Relocation Road Survey		0	0	32,288,000	26,272,000	52,397,000	0	48,770,000	1
2.3		0	0	32,288,000	26,272,000	52,397,000	0	48,770,000	1
Lot 4 Geological Investigation									
Dam Site (Sec.1)		0	0	34,832,700	0	126,452,784	0	0	11
2.4		0	0	32,438,100	0	118,410,384	0	0	10
2.5		0	0	2,394,600	0	8,042,400	0	0	1
Lot 5 Geological Investigation									
Dam Site (Sec.2)		0	0	36,801,600	0	83,584,000	0	0	6
2.4		0	0	0	0	58,648,000	0	0	
2.5		0	0	36,801,600	0	24,936,000	0	0	6
Lot 6 Geological Investigation									
Quarry & Gravel		0	0	33,773,000	45,680,400	36,605,520	0	0	5
2.4		0	0	18,787,000	41,929,200	19,769,760	0	0	1
2.5		0	0	14,986,000	3,751,200	16,835,760	0	0	3
Lot 7 Geological Investigation									
S/S,S/Y & T/L		0	0	24,500,000	0	91,920,030	0	6,079,970	
2.4		0	0	19,753,000	0	74,052,030	0	6,079,970	
2.5		0	0	4,747,000	0	17,868,000	0	0	
Lot 8 Geological Investigation									
Relocation Road		0	0	15,143,600	0	0	0	0	5
2.4		0	0	11,310,000	0	0	0	0	4
2.5		0	0	3,833,600	0	0	0	0	1
Lot 9A Meteorological									
Equipment		0	0	0	18,480,000	0	0	0	
2.3		0	0	0	18,480,000	0	0	0	
Lot 9B Instalation and									
Observation Meteo-									
Hydrological		0	0	0	0	0	0	0	1
2.3		0	0	0	0	0	0	0	1
Lot 10 Water Quality		0	0	0	5,519,250	0	0	0	
2.5		0	0	0	5,519,250	0	0	0	
Lot 11 Aggregate & Concrete		0	0	0	5,757,600	0	0	11,516,000	1
2.5		0	0	0	5,757,600	0	0	11,516,000	1
Lot 13 Hydraulic Model Test		0	0	0	0	0	12,362,400	0	5
2.5		0	0	0	0	0	12,362,400	0	5
Lot 15 Environmental Study		0	0	0	0	0	0	0	4
2.3		0	0	0	0	0	0	0	4
Total	1,262,231,500	0	0	216,518,900	194,799,850	416,096,334	32,236,400	84,982,970	31
2.3	456,422,900	0	0	71,468,000	137,842,600	77,534,000	19,874,000	67,387,000	5
2.4	373,867,600	0	0	82,288,100	41,929,200	270,880,174	0	6,079,970	
2.5	431,941,000	0	0	62,762,800	15,028,050	67,682,160	12,362,400	11,516,000	18

PROGRESS OF PAYMENT FOR SUB-CONTRACTS

(Unit:Rp)

MENT F	No.1 INVOICE	No.2 INVOICE	No.3 INVOICE	No.4 INVOICE	No.5 INVOICE	No.6 INVOICE	NO.7 INVOICE	No.8INVOICE	ADJUSTMENT BY No.8 INVOICE	Total	Balance
	0	0	18,180,000	28,965,000	25,137,000	0	18,617,000	1,000		90,900,000	
	0	0	18,180,000	28,965,000	25,137,000	0	18,617,000	1,000		90,900,000	
	0	0	21,000,000	64,125,600	0	19,874,000	0	0		104,999,600	
	0	0	21,000,000	64,125,600	0	19,874,000	0	0		104,999,600	
	0	0	32,288,000	26,272,000	52,397,000	0	48,770,000	1,715,000		161,442,000	
	0	0	32,288,000	26,272,000	52,397,000	0	48,770,000	1,715,000		161,442,000	
	0	0	34,832,700	0	126,452,784	0	0	11,380,496		172,665,980	
	0	0	32,438,100	0	118,410,384	0	0	10,043,084		160,891,568	
	0	0	2,394,600	0	8,042,400	0	0	1,337,412		11,774,412	
	0	0	36,801,600	0	83,584,000	0	0	63,622,400	0	184,008,000	
	0	0	0	0	58,648,000	0	0	0	(58,648,000)	0	
	0	0	36,801,600	0	24,936,000	0	0	63,622,400	58,648,000	184,008,000	
	0	0	33,773,000	45,680,400	36,605,520	0	0	52,302,580	0	168,361,500	
	0	0	18,787,000	41,929,200	19,769,760	0	0	18,809,821		99,295,781	
	0	0	14,986,000	3,751,200	16,835,760	0	0	33,492,759		69,065,719	
	0	0	24,500,000	0	91,920,030	0	6,079,970	0		122,500,000	
	0	0	19,753,000	0	74,052,030	0	6,079,970	0	(1,120,000)	98,765,000	
	0	0	4,747,000	0	17,868,000	0	0	0	1,120,000	23,735,000	
	0	0	15,143,600	0	0	0	0	59,505,650	0	74,649,250	
	0	0	11,310,000	0	0	0	0	43,166,950		54,476,950	
	0	0	3,833,600	0	0	0	0	16,338,700		20,172,300	
	0	0	0	18,480,000	0	0	0	0		18,480,000	
	0	0	0	18,480,000	0	0	0	0		18,480,000	
	0	0	0	0	0	0	0	15,496,000		15,496,000	
	0	0	0	0	0	0	0	15,496,000		15,496,000	
	0	0	0	5,519,250	0	0	0	613,250		6,132,500	
	0	0	0	5,519,250	0	0	0	613,250		6,132,500	
	0	0	0	5,757,600	0	0	11,516,000	13,591,200		30,864,800	
	0	0	0	5,757,600	0	0	11,516,000	13,591,200		30,864,800	
	0	0	0	0	0	12,362,400	0	54,520,000		66,882,400	
	0	0	0	0	0	12,362,400	0	54,520,000		66,882,400	
	0	0	0	0	0	0	0	40,000,000		40,000,000	
	0	0	0	0	0	0	0	40,000,000		40,000,000	
31,500	0	0	216,518,900	194,799,850	416,096,334	32,236,400	84,982,970	312,747,576		1,257,382,030	4,849,470
22,900	0	0	71,468,000	137,842,600	77,534,000	19,874,000	67,387,000	57,212,000		431,317,600	25,105,300
57,600	0	0	82,288,100	41,929,200	270,880,174	0	6,079,970	72,019,855		473,197,299	(99,329,699)
41,000	0	0	62,762,800	15,028,050	67,682,160	12,362,400	11,516,000	183,515,721		352,867,131	79,073,869

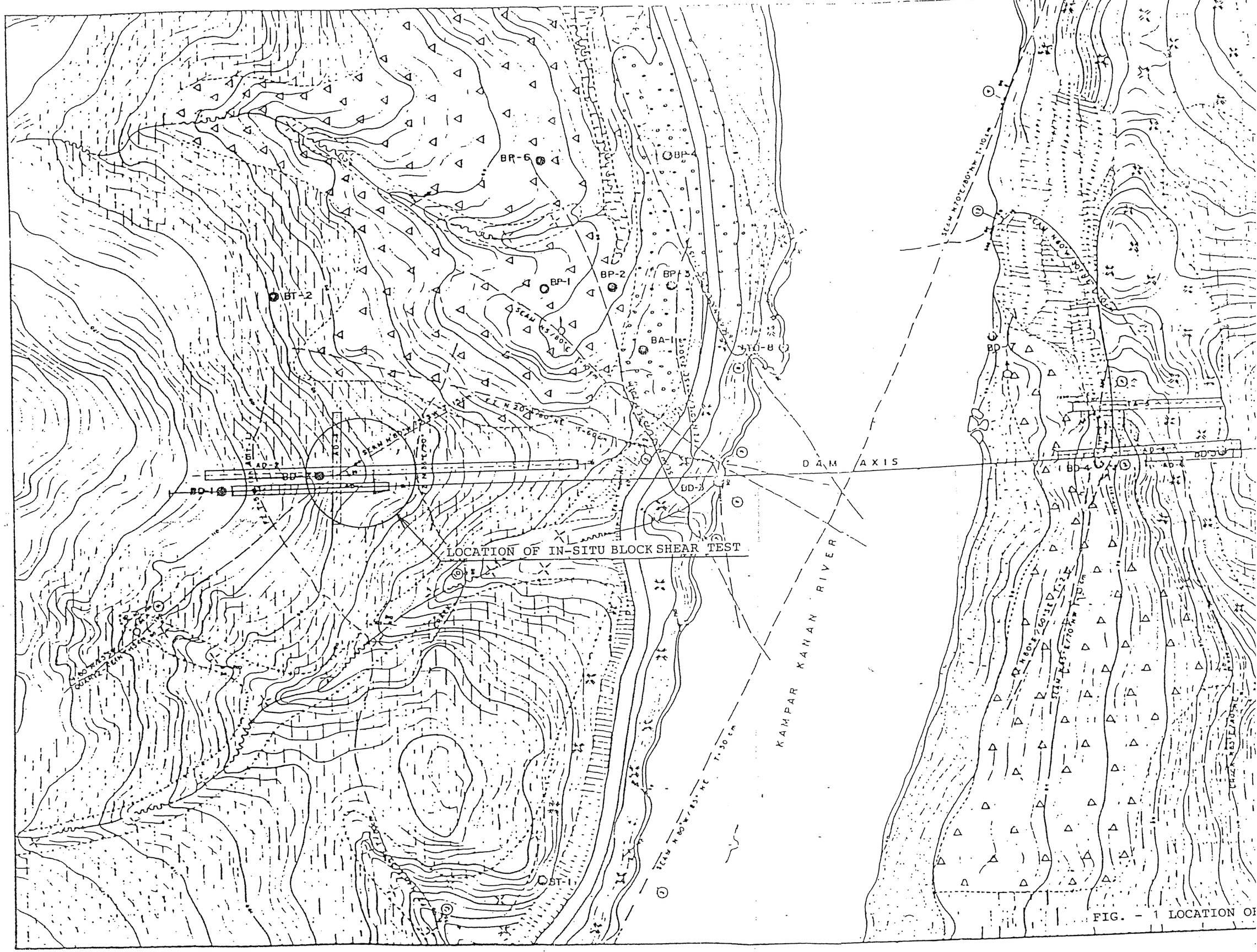
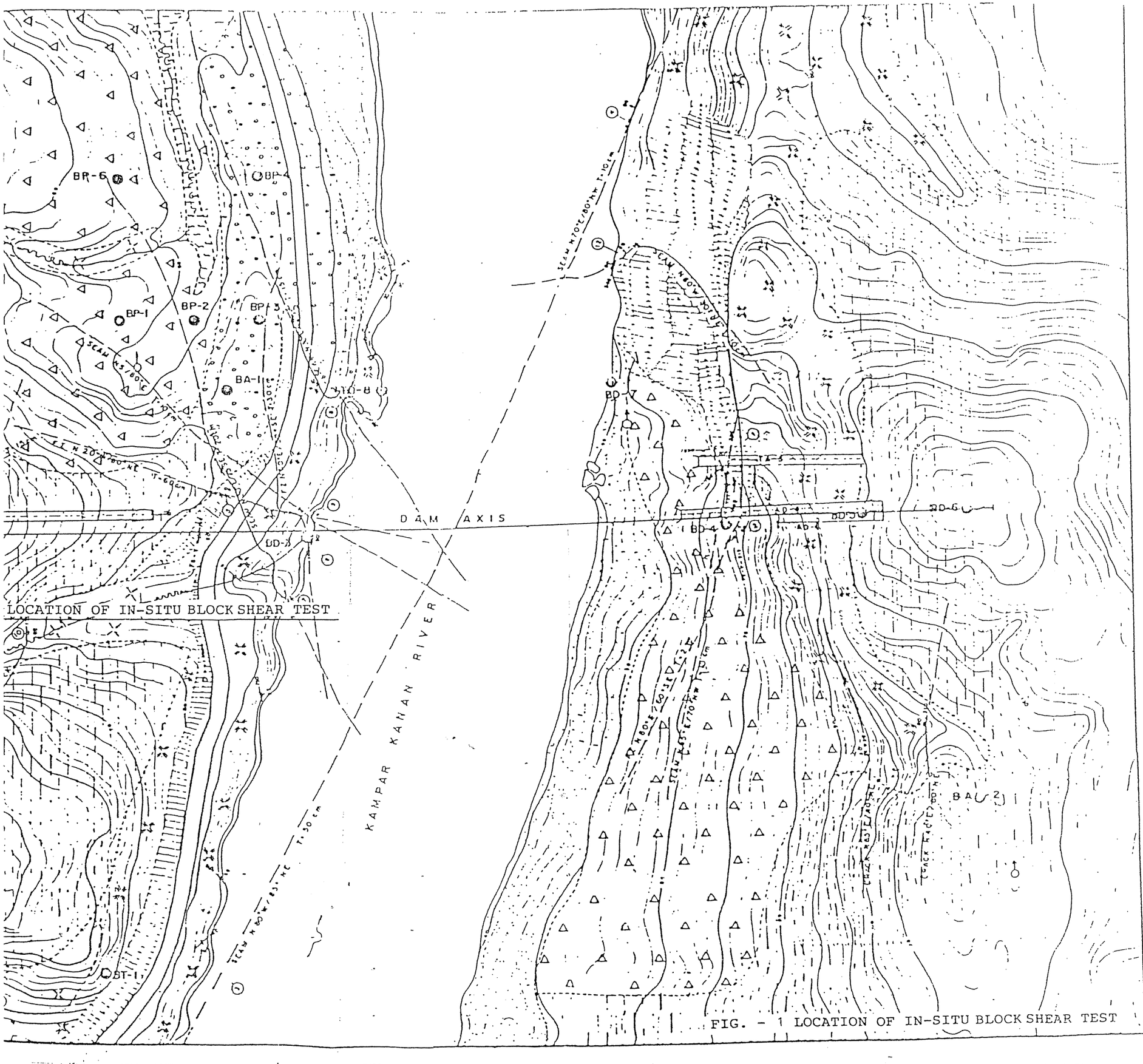


FIG. - 1 LOCATION O

LOCATION OF IN-SITU BLOCK SHEAR TEST



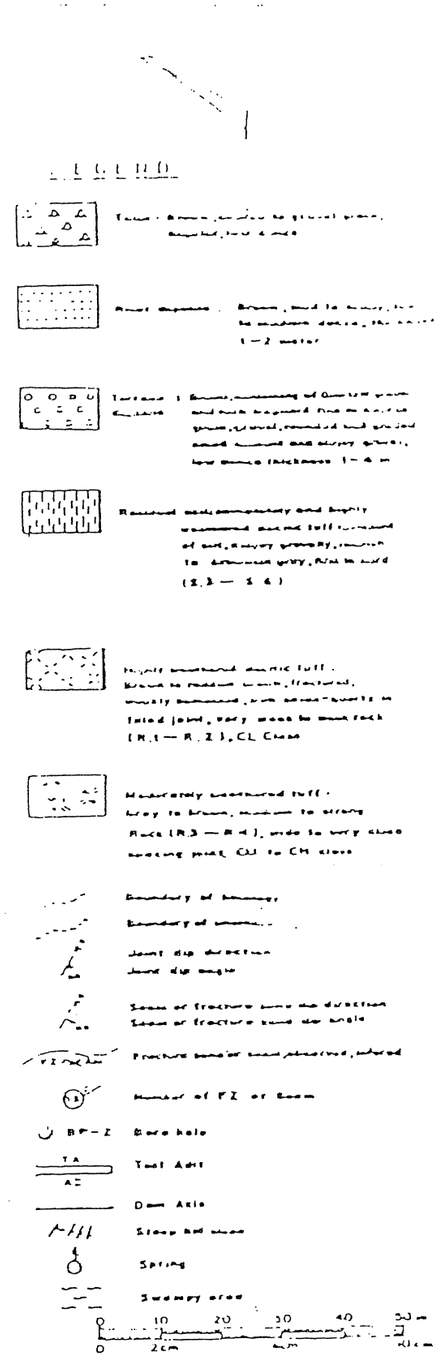
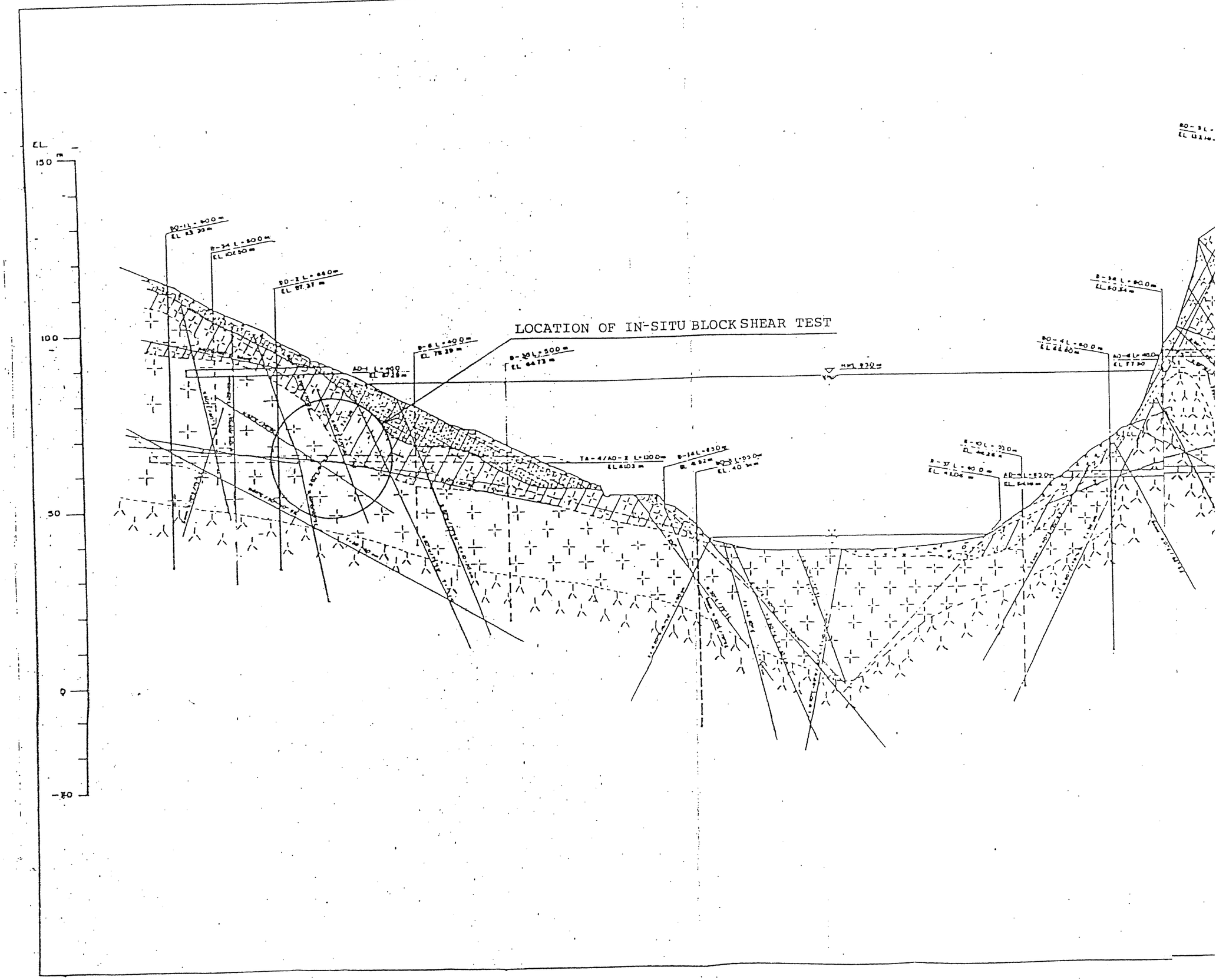


FIG. - 1 LOCATION OF IN-SITU BLOCK SHEAR TEST


EL
150
100
50
0
-50
LOCATION OF IN-SITU BLOCK SHEAR TEST

LOCATION OF IN-SITU BLOCK SHEAR TEST

EL
60 M
100
50
0
-20

LEGEND

FIG. - 2 LOCATION OF IN-SITU BLOCK SHEAR TEST

ITEM	1987													
	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	
I.DESIGN STAGE														
DIVISION I INCEPTION REPORT														
Review of F/S Report	====	======	==											
Preparation of Inception Report	====	======	==											
Preparation of Spec. & Program for Investigation Works	====	======	==											
DIVISION II INVESTIGATION WORKS & STUDY														
Geological Investigation				====	======	======	======	======	======	======	======	==		
Construction Material Investigation		====	==					======	======	======	======	======	======	======
Aerial Photogrammetry Mapping and Topographic Survey		====	======	====	======	======	======	======	======	======	======	==		
Meteo-Hydrological Investigation		====	======	======	======	======	======	======	======	======	======	======	======	======
Hydrauulic Model Test									====	======	======	======	======	======
Transmission Line Route and Substation Site Survey		====	==	====	======	======	======	======	======	==				
Road Route Survey				====	======	======	======	======	======	==				
Landslide Investigation										===				
Miscellaneous Surveys				====	======	======	======	======						
Environmental Study							=	======	==	======	======	======	======	======
Preparation of Investigation Work Report						======	======	======	======	======	======	======	==	
DIVISION III DESIGN AND COST ESTIMATE														
Design Criteria			==	======	======	====								
Basic Design					====	======	======	======	======	======	======			
Detailed Design								======	======	======	======	======	======	======
Project Cost Estimate									====	======	======	======	======	======
Preparation of Implementation Program								======	======	======	======	======	======	======
Operation and Maintenance Criteria														
DIVISION IV TENDER DOCUMENTS														
Preparation of Prequalification Questionnaire														
Preparation of Tender Documents													======	======
Preparation of T.O.R. on E/S for Construction Supervision														
OTHERS														
Transfer of Knowledge			====	======	======	======	======	======	======	======	======	======	======	======
Preparation of Monthly Progress Report				==	==	==	==	==	==	==	==	==	==	==
Preparation of Engineering Report														
Documentary File							===		======	===	===		======	======
III.ADDITIONAL WORKS (PRE-CONSTRUCTION STAGE)														
ADDITIONAL GEOLOGICAL INVESTIGATION AND SURVEY WORKS														
Geological Investigation														
Survey Works														
RESETTLEMENT INVESTIGATION														
PREPARATION OF PRE-CONSTRUCTION DRAWINGS														
Drawings for Diversion Works														
Drawings for Gravel Pits														
IMPLEMENTATION OF THE PROJECT														
Management Plan														
Manpower Plan														
Management Procedure and Progress														
Preparation of Quantity Control Procedure														
Financial Analysis														
OTHERS														
Transfer of Knowledge														
Preparation of Monthly Progress Report														

SCHEDULE
OF
ENGINEERING SERVICES
FOR
KOTAPANJANG HYDROELECTRIC POWWER PROJECT

Annex - 2

1988												1989												1990	
Dec.	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.
																							Expire Date of L/A (Feb.15)			

TENTATIVE TIME SCHEDULE OF ENGINEERING SERVICES FOR KOTAPANJANG HYDROELECTRIC POWER P

ITEM	1987 Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	1988 Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.
I. DESIGN STAGE																		
DIVISION I INCEPTION REPORT																		
Review of F/S Report	====	======	==															
Preparation of Inception Report	====	======	==															
Preparation of Spec. & Program for Investigation Works	====	======	==															
DIVISION II INVESTIGATION WORKS & STUDY																		
Geological Investigation				====	======	======	======	======	======	======	======	==						
Construction Material Investigation		====	==					======	======	======	======		======	======				
Aerial Photogrammetry Mapping and Topographic Survey		====	======	====	======	======	======	======	======	======	======	==						
Meteo-Hydrological Investigation		====	======	======	======	======	======	======	======	======	======	======	======	======	======			
Hydrauulic Model Test									====	======	======	======	======	======	======			
Transmission Line Route and Substation Site Survey		====	==	====	======	======	======	======	======	==								
Road Route Survey				====	======	======	======	======	======	=======	==							
Landslide Investigation										===								
Miscelleneous Surveys				====	======	======	======	======										
Environmental Study						=	=====	==	==	======	======	======	======	======				
Preparation of Investigation Work Report						======	======	======	======	======	======	======	==					
DIVISION III DESIGN AND COST ESTIMATE																		
Design Criteria			==	======	======	====												
Basic Design					===	======	======	======	======	======	======							
Detailed Design									======	======	======	======	======	======	======	======	======	======
Project Cost Estimate										===	======	======	======	======	======	======	======	======
Preparation of Implementation Program										======	======	======	======	======	======	======	======	======
Operation and Maintenance Criteria														======	======	======	======	======
DIVISION IV TENDER DOCUMENTS																		
Preparation of Prequalification Questionnaire														====	======	======	======	======
Preparation of Tender Documents													======	======	======	======	======	======
Preparation of T.O.R. on E/S for Construction Supervision															======	==		
OTHERS																		
Transfer of Knowledge		====	======	======	======	======	======	======	======	======	======	======	======	======	======	======	======	==
Preparation of Monthly Progress Report			==	==	==	==	==	==	==	==	==	==	==	==	==	==	==	====
Preparation of Engineering Report							===		=======	===	===		=======	=======	=======			
Documentary Film																		
II. ADDITIONAL WORKS (PRE-CONSTRUCTION STAGE / MEMORANDUM NO.5)																		
ADDITIONAL GEOLOGICAL INVESTIGATION AND SURVEY WORKS																		
Geological Investigation																		
Survey Works																		
RESETTLEMENT INVESTIGATION																		
PREPARATION OF PRE-CONSTRUCTION DRAWINGS																		
Drawings for Diversion Works																		
Drawings for Gravel Pits																		
IMPLEMENTATION OF THE PROJECT																		
Management Plan																		
Manpower Plan																		
Management Procedure and Progress																		
Preparation of Quantity Control Procedure																		
Financial Analysis																		
OTHERS																		
Transfer of Knowledge																		
Preparation of Monthly Progress Report																		
III. ADDITIONAL WORKS (PREQUALIFICATION OF LOT-I CIVIL WORKS/ MEMORANDUM NO.6)																		
Prequalification of Lot-I Civil Works																		
Discussion for Prequalification Document																		
Advertising																		
Document Issue																		
Close of Document Submit by the Contractor's																		
Evaluation																		
Preparation for Evaluation Report																		
Others																		
Preparation of Monthly Progress Report																		

TENTATIVE TIME SCHEDULE
OF
ENGINEERING SERVICES
FOR
NJANG HYDROELECTRIC POWER PROJECT

Annex - 2

1988									1989											1990				
Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Jun.

Expire Date of L/A (Feb.15)

^8 ^20 ^22 21

SCHEDULE OF PAYMENT

Annex – 8

Item No.	Item	Memorandum No.5 TOTAL (Pre-construction)	Memorandum No.5 1st Invoice	Memorandum No.5 2nd Invoice	Memorandum No.5 3rd Invoice	Memorandum No.5 4th Invoice	Memorandum No.6 1st Invoice
1.	FOREIGN CURRENCY PORTION	(Yen)	Y (Yen)	(Yen)	(Yen)	(Yen)	(Yen)
1.1	MONTHLY RATES	52,865,000	17,209,000	19,346,000	13,526,000	2,784,000	0
(1)	MONTHLY RATES for TEPSCO	52,865,000	17,209,000	19,346,000	13,526,000	2,784,000	0
1.2	Out-of-Pocket Expenses	15,622,600	5,149,100	4,932,150	3,672,600	1,868,750	0
(1)	International Round Air Trip	5,129,800	2,292,800	1,425,750	1,131,900	279,350	0
(2)	Communication and Mail	1,600,000	400,000	400,000	400,000	400,000	0
(3)	Office Supply	1,200,000	300,000	300,000	300,000	300,000	0
(4)	Printing	1,100,000	275,000	275,000	275,000	275,000	0
(5)	Per Diem Allowance for TEPSCO FIELD PERSONNEL without Residence	4,158,000	1,270,500	1,617,000	808,500	462,000	0
(6)	Per Diem Allowance for TEPSCO Duty Trip	91,800	20,400	0	71,400	0	0
(7)	Per Diem Allowance for TEPSCO Field Trip	57,000	57,000	0	0	0	0
(8)	Car Expenditure	2,286,000	533,400	914,400	685,800	152,400	0
	TOTAL	68,487,600	22,358,100	24,278,150	17,198,600	4,652,750	0
2.	LOCAL CURRENCY PORTION	(Rp.)	(Rp.)	(Rp.)	(Rp.)	(Rp.)	(Rp.)
2.1	MONTHLY RATES	39,429,000	10,879,000	17,976,000	10,574,000	0	51,610,362
(1)	MONTHLY RATES for Y.K.	39,429,000	10,879,000	17,976,000	10,574,000	0	0
(2)	MONTHLY RATES for TEPSCO	–	–	–	–	–	51,610,362
2.2	Out-of-Pocket Expenses	43,902,960	9,398,460	12,841,220	16,107,080	5,556,200	23,389,63
(1)	Mobilization and Demobilization Cost	4,481,760	1,763,160	1,771,020	881,580	66,000	36,000
(2)	Duty Trip Expenses	4,021,200	1,005,300	670,200	1,675,500	670,200	0
(3)	Per Diem Allowance for Y.K. FIELD Trip	300,000	300,000	0	0	0	0
(4)	Per Diem Allowance for Y.K. FIELD PERSONNEL without Residence	5,250,000	0	1,050,000	4,200,000	0	0
(5)	Office and House Rental	–	–	–	–	–	0
(6)	Office Expenditure	7,500,000	1,250,000	2,500,000	2,500,000	1,250,000	2,750,000

(5)	Per Diem Allowance for TEPSCO FIELD PERSONNEL without Residence	4,158,000	1,270,500	1,617,000	808,500	462,000	0
(6)	Per Diem Allowance for TEPSCO Duty Trip	91,800	20,400	0	71,400	0	0
(7)	Per Diem Allowance for TEPSCO Field Trip	57,000	57,000	0	0	0	0
(8)	Car Expenditure	2,286,000	533,400	914,400	685,800	152,400	0
	TOTAL	68,487,600	22,358,100	24,278,150	17,198,600	4,652,750	0
2.	LOCAL CURRENCY PORTION	(Rp.)	(Rp.)	(Rp.)	(Rp.)	(Rp.)	(Rp.)
2.1	MONTHLY RATES	39,429,000	10,879,000	17,976,000	10,574,000	0	51,610,362
(1)	MONTHLY RATES for Y.K.	39,429,000	10,879,000	17,976,000	10,574,000	0	0
(2)	MONTHLY RATES for TEPSCO	-	-	-	-	-	51,610,362
2.2	Out-of-Pocket Expenses	43,902,960	9,398,460	12,841,220	16,107,080	5,556,200	23,389,63
(1)	Mobilization and Demobilization Cost	4,481,760	1,763,160	1,771,020	881,580	66,000	36,000
(2)	Duty Trip Expenses	4,021,200	1,005,300	670,200	1,675,500	670,200	0
(3)	Per Diem Allowance for Y.K. FIELD Trip	300,000	300,000	0	0	0	0
(4)	Per Diem Allowance for Y.K. FIELD PERSONNEL without Residence	5,250,000	0	1,050,000	4,200,000	0	0
(5)	Office and House Rental	-	-	-	-	-	0
(6)	Office Expenditure	7,500,000	1,250,000	2,500,000	2,500,000	1,250,000	2,750,000
(7)	Communication and Mail	6,680,000	1,670,000	1,670,000	1,670,000	1,670,000	1,100,000
(8)	Helicopter Expenses	-	-	-	-	-	0
(9)	Drawing and Tracing	4,200,000	0	1,400,000	1,400,000	1,400,000	0
(10)	Salary for Local Employees	11,470,000	3,410,000	3,780,000	3,780,000	500,000	1,804,000
(11)	International Road Air Trip	-	-	-	-	-	5,959,639
(12)	Printing	-	-	-	-	-	3,395,419
(13)	Per Diem Allowance for FIELD PERSONNEL without Residence	-	-	-	-	-	6,274,733
(14)	Car Expenditure	-	-	-	-	-	2,069,847
2.3	Survey Works	13,419,430	0	4,025,000	9,394,430	0	0
2.4	Geological Investigation Works	33,851,000	0	10,155,300	23,695,700	0	0
2.5	Test Works	0	0	0	0	0	0
	Total	130,602,390	20,277,460	44,997,520	59,771,210	5,556,200	75,000,000

Note : The contingency amount is not included in the schedule.