

添付資料 4

現地調査写真



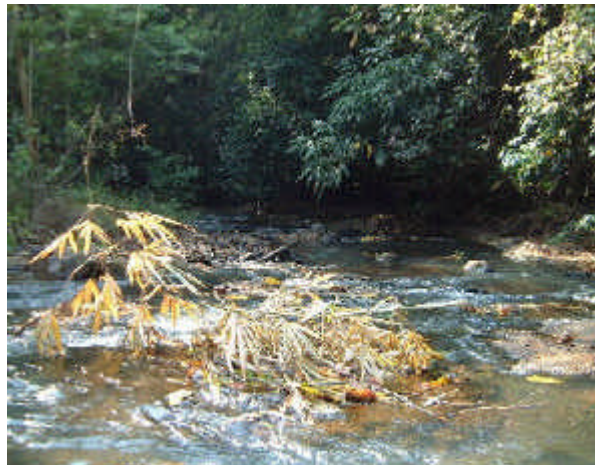
O'Molengの滝 (H=約7m)



O'Molengの滝上流部の河床状況



O'Romisの滝 (H=約5m)



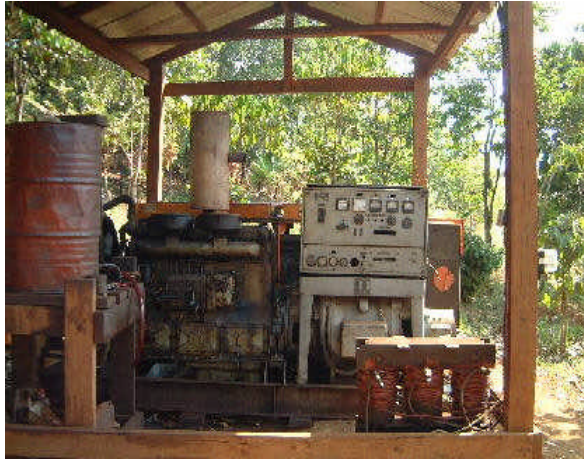
O'Romisの滝上流部の河床状況



Prek Dakuduer (H=約6m)



Prek Dakuduerの上流部の河床状況



2003年10月頃より現在稼働中の
発電用ディーゼルエンジン



現在稼働中のマイクロ hidro
水車発電所



製氷業者が所有している
発電用ディーゼルエンジン



製氷業者が運営している製氷用
コンプレッサーとディーゼルエンジン



センモノロム市における
配電線工事



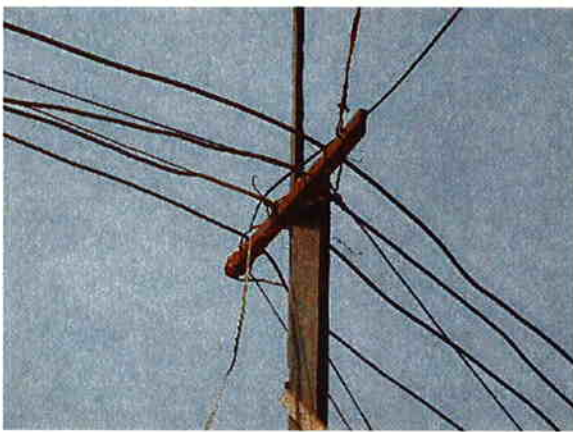
センモノロム市における
配電線工事



市場における配線状況



中心部の市場一殆んどが電気を引いている



碍子を用いない配電線・電柱



街路樹の点灯状況



電柱に取り付けられた電気メーター
センモノロム市内



碍子を用いた配電線・電柱



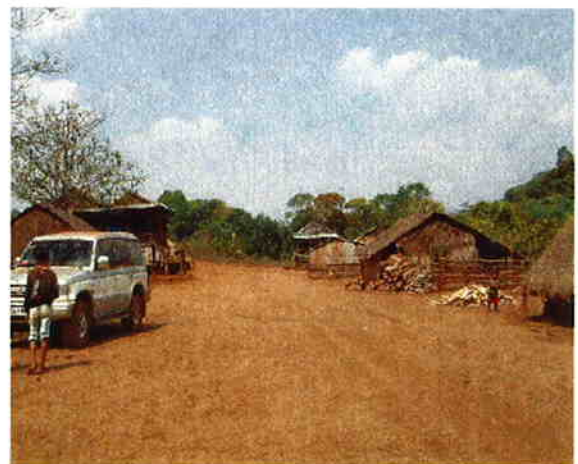
河川沿いの植相—かなり密生状況を呈している Prek Dakduer付近



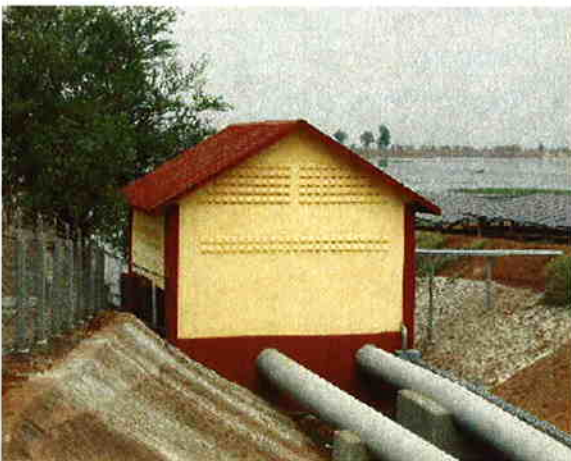
丘陵部斜面の植相—乾燥サバンナ様の状況を示しているO'Romis付近



丘陵頂部の植相—草原性のサバンナの状況 O'Romis付近



先住民族の村—Putang村



NEDOによるコンボンチャムの小水力発電所（同規模（建屋6m×5m）のものが本件各サイトに建設される）



NEDOによるコンボンチャムの小水力発電所（同規模（建屋6m×5m）のものが本件各サイトに建設される）

添付資料 5

スレポック川ロムファト計測所流量

MONTHLY DISCHARGE ON SRE POK AT LOMPHAT
 IN CUBIC METRES PER SECOND, Station number 450101

m³/s
C.A. = 25.6 km²

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
1942	401.0	224.0	149.0	170.0	320.0	1050.0	2550.0	4300.0	3190.0	2490.0	1610.0	681.0	1440.0
1943	345.0	280.0	199.0	171.0	224.0	495.0	1640.0	2660.0	3290.0	1690.0	1040.0	612.0	1060.0
1944	312.0	252.0	178.0	198.0	260.0	1210.0	1750.0	2430.0	3540.0	1970.0	1120.0	489.0	1140.0
1945	249.0	315.0	214.0	188.0	236.0	400.0	1580.0	3070.0	1920.0	2010.0	1090.0	400.0	978.0
1946	294.0	218.0	189.0	150.0	383.0	1570.0	2240.0	1790.0	3060.0	1190.0	495.0	324.0	995.0
1947	212.0	203.0	154.0	157.0	372.0	1290.0	1800.0	2520.0	3120.0	1390.0	505.0	228.0	997.0
1948	132.0	158.0	142.0	192.0	577.0	947.0	2520.0	2660.0	3380.0	1470.0	547.0	342.0	1090.0
1949	216.0	188.0	148.0	164.0	299.0	1110.0	2010.0	2330.0	3490.0	1880.0	576.0	278.0	1060.0
1950	233.0	189.0	150.0	137.0	283.0	460.0	571.0	1830.0	2520.0	1690.0	1180.0	781.0	838.0
1951	417.0	283.0	226.0	191.0	224.0	856.0	1650.0	2110.0	2880.0	2370.0	925.0	384.0	1050.0
1952	243.0	203.0	142.0	183.0	347.0	721.0	1140.0	1870.0	1560.0	1190.0	393.0	77.8	675.0
1953	86.5	105.0	134.0	135.0	309.0	484.0	866.0	3350.0	3350.0	2180.0	843.0	204.0	1010.0
1954	313.0	238.0	207.0	203.0	252.0	958.0	1150.0	2520.0	2590.0	1530.0	538.0	138.0	889.0
1955	245.0	174.0	156.0	203.0	402.0	879.0	1080.0	1910.0	3110.0	1790.0	424.0	154.0	880.0
1956	178.0	148.0	167.0	163.0	198.0	626.0	1410.0	1460.0	1990.0	1280.0	881.0	777.0	776.0
1957	484.0	265.0	236.0	256.0	543.0	673.0	1460.0	2200.0	2380.0	1070.0	361.0	160.0	844.0
1958	231.0	265.0	209.0	196.0	311.0	774.0	1310.0	1620.0	2970.0	2550.0	658.0	397.0	961.0
1959	487.0	278.0	194.0	194.0	235.0	822.0	1880.0	1760.0	3390.0	1590.0	407.0	225.0	957.0
1960	143.0	147.0	125.0	120.0	165.0	448.0	626.0	1460.0	2010.0	1310.0	213.0	256.0	586.0
1961	66.9	132.0	150.0	125.0	204.0	494.0	1020.0	2890.0	2250.0	2200.0	923.0	372.0	908.0
1962	318.0	246.0	225.0	157.0	398.0	1070.0	2670.0	3960.0	3500.0	2880.0	1120.0	495.0	1430.0
1963	362.0	297.0	316.0	247.0	324.0	1160.0	2020.0	3020.0	3010.0	1910.0	896.0	559.0	1180.0
1964	339.0	251.0	226.0	210.0	181.0	462.0	1180.0	2760.0	2810.0	1820.0	750.0	331.0	944.0
1965	321.0	172.0	91.6	81.2	330.0	414.0	829.0	1730.0	2510.0	2240.0	1360.0	627.0	894.0
1966	324.0	262.0	210.0	153.0	192.0	997.0	1840.0	1970.0	2690.0	1320.0	621.0	358.0	915.0
1967	140.0	30.3	158.0	229.0	389.0	439.0	1880.0	2770.0	2810.0	605.0	490.0	349.0	863.0
1968	171.0	224.0	271.0	226.0	291.0	730.0	1480.0	2740.0	3140.0	1870.0	554.0	445.0	1010.0
1969	258.0	216.0	174.0	131.0	193.0	330.0	866.0	2680.0	3460.0	1500.0	722.0	457.0	919.0
1970	279.0	175.0	154.0	145.0	174.0	961.0	2040.0	2800.0	1980.0	1050.0	560.0	271.0	888.0
1971	223.0	188.0	150.0	166.0	306.0	946.0	2170.0	3170.0	3170.0	1450.0	612.0	387.0	1080.0
1972	287.0	254.0	195.0	161.0	213.0	851.0	2630.0	3030.0	2690.0	1420.0	654.0	332.0	1060.0
1973	279.0	247.0	203.0	205.0	225.0	668.0	1370.0	3280.0	2160.0	1450.0	732.0	511.0	949.0

MONTHLY DISCHARGE ON SRE POK AT LOMPHAT
IN CUBIC METRES PER SECOND, Station number 450101

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
1974	321.0	249.0	192.0	181.0	292.0	691.0	1530.0	2150.0	3120.0	1610.0	772.0	389.0	961.0
1975	248.0	250.0	207.0	213.0	294.0	868.0	1100.0	2790.0	2750.0	1330.0	689.0	308.0	924.0
1976	272.0	259.0	196.0	174.0	265.0	1000.0	1590.0	2670.0	3020.0	1770.0	906.0	328.0	1040.0
1977	230.0	244.0	221.0	214.0	327.0	702.0	1250.0	2660.0	1810.0	1650.0	941.0	437.0	896.0
1978	251.0	190.0	202.0	232.0	252.0	324.0	1000.0	1650.0	2120.0	1200.0	684.0	302.0	719.0
1979	283.0	240.0	211.0	185.0	311.0	1020.0	1950.0	4030.0	3200.0	2310.0	740.0	304.0	1240.0
1980	235.0	254.0	224.0	205.0	397.0	1100.0	1690.0	2470.0	2310.0	1380.0	518.0	285.0	923.0
1981	218.0	214.0	194.0	182.0	267.0	746.0	1550.0	2270.0	3360.0	1820.0	959.0	353.0	1010.0
1982	248.0	251.0	239.0	220.0	383.0	1670.0	2620.0	3200.0	2340.0	1520.0	792.0	499.0	1170.0
1983	343.0	283.0	227.0	238.0	270.0	597.0	1190.0	2250.0	2550.0	2100.0	820.0	387.0	941.0
1984	239.0	235.0	245.0	219.0	242.0	527.0	955.0	1920.0	2300.0	1730.0	1090.0	504.0	850.0
1985	313.0	261.0	201.0	179.0	329.0	789.0	1880.0	3090.0	2680.0	1500.0	757.0	331.0	1030.0
1986	272.0	239.0	214.0	191.0	270.0	1120.0	1540.0	2670.0	2620.0	1430.0	765.0	448.0	986.0
1987	279.0	254.0	205.0	180.0	465.0	1120.0	1570.0	2280.0	2070.0	1150.0	641.0	323.0	800.0
1988	240.0	226.0	199.0	178.0	201.0	435.0	1040.0	2030.0	2190.0	1370.0	629.0	343.0	758.0
1989	236.0	206.0	184.0	169.0	342.0	732.0	943.0	2190.0	1620.0	1250.0	540.0	277.0	726.0
1990	191.0	180.0	163.0	163.0	268.0	838.0	1210.0	2240.0	1900.0	1590.0	731.0	337.0	822.0
1991	236.0	230.0	256.0	223.0	293.0	1310.0	1940.0	2370.0	2410.0	1610.0	803.0	377.0	1010.0
Mean	265.0	221.0	193.0	183.0	297.0	818.0	1550.0	2510.0	2690.0	1650.0	751.0	379.0	982.0
Max.	487.0	315.0	316.0	256.0	577.0	1670.0	2670.0	4300.0	3540.0	2800.0	1610.0	781.0	1440.0
Min.	66.9	30.3	91.6	81.2	165.0	324.0	571.0	1460.0	1560.0	605.0	213.0	77.0	586.0

添付資料 6

討議議事録 (M/D)

**Minutes of Discussions
on the Preparatory Study
on the Project for Rural Electrification on Micro-Hydropower
in Remote Province of Mondul Kiri
in the Kingdom of Cambodia**

In response to a request from the Government of the Kingdom of Cambodia (hereinafter referred to as "Cambodia"), the Government of Japan decided to conduct a Preparatory Study on the Project for Rural Electrification on Micro-Hydropower in Remote Province of Mondul Kiri (hereinafter referred to as "the Project") and entrusted the study to the Japan International Cooperation Agency (hereinafter referred to as "JICA").

JICA sent to Cambodia the Preparatory Study Team (hereinafter referred to as "the Team"), headed by Kazuhisa Arai, Deputy Director of Third Project Management Division, Grant Aid Management Department, JICA, and is scheduled to stay in the country from February 18 to March 12, 2004.

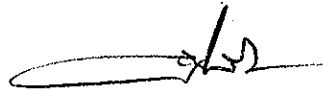
The Team held discussions with the officials concerned of the Government of Cambodia and conducted a field survey in the study area.

In the course of discussions and the field survey, both sides confirmed the main items described in the attached sheets

Phnom Penh, March 5, 2004

新井 和久

Kazuhisa Arai
Leader
Preparatory Study Team
Japan International Cooperation Agency



Ith Praing
Secretary of State
Doctor of Business Administration
Ministry of Industry, Mines and Energy

ATTACHMENT

1. Objective of the Project

The objective of the Project is to construct micro hydro-power plants in the Province of Mondul Kiri.

2. Project Sites

The Project site is around Sen Monorom City, in the province of Modul Kiri.

The Project site is shown in Annex-1.

3. Responsible and Implementing Agency

The responsible and implementing agency is the Ministry of Industry, Mines and Energy.

The organization chart of the implementing agency is shown in Annex-2.

4. Items Requested by the Government of Cambodia

After discussions with the Team, three "Run of the river" type micro hydro-power plants (O'Moleng, Prek Dakdeur, and O'Romis) were requested by the Cambodian side. JICA will assess the appropriateness of the request and will report the findings to the Government of Japan.

5. Japan's Grant Aid Scheme

The Cambodian side understands the Japan's Grant Aid scheme explained by the Team, as described in Annex-3.

The Cambodian side will take the necessary measures, as described in Annex-4, for smooth implementation of the Project as a condition for the Japan's Grant Aid to be implemented.

6. Schedule of the Study

The Team will continue to study in Japan until April, 2004. If the Project is deemed feasible as a result of the Preparatory Study, JICA will send a Basic Design Study Team subject to the instruction by the Ministry of Foreign Affairs of Japan.

7. Other Relevant Issues

(1) The Cambodian side understood the contents of "Run of the river" type micro hydro-power plants proposed by the Team.

(2) The Cambodian side requested the Japanese side to undertake all of the components mentioned in No.7 of Annex-4 considering situation of Modul Kiri.

(3) The Cambodian side admitted that this Grant Aid would not be treated as two-step loan project between the Ministry of Economy and Finance and the Ministry of Industry, Mines and Energy.

(4) The Cambodian side will get a letter from the Ministry of Tourism by the end of March, 2004, for the acceptance to develop Prek Dakdeur site, and submit it to JICA Cambodia Office.

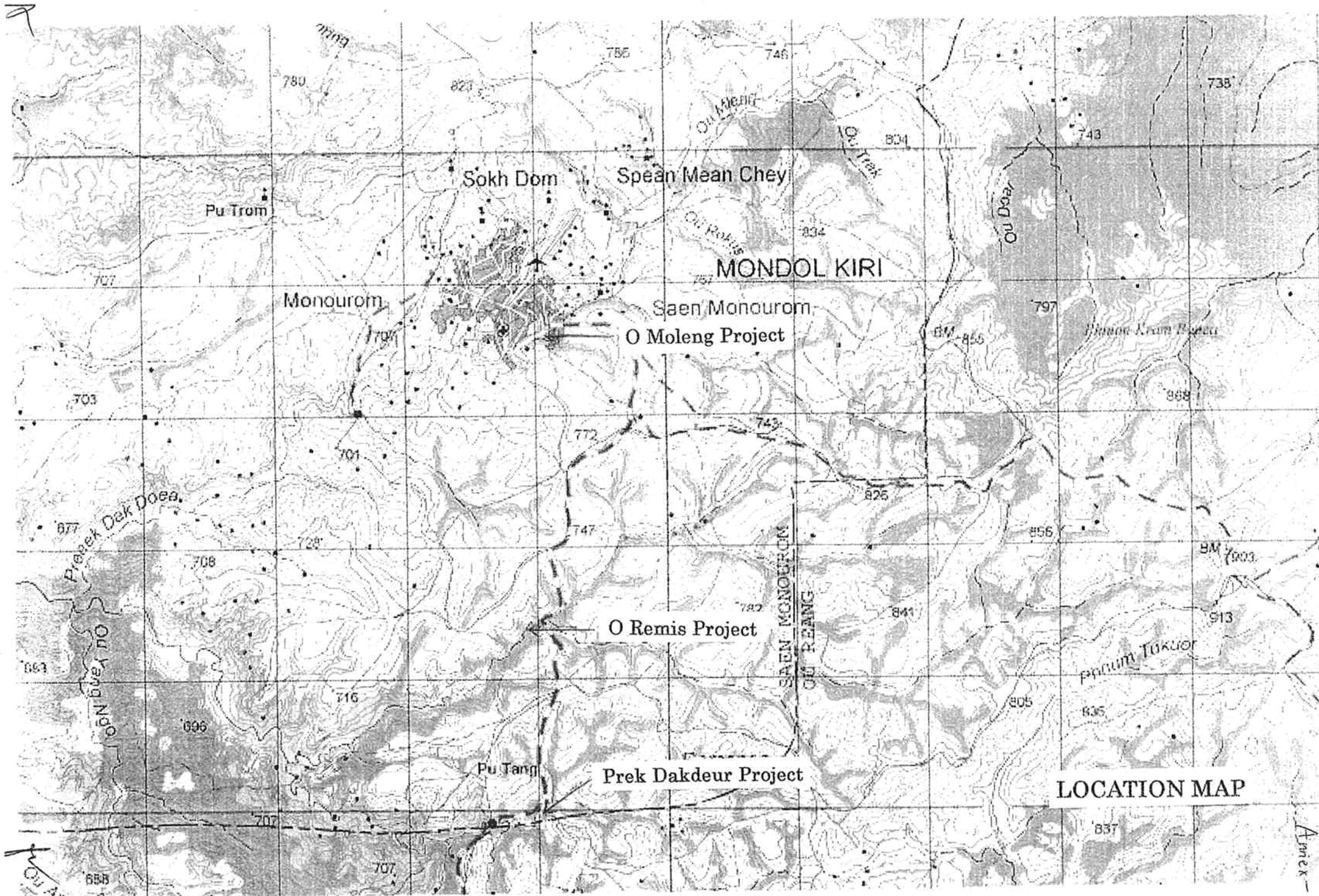
(5) The Cambodian side agreed to set an appropriate electricity charge for the people of Sen Monorom City, considering the social and economical difficulty there.

(6) The Cambodian side requested the Japanese side to construct new distribution network in Sen Monorom City to satisfy its new technical standard completed under JICA's technical assistance.

(7) The Cambodian side will get approval for IEIA (Initial Environment Impact Assessment) from the Ministry of Environment by the end of May, 2004, because of the exemption for EIA according to the Cambodian environment laws and regulations.

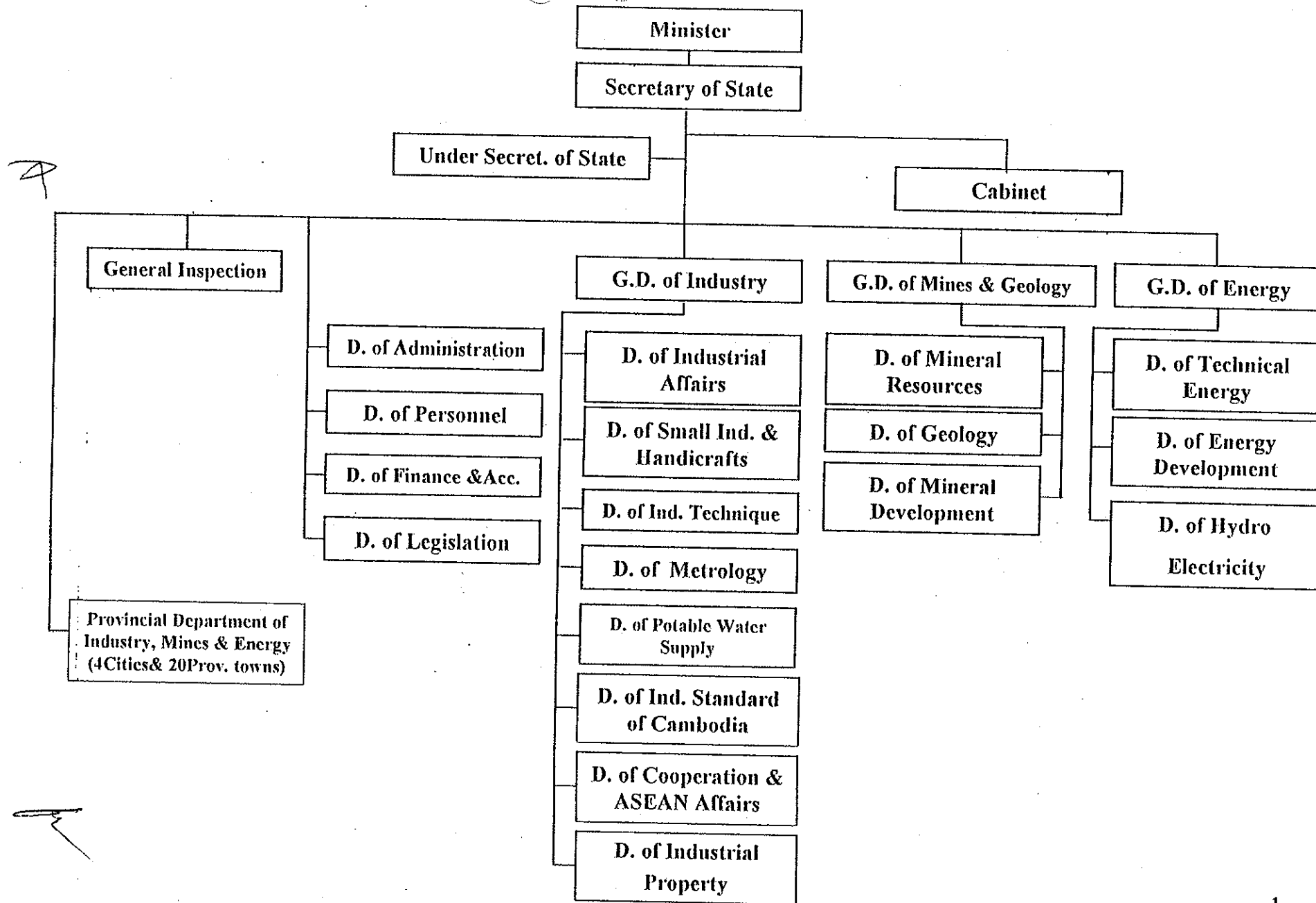
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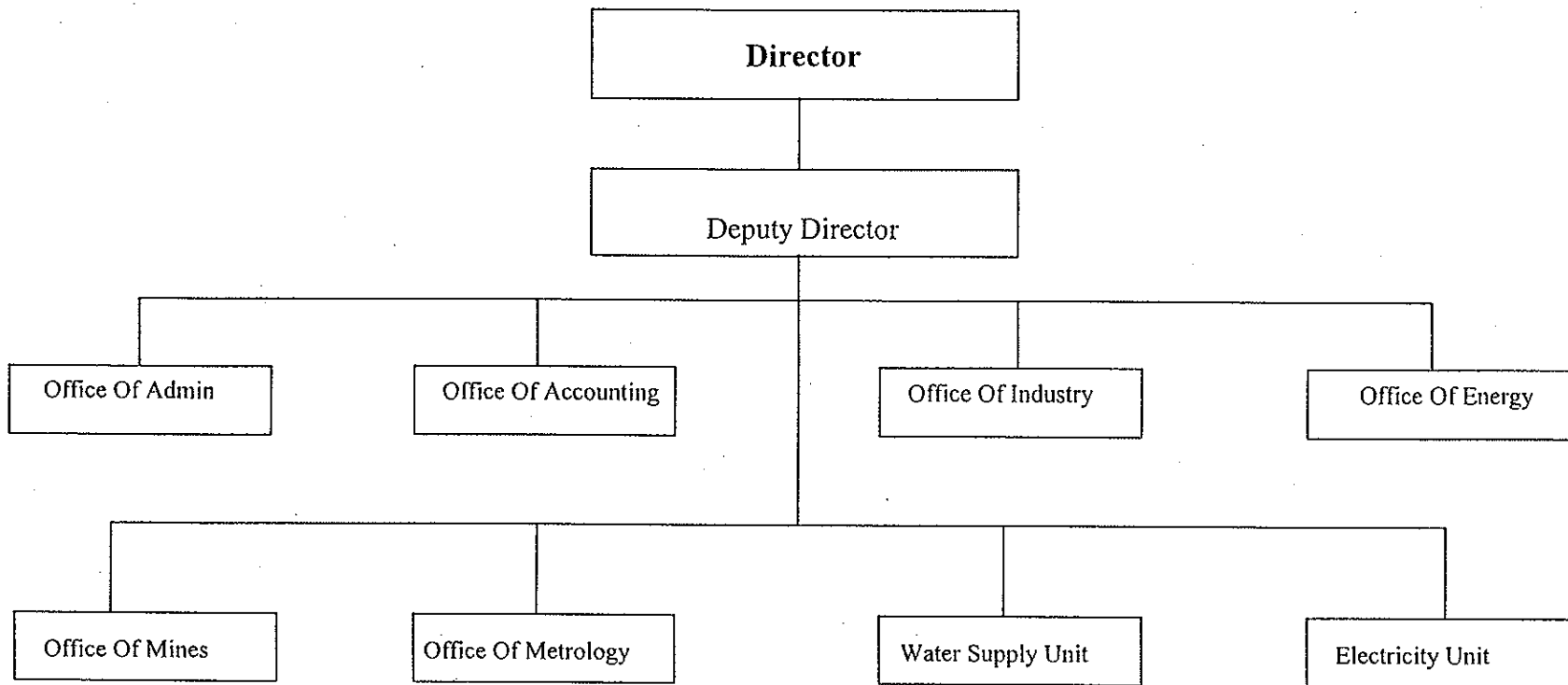
LOCATION MAP

MIME Organizational Chart



DIME - Mondulkiri Province

Organization Chart



JAPAN'S GRANT AID

The Grant Aid Scheme provides a recipient country with non-reimbursable funds to procure the facilities, equipment and services (engineering services and transportation of the products, etc.) for economic and social development of the country under principles in accordance with the relevant laws and regulations of Japan. The Grant Aid is not supplied through the donation of materials as such.

1. Grant Aid Procedures

Japan's Grant Aid Scheme is executed through the following procedures.

Application	(Request made by the recipient country)
Study	(Basic Design Study conducted by JICA)
Appraisal & Approval	(Appraisal by the Government of Japan and Approval by the Cabinet)
Determination of recipient	(The Note exchanged between the Governments of Japan and Implementation country)

Firstly, the application or request for a Grant Aid project submitted by a recipient country is examined by the Government of Japan (the Ministry of Foreign Affairs) to determine whether or not it is eligible for Grant Aid. If the request is deemed appropriate, the Government of Japan assigns JICA (Japan International Cooperation Agency) to conduct a study on the request.

Secondly, JICA conducts the study (Basic Design Study) using (a) Japanese consulting firm(s).

Thirdly, the Government of Japan appraises the project to see whether or not it is suitable for Japan's Grant Aid Scheme, based on the Basic Design Study report prepared by JICA, and the results are then submitted to the Cabinet for approval.

Fourthly, the project, once approved by the Cabinet, becomes official with the Exchange of Notes (E/N) signed by the Governments of Japan and the recipient country.

Finally, for the implementation of the project, JICA assists the recipient country in such matters as preparing tenders, contracts and so on.

2. Basic Design Study

(1) Contents of the study

The aim of the Basic Design Study (hereafter referred to as "the Study") conducted by JICA on a requested project (hereafter referred to as "the Project") is to provide a basic document necessary for the appraisal of the Project by the Government of Japan. The contents of the Study are as follows:

- Confirmation of the background, objectives, and benefits of the Project and also institutional capacity of agencies concerned of the recipient country necessary for the Project's implementation.
- Evaluation of the appropriateness of the Project to be implemented under the Grant Aid Scheme from a technical, social and economic point of view.
- Confirmation of items agreed on by both parties concerning the basic concept of the Project.
- Preparation of a basic design of the Project.
- Estimation of costs of the Project.

The contents of the original request are not necessarily approved in their initial form as the contents of the Grant Aid project. The Basic Design of the Project is confirmed considering the guidelines of the Japan's Grant Aid Scheme.

The Government of Japan requests the Government of the recipient country to take whatever measures are necessary to ensure its self-reliance in the implementation of the Project. Such measures must be guaranteed even though they may fall outside of the jurisdiction of the organization in the recipient country actually implementing the Project. Therefore, the implementation of the Project is confirmed by all relevant organizations of the recipient country through the Minutes of Discussions.

(2) Selection of Consultants

For smooth implementation of the Study, JICA uses (a) registered consulting firm(s). JICA selects (a) firm(s) based on proposals submitted by interested firms. The firm(s) selected carry(ies) out a Basic Design Study and write(s) a report, based upon terms of reference set by JICA. The consultant firm(s) used for the Study is (are) recommended by JICA to the recipient country to also work on the Project's implementation after the Exchange of Notes, in order to maintain technical consistency.

3. Japan's Grant Aid Scheme

(1) Exchange of Notes (E/N)

Japan's Grant Aid is extended in accordance with the Notes exchanged by the two Governments concerned, in which the objectives of the Project, period of execution, conditions and amount of the Grant Aid, etc., are confirmed.

(2) "The period of the Grant Aid" means the one fiscal year, which the Cabinet approves, the Project for. Within the fiscal year, all procedures such as exchanging of the Notes, concluding contracts with (a) consultant firm(s) and (a) contractor(s) and final payment to them must be completed. However, in case of delays in delivery, installation or construction due to unforeseen factors such as national disaster, the period of the Grant Aid can be further extended for a maximum of one fiscal year at most by mutual agreement between the two Governments.

(3) Under the Grant Aid, in principle, Japanese products and services including transport or those of the recipient country are to be purchased. When the two Governments deem it necessary, the Grant Aid may be used for the purchase of the products or services of a third country. However, the prime contractors, namely, consulting, constructing and procurement firms, are limited to "Japanese nationals". (The term "Japanese nationals" means persons of Japanese nationality or Japanese corporations controlled by persons of Japanese nationality.)

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(4) Necessity of "Verification"

The Government of recipient country or its designated authority will conclude contracts denominated in Japanese yen with Japanese nationals. Those contracts shall be verified by the Government of Japan. This "Verification" is deemed necessary to secure accountability to Japanese taxpayers.

(5) Undertakings required of the Government of the Recipient Country

In the implementation of the Grant Aid Project, the recipient country is required to undertake such necessary measures as the following:

- a) To secure land necessary for the sites of the Project and to clear, level and reclaim the land prior to commencement of the Project,
- b) To provide facilities for the distribution of electricity, water supply and drainage and other incidental facilities in and around the sites,
- c) To secure buildings prior to the procurement in case the installation of the equipment,
- d) To ensure all the expenses and prompt excursion for unloading, customs clearance at the port of disembarkation and internal transportation of the products purchased under the Grant Aid,
- e) To exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which will be imposed in the recipient country with respect to the supply of the products and services under the Verified Contracts,
- f) To accord Japanese nationals, whose services may be required in connection with the supply of the products and services under the Verified contracts, such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work.

(6) "Proper Use"

The recipient country is required to maintain and use the facilities constructed and the equipment purchased under the Grant Aid properly and effectively and to assign staff necessary for this operation and maintenance as well as to bear all the expenses other than those covered by the Grant Aid.

(7) "Re-export"

The products purchased under the Grant Aid should not be re-exported from the recipient country.

(8) Banking Arrangements (B/A)

a) The Government of the recipient country or its designated authority should open an account in the name of the Government of the recipient country in a bank in Japan (hereinafter referred to as "the Bank"). The Government of Japan will execute the Grant Aid by making payments in Japanese yen to cover the obligations incurred by the Government of the recipient country or its designated authority under the Verified Contracts.

b) The payments will be made when payment requests are presented by the Bank to the Government of Japan under an Authorization to Pay (A/P) issued by the Government of the recipient country or its designated authority.

(9) Authorization to Pay (A/P)

The Government of the recipient country should bear an advising commission of an Authorization to Pay and payment commissions to the Bank.

(End)

Major Undertakings to be taken by Each Government

No.	Items	To be covered by Grant Aid	To be covered by Recipient Side
1	To secure land		●
2	To clear, level and reclaim the site when needed		●
3	To construct gates and fences in and around the site	●	
4	To construct the Parking Lot	●	
5	To construct roads		
	1) Within the site	●	
	2) Outside the site		●
6	To construct the buildings	●	
7	To provide facilities for the distribution of electricity, water supply, drainage and other incidental facilities		
	1) Electricity		
	a. The distributing line to the site		●
	b. The drop wiring and internal wiring within the site	●	
	c. The main circuit breaker and transformer	●	
	2) Water Supply		
	a. The city water distribution main to the site		●
	b. The supply system within the site (receiving and elevated tanks)	●	
	3) Drainage		
	a. The city drainage main (for storm, sewer and others to the site)		●
	b. The drainage system (for toilet sewer, ordinary waste, storm drainage and others) within the site	●	
	4) Telephone System		
	a. The telephone trunk line to the main distribution frame/panel (MDF) of the building		●
	b. The MDF and the extension after the frame/panel	●	
8	To bear the following commissions to the Japanese bank for banking services based upon the B/A		
	1) Advising commission of A/P		●
	2) Payment commission		●
9	To ensure unloading and customs clearance at port of disembarkation in recipient country		
	1) Marine (Air) transportation of the products from Japan to the recipient country	●	
	2) Tax exemption and custom clearance of the products at the port of disembarkation		●
	3) Internal transportation from the port of disembarkation to the project site	●	
10	To accord Japanese nationals whose service may be required in connection with the supply of the products and the services under the verified contract, such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work.		●
11	To exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which may be imposed in the recipient country with respect to the supply of the products and services under the verified contracts		●
12	To maintain and use properly and effectively the facilities constructed and equipment provided under the Grant Aid		●
13	To bear all the expenses, other than those to be borne by the Grant Aid, necessary for construction of the facilities as well as for the transportation and installation of the equipment		●

(B/A: Banking Arrangement, A/P: Authorization to pay, N/A: Not Applicable)

