

添 付 資 料

団員名簿

No.	Name	Job Title	Occupation
1.	福田 義男 Yoshio Fukuda	総括	独立行政法人国際協力機構 (旧 国際協力事業団) 無償資金協力部 業務第一課 課長代理
2.	深澤 晋作 Shinsaku Fukazawa	計画管理	独立行政法人国際協力機構 (旧 国際協力事業団) 無償資金協力部 業務第一課
3.	佐々木 洋介 Yosuke Sasaki	水資源開発	株式会社ソーワコンサルタント
4.	大芝 弘明 Hiroaki Oshiba	社会状況調査/ 維持管理計画	株式会社日本開発サービス

<主要面談者リスト>

<u>所属</u>	<u>氏名</u>	<u>職位</u>
日本大使館	小川 郷太郎 篠原 勝弘 高久 竜太郎	特命全権大使 公使 二等書記官
JICA 事務所	力石 寿郎 三次 啓都 武市 二郎	所長 次長 企画調査員
地方開発省 (MRD)	HE. Ly THUCH	大臣
地方開発省 地方給水局 (DRWS)	Dr. Mao Saray Mr. Chan Darong Mr. Seng Eam Hor	局長 副局長 職員
コンボンチャム州 地方開発局 (PDRD)	Ms. Chem Savay Mr. Long Sotha Mr. Lay Chenda	局長 副局長 地方給水部長
コンボンスプー州 地方開発局 (PDRD)	Mr. Bun Chanvannak Mr. Long Sotha	局長 職員
カンダル州 地方開発局 (PDRD)	Mr. Chap Moch	局長
タケオ州 地方開発局 (PDRD)	Mr. Nou Sovanny	局長
世界銀行	Mr. Bouy Kim Sreang	職員
国連プロジェクト サービス事務所 (UNOPS)	Mr. Julian Abrams	基盤整備 アドバイザー
国連児童基金 (UNICEF)	Mr. Tomonori Takeuchi	職員
PRASAC (Support Program for Agricultural Sector in Cambodia, Supported by EU)	Mr. Sam Savy Mr. Wolfram Jackel	地方開発担当職員 情報担当職員

調査日程

	Date	Accommodation	Activities		
			Leader (Mr.Fukuda)	Coordinator (Mr.Fukazawa)	Groundwater Development Planner (Mr.Sasaki) / Socio Surveyor / Operation and Management Planner (Mr.Oshiba)
					NH915 ETD 18:15
1	Oct.8(Wed)	Phnom Penh			TG696 ETA 09:50 / PM Meeting at EOJ, JICA
2	Oct.9(Thu)	Phnom Penh			Discussion with DRWS
3	Oct.10(Fri)	Phnom Penh			Field survey on existing water supply facilities at Kampong Cham / Discussin with DRWS
4	Oct.11(Sat)	Phnom Penh			Field survey on existing water supply facilities
5	Oct.12(Sun)	Phnom Penh			Discussion with DRWS
6	Oct.13(Mon)	Phnom Penh			Discussion with DRWS
7	Oct.14(Tue)	Phnom Penh			Signing on M/D
8	Oct.15(Wed)	Phnom Penh			Report to EOJ and JICA
			TG699 ETD 18:50		
			NH916 ETA 07:55		Field survey on pilot projects
9	Oct.16(Thu)	Phnom Penh		TG699 ETD 18:50	
10	Oct.17(Fri)	Phnom Penh		NH916 ETA 07:55	Discussion with DRWS, Data Collection
11	Oct.18(Sat)	Phnom Penh			Field survey on pilot projects
12	Oct.19(Sun)	Phnom Penh			Analysis of collected data
13	Oct.20(Mon)	Phnom Penh			Data Collection at Phnom Penh
14	Oct.21(Tue)	Phnom Penh			Data Collection at Phnom Penh
15	Oct.22(Wed)	Phnom Penh			Data Collection at Phnom Penh
16	Oct.23(Thu)	Kampong Cham			Field survey at Kampong Cham
17	Oct.24(Fri)	Kampong Cham			Field survey at Kampong Cham
18	Oct.25(Sat)	Phnom Penh			Field survey at Kampong Cham
19	Oct.26(Sun)	Phnom Penh			Analysis of collected data
20	Oct.27(Mon)	Phnom Penh			Data Collection at Phnom Penh
21	Oct.28(Tue)	Phnom Penh			Discussion with DRWS
22	Oct.29(Tue)				Report to EOJ and JICA
23	Oct.30(Thu)	Phnom Penh			Field survey on pilot projects
24	Oct.31(Fri)	Phnom Penh			Field survey on pilot projects
25	Nov.1(Sat)	Phnom Penh			Field survey on pilot projects
26	Nov.2(Sun)	Phnom Penh			Internal Meeting
27	Nov.3(Mon)	Phnom Penh			Field survey on pilot projects
					Phnom Penh - Bangkok TG699 ETD 18:50
28	Nov.4(Tue)	Phnom Penh			NH916 ETA 07:55

MINUTES OF DISCUSSIONS
ON THE PRELIMINARY STUDY
ON THE GROUNDWATER DEVELOPMENT PROJECT
IN CENTRAL AND SOUTHERN CAMBODIA
IN THE KINGDOM OF CAMBODIA

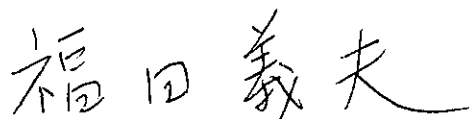
In response to a request from the Government of THE KINGDOM OF CAMBODIA (hereinafter referred to as "Cambodia"), the Government of Japan decided to conduct a Preliminary Study on THE GROUNDWATER DEVELOPMENT PROJECT IN CENTRAL AND SOUTHERN CAMBODIA (hereinafter referred to as "the Project") and entrusted the study to the Japan International Cooperation Agency (hereinafter referred to as "JICA") .

JICA sent to Cambodia the Preliminary Study Team (hereinafter referred to as "the Team"), which is headed by Mr. Yoshio Fukuda , Deputy Director, First Project Management Division, Grant Aid Management Department, and is scheduled to stay in the country from October 9th to November 3rd, 2003.

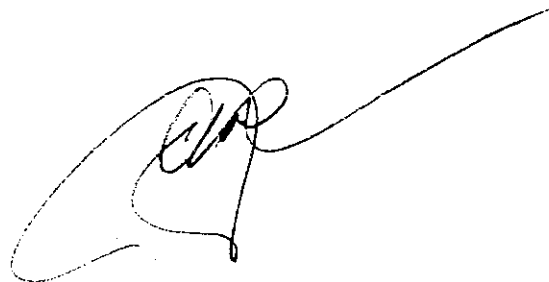
The Team held discussions with the officials concerned of the Government of Cambodia and conducted a field survey in the study area.

As a result of discussions and field survey, both parties confirmed the main items described in the attached sheets.

Phnom Penh, Cambodia, 15th October 2003



Mr. Yoshio Fukuda
Leader
Preliminary Study Team
Japan International Cooperation Agency
Japan



Dr. Mao Saray
Director
Department of Rural Water Supply,
Ministry of Rural Development
The Kingdom of Cambodia

ATTACHMENT

1. Objective of the Project

The objective of the Project is to supply safe and enough quantity water for residents in the project sites included in Central and Southern Cambodia through the construction of water supply facilities and/or the procurement of equipment related to groundwater development.

2. Project sites

The Project sites requested by the Cambodian side are located in the four(4) Provinces of Kampong Cham, Kandal, Kampong Speu, and Takeo.

3. Responsible and Implementing Agency

3-1. The Responsible Agency is Ministry of Rural Development (MRD).

3-2. The Implementing Agency is Department of Rural Water Supply (DRWS), Ministry of Rural Development.

4. Items requested by the Government of Cambodia.

After discussions with the Team, the items described in Annex-1 were finally 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

5-1 The Cambodian side understood the Japan's Grant Aid Scheme explained by the Team, as described in Annex-2.

5-2 The Cambodian side will take the necessary measures, as described in Annex-3 for smooth implementation of the Project, as a condition for the Japan's Grant Aid to be implemented.

6. Other relevant issues

6-1 The Cambodian side understood that this preliminary study doesn't promise implementation of the Project and the result of this study would be reported to the Government of Japan for the decision of the implementation of the Basic Design Study.

6-2 The Cambodian side recognized the cost of Japanese groundwater development project is high compared with other groundwater development project, but understood it's inevitable from the point that the Japanese groundwater

development project is implemented in difficult hydro-geological conditions with high quality. Therefore the Cambodian side requested the Project should be implemented by Japanese consulting firm and contractor as usual.

6-3 Both sides agreed the scope of the Project should be narrowed due to the large scale. The Cambodian side stated priority is given to Kampong Cham Province among the requested provinces. In this regard both side agreed to make a preliminary analysis according to the following criteria.

- (1) Hydro-geological condition
- (2) Cost Effectiveness / Number of beneficiaries to be covered by the Project
- (3) Water coverage
- (4) Water quality
- (5) Degree of disease caused by water

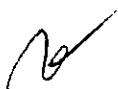
As a result of a preliminary analysis, Kampong Cham Province had priority, but both sides confirmed priority should be examined in the Preliminary Study and the Japanese side would decide priority based on the result of it.

6-4 Both sides agreed that villages to be implemented groundwater development under Japan's Grant Aid would be decided based on the result of analysis and examination in the Basic Design Study according to criteria to be fixed, as a condition for the Basic Design Study to be implemented.

6-5 The Cambodian side requested drilling rigs to be procured in the Project for the purpose to execute drilling works by itself. The Japanese side explained that this matter should be examined in the Basic Design Study considering movement of privatization stipulated in the "National Policy on Rural Water Supply and Sanitation" and management ability including maintenance for drilling rigs by the Cambodian side, as a condition for the Basic Design Study to be implemented.

6-6 The Cambodian side explained a policy that DRWS continues rural water supply works including drilling works by itself for difficult areas of groundwater development and economically hard communities. However the role of DRWS is limited as facilitator in the present "National Policy on Rural Water Supply and Sanitation". The Cambodian side confirmed this policy would be revised to be able to continue water supply facility construction works by DRWS. Otherwise, the Project would not meet with Japan's Grant Aid from the point of ownership and utilization of equipment to be procured.

6-7 Regarding the contract between client and contractor in the groundwater development, the Cambodian side explained that "Lump Sum Contract" is usually adopted in this groundwater development project in this country although "Bill of Quantity based Contract" is sometimes adopted with each unit cost for successful or unsuccessful well. The Cambodian side requested that "Lump Sum Contract" would apply for the project, but understood this matter to be decided by the Japanese side based on analysis and examination in the Basic Design Study as a condition for the Basic Design Study to be implemented.



ANNEX1

Contents of the request

a. Tube well construction: 1,036 wells in 256 Villages

	Province	Number of Villages	Target Year 2005	
			Population	Required Number of Tube Wells
Central Cambodia	Kampong Cham	131	118,320	526
Southern Cambodia	Kandal	31	26,371	140
Southern Cambodia	Kampong Speu	32	18,696	104
Southern Cambodia	Ta Keo	62	48,854	266
	Total	256	212,241	1,036

b. Equipment supply

The following equipment are requested for the Project

For Drilling Works

- | | | |
|-----|--|------------|
| 1. | Drilling rig: | 2 sets |
| 2. | High pressure air compressor: | 2 sets |
| 3. | Drilling tools: | 2 sets |
| 4. | Afridev hand pump | 1,036 sets |
| 5. | PVC Casing | 1,036 sets |
| 6. | Low pressure air compressor: | 2 sets |
| 7. | Pumping test equipment: | 2 sets |
| 8. | Cargo truck with crane: | 2 sets |
| 9. | Water tank truck: | 2 sets |
| 10. | Fuel tank truck: | 2 sets |
| 11. | Pick-up truck for well drilling: | 2 sets |
| 12. | Pick-up truck for resistivity survey: | 2 sets |
| 13. | Station wagon for resistivity survey: | 2 sets |
| 14. | Borehole logging equipment: | 2 sets |
| 15. | Resistivity survey equipment: | 2 sets |
| 16. | Water analysis kit: | 2 sets |
| 17. | Notebook computer with projector for health and hygiene education: | 2 sets |

For Operation & Maintenance

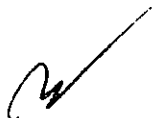
1.	Afridev Spare Parts:	1,036 sets
2.	Afridev Maintenance Tools:	120 sets
3.	Hand Pump Assembly Set:	120 sets
4.	Pick-up truck for WPC training:	4 sets
5.	Video set with screen	1 set

c. Soft component

- a) Socio-Economic Analysis
- b) Setting up and guidance of O & M organization
- c) Hygiene campaign
- d) Monitoring of water point committee's O & M

d. On ^{the} job training on construction work

- a) Resistivity survey technique skill
- b) Drilling machine (Especially DTH) operation & Maintenance
- c) Borehole logging technique
- d) Skill for water quantity measurement
- e) Water quality analysis
- f) Well database management skill



Population & Required Number of HP in Kg.Cham (1/2)

Province	District	Commune	Village No.	Village Name	Population in 2001	Population in 2005	Rank	Required No. of HP
Kampong Cham	Memot	Dar	7	Dar Cheung	764	834	A	4
Kampong Cham	Memot	Dar	8	Dar Lech	997	1,089	D	5
Kampong Cham	Memot	Dar	9	Dar Phsar	1,225	1,338	D	4
Kampong Cham	Memot	Dar	10	Dar Kandaol	1,868	2,040	D	6
Kampong Cham	Memot	Dar	11	Prampir Meakkakra	1,066	1,164	B	6
Kampong Cham	Memot	Dar	12	Dar Tboung	961	1,050	D	4
Kampong Cham	Memot	Dar	14	Spean	1,966	2,147	D	4
Kampong Cham	Memot	Dar	15	Meaek Puk	450	492	D	2
Kampong Cham	Memot	Dar	16	Srae Chroam	930	1,016	A	5
Kampong Cham	Memot	Dar	17	Chhngar Cheung	780	852	A	5
Kampong Cham	Memot	Dar	18	Chhngar Kandal	400	437	B	3
Kampong Cham	Memot	Dar	19	Samraong	537	587	D	2
Kampong Cham	Memot	Dar	21	Beng	388	424	B	3
Kampong Cham	Memot	Rung	22	Chambak	953	1,041	B	5
Kampong Cham	Memot	Rung	24	Doun Roadth Ti Pir	671	733	B	4
Kampong Cham	Memot	Rung	25	Bos	536	585	B	3
Kampong Cham	Memot	Rung	26	Choam Tuk	507	554	D	1
Kampong Cham	Memot	Rung	27	Rung	584	638	B	4
Kampong Cham	Memot	Rung	28	Taonh	378	413	C	1
Kampong Cham	Memot	Rung	29	Doung	504	550	B	3
Kampong Cham	Memot	Rung	30	Beng	461	504	B	3
Kampong Cham	Memot	Rung	31	Masin	647	707	B	4
Kampong Cham	Memot	Rung	33	Soutey	1,089	1,189	A	6
Kampong Cham	Memot	Rung	34	Trapeang Ruessei	1,080	1,180	B	6
Kampong Cham	Memot	Chan Mul	35	Thlok	545	595	B	3
Kampong Cham	Memot	Chan Mul	36	Chan Mul	1,107	1,209	D	5
Kampong Cham	Memot	Chan Mul	37	S'am	830	907	B	5
Kampong Cham	Memot	Chan Mul	38	Srae Ta Nong Kaeut	460	502	D	2
Kampong Cham	Memot	Chan Mul	39	Srae Ta Nong Lech	340	371	B	2
Kampong Cham	Memot	Chan Mul	44	Kor	561	613	B	3
Kampong Cham	Memot	Ton Lung	47	Kdol Leu	406	443	B	3
Kampong Cham	Memot	Ton Lung	50	Beng Kaong	409	447	B	3
Kampong Cham	Memot	Ton Lung	54	Kdol Kraom	760	830	B	4
Kampong Cham	Memot	Ton Lung	55	Sla Phnum	597	652	D	3
Kampong Cham	Memot	Ton Lung	56	Pong Tuek	412	450	B	3
Kampong Cham	Memot	Rumchek	59	Pnov	390	426	B	3
Kampong Cham	Memot	Rumchek	60	Kantuot	377	412	B	2
Kampong Cham	Memot	Memot	68	Memot Phsar	3,155	3,446	B	17
Kampong Cham	Memot	Memot	73	Choam Maor	417	455	A	3
Kampong Cham	Memot	Memot	74	Trabaek	734	802	A	4
Kampong Cham	Memot	Memot	75	Nang Krapeu	357	390	B	2
Kampong Cham	Memot	Memot	76	Trapeang Reang	1,707	1,864	A	9
Kampong Cham	Memot	Memot	78	Sangkorn Mean Chey Chas	845	923	D	4
Kampong Cham	Memot	Memot	79	Chi Peh	987	1,078	B	6
Kampong Cham	Memot	Memot	80	Chhngar Sala	359	392	B	2
Kampong Cham	Memot	Memot	81	Mukh Kras	585	639	B	4
Kampong Cham	Memot	Tramung	82	Tramaeng Leu	361	394	B	2
Kampong Cham	Memot	Tramung	85	Tramung	949	1,037	D	3
Kampong Cham	Memot	Tramung	86	Choam Triek	1,040	1,136	D	5
Kampong Cham	Memot	Tramung	87	Roung Chak Skar	301	329	B	2
Kampong Cham	Memot	Tramung	88	Andoung Thma Leu	405	442	B	3
Kampong Cham	Memot	Tramung	89	Andoung Thma Kraom	339	370	B	2
Kampong Cham	Memot	Tramung	90	Doung	340	371	D	1
Kampong Cham	Memot	Tramung	91	Choam Trav	417	455	B	3
Kampong Cham	Memot	Tramung	92	Chhuk	656	717	D	3
Kampong Cham	Memot	Tramung	93	Ngeu Thum	663	724	D	3
Kampong Cham	Memot	Tramung	96	Roung Chakr Lech	2,560	2,796	B	14
Kampong Cham	Memot	Tramung	100	Chrey	477	521	B	3
Kampong Cham	Memot	Kampoan	101	Lour	1,334	1,457	C	5
Kampong Cham	Memot	Kampoan	102	Kampoan	1,623	1,773	C	7
Kampong Cham	Memot	Kampoan	104	Srae Saom Thmei	793	866	A	5
Kampong Cham	Memot	Kampoan	105	Srae Saom Chas	487	532	A	3
Kampong Cham	Memot	Kampoan	106	Tuek Tum	486	531	A	3
Kampong Cham	Memot	Kokir	110	Srae Poul	674	736	B	4
Kampong Cham	Memot	Kokir	111	Kokir Cheung	1,485	1,622	D	7
Kampong Cham	Memot	Kokir	112	Kokir Tboung	1,069	1,168	A	6
Kampong Cham	Memot	Kokir	113	Tuot Thma	635	694	B	4
Kampong Cham	Memot	Kokir	115	Kngaok	575	628	D	2
Kampong Cham	Memot	Kokir	116	Preaek Puoy	1,117	1,220	B	6
Kampong Cham	Memot	Kokir	120	Thanl Kaeng	384	419	B	2
Kampong Cham	Memot	Kokir	121	Thma Totueng Tboung	503	549	D	1
Kampong Cham	Memot	Kokir	125	Churnnum Pol	629	687	B	4
Kampong Cham	Memot	Kokir	126	Kantuot	743	812	C	3
Kampong Cham	Memot	Kokir	127	Angkam	409	447	D	2

Population & Required Number of HP in Kg.Cham (2/2)

Province	District	Commune	Village No.	Village Name	Population in 2001	Population in 2005	Rank	Required No. of HP
Kampong Cham	Memot	Kokir	130	Bos Ta Oem	1,154	1,260	B	6
Kampong Cham	Memot	Memong	132	Memong	1,333	1,456	B	7
Kampong Cham	Memot	Memong	136	Triek	361	394	A	2
Kampong Cham	Memot	Memong	137	Choam Khyang	332	363	A	2
Kampong Cham	Memot	Memong	138	Sangkae Thmei	406	443	A	3
Kampong Cham	Memot	Memong	139	Sangkae Chas	1,021	1,115	A	6
Kampong Cham	Memot	Choam Kravien	141	Khcheay	659	720	B	2
Kampong Cham	Memot	Choam Kravien	143	Satum	1,115	1,218	B	6
Kampong Cham	Memot	Choam Kravien	144	Kravien Cheung	520	568	B	3
Kampong Cham	Memot	Choam Kravien	147	Chrey Laeung	326	356	C	1
Kampong Cham	Memot	Choam	159	Boeng Chroung	504	550	B	3
Kampong Cham	Memot	Choam	160	Choam Ampil	383	418	B	2
Kampong Cham	Memot	Choam	162	Cheung	455	497	B	3
Kampong Cham	Memot	Choam	163	Leach Leu	562	614	B	3
Kampong Cham	Memot	Choam	167	Ngiev	616	673	B	4
Kampong Cham	Memot	Choam	168	Leach Kraom	937	1,023	B	5
Kampong Cham	Ponhea Kraek	Popel	169	Tuol Kandal	687	750	B	4
Kampong Cham	Ponhea Kraek	Popel	170	Srah	707	772	C	1
Kampong Cham	Ponhea Kraek	Popel	171	Khsak	1,364	1,490	D	5
Kampong Cham	Ponhea Kraek	Popel	172	Popel	1,337	1,460	B	7
Kampong Cham	Ponhea Kraek	Kandaol Chrum	179	Tuol Chamkar	1,057	1,154	C	3
Kampong Cham	Ponhea Kraek	Kandaol Chrum	180	Sbaek Kueu	868	948	C	2
Kampong Cham	Dambae	Chong Cheach	227	Cheach Cheung	1,231	1,345	A	7
Kampong Cham	Tboung Khmum	Kor	264	Veal Khmum	2,222	2,427	C	11
Kampong Cham	Tboung Khmum	Mong Rieng	267	Tinnong	1,176	1,284	B	7
Kampong Cham	Tboung Khmum	Mong Rieng	268	Mong Ti Prammuoy	672	734	A	4
Kampong Cham	Tboung Khmum	Mong Rieng	269	Mong Ti Prampit	772	843	C	3
Kampong Cham	Tboung Khmum	Mong Rieng	271	Trapeang Sangkae	664	725	B	4
Kampong Cham	Tboung Khmum	Anhchaum	272	Trapeang Chak	446	487	A	3
Kampong Cham	Tboung Khmum	Anhchaum	273	Chheu Teal Chnum	403	440	C	2
Kampong Cham	Tboung Khmum	Lngieng	284	Lvea Thum	749	818	C	2
Kampong Cham	Tboung Khmum	Lngieng	285	Lngieng	795	868	A	5
Kampong Cham	Tboung Khmum	Vihear Luong	287	Pnov	646	706	A	4
Kampong Cham	Tboung Khmum	Vihear Luong	289	Prasae Leu	537	587	A	3
Kampong Cham	Tboung Khmum	Suong	290	Prey Totueng	630	688	A	4
Kampong Cham	Tboung Khmum	Suong	291	Chrak Poun	746	815	C	2
Kampong Cham	Tboung Khmum	Suong	292	Ponnareay	1,976	2,158	C	4
Kampong Cham	Tboung Khmum	Thma Pechr	294	Chambak	1,162	1,269	D	5
Kampong Cham	Tboung Khmum	Thma Pechr	295	Ches Ti Muoy	1,117	1,220	C	3
Kampong Cham	Tboung Khmum	Roka Po Pram	297	Trapeang Khla	2,217	2,421	D	10
Kampong Cham	Tboung Khmum	Roka Po Pram	298	Ta Pav Bampenh Tes	2,269	2,478	B	12
Kampong Cham	Tboung Khmum	Roka Po Pram	299	Pong Tuek	1,530	1,671	A	8
Kampong Cham	Tboung Khmum	Chirou Pir	304	Srae Siem	1,830	1,999	C	2
Kampong Cham	Tboung Khmum	Chirou Pir	305	Tuol Vihear	2,299	2,511	C	9
Kampong Cham	Ou Reang Ov	Damrel	307	Tuol	364	398	A	2
Kampong Cham	Ou Reang Ov	Mien	310	Pray Sambour Lech	728	795	A	4
Kampong Cham	Ou Reang Ov	Kong Chey	315	Soeng	689	753	A	4
Kampong Cham	Ou Reang Ov	Kong Chey	317	Changva	365	399	C	1
Kampong Cham	Ou Reang Ov	Kong Chey	320	Prum Khet	310	339	A	2
Kampong Cham	Ou Reang Ov	Chak	325	Chamtiak	705	770	C	3
Kampong Cham	Ou Reang Ov	Chak	327	Pring	795	868	D	3
Kampong Cham	Ou Reang Ov	Tuol Sophy	332	Poung	803	877	D	4
Kampong Cham	Ou Reang Ov	Tuol Sophy	337	Thma Da Lech	629	687	D	3
Kampong Cham	Ou Reang Ov	Tuol Sophy	338	Thma Da Kaeut	566	618	B	3
Kampong Cham	Ou Reang Ov	Preah Theat	341	Preah Theat Kandal	460	502	D	1
Kampong Cham	Ou Reang Ov	Ampil Ta Pok	346	Svay Roluos	775	846	C	4
Kampong Cham	Ou Reang Ov	Ampil Ta Pok	351	Meas Snae	814	889	A	5
Total			131		108,332	118,320		526

Population & Required Number of HP / Kandal

Province	District	Commune	Village		Population in 1997	Population in 2005	Rank	Required Deep Well
			No	Name				
Kandal	Kaoh Thum	Prek Thmei	258	Svay Kandal	1,519	1,895	B	10
Kandal	Kaoh Thum	Prek Thmei	259	Svay Kraom	1,508	1,881	B	9
Kandal	Kaoh Thum	Prek Sdei	261	Chung Prek	2,005	2,501	B	12
Kandal	Kaoh Thum	Prek Sdei	262	Prek Ta Mem	2,612	3,258	A	16
Kandal	Ta Khmau	Prek Hor	277	Prek Hor Lich	1,926	2,403	B	12
Kandal	Ponhea Leue	Phnom Bat	280	Thma Sa	902	1,125	B	6
Kandal	Ponhea Leue	Phnom Bat	281	Pou Ral	835	1,042	B	5
Kandal	Ponhea Leue	Chrey Leas	282	Ta Chey	439	548	B	3
Kandal	Ponhea Leue	Chhvaing	286	Chhvaing	364	454	A	3
Kandal	Mukh Kampul	Svay Amphear	288	Krang Svay	1,376	1,717	A	9
Kandal	Mukh Kampul	Svay Amphear	289	Kampong Prasat	665	830	A	4
Kandal	Mukh Kampul	Svay Amphear	290	Chheu Teal Phloah	951	1,187	A	6
Kandal	Ta Khmau	Kampong Samnanh	309	Kampong Samnanh	2,390	2,981	B	15
Kandal	Angsnuol	Snao	310	Sre Ampil	215	269	A	2
Kandal	Angsnuol	Snao	311	Svay	117	146	A	1
Kandal	Angsnuol	Snao	312	Prasat	126	158	A	1
Kandal	Angsnuol	Snao	313	Snao Keut	236	295	B	2
Kandal	Angsnuol	Snao	315	Ta En	202	252	A	2
Kandal	Angsnuol	Snao	316	Rumduol Chheung	178	223	A	2
Kandal	Angsnuol	Snao	317	Rumduol Tbong	158	198	A	1
Kandal	Angsnuol	Snao	318	Prey Roeng	146	183	A	1
Kandal	Angsnuol	Snao	319	Pongro	137	171	A	1
Kandal	Angsnuol	Snao	320	Phlang	126	158	A	1
Kandal	Angsnuol	Snao	321	Kul Krasna	281	351	B	2
Kandal	Angsnuol	Snao	322	Angkor Chhey	120	150	A	1
Kandal	Angsnuol	Snao	324	Sakd Prayut	163	204	B	1
Kandal	Angsnuol	Snao	325	Ta Pung	177	221	B	2
Kandal	Angsnuol	Ponsang	326	Chong Thnal	347	433	A	3
Kandal	Angsnuol	Ponsang	327	Boeng Khnam	291	363	A	2
Kandal	Angsnuol	Ponsang	328	Kanteng Kul	350	437	A	3
Kandal	Angsnuol	Ponsang	329	Chambak Thum	270	337	A	2
	Total		31		21,132	26,371		140

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Population & Required Number of HP / Ta Keo

Province	District	Commune	Village		Population in 1997	Population in 2005	Rank	Required Deep Well
			No	Name				
Ta Keo	Doun Keo	Roka Krau	180	Trapaing Sala	930	1,160	A	6
Ta Keo	Doun Keo	Roka Krau	181	Preach	1,049	1,309	A	7
Ta Keo	Doun Keo	Ba Ray	182	Chong Thnal	1,031	1,286	A	7
Ta Keo	Sam Raong	Ro Vieng	183	Kok Tara	347	433	A	3
Ta Keo	Sam Raong	Ro Vieng	184	Trapaing Khnar	344	430	A	3
Ta Keo	Sam Raong	Sla	186	Trapaing Sraong	535	668	A	4
Ta Keo	Sam Raong	Lumchang	187	Lumchang	344	430	A	3
Ta Keo	Sam Raong	Trea	188	Ressei Chum	1,247	1,556	A	8
Ta Keo	Sam Raong	Soengh	190	Trapaing Kei	492	614	A	3
Ta Keo	Sam Raong	Boeng Trach Tbong	191	Srei Cheay	1,224	1,527	A	8
Ta Keo	Sam Raong	Boeng Trach Cheung	194	Koun Romeas	1,142	1,425	A	7
Ta Keo	Sam Raong	Chumreah Peen	195	Boeng	673	840	A	4
Ta Keo	Tram Kak	Srae Ro Naong	196	Phum Thmei	427	533	A	3
Ta Keo	Tram Kak	Chroul Popel	198	Brothum	644	804	A	4
Ta Keo	Tram Kak	Chroul Popel	199	Prey Maok	689	860	A	5
Ta Keo	Tram Kak	Leay Bour	200	Prasat	420	524	A	3
Ta Keo	Tram Kak	Leay Bour	202	Saen Ban	1,262	1,574	A	8
Ta Keo	Tram Kak	Leay Bour	203	Trey Theat	922	1,150	B	6
Ta Keo	Tram Kak	Leay Bour	204	Khnar	810	1,011	A	5
Ta Keo	Tram Kak	Kus	209	Trapaing Thma	750	936	A	5
Ta Keo	Tram Kak	Kus	210	Pong Tuek Khang Chh	256	320	A	2
Ta Keo	Tram Kak	Kus	211	Trapaing Pring	820	1,023	A	5
Ta Keo	Tram Kak	Angk Ta Saom	213	Chamkar Dieb	406	507	B	3
Ta Keo	Prey Kabbas	Kdanh	214	Krang Vich	536	669	A	4
Ta Keo	Prey Kabbas	Tang Yap	215	Chum Rou	367	458	A	3
Ta Keo	Prey Kabbas	Prey Phdao	216	Dong	735	917	A	5
Ta Keo	Prey Kabbas	Prey Phdao	217	Chheu Teal	480	599	A	3
Ta Keo	Prey Kabbas	Rou Rumchak	218	Angk Samke	502	627	A	3
Ta Keo	Prey Kabbas	Prey Kabbas	219	Pech Changva	593	740	B	4
Ta Keo	Prey Kabbas	Prey Kabbas	220	Prey Prum	625	780	A	4
Ta Keo	Prey Kabbas	Ban Lam	221	Thok Dong Tum	984	1,228	A	6
Ta Keo	Prey Kabbas	Ban Lam	222	Ta Vong	1,219	1,521	A	8
Ta Keo	Prey Kabbas	Champa	223	Danghet	708	884	B	5
Ta Keo	Treang	Prey Sloek	225	Kouk Nhor	458	572	A	3
Ta Keo	Treang	Prey Sloek	226	Baray	1,143	1,426	A	7
Ta Keo	Treang	Prey Sloek	227	Svay Rumdeng	386	482	A	3
Ta Keo	Treang	Prey Sloek	228	So Chann	348	435	A	3
Ta Keo	Treang	Prey Sloek	231	Sanraong Meam Chea	407	508	B	3
Ta Keo	Treang	Thlok	232	Kdei Thoat	448	559	A	3
Ta Keo	Treang	Thlok	233	Samna Khmau	394	492	A	3
Ta Keo	Treang	Thlok	234	Trapaing Star	915	1,142	A	6
Ta Keo	Treang	Thlok	235	Rovieng	1,128	1,407	A	7
Ta Keo	Treang	Angkanh	236	Doek Mai	772	963	A	5
Ta Keo	Treang	Angkanh	237	Ang Roka	678	846	A	5
Ta Keo	Treang	Angk Kev	238	Angk Kev	334	417	A	2
Ta Keo	Treang	Angk Kev	239	Russey Duch	366	457	A	3
Ta Keo	Treang	Khvav	240	Preus Leu	536	669	A	4
Ta Keo	Bati	Krang Leav	241	Siem Dek	341	426	A	3
Ta Keo	Bati	Krang Leav	242	Ta Pen	350	437	A	3
Ta Keo	Bati	Krang Leav	243	Prohut	479	598	A	3
Ta Keo	Bati	Krang Leav	244	Mean Chouk	393	491	A	3
Ta Keo	Bati	Krang Leav	245	Doem Svay	457	570	B	3
Ta Keo	Bati	Krang Leav	246	Prey Chonluonh	540	674	A	4
Ta Keo	Bati	Komar Reachea	247	Tramung Chrum	546	681	A	4
Ta Keo	Bati	Komar Reachea	248	Kanchom	500	624	A	3
Ta Keo	Bati	Komar Reachea	249	Serei Mean Chouk	625	780	B	4
Ta Keo	Bati	Trapaing Krasaing	250	Yeam Khav	440	549	A	3
Ta Keo	Bati	Trapaing Krasaing	252	Thlok	317	396	B	2
Ta Keo	Bati	Trapaing Krasaing	253	Roka Pok	340	425	B	3
Ta Keo	Bati	Cham Pei	254	Moeang Prachen	715	892	B	5
Ta Keo	Bati	Cham Pei	255	Prey Mul	716	894	A	5
Ta Keo	Bati	Lum Pong	256	Thma Sa	560	699	B	4
	Total		62		39,145	48,854		266

Population & Required Number of HP / Kg. Speu

Province	District	Commune	Village		Population in 1997	Population in 2005	Rank	Required Deep Well
			No	Name				
Kg. Speu	Somrong Tong	Kreul	420	Trapaing Ek	246	307	B	2
Kg. Speu	Somrong Tong	Saendei	423	Srah Srang	617	770	A	4
Kg. Speu	Somrong Tong	Saendei	424	Prey Chreav	334	417	A	2
Kg. Speu	Somrong Tong	Seb Dey	426	Samrong Cheung Phne	366	457	A	3
Kg. Speu	Somrong Tong	Seb Dey	428	Tum Nup	285	356	A	2
Kg. Speu	Somrong Tong	Rolaing Chak	429	Sre Kak	358	447	A	3
Kg. Speu	Somrong Tong	Rolaing Chak	431	Sre Cheng	408	509	A	3
Kg. Speu	Somrong Tong	Rolaing Chak	432	Andaung Preng	253	316	A	2
Kg. Speu	Phnom Srouch	Mohar Saing	441	Trapaing Oip	299	373	A	2
Kg. Speu	Phnom Srouch	Mohar Saing	442	Sleng	378	472	A	3
Kg. Speu	Phnom Srouch	Mohar Saing	443	Sam Bour	446	557	B	3
Kg. Speu	Phnom Srouch	Mohar Saing	444	Taing Rongearng	356	445	A	3
Kg. Speu	Phnom Srouch	Mohar Saing	445	Serey Voine	588	734	B	4
Kg. Speu	Phnom Srouch	Mohar Saing	446	Krang Lhong	578	721	A	4
Kg. Speu	Phnom Srouch	Mohar Saing	450	Prasath	646	806	B	4
Kg. Speu	Phnom Srouch	Taing Sia	451	Kraing Khcheay	422	527	B	3
Kg. Speu	Phnom Srouch	Taing Sia	454	Kiri Raksmeay	480	599	A	3
Kg. Speu	Phnom Srouch	Taing Sia	455	Dey Dos	253	316	A	2
Kg. Speu	Phnom Srouch	Taing Sia	456	Kraing Takom	421	526	A	3
Kg. Speu	Phnom Srouch	Taing Sia	457	Thnot Prek	561	700	A	4
Kg. Speu	Phnom Srouch	Taing Sia	459	Chrak Khla	388	484	A	3
Kg. Speu	Phnom Srouch	Taing Sia	461	Kandoil Kaong	262	327	A	2
Kg. Speu	Phnom Srouch	Taing Sia	463	Pong Ror	438	547	A	3
Kg. Speu	Phnom Srouch	Taing Sia	464	Sambour	428	534	A	3
Kg. Speu	Phnom Srouch	Taing Sia	465	Taing Sralao	628	784	A	4
Kg. Speu	Phnom Srouch	Taing Sia	466	Keak Pomg	540	674	A	4
Kg. Speu	Phnom Srouch	Treng Trayeung	469	Treng Trayeung I	625	780	A	4
Kg. Speu	Phnom Srouch	Treng Trayeung	470	Treng Trayeung II	482	602	A	3
Kg. Speu	Phnom Srouch	Treng Trayeung	471	Treng Trayeung III	481	600	A	3
Kg. Speu	Phnom Srouch	Treng Trayeung	472	Treng Trayeung IV	931	1,162	A	6
Kg. Speu	Phnom Srouch	Treng Trayeung	473	Treng Trayeung V	730	911	A	5
Kg. Speu	Srok Thpormg	Khum Prambey Mum	474	Trapaing Trouk	750	936	A	5
	Total		32		14,978	18,696		104

ANNEX-2

JAPAN'S GRANT AID

Japan's Grant Aid Scheme

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 a recipient country)
Study	(Basic Design Study conducted by JICA)
Appraisal & Approval	(Appraisal by the Government of Japan and Approval by Cabinet)
Determination of Implementation	(The Notes exchanged between the Government of Japan and the recipient 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 Government of Japan and the recipient country.

Finally, for the smooth 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 (hereinafter referred to as "the Study"), conducted by JICA on a requested project (hereinafter 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 requested 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 upon by both parties concerning the basic concept of the Project.
- Preparation of a Basic Design of the Project
- Estimation of cost 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 Japan's Grant Aid Scheme.

The Government of Japan requests the Government of the recipient country to take whatever measures is 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 consultant 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 consulting 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 natural 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, contracting 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.)

- 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 to 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:

- ① To secure land necessary for the sites of the Project and to clear, level and reclaim the land prior to commencement of the construction,
- ② To provide facilities for the distribution of electricity, water supply and drainage and other incidental facilities in and around the sites,
- ③ To secure buildings prior to the procurement in case the installation of the equipment,

- ④ To ensure all the expenses and prompt execution for unloading, customs clearance at the port of disembarkation and internal transportation of the products purchased under the Grant Aid.
 - ⑤ 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.
 - ⑥ 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 operate and maintain the facilities constructed and 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.

ANNEX-3.1

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	⊙	
	To construct roads		
5	1) Within the site	⊙	
	2) Outside the site		⊙
6	To construct the building	⊙	
	To provide facilities for the distribution of electricity, water supply, drainage and other incidental facilities		
	Electricity		
	a. The distributing line to the site		⊙
1)	b. The drop wiring and internal wiring within the site	⊙	
	c. The main circuit breaker and transformer	⊙	
	Water Supply		
2)	a. The city water distribution main to the site		⊙
	b. The supply system within the site (receiving and elevated tanks)	⊙	
	Drainage		
3)	a. The city drainage main (for storm sewer and others to the site)		⊙
7	b. The drainage system (for toilet sewer, ordinary waste, storm drainage and others) within the site	⊙	
	Gas Supply		
4)	a. The city gas main to the site		⊙
	b. The gas supply system within the site	⊙	
	Telephone System		
5)	a. The telephone trunk line to the main distribution frame/panel (MDF) for the building		⊙
	b. The MDF and the extension after the frame/panel	⊙	
	Furniture and Equipment		
6)	a. General furniture		⊙
	b. Project equipment	⊙	
	To bear the following commissions to the Japanese bank for banking service based upon the B/A		
8	1) Advising commission of A/P		⊙
	2) Payment commission		⊙
	To ensure unloading and customs clearance at port of disembarkation in recipient country		
9	1) Marine (Air) transportation of the products from Japan to the recipient	⊙	
	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 contracted and equipment provided under the Grant		⊙
13	To bear all the expenses, other than those to be borne by the Grant, necessary for construction of the facilities as well as for the transportation and installation of the equipment		⊙

Remarks B/A: Banking Arrangement, A/P: Authorization to Pay

Flow Chart of Japan's Grant Aid Procedures

Stage	Flow and Works	Recipient Government	Japanese Government	JICA	Consultant	Contractor	Others
Application		●					
Project Formation and Preparation	Preliminary	●	●	●			
	Basic Design	●	●	●	●		
	Final Report	●	●	●	●		
Appraisal and Approval			●				
Implementation	Exchange of Notes	●	●				
	Banking Arrangement	●					●
	Consultant Contract	●	●	●	●		
	Detailed Design and Tender Documents	●	●	●	●		
	Tendering and Evaluation	●	●	●	●	●	
	Procurement/Construction Contract	●	●	●	●	●	
	Procurement and/or Construction	●	●	●	●	●	
	Operation	●	●	●			
Evaluation and Follow-up		●	●	●			

**QUESTIONNAIRE
FOR
THE GROUNDWATER DEVELOPMENT
PROJECT IN
CENTRAL AND SOUTHERN PROVINCES
IN
THE KINGDOM OF CAMBODIA**

OCTOBER 2003

Japan International Cooperation Agency (JICA)

QUESTIONNAIRE

The Preparatory Study Team shall be furnished with the following general and specific information on the requested project, in order to clarify the contents of the project and to appraise the scope of cooperation.

Please answer in detail as much as possible in writing to the following questions (Items A), and please kindly provide us with data and information requested herein (Items B) for the sake of smooth implementation of the preparatory study:

A. QUESTIONS

1. Confirmation of the contents of the requested project

1-1 Background of the project

(1) The reason why the villages were selected in the application form.

A. Regarding to Groundwater Development Study in Southern Cambodia from lasted of 1996 to 2002 covered on the five provinces and Peri-Urban of Phnom Penh. And Groundwater Development Study in Central Cambodia form 2002 to 2003 covered on two provinces. Based on the results of reports of the study, 256 villages have selected as high priority from the four provinces as in the application form.

(See attachment Figure 8.1 and 8.5 Implementation Schedule of Domestic Water Supply Program on the report of southern and central groundwater study)

(2) Please show the criteria of "Rank" of the attached village list to the application form.

A. The same way to the result of the study reports, the criteria of rank for selection of the 256 villages was used as on flow chart of village Classification. (See attachment as Figure 8.1 and Figure 5.2).

(3) Please show the situation of the requested project in the national plans such as SEDP-II, RWSP-II and so on.

A. Please, see Second Five Year Socioeconomic Development Plan 2001-2005 (SEDP) and Rural Water Supply and Sanitation Sector (RWSS) Policy as attachment.

(4) According to RWSP-II, the target coverage rate of the rural water supply is 40%. The coverage rate exceeds 40% in the two requested provinces, which are Kandal and Kg. Speu, and the coverage rate is near to 40% in Takeo province (35%). Please show the reason why such provinces of high coverage rate were selected.

A. The provinces have coverage rate are near and exceed 40% were selected. If we look to the coverage rate is really high, but we should look at hydrological condition socio-economic factors. The three provinces have enough for

groundwater development in all selected villages, but villagers living that selected areas have low living standard, environmental sanitation and water use education.

(Please, see policy framework)

(5) The Japanese Government cooperation requires local cost. Any local cost such as land acquisition, construction of the access road/bridges and other necessary works for the Project are covered by the Cambodian Side.

A. Actually, rural water supply that supported by all agencies for rural communities has the following condition when construction of the water well:

- ① Free of charge for well site (both private and public land in the community)
- ② Community participation in the sub-project
- ③ Labor contribution
- ④ Water fee of water usage

1-2 Outline of the project

(1) Project area:

486 villages were selected for the rural water supply project in JICA Studies and Japanese grant aid project has been being implemented in the 60 villages in Peri-Urban area. 426 villages have been remained to be implemented in future. However, 256 villages were requested in this time. How do you selected areas and villages in the application form?

A. Selection of prioritized village

The selection is based on the result of the groundwater study as the following items:

- ① Accessibility
- ② Condition of hand-pump
- ③ Water quality
- ④ Water quantity

(See attachment target village selection 5-6 to 5-8 and table 5-4 Classification of the Candidate Target Village)

(2) Requested equipment:

One drilling rig and other equipment have been given in the on-going Japanese grant aid project in Peri-Urban area. Please show the reason why additional drilling rigs and equipment will be needed and please show the plan of the drilling works using the equipment which was requested.

A. Although DRWS have six drilling crews, workable drilling rigs in DRWS are now available for only three (3) units. Two (2) more drilling rigs shall be needed for the effective activities of unemployed staff. And replacement of overage DRWS's drilling rigs

1-3 Organization of the Implementation Agency

- (1) Please show the organization and budget of the DRWS which is responsible for the operation and maintenance of the requested equipment including drilling rigs.
A. Dr. Mao Saray or Mr. Chan Darong
- (2) Does DRWS have laboratory which has enough equipment for measuring As in groundwater? (Atomic Absorption Spectrometer)
A. No
- (3) Does DRWS have skilled drillers who can do drilling works using rotary table and DTH rig?
A. Yes. But they haven't fulfilled techniques for total management of deep well construction project and lack of experience for judging of borehole logging.
- (4) Does DRWS have skilled technicians who can maintenance and repair the drilling rigs mentioned above?
A. Yes. But they still have lack of O/M experiences for drilling equipment procured by the project.
- (5) Does DRWS have workshop in which maintenance and repair of the drilling rigs mentioned above can be done?
A. Yes
- (6) Does DRWS have enough budget for the maintenance of the requested equipment which includes repair and purchase of the spare parts?
A. It can be for some of spare parts
- (7) Please show the cost and duration of drilling works when the well is drilled by DRWS.
A. Please see attachment specification of well drilling cost
- (8) Does DRWS have the section of Evaluation and Monitoring?
A. Yes
- (9) How do DRWS and PDRD coordinate the borehole construction? (their demarcation)
A. PDRD is a parallel structure of Ministry of Rural Development. Therefore, PDRD rural water supply section is a co-implementation of the project with DRWS due to lack of PDRD's technique. It shall be as the bellow table

Item		DRWS	PDRD
Basic Design	Counterparts	Project coordinator Water supply plan Resistivity survey Water quality	Project coordinator Rural water supply Community development
	Equipment	DRWS's equipment & Vehicles (if available)	PDRD's equipment & Vehicles (if available)
	Budget	Personnel expenses of counterparts	Personnel expenses of counterparts
D/D & construction	Construction staff	DRWS's drilling crew	
	Counterparts for consultant	Project coordinator Water supply plan Resistivity survey Socio-economic survey Water quality Soft component	Persons to be assigned for long term period as soft component assistants
	Equipment	DRWS's equipment & Vehicles (if available)	PDRD's equipment & Vehicles (if available)
	Budget	Personnel expenses of counterparts (if available)	Personnel expenses of counterparts (if available)

2. Activities of other Donors, NGOs

(1) Please show the list of the completed/on-going rural water supply projects by other donors (UNICEF and etc.) and NGOs.

A. See attachment

(2) Please show the specification (casing program, type of pump, platform, drainage, infiltration pit and so on) of the water supply facilities which were constructed by other donors such as UNICEF and cost of drilling.

A. See attachment on Drilled Well Technical Specification and Drawings

(3) Who undertake the construction work of the rural water supply facilities in the projects of other donors and NGOs?

A. Actually, mostly donors supporting rural water supply fund through some NGOs related to the rural water supply section and the construction of water facilities have also carried out by the NGOs, but some NGOs have carried out well construction by private sectors.

(4) Are these facilities functioning well? If not, what kind of problems took place?

A. According to DRWS monitoring in Peri-Urban of Phnom Penh City, some of the water facilities were not functioning and broken down. The problems are water quality, lack of responsibility, lack of community participation and lack of technician.

3. Questions on water resources

3-1 Surface water

(1) Are there any villages in which surface water is used for domestic purpose with water treatment facilities?

A. No

(2) Is the surface water able to be used for rural water supply? If not, why?

A. Yes

3-2 Ground water

(1) As the studies were conducted in the Project area by JICA, it is understood that the groundwater of good quality will be available in the selected villages. Do you conduct the additional study or investigation for the village selection?

A. No

(2) It is reported in the JICA reports that the groundwater of good quality is not available in many villages. Do you have information of groundwater quality of the selected villages?

A. No

(3) It is also reported that the groundwater in the Project area sometime contains high concentrate of As and F. Are there any diseases caused by As and F in the Project area?

A. So far there haven't been seen any diseases caused by As and F yet.

4. Questions on social and environmental issues

(1) Are there any boreholes which are not well utilized? If any, why they don't use it.

A. Really, some water wells are not well utilized because of salinity or high iron concentration.

(2) What kinds of water the people in village prefer to drink, Rain water, Borehole water, Pond water?

A. It is depending on the season and some villages from place to place. Some people they prefer well water only and some they prefer pond water or rain water. And some they use all kind of water sources when raining season they use rain water and in dry season they use well water or pond water.

(3) What are the Role of VDC, VWC and WPC? In general, do those committees work well?

A. VDC is responsible for all activities or sections that relating to village development project like rice bank, credit, small irrigation system, village road construction and so on. VWC is a section of VDC and responsible for water resources project in the village like small irrigation, pond construction and water well so on. WPC is responsible for only own water well for a water user group in the village and it has 4 to 5 members in the WPC, which are responsible for operation and maintenance.

(Please see attachment Figure 8-6 VDC Organization structure)

(4) How do the people in village request the borehole? What kinds system for request?

A. Mostly the people make request by village chairman and to commune and than to district and than to PDRD, but some village do request when they met NGOs' agency working in the village directly even though the NGOs are not related to rural water supply project.

(5) Does PDRD have the record of Private boreholes? What kinds of people do they construct the Own boreholes? (Business people, Shop owner)

A. Some PDRD can do and some could not do. All right business people and people have a little high living standard in the village.

(6) What kinds of training, DRWS and PDRD are conducting for the Own staff and the members of VWC and WPC?

A. Actually, water use and hygiene education, hand pump installation and O/M of hand pump.

5. Local Contractors and Markets

(1) Are the drilling companies available in Cambodia? If there are, please show the list of the drilling companies with address and telephone number.

A. Yes and see attachment Enterprise name

(2) Please show the cost and duration of drilling works when the well is drilled by drilling companies.

A. Please see attachment standard cost for a drilling well

(3) Are the local contractors who undertake the construction of the rural water supply facilities other than well drilling in Provinces? If there are, please show the list of contractors with address and telephone number.

(4) Are the drilling equipment and devices such as well drilling rig, air compressor, water tanker track, track, submergible pump, rotary drilling bit, DTH bit and so on available in Cambodia?

A. There are track and submersible pump available

(5) Are the geophysical devices such as electric sounding devices, logging devices and so on available in Cambodia?

A. The devices mentioned the above are not available in Cambodia

(6) Are the necessary materials for the construction of the rural water supply facilities such as well casing/screens available in Cambodia?

A. The materials for rural water facilities available in Cambodia

(7) Is water quality analysis equipment available in Cambodia?

A. Yes

(8) Is personal computer available in Cambodia?

A. Yes

(9) If the materials and equipment mentioned above are available, please show the shop name with address, unit price and delivery duration of the materials.

A. Ok

(10) Are the local consultants available which are able to conduct hydro-geological survey, geophysical exploitation, supervision of the construction works and so on?

A. There are construction work supervisions and socio-economic survey only

(11) If the local consultants are available, please show the list of the local consultants with address and telephone number.

A. Ok

(12) Are the local consultants available who are able to conduct the Socio-economic survey?

A. Yes

B. REQUIRED DATA AND INFORMATION

No.	Item	Avail a- bility (Y/N)	Agency of Informati on Source	Name of Materials
1.	Development Plan			
1.1	National and regional development plan 1) SEDÉP-II 2) RWSP-II 3) Other related national plans	yes yes yes	MRD MRD MRD	Second Five Year Socio-economic Development Plan RWSS Sector Investment Plan and Policy
1.2	Water supply development plan 1) Report of CASD by UNICEF	yes	UNICEF	
	Counterpart Agency MRD 1) Organization chart 2) Number of personnel 3) Budgetary arrangement	yes yes yes	MDR MRD MRD	
	DRWS 1) Organization 2) Number of personnel 3) Income and expenditures in water supply works in the past three years	yes yes No	DRWS DRWS	
	PDRD 1) Organization chart 2) Number of personnel 3) Budgetary arrangement 4) Income and expenditures in water supply works in the past three years	yes yes yes	PDRD PDRD PDRD	
2.	Law and regulation regarding rural water supply 1) Water laws 2) Laws and regulations for drinking water quality 3) Laws and regulations regarding water right	yes no no	MOWRAM	

No.	Item	Availability (Y/N)	Agency of Information Source	Name of Materials
3.	Data and information regarding natural conditions of the project area			
3.1	Maps and other information			
	(1) Topographic maps ; scale 1/100,000, 1/50,000, 1/25,000 and etc.	yes	MPWT	
	(3) Geological maps; scale 1/100,000, 1/50,000, 1/25,000 and etc	yes	MIME	
	(4) Other geological data	yes	MIME/MPWT	
	(5) Hydro-geological maps 1/100,000, 1/50,000, 1/25,000 and etc.	yes	DRWS	
	(6) Other hydrological and hydro-geological data	may be	MOWRAM	
	(6) Aerial photograph, 1/500,000, 1/200,000, 1/100,000, 1/50,000, 1/25,000 and etc.	yes	MRC	
	(9) Satellite image, 1/500,000, 1/100,000,	yes	MRC/MLUM	
	(10) Land use maps and vegetation maps	may be	MRC/MLUM	
	(11) Population density map	yes	MOP/MPWT	
3.2	Meteorological and hydrological data			
	(1) Meteorological data near the project area for the last 10 years			
	1) Air temperature – monthly mean	yes	MOWRAM	
	2) Humidity - monthly mean	yes	MOWRAM	
	3) Wind direction & velocity- monthly mean	yes	MOWRAM	
	4) Evaporation – monthly	yes	MOWRAM	
	5) Precipitation - daily, monthly & annual	yes	MOWRAM	
	6) Measurement stations and maps	yes	MRC/MOWRAM	
	7) Climate maps	yes	MRC/MOWRAM	
	(2) Hydrological data of the surface water sources in the Project area	may be	MOWRAM	
3.3	Data and information regarding ground water and tube wells			
	1) Well inventory sheets including dug wells	yes	DRWS/Prasac	Southern and central roject of JICA study team
	2) Location map of wells	yes	DRWS	
	3) Hydrogeological maps and profiles	yes	DRWS	
	4) Technical reports of groundwater	yes		
	5) Monitoring records of groundwater level	no		

3.4	Water Quality 1) Groundwater quality data 2) Surface water quality data 3) Water borne disease data	yes may be yes	MRD/WHO WHO MOH/WHO	
No.	Item	Availa- bility (Y/N)	Agency of Information Source	Name of Materials
4	Data and information regarding water supply			
4.1	Outline of existing water supply system			
	(1) Water production capacity of the selected villages	no		
	(2) Covered service area and covered household of the selected villages	✓		
	(3) Served population and category of consumer (type of water use) of the selected villages	no		
	(4) Operation and maintenance system	yes	DRSW	Monitoring report
	(5) Present problem with related to the above operation and maintenance system	Yes	DRSW	Monitoring report
	(6) History of the existing system in the selected villages (construction, maintenance, improvement & rehabilitation etc.)	no		
	(7) Administrative area map or service area map of the selected villages	no		
4.2	Detail data and information of water supply facilities			
	(1) Inventory sheets of water supply facilities such as dug wells, springs, rain water harvesting and etc of the selected villages.	may be	Prasac/LWF	
	(2) Brief specification, general layout, typical sectional drawings construction cost and year of construction of the rural water supply facilities constructed by other donors and NGOs in the Project area	may be	Prasac/LWF	
	(3) Operation and maintenance record of the facilities mentioned above	may be	Prasac/LWF	
	(4) Construction cost of the above facilities	may be	Prasac/LWF	
	(5) Design code and standard: for civil, mechanical work, pipe installation	may be	Prasac/LWF	

	etc. (6) National standard of potable water quality	yes	WHO/MRD	
4.3	Water tariff and income per household (1) Water tariff system (2) Socio-economic survey results on income	yes may be	MIME MOP	

No.	Item	Availability (Y/N)	Agency of Information Source	Name of Materials
5.	Data and information regarding social and environmental issues			
5.1	Donors 1) UNICEF - Budget support, Training support, Project (for 3 years) 2) Other Donor - Budget support, Training support, Project (for 3 years) 3) Health Project - implemented by the Government and the Donors	yes yes yes	UNICEF Prasac/LWF DRHC/MRD/UNICEF	
5.2	Health and Education 1)Major Diseases Record / Province 2)Health related Projects / Province 3)Education Level / Province 4)Literacy Rate(Men/Women) / Province	yes no yes yes	DRHC MOP MOES MOP	
5.3	Life 1)Annual Income / Province	yes	MOP	
5.4	Borehole 1)Unused / Abandoned Borehole	no		
6.	Others			
6.1	Statistic data 1) Census of the country 2) Census of the province 3) Social and economic index	yes yes yes	MOP MOP MOP	
6.2	Capable Consultants list 1) Water supply engineering Topographic survey	no		

	2) Geological investigation for ground water development	no		
	3) Environmental study	no		
	4) Socio-economic survey	no		
6.3	Construction materials			
	1) List of vendors of the materials	yes	Companies/market	
	2) Any custom restriction on importation of the possible construction materials			
6.4	Unit Price for construction			
	1) Unit price regarding construction material for water supply facilities including casing/screen			
	2) Unit price regarding construction equipment, vehicles etc. for facilities			
	3) Unit price of design and construction engineers for facilities			
	4) Unit price of labours for facilities			
6.5	Drilling rig, Air Compressor, Track, Submergible pump, Geophysical exploitation equipment, Logging machine, Personal computer, Water quality analysis kit and others			
	1) List of vendors	yes	Companies/market	
	2) Specification of the equipment	yes	Companies/market	
	3) Price of the equipment	yes	Companies/market	
	4) Duration for purchase of the equipment	yes	Companies/market	

添付資料 収集資料リスト (■収集資料/□専門家作成資料)

主管部長	文書管理課長	主管課長	情報管理課長	技術情報課長	図書館受入日

		プロジェクトID		調査団番号			
地域	東南アジア	調査団名又は専門 家氏名	南部・中部村落給水計画 予備調査	調査の種類又は指導科目	予備調査	担当部課	無償業務第1課
国名	カンボジア国	配属機関名		現地調査期間又は派遣期間	15年10月8日～15年11月4日	担当者氏名	深澤

番号	資料の名称	形態(図書、ビデオ、地図、写真等)	収集資料	専門家作成資料	JICA作成資料	特記	発行機関	取扱区分	図書館記入覧
A	統計資料、法令・基準								
A-1	General Population Census of Cambodia 1998, Final Census Results with CD-R	図書、CD-R	*				Ministry of Planning	JR・CR()・SC	
A-2	General Population Census of Cambodia 1998, Analysis of Census Results, Report 6 Population Projection 2001-202,1 with CD-R	図書、CD-R	*				Ministry of Planning	JR・CR()・SC	
A-3	1998 Census PopMap with CDR	図書、CD-R	*				Ministry of Planning	JR・CR()・SC	
A-4	1998 Census Village Level Data with CDR	図書、CD-R	*				Ministry of Planning	JR・CR()・SC	
A-5	Cambodia Demographic and Health Survey 2000 with CDR	図書、CD-R	*				Ministry of Planning, Ministry of Health	JR・CR()・SC	
A-6	National Health Statistics	図書、CD-R	*				Ministry of Health	JR・CR()・SC	
A-7	Labor Force Survey of Cambodia, November 2001	図書	*				Ministry of Planning	JR・CR()・SC	
B	開発計画関連報告書								
B-1	Second Five Year Socioeconomic Development Plan	図書	*				Ministry of Planning	JR・CR()・SC	
B-2	National Poverty Reduction Strategy	図書	*				Council for Social Development (CSD)	JR・CR()・SC	
B-3	Seila Program, Commune Data Base	CD-R2枚	*				Council for the Development of Cambodia (CDC)	JR・CR()・SC	

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C	他ドナー関係資料								
	UNICEF								
C-1	Investing in Children, Master Plan of Operations	図書	*				UNICEF	JR・CR()・SC	
C-2	UNICEF Supported Water Supply and Sanitation Project in Cambodia	コピー	*				UNICEF	JR・CR()・SC	
	EU								
C-3	Implementation of PRASAC's Domestic Water Supply Component and Its Impact on the Living Conditions of the Rural Target Groups	図書	*				PRASAC II (Supported by EU)	JR・CR()・SC	
C-4	Prasac Database	CD-R	*				PRASAC II (Supported by EU)	JR・CR()・SC	
	WFP								
C-5	Decision-Making in WFP's Food for Work Projects	コピー	*				WFP	JR・CR()・SC	
C-6	Taam Kamlang : Poverty Indicators and Village Perception of the Poor and Poverty	コピー	*				WFP	JR・CR()・SC	
	WHO								
C-7	Cambodia Drinking Water Quality Assessment	コピー	*				MRD supported by WHO	JR・CR()・SC	

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D	NGO 関連資料								
D-1	Directory of Cambodian NGOs 2002-2003	図書	*				Cooperation Committee for Cambodia (CCC)	JR・CR()・SC	
D-2	Directory of International Development Assistance in Cambodia 2001-2002	図書	*				Cooperation Committee for Cambodia (CCC)	JR・CR()・SC	
D-3	Agency Personnell Listing, Agency Telephone Listing, Agency Address in the Provinces, Agency Map, Agency Mail Box List	図書	*				Cooperation Committee for Cambodia (CCC)	JR・CR()・SC	
D-4	Directory of Networking, Membership and Sectoral Groups in Cambodia	図書	*				Cooperation Committee for Cambodia (CCC)	JR・CR()・SC	
D-5	News Letter 2003	リーフレット	*				Cooperation Committee for Cambodia (CCC)	JR・CR()・SC	
D-6	日本紛争予防センター活動紹介	リーフレット	*				日本紛争予防センター (JCCP)	JR・CR()・SC	
D-7	難民を助ける会活動紹介	リーフレット	*				難民を助ける会 (AAR)	JR・CR()・SC	
D-8	PFDD活動紹介	リーフレット	*				PFDD (Partnars for Development, supported by USAID, CIDA and others)	JR・CR()・SC	
D-9	HAGAR活動紹介	リーフレット	*				HAGAR (スイスの団体)	JR・CR()・SC	

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E	民間コンサルタント関連資料								
E-1	WSCS会社紹介	リーフレット	*				WSCS (Water and Sanitation Consulting Services)	JR・CR()・SC	
E-2	住民教育用の研修教本その1	コピー	*				WSCS (Water and Sanitation Consulting Services)	JR・CR()・SC	
E-3	住民教育用の研修教本その2	コピー	*				WSCS (Water and Sanitation Consulting Services)	JR・CR()・SC	
E-4	ACAP社会社紹介	リーフレット	*				ACAPE	JR・CR()・SC	
E-5	手掘り浅井戸掘削マニュアル	コピー	*				Gret	JR・CR()・SC	
F	地図関連資料								
F-1	カンボジア地形地図、1/500,000	オリジナル	*					JR・CR()・SC	
F-2	カンボジア道路地図、1/1,000,000	コピー	*					JR・CR()・SC	