Appendices

Appendices

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1. Member List of the Study Team

1-1 Outline Design Study		From 26 th May to 29 th June, 2019 (35days)	
Position	Name	Period	Organization
		(2019)	
1. Leader	Mr. Tomoya	27/May -	Deputy Director General and Group
	YOSHIDA	7/Jun.	Director for Health 2,
			Human Development Department, JICA
2. Technical Advisor	Dr. Rei	28/May -	Senior Adviser,
	KANSAKU, MD, Phd	7/Jun.	Health Group 2,
			Human Development Department, JICA
3. Program Coordinator	Ms. Minori	26/May -	Program Officer, Health Team 3,
	TSUKADA	7/Jun.	Health Group 2
			Human Development Department, JICA
4. Chief Consultant/	Mr. Mikihiro	26/May -	Azusa Sekkei Co., Ltd.
Architectural Planning-1/	MATSUYAMA	29/Jun.	
Architectural Design-2			
5. Vice Chief Consultant/	Mr. Hozumi	26/May -	Azusa Sekkei Co., Ltd.
Architectural Planning-2/	OGAWA	22/Jun.	
Architectural Design-1/			
Site Investigation			
6. Construction Planning/	Mr. Yasuhiro	2/Jun	Azusa Sekkei Co., Ltd.
Cost Estimation	MATSUMOTO	29/Jun.	
7. Mechanical Engineer	Ms. Anh	2/Jun	Azusa Sekkei Co., Ltd.
	WATANABE	15/Jun.	
8. Electrical Engineer	Ms. Reina	2/Jun	Azusa Sekkei Co., Ltd.
	UEDA	15/Jun.	
9. Architectural Planning-3/	Ms. Chika	8/Jun	Azusa Sekkei Co., Ltd.
Architectural Design-3	NAKAZAWA	18/Jun.	
10. Equipment Planning-1	Mr. Yasumichi	26/May -	INTEM Consulting, Inc.
	DOI	29/Jun.	
11. Equipment Planning-2/	Ms. Masato	26/May -	INTEM Consulting, Inc.
Cost Estimation	OHARA	29/Jun.	
12. Health Care Planning-1	Mr. Kyo	26/May -	Estrella Inc.
	HANADA	22/Jun.	
13. Health Care Planning-2	Mr. Kazufumi	27/May -	Estrella Inc.
	UCHIDA	22/Jun.	

1-2 Explanation of the Draft Report		From 26 th January to 5 th February, 2020 (11days)	
Position	Name	Period (2019)	Organization
1. Leader	Mr. Tomoya	29/Jan	Deputy Director General and Group
	YOSHIDA	5/Feb.	Director for Health 2,
			Human Development Department, JICA
2. Technical Advisor	Dr. Rei	29/Jan	Senior Adviser,
	KANSAKU, MD, Phd	5/Feb.	Health Group 2,
			Human Development Department, JICA
3. Program Coordinator	Mr. Hidenori	29/Jan	Program Officer, Health Team 3,
	MATSUO	5/Feb.	Health Group 2
			Human Development Department, JICA
4. Chief Consultant/	Mr. Mikihiro	26/Jan	Azusa Sekkei Co., Ltd.
Architectural Planning-1/	MATSUYAMA	5/Feb.	
Architectural Design-2			
5. Equipment Planning-1	Mr. Yasumichi	26/Jan	INTEM Consulting, Inc.
	DOI	5/Feb.	

2. Survey Schedule

2-1 Outline Design Study

From 26th May to 29th June, 2019 (35days)

No.	Date	Time	Activity
01	26 May	10:40	Lv. Narita by NH-817 (Ms. Tsukada, Mr. Matsuyama, Mr. Ogawa, Mr. Doi, Mr. Ohara &
	(Sun.)	14:35	Mr. Hanada)
			Ar. at Phnom Penh
02	27 May	10:40	Lv. Narita by NH-817 (Mr. Uchida)
	(Mon.)	14:35	Ar. at Phnom Penh
		09:00	Internal meeting (Ms. Tsukada, Mr. Matsuyama, Mr. Ogawa, Mr. Doi, Mr. Ohara & Mr.
			Hanada)
			Marketing research
		16:30	Meeting with the local contractor geological survey, topographical survey & water quality
			survey (Mr. Matsuyama & Mr. Ogawa)
		19:20	Ar. at Phnom Penh by VN-3853 (Mr. Yoshida)
03	28 May	10:40	Lv. Narita by NH-817 (Dr. Kansaku)
	(Tue.)	15:10	Ar. at Phnom Penh
		08:30	Meeting with ADB (Mr. Yoshida, Ms. Tsukada, Mr. Miura & Mr. Sophearun)
		10:00	Meeting with HRDD, MOH
		14:30	Meeting with UHS
		10:30	Meeting with Preah Kosamak Hospital (Mr. Doi, Ms. Ohara, Mr. Hanada & Mr. Uchida)
		14:00	Visiting local medical agents (Mr. Doi & Ms. Ohara)
		10:30	Meeting with CMAC, PNH (Mr. Matsuyama & Mr. Ogawa)
		14:00	Meeting with Mr. Shinohara, JICA Office for Tax exemption
		15:15	Meeting with GDT for Tax exemption
		16:00	Courtesy Call to Dr.Vinntak, MOH (Mr. Yoshida, Ms. Tsukada, Mr. Matsuyama, Mr.
			Ogawa, Mr. Doi, Ms. Ohara, Mr. Hanada & Mr. Uchida)
04	29 May	09:00	Meeting with Department of Planning and Health Information, MOH (Dr. Kansaku, Mr.
	(Wed.)	11.00	Hanada & Mr. Uchida)
		11:00	Courtesy Call to Mr. Sugano, JICA Office (Mr. Yoshida, Dr. Kansaku, Ms. Tsukada, Mr.
		14.00	Matsuyama, Mr. Ogawa, Mr. Doi, Ms. Ohara, Mr. Hanada & Mr. Uchida)
	20.14	14:00	Meeting with IINeo C Project (Mr. Yoshida & Mr. Tsukada)
05	30 May	10:05	Lv. Phnom Penh by K6-105 (Mr. Yoshida, Dr. Kansaku, Ms. Isukada, Mr. Matsuyama,
	(1nu.)	11.00	Mr. Ogawa, Mr. Doi, Ms. Onara, Mr. Hanada & Mr. Ocnida)
		14.30	Al. at Stelli Keap Courtesy call to Siem Pean PHD
		14.30	Courtesy call and observe to Siem Rean Provincial Referral Hospital
06	31 May	09.00	Observation of Kralanh District Referral Hospital (Dr. Kansak, Ms. Tsukada, Mr.
00	(Fri)	07.00	Matsuvama Mr Doi & Mr Hanada)
	(1111)	09.00	Observation of Angkor Chum District Referral Hospital (Mr. Yoshida, Mr. Ogawa, Ms.
		0,100	Ohara & Mr. Uchida)
		14:00	Courtesy call to Japanese Consulate Office in Siem Reap (Mr. Yoshida, Dr. Kansak & Ms.
			Tsukada)
		14:00	Meeting with Siem Reap Provincial Referral Hospital for facilities and equipment (Mr.
			Matsuyama, Mr. Ogawa, Mr. Doi, Ms. Ohara, Mr. Hanada & Mr. Uchida and Mr,
			Yoshida, Dr. Kansaku & Ms. Tsukada joined later)
07	1 Jun.	09:00	Observation of Pouk District Referral Hospital (Mr. Yoshida, Dr. Kansak, Ms. Tsukada,
	(Sat.)		Mr. Matsuyama, Mr. Ogawa, Mr. Doi, Ms. Ohara, Mr. Hanada & Mr. Uchida)
		13:00	Filing documents
08	2 Jun.	09:00	Observation of Royal Angkor International Hospital (Mr. Yoshida, Dr. Kansak, Ms.
	(Sun.)		Tsukada, Mr. Matsuyama, Mr. Ogawa, Mr. Doi, Ms. Ohara, Mr. Hanada & Mr. Uchida)
		14:30	Observation of Angkor Japan Friendship International Hospital
		16:30	Filing Documents
		10:40	Lv. Narita by NH-817 (Mr. Matsumoto, Ms. Watanabe & Ms. Ueda)
		15:10	Ar. at Phnom Penh
		19:35	Lv. Phnom Penh by K6-117
		20:15	Ar. at Siem Reap

No.	Date	Time	Activity
09	3 Jun.	09:00	Observation of Sotnikum District Referral Hospital (Mr. Yoshida, Dr. Kansak, Ms.
	(Mon.)		Tsukada, Mr. Matsuyama, Mr. Ogawa, Mr. Doi, Ms. Ohara, Mr. Hanada & Mr. Uchida
		14:30	Meeting with Siem Reap Provincial Referral Hospital
		All day	Survey for infrastructure at Siem Reap Provincial Referral Hospital (Mr. Matsumoto, Ms.
			Watanabe & Ms. Ueda)
10	4 Jun.	08:30	Meeting with Siem Reap PHD and Siem Reap Provincial Referral Hospital for the draft of
	(Tue.)		Minutes of Discussion (Mr. Yoshida, Dr. Kansak, Ms. Tsukada, Mr. Matsuyama, Mr.
			Ogawa, Mr. Doi, & Ms. Ohara)
		13:35	Lv. Siem Reap by K6-116 (Mr. Yoshida, Dr. Kansak, Ms. Tsukada, Mr. Matsuyama, Mr.
			Ogawa & Mr. Doi)
		14:30	Ar. at Phnom Penh
		16:00	Meeting with Dr. Vinntak, MOH for the draft of Minutes of Discussion
		All day	Meeting with each department of Siem Reap Provincial Referral Hospital and study
			infrastructure (Mr. Matsumoto, Ms. Watanabe & Ms. Ueda)
		All day	Survey for in-house training at Siem Reap Provincial Referral Hospital (Mr. Hanada & Mr.
			Uchida)
11	5 Jun.	09:00	Filing documents (Mr. Yoshida, Dr. Kansak, Ms. Tsukada, Mr. Matsuyama, Mr. Ogawa &
	(Wed.)	15.20	Mr. Doi)
		15:30	Signing on the Minutes of Discussion with Prof. Eng Hout & Dr. Vinntak, MOH
		14:00	Meeting with EDC, Siem Reap (Mr. Matsumoto, Ms. Watanabe & Ms. Oeda)
		14.00	Meeting with summent equipment condition at each hearital and medical equipment
		All day	collection (Ms Obara)
		All day	Meeting with current acceptance of medical apprentice condition and referral condition
		All day	(in/out) at Siem Reap Provincial Referral Hospital (Mr. Hanada & Mr. Uchida)
12	6 Jun	09.30	Report to Mr. Nakajima, Secretary of the Embassy of Japan (Mr. Yoshida, Dr. Kansak, Ms.
12	(Thu.)	07.50	Tsukada. Mr. Matsuvama. Mr. Ogawa & Mr. Doj)
	()	11:00	Report to Mr. Sugano and Mr. Miura, JICA Office
		09:00	Survey for Pouk District Referral Hospital for current facility condition, current
			infrastructure condition and medical index (Mr. Matsumoto, Ms. Watanabe, Ms. Ueda &
			Ms. Ohara)
		14:30	Meeting with the Director of Siem Reap Provincial Referral Hospital (Mr. Hanada & Mr.
			Uchida)
		22:50	Lv. Phnom Penh by NH-818 (Mr. Yoshida, Dr. Kansaku & Ms. Tsukada)
13	7 Jun.	07:00	Ar. at Narita (Mr. Yoshida, Dr. Kansaku & Ms. Tsukada)
	(Fri)	10:05	Lv. Phnom Penh by K6-105 (Mr. Matsuyama, Mr. Ogawa & Mr. Doi)
		11:00	Ar. at Siem Reap
		09:00	Survey for Angkor Chum District Referral Hospital for current facility condition, current
			infrastructure condition and medical index (Mr. Matsumoto, Ms. Watanabe, Ms. Ueda,
			Ms. Ohara, Mr. Hanada & Mr. Uchida)
		15:00	Internal meeting (Mr. Matsuyama, Mr. Ogawa, Mr. Matsumoto, Ms. Watanabe, Ms. Ueda,
			Mr. Doi, Ms. Ohara, Mr. Hanada & Mr. Uchida)
		16:30	Meeting with the Director of Siem Reap Provincial Referral Hospital (Mr. Hanada & Mr.
			Uchida)
		17:00	Meeting with the Director of PHD (Mr. Matsuyama, Mr. Ogawa, Mr. Matsumoto, Mr. Doi
			& Ms. Ohara)
14	8 Jun.	09:00	Survey for Kralanh District Referral Hospital for current facility condition, current
	(Sat.)		infrastructure condition and medical index (Mr. Matsuyama, Mr. Ogawa, Mr. Matsumoto,
		14.00	Mis. Watanabe, Mis. Ueda, Mir. Dol, Mis. Onara, Mir. Hanada & Mir. Uchida)
		14:00	Trining uoculitetits
		11.20	Ly, Handda Uy JL-31 yla Dallgrok Uy FO-907 (IVIS, IVakaZaWa) Ar Siem Rean
15	9 Jun	All day	Filing documents and studying hospital facilities & medical equipment (Mr. Matsuyama, Mr.
1.5	(Sun)	2 m day	Ogawa, Mr. Matsumoto, Ms. Nakazawa, Ms. Watanabe, Ms. Uleda Mr. Doi & Ms. Obara)
	(Sui)		Filing documents at Phnom Penh (Mr Hanada & Mr Uchida)
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No.	Date	Time	Activity
16	10 Jun.	09:00	Survey for Sotnikum District Referral Hospital for current facility condition, current
	(Mon.)		infrastructure condition and medical index (Mr. Matsuyama, Mr. Ogawa, Mr. Matsumoto,
			Ms. Nakazawa, Ms. Watanabe, Ms. Ueda, Mr. Doi, Ms. Ohara, Mr. Hanada & Mr. Uchida)
		14:00	Meeting with each department of Siem Reap Provincial Referral Hospital (Mr.
			Matsuyama, Ms. Ueda, Mr. Doi & Ms. Ohara)
		14:00	Observation of Royal Angkor International Hospital (Mr. Ogawa, Mr. Matsumoto, Ms.
			Nakazawa & Ms. Watanabe)
		14:30	Meeting with Siem Reap Provincial Referral Hospital (Mr. Hanada & Mr. Uchida)
17	11 Jun.	09:00	Meeting with Siem Reap Provincial Referral Hospital for operation implementation
	(Tue.)		system, operation maintenance system, another donors, facility planning and etc. (Mr.
			Matsuyama, Mr. Ogawa, Mr. Matsumoto, Ms. Watanabe & Ms. Ueda)
			Meeting with each department of Siem Reap Provincial Referral Hospital for current
			equipment condition (Mr. Doi & Ms. Ohara)
		14:00	Observation of Angkor Hospital for Children (Mr. Matsuyama, Mr. Ogawa, Mr.
			Matsumoto, Ms. Nakazawa, Ms. Watanabe & Ms. Ueda)
		09:30	Additional survey for Sotnikum District Referral Hospital (Mr. Hanada & Mr. Uchida)
		17:40	Lv. Siem Reap by K6-108
10	10 1	18:30	Ar. at Prinom Penn Marting with CMAC, Size David (Mr. Materiana, Mr. Ocarra, & Mr. Malagara)
18	12 Jun.	09:00	After meeting, moving to Sign Reap (Mr. Matsuyama, Mr. Ogawa & Ms. Nakazawa)
	(weu.)		survey area for mine
		10.00	Meeting with Siem Rean Sewer DPWT (Mr. Matsumoto, Mr. Watanabe & Mr. Heda)
		14.00	Meeting with Fire Fighting (Police) Department
		09:00	Meeting with each department of Siem Reap Provincial Referral Hospital for medical
		09.00	equipment (Mr. Doi & Ms. Ohara)
		13:30	Meeting with Technical School for Medical Care (TSMC) at Phnom Penh for training
			condition of medical technicians (Mr. Hanada & Mr. Uchida)
19	13 Jun.	09:00	Observation of construction sites at Sien Reap (Mr. Matsuyama, Mr. Ogawa, Mr.
	(Thu.)		Matsumoto, Ms. Nakazawa, Ms. Watanabe & Ms. Ueda)
		09:00	Meeting with each department of Siem Reap Provincial Referral Hospital for medical
			equipment (Mr. Doi & Ms. Ohara)
		09:30	Meeting with National Maternal and Child Health Center for gender policy and
			circumstance/social care (Mr. Hanada & Mr. Uchida)
		14:00	Meeting with Siem Reap Provincial Referral Hospital for operation theater (Mr.
		1100	Matsuyama, Mr. Ogawa, Mr. Matsumoto, Ms. Nakazawa & Ms. Watanabe)
		14:00	Meeting with each department of Siem Reap Provincial Referral Hospital for medical
20	14 1	00.00	equipment (Mr. Doi & Ms. Ohara)
20	14 Jun.	09:00	Meeting with Siem Reap Provincial Referral Hospital for hospital facility planning (Mr.
	(ГП.)	00:00	Additional survey for facility maintenance system, maintenance hydrat & etc. and filing
		09.00	documents (Ms Watanabe & Ms Lleda)
		20.25	Ly Siem Rean by K6-118
		21:25	Ar. at Phnom Penh
		22:50	Ly. Phnom Penh by NH-818
		09:00	Meeting with each department of Kralanh District Referral Hospital for medical
			equipment (Mr. Doi & Ms. Ohara)
		09:00	Meeting with MOH, Phnom Penh for health condition in the nation/state wide and human
			resources/educational conditions (Mr. Hanada & Mr. Uchida)
21	15 Jun.	07:00	Ar. at Narita (Ms. Watanabe & Ms. Ueda)
	(Sat.)	09:00	Observation of Battambang Provincial Referral Hospital (Mr. Matsuyama, Mr. Ogawa, Mr.
			Matsumoto & Ms. Nakazawa)
		09:00	Meeting with each department of Kralanh District Referral Hospital for medical
			equipment (Mr. Doi & Ms. Ohara)
		09:00	Filing documents at Phnom Penh (Mr. Hanada & Mr. Uchida)

No.	Date	Time	Activity
22	16 Jun.	All day	Internal meeting (Mr. Matsuyama, Mr. Ogawa, Mr. Matsumoto, Ms. Nakazawa, Mr. Doi &
	(Sun.)	-	Ms. Ohara)
			Filing documents at Phnom Penh (Mr. Hanada & Mr. Uchida)
23	17 Jun.	09:00	Design of hospital facility planning (Mr. Matsuyama, Mr. Ogawa, Mr. Matsumoto & Ms.
	(Mon.)		Nakazawa)
		14:30	Meeting/confirmation with Siem Reap Provincial Referral Hospital for hospital facility
			planning
		09:00	Meeting with each department of Sotnikum District Referral Hospital for medical
			equipment (Mr. Doi & Ms. Ohara)
		09:00	Meeting with MOH, Phnom Penh for health condition in the nation/state wide and human
			resources/educational conditions (Mr. Hanada & Mr. Uchida)
		19:25	Lv. Siem Reap by PG-908 / via Bangkok by JL-34 (Ms. Nakazawa)
24	18 Jun.	06:05	Ar. at Haneda (Ms. Nakazawa)
	(Tue.)	09:00	Design of hospital facility planning (Mr. Matsuyama, & Mr. Matsumoto)
	Holiday	09:00	Filing documents (Mr. Ogawa)
		15:35	Lv. Siem Reap by K6-108
		16:25	Ar. at Phnom Penh
		09:00	Meeting with each department of Pouk District Referral Hospital for medical equipment
			(Mr. Doi & Ms. Ohara)
		All day	Filing/analysis documents (Mr. Hanada & Mr. Uchida)
25	19 Jun.	09:00	Meeting with each department of Siem Reap Provincial Referral Hospital for planning
	(Wed.)	14.00	contents (Mr. Matsuyama, Mr. Matsumoto, Mr. Doi & Ms. Ohara)
		14:00	Conformation of answers for questionnaire at MOH, Phnom Penh (Mr. Hanada & Mr.
- 26	20.1	A 11 1	
26	20 Jun.	All day	Filing Documents and preparation of draft lechnical Note (Mr. Matsuyama & Mr.
	(1110.)	00.00	Matsuniolo
		09:00	equipment (Mr Doi & Ms Obers)
		All day	Sum-up results of the survey at Phnom Penh (Mr Ogawa Mr Hanada & Mr Uchida)
27	21 Jun	09.00	Explanation/confirmation of draft Technical Note to Siem Rean PHD and Siem Rean
27	(Fri.)	07.00	Provincial Referral Hospital (Mr. Matsuvama, Mr. Matsumoto, Mr. Doj & Ms. Ohara)
		09:00	Sum-up results of the survey at Phnom Penh (Mr. Ogawa, Mr. Hanada & Mr. Uchida)
		22:50	Lv. Phnom Penh by NH-818
28	22 Jun.	07:00	Ar. at Narita (Mr. Ogawa, Mr. Hanada & Mr. Uchida)
	(Sat.)	All day	Filing Documents and preparation of draft Technical Note (Mr. Matsuyama, Mr.
		-	Matsumoto, Mr. Doi & Ms. Ohara)
29	23 Jun.	09:00	Filing Documents and preparation of draft Technical Note (Mr. Matsuyama, Mr.
	(Sun.)		Matsumoto, Mr. Doi & Ms. Ohara)
		17:10	Lv. Siem Reap by K6-116
		18:00	Ar. at Phnom Penh
30	24 Jun.	10:00	Meeting with MOH for draft Technical Note including planning contents, work borne by
	(Mon.)		the Cambodia side and etc.(Mr. Matsuyama, Mr. Matsumoto, Mr. Doi & Ms. Ohara)
		14:00	Survey for medical equipment agents including spare parts, maintenance contracts and etc.
		44.00	(Ms. Ohara)
31	25 Jun.	11:00	Signing of on the Technical Note at MOH (Mr. Matsuyama, Mr. Matsumoto, Mr. Doi &
	(Tue.)	14.00	Ms. Ohara)
		14:00	Conformation of local contractor for progress of geological survey, topographical survey
			α water analysis and survey/collection for construction materials and costs (Mr. Matsumoto)
37	26 Jun	00.00	Meeting with KOICA for trend of assistance (Mr. Matevama & Mr. Matevamoto)
22	(Wed)	14.30	Survey for construction condition construction materials procurement and labor
	(17.30	procurement (Mr. Matsuyama & Mr. Matsumoto)
		09:00	Survey for medical equipment agents including spare parts, maintenance contracts and etc.
		07.00	(Mr. Doj & Ms. Ohara)

No.	Date	Time	Activity	
33	27 Jun.	10:00	Survey for construction condition, construction materials procurement and labor	
	(Thu.)		procurement (Mr. Matsuyama & Mr. Matsumoto)	
		09:00	Survey for medical equipment agents including spare parts, maintenance contracts and etc.	
			(Mr. Doi & Ms. Ohara)	
34	28 Jun.	09:00	Survey for medical equipment agents including spare parts, maintenance contracts and etc.	
	(Fri.)		(Mr. Doi & Ms. Ohara)	
		14:00	Report to JICA (Mr. Matsuyama, Mr. Matsumoto, Mr. Doi & Ms. Ohara)	
		15:00	Report to Embassy of Japan	
			Additional survey and fixing documents	
		22:50	Lv. Phnom Penh by NH-818	
35	29 Jun.	07:00	Ar. at Narita (Mr. Matsuyama, Mr. Matsumoto, Mr. Doi & Ms. Ohara)	
	(Sat.)			

2-2 Explanation of the Draft Report

From 26th January to 5th February, 2020 (11days)

No.	Date	Time	Activity
01	26 Jan.	10:40	Lv. Tokyo by NH-817 (Mr. Matsuyama & Mr. Doi)
	(Sun.)	15:40	Ar. at Phnom Penh
02	27 Jan.	09:30	Meeting with Service and ME Bureau of MOH for medical equipment management and
	(Mon.)		maintenance
		10:00	Courtesy call to MOH, explanation and discussion of Draft Report
03	28 Jan.	14:30	Lv. Phnom Penh by K6-115 (Mr. Matsuyama & Mr. Doi)
	(Tue.)	15:25	Ar. at Siem Reap
04	29 Jan.	09:30	Explanation and discussion of Draft Report and Draft Specification of Equipment to Siem
	(Wed.)		Reap PHD Director, Siem Reap Hospital Director and Deputy Director
		10:40	Lv. Tokyo by NH-817 (Mr. Yoshida, Dr. Kansaku & Mr. Matsuo)
		15:40	Ar. At Phnom Penh
		17:45	Lv. Phnom Penh by K6-109
		18:35	Ar. at Siem Reap
05	30 Jan.	09:30	Explanation and discussion of Draft Report, Draft Specification of Equipment, Undertakings
	(Thu.)		by each countries and Minutes of Discussion to Siem Reap PHD Director, Siem Reap
			Hospital Director and Deputy Director
06	31 Jan.	09:30	Explanation and discussion of Undertakings by each countries and Minutes of Discussion to
	(Fri.)		Siem Reap PHD Director, Siem Reap Hospital Director and Deputy Director
			Observation of existing facility of Siem Reap Provincial Referral Hospital
07	1 Feb.	All day	Internal meeting
	(Sat.)		Modification of Minutes of Discussion
08	2 Feb.	11:25	Lv. Siem Reap by K6-108 (Mr. Yoshida, Dr. Kansaku, Mr. Matsuo, Mr. Matsuyama & Mr.
	(Sun.)		Doi)
		12:15	Ar. At Phnom Penh
09	3 Feb.	10:00	Discussion of Minutes of Discussion with MOH
	(Mon.)		Internal meeting, Modification of Minutes of Discussion
10	4 Feb.	09:30	Report to Embassy of Japan
	(Tue.)	11:00	Signing on the Minutes of Discussion at MOH
		14:00	Report to JICA Cambodia Office
		22:50	Lv. Phnom Penh by NH-818
11	5 Feb.	06:40	Ar. at Tokyo
	(Wed.)		

Darties	Dosition	Nama
Ministry of Hoalth (MOH)	Secretary of State for Health	Drof ENG HIJOT
Ministry of Health (MOH)	Director Department of	PIOL ENG HUUI
	International Cooperation	DI. SUNG VINNIAK, M.D., MBA, MPH
	Director Planning Health	Dr. LO VEASNAKIRY
	Information	
	Chief Hospital Service and	Dr. CHEU SIVUTHYS
	ME Bureau	
	Chief. Department of	Dr. HUY MENG HUT
	International Cooperation	
	Officer Department of	Dr MOEUN SREVI EAP
	International Cooperation	
	Staff, Department of	Ms. LACH CHANDETH
	International Cooperation	
Siem Reap Provincial Health Department	Director	Dr. KROS SARATH, MD., MSc.
(PHD)	Deputy Director	Dr. SING RISHIRETH
	Deputy Director	Mr. MOUNG NARIN
	Staff, Financial Department	Mr. HOUT SONY
Siem Reap Provincial Referral Hospital	Director	Dr. PEN PHALKUN
1 1	Deputy Director	Mr. LIM HENG, Pha.
	Chief, Technical Officer,	Dr. KONG RITHY
	URO & ORL	
	Orthopedist, Surgery Unit	Dr. VENG VUTHY
	Chief, OT	Dr. NUON SOTHARA
	Surgeon, OT	Dr. ITH SAVAON
	Anesthesia	Dr. HOM KIMHEAN
	Abdominal Surgent	Dr. EM SOKHOM
	Chief, Urology	Dr. THENG HANG
	Chief of Ward, Urology	Ms. CHAO CHANMONY
	Chief Nurse	Mr. SOV POLEAK
	Chief, X-ray	Mr. SORN BUNNA
	Chief, Ultrasound	Mr. KORN SAMOEUN
	Chief, CT	Dr. KHIEU SAMAO
	Chief, Emergency	Mr. LIM LY
	Chief, ICU Surgery	Mr. TOCH POLPONNAK
	Chief, ICU Surgery	Mr. HENG KOMPHEAK
	Chief, Surgery Ward A,	Mr. THO SOPHEAK
	(Abdomen)	
	Chief, Surgery Ward B	Ms. HONG THAVY
	(Traumatology)	
	Bio-medical Engineer	Eng. MUTH SAKMAY
	Chief, Workshop	Eng. KAO PHEARPT
	Deputy of Administration	Mr. SEM SOKUOM
	Head Nurse, Training Center	Mr. SOV POLEAK
	Chief, Sterilization Dept.	Mr. NHEM REANG SAY
	Chief of H.E.F. Office	Mr. HOUT SONY
Sotnikum District Referral Hospital	Director	Dr. LEANG PANHAMATH
	Deputy Director	Dr. MEAS SOKHOM
	Chief of Administration	Mr. BUN HOL
	Laboratory Technician	Mr. BAN SOKUM
Kralanh District Referral Hospital	Director	Dr. MAM CHANSAOUN
	Doctor (Pediatric, ER)	Dr. 1E HAY LHENG
	Radiologist	Mr. CHAN SOKPHEP
	Doctor (Surgery)	Dr. MOM SOPAGNA

3. List of Parties Concerned in the Recipient Country

Parties	Position	Name
	Doctor	Dr. HENG SOSEREIVATHIN
	Administration of ME	Dr. KE BUN
	Anesthesia	Dr. KHON SOKUNROTH
	Doctor (OB/GY)	Dr. HAK BUNHENG
	Doctor (General Medicine)	Dr. KHUON SENG THAI
	Laboratory Technician	Dr. MEAS DANA
	Administrator	Mr. RATA NARIN
	Cashier	Mr. PUM SREISAM
Angkor Chum District Referral Hospital	Director	Mr. NOB VAMMY (M.A.)
C I	Doctor	Dr. SEAM SOK
	Doctor	Dr. MAM SOKCADNTU
	Doctor (OPD, ER, Pediatric)	Dr. POUN RATANAR
	Doctor	Dr. KOT VANDA
	Doctor (OPD, Medicine Ultra-	Dr. HOR CHITRA.
	sound)	, , , , , , , , , , , , , , , , , , , ,
Pouk District Referral Hospital	Director	Dr. MANG SAMBATH
	Deputy Director	Dr. SIEUG KHEIY
	Administrator	Mr. POO SOMANG,
Royal Angkor International Hospital	Hospital Director	Dr. PEN PANHRATH, MD
	Head of Ancillary Division	Mr. SOTHEARITH TIV
Preah Kossamak Hospital	Director	Dr. TAN SOKUN
rical Rossaniak Hospital	Chief Laboratory	Mr CHROENG SOPEAP
	Chief Workshop	Mr. KAO PHFARPT
Angkor Japan Friendship International	Genaral Manager	
Hospital (Angkor Kyousei Hospital)		Mr. SOUNG SOPHEAKDEY
Angkor Hospital for Chiredren	Medical Director	Dr NGETH PISES MD D C H
National Maternal and Child Health	Medical Imaging	Mr. CHOV SEANG
Center (NMCH)		WII. CHOV SLANG
GENERAL DEPARTMENT TAXATION	Deputy Director General	Με νανν ρυτηροι
(GDT)	Deputy Director General	Mr. BUN NEARY
	Director General	Mr. SENG CHEASETH
	Director Deputy Director	MI. SENG CHEASEIN
	Deputy Director	MI. SOK CHHEANG
	Chief	
Taskainal Cake al fan Madiaal Cana		Mr. ANN SAMNANG
(TEMC)	TSMC Taaahar	Mr. CHOV SEANG
(ISMC)	Deputy Director Conorol	
Cambodian Mile Action Center (CMAC),	Director of Operation & Plenning	Mr. DOM PHUMRO
Combodian Mine Action Conten (CMAC)	Director of Operation & Plaining	MI. KATH POTTANA
Cambodian Mine Action Center (CMAC),	Deputy Manager	MF. DUANNI CHINI
REP	Deputy Operation Manager	Mr. PHANN CHIN
Siem Reap Sewer, Department of Public	Deputy Director	Mr. IM VIBOL
works and Transport (DPW1)		Mr. SAY PICHENDA
	Officer, Sewer Office	Mr. LENG SOVANN
	Contact Staff, Sewer Office	Mr. HEAB SOTHEA
	Officer, General Affairs Office	Ms. HENG THYDA
		Mr. U SAMOL,
	JICA, Senior Volunteer	Mr. KIYONARI AKIBA
Siem Reap Water Supply Authority	Deputy General Director	Mr. YAY MONIRATH
	Water Supply Department	Mr. KOT NIMOL
	Business Department	Mr. SAM SENGHAN
	Business Department	Mr. THAP SARA
Electricite du Siem Reap	Planning Study Team Leader	Mr. SOUN SAMBO
(Electricite du Cambodge, EDC)	Staff, Planning/Technical	Mr. LEMG LEAMG HEMG
	Staff, Planning/Technical	Mr. TUM THEANEA

Parties	Position	Name
Siem Reap Province Police Commissariat	Deputy Police Commission	Mr. PHOEUNG SAMBATH
Office of Fire Accident and Rescue	Chief of the Police	Mr. SIM BONNAT
	Vice Chief	Mr. UN PIROM
	Vice Chief	Mr. PIN VICHET
	Officer	Mr. CHAN NOREAK
Chumnith International Corporation	Director	Mr. AY CHUMNITH
(CIC, Local Contractor)		
Dynamic Pharma Co., Ltd.	Manager, Business Department	Mr. CHEA LIHIENG
(Local Agent for Medical Equipment)	Chief, Business Department	Mr. CHEAM CHANTHOL
	Chief, Business Department	Mr. CHEY SOK
	Manager, Sales Department	Mr. PHIN SOPHEAP
	(Imagery, Endoscope)	
	Sales Supervisor	Mr. HIM KOSAL
	(ICU, Surgery)	
DKSH (Cambodia) Ltd.	Senior Manager	Mr. CRISTOPHE DEBROISE
(Local Agent for Medical Equipment)	Advisor	Ms. WANITCHAYA PHANCHANANG
NIPON CORPORATION	Branch Manager	Mr. LIM PANNHA
(Local Agent for Medical Equipment)	Sales Engineer	Mr. KHIM KIMCHHEANG
UNIQUE MEDICAL DISTRIBUTION	Director of Enterprise	Mr. CHONG HOK
CO., LTD.	Manager, Business Department	Mr. OR SAM OL
(Local Agent for Medical Equipment)	Manager, Service Department	Mr. MA PUTHY
MEDICOM CO., LTD.	Director of Enterprise	Mr. JEAN-YVES CATRY
(Local Agent for Medical Equipment)	Manager, Sales Office	Ms. ING KANNIKA
General Electric International Inc.	Director, Market Development	Mr. DARARITH LIM
(Local Agent for Medical Equipment)		
Korea International Cooperation Agency	Health Specialist	Ms. YEUNJI MA
(KOICA), Cambodia Office		
Embassy of Japan	Second Secretary	Mr. YOHEI NAKAJIMA
Consular Office of Japan in Siam Reap	Consul	Mr. NAOKI MITORI
Japan International Cooperation Agency	Chief Representative	Mr. YUICHI SUGANO
(JICA), Cambodia Office	Deputy Chief Representative	Mr. JUNICHI MIURA
	Representative	Mr. YUJI SHINOHARA
	Program Officer	Mr. IN SOPHEARUN

4. Minutes of Discussions4-1 Outline Design Study

Minutes of Discussions on the Preparatory Survey for the Project for Improvement of Referral Hospitals in Siem Reap

Based on the several preliminary discussions between the Royal Government of Cambodia (hereinafter referred to as "RGC") and the Government of Japan (hereinafter referred to as "GOJ"), decided to conduct the Preparatory Survey for Improvement of Referral Hospitals in Siem Reap Province (hereinafter referred to as "the Project"), and entrusted the Preparatory Survey to Japan International Cooperation Agency (hereinafter referred to as "JICA").

JICA sent the Preparatory Survey Team for the Outline Design (hereinafter referred to as "the Team") to the Kingdom of Cambodia (hereinafter referred to as "Cambodia"), headed by Mr. Tomoya Yoshida, Deputy Director of Human Development Department, JICA, and scheduled to stay in the country from 26th May to 29th June, 2019. The Team held a series of discussions with the officials concerned of RGC and conducted a field survey. In the course of the discussions, both sides have confirmed the main items described in the attached sheets. The Team will proceed to further works and prepare the Preparatory Survey Report.

Phnom Penh, 5th June, 2019

Mr. Tomoya Yoshida Leader of Preparatory Survey Team Deputy Director of Human Development Japan International Cooperation Agency Japan

Prof. Eng Huot Secretary of State Ministry of Health The Kingdom of Cambodia

ATTACHMENT

1. Objective of the Project

The objective of the project is to strengthen health system of Siem Reap province and the neighboring areas by construction of facilities and procurement and installation of medical equipment, thereby contributing to realize Universal Health Coverage through the improvement of the health status of the region.

2. Title of the Preparatory Survey

Both sides confirmed the title of the Preparatory Survey as "the Preparatory Survey for the Project for Improvement of Referral Hospitals in Siem Reap".

3. Project site

Both sides confirmed that the site of the Project is in Siem Reap Province.

4. Line Agency and Executing Agency

Both sides confirmed the line agency and executing agency as follows:

- 4-1. The line agencies are Ministry of Health and Siem Reap Provincial Health Department, which would be the agency to supervise the executing agency.
- 4-2. The executing agencies are the Department of International Cooperation, Ministry of Health and Siem Reap Provincial Referral Hospital. The executing agencies shall coordinate with all the relevant agencies to ensure smooth implementation of the Project and ensure that the Undertakings are taken by relevant agencies properly and on time.
- 5. Items requested by RGC

As a result of discussions, both sides confirmed that construction of the new building and the items requested by RGC are as follows:

- 5-1. The final requested facilities are described in Annex 1.
- 5-2. The final requested medical equipment are described in Annex 2. The priorities will be described in the technical note.
- 5-3. JICA will assess the feasibility of the above requested items through the survey and will report the findings to the GOJ. The final components of the Project will be decided by the GOJ.

- 6. Procedures and Basic Principles of Japanese Grant
 - 6-1. The Cambodian side agreed that the procedures and basic principles and basic principles of Japanese Grant as described in Annex 3, 4 and 5 shall be applied to the Project.

As for the monitoring of the implementation of the Project, JICA requires Cambodian side to submit the Project Monitoring Report, the form of which is attached as Annex 6.

6-2. The Cambodian side agreed to take the necessary measures, as described in Annex
7, for smooth implementation of the Project. The contents of the Annex 7 will be elaborated and refined during the Preparatory Survey and be agreed in the mission dispatched for explanation of the Draft Preparatory Survey Report.

The contents of Annex 7 will be updated as the Preparatory Survey progresses, and eventually, will be used as an attachment to the Grant Agreement.

- 7. Schedule of the Survey
 - 7-1. The Team will proceed with further survey in Cambodia until 29th June, 2019.
 - 7-2. JICA will prepare a draft Preparatory Survey Report in English and dispatch a mission to Cambodia in order to explain its contents around January, 2020.
 - 7-3. If the contents of the draft Preparatory Survey Report is accepted and the undertakings for the Project are fully agreed by the Cambodia side, JICA will finalize the Preparatory Survey Report and send it to Cambodia around May, 2020.
 - 7-4. The above schedule is tentative and subject to change.
- 8. Other Relevant Issues
 - 8-1. Both sides agreed on the location for the construction of the facility as per Annex8.
 - 8-2. The Cambodian side agreed to secure sufficient staff and budget for the operation and maintenance of the facilities and medical equipment provided.
 - 8-3. The Cambodian side agreed to clear, level and reclaim the construction site agreed in 8-1 and obtain the necessary building permits before the tender.
 - 8-4. The Cambodian side agreed to undertake the rehabilitation of the existing buildings, and also transfer and re-installation of some existing equipment, if required. Existing CT scan machine in Obstetrics and Gynecology ward will be transferred and re-installed to the new building by Cambodian side.
 - 8-5. The Cambodian side shall avoid the duplication among the equipment to be procured by the project, the MOH and other donors.

- 8-6. Both sides agreed to attach maintenance service contract to some major medical equipment that need frequent maintenance, which will be funded by the Japanese side.
- 8-7. Both sides agreed that there was a necessity of soft component, which will be provided by the Japanese side, for operation and maintenance of the medical equipment.
- 8-8. The Cambodian side shall take necessary measures to exempt Japanese nationals who will be engaged in the Project from all duties and related fiscal charges which may be imposed in the Cambodia with respect to import and local procurement of equipment and services supplied under the verified contract.
- 8-9. Both sides confirmed that the drawing for site plan, equipment list and other technical information related to the Project shall not be released before the tender to be held in the implementation stage.

END

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Annex 1 Requested Facilities

Annex 2 Requested Equipment

Annex 3 Japanese Grant

Annex 4 Procedures of Japanese Grant

Annex 5 Financial Flow of Japanese Grant

Annex 6 Project Monitoring Report (template)

Annex 7 Major Undertakings to be taken by Each Government

Annex 8 Site Plan for the Facility

List	of	Requested	Facilities
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No.	Section	Department	Priority
1	Triage - Emergency - OPDs	Triage Center	1
		Medical Emergency	2
		Surgical and Trauma Emergency	1
		General and Special Medical OPD	3
		Surgical OPD	1
		Minor Surgery Room	1
		Dental Clinic OPD	2
2	Medical Imagery	X-ray Room	1
		Ultra Sound Room	1
		CT Scanner Room	1
3	IPD Section	Surgical ICU	1
		ENT and Maxillofacial IPD	1
		Neurology Surgery IPD	1
		Thoracic Surgery IPD	1
		Abdominal Surgery IPD	1
		Urology Surgery IPD	1
		Trauma and Orthopedic IPD	1
		Plastic Surgery IPD	2
		Burn Center IPD	2
2.1		Meeting Room	1
4	Operation Theatre – Anesthesiology	Laundry Room	1
	Unit - Central Sterilization Services	Sterilization Center and Store Room	1
	Department	Anesthesiology Unit	1
		One Operation Room for Neurology and	1
		Spinal Surgery	
		Two Operation Rooms for Traumatology	1
		and Orthopedic Surgery	
		Two Operation Rooms for Abdominal	1
		Surgery	
		Two Operation Rooms for Urology	1
		Surgery	
		One Operation Room for Thoracic and	1
		Cardiovascular Surgery	
		One Operation Room for ENT and	1
		Maxillofacial Surgery	
		One Operation Room for Plastic and Burn	1
		Surgery	
		Recovery Room	1
		Store	2

NO.	Equipment name	Total Q'ty
iem	Reap PRH	
1	Patient bed	300
2	Operation table and their accessories	10
3	Operation light	10
4	Operationg light mobile	1
5	Patient monitor	85
6	Anesthetic machine	10
/		29
8	Electro surgical unit	10
10		32
11	Mobile ultracound machine	1
10	Mobile Verav	6
13	FCC machine	3
14	Defibrillator	0
15	Svringe numn	7
16		50
17	Resuscitation bag set	76
18	Stretcher	10
19	Anesthesia cart	10
20	Mobile bronchoscony	10
21	Emergency bed	40
22	ICU bed	30
23	Warmer for operation theatre	10
24	Tourniquet	10
25	C-arm	3
26	Operation microscope	1
27	Surgical headlight	3
28	Knee arthroscopy instrument set	1
29	Knee arthro-pasties surgery instrument set	1
30	Hip arthro plasties surgery instrument set	1
31	Cervical spine surgery instrument set	1
32	Lumbar spine surgery instrument set	1
33	Orthopedic table traction	1
34	Orthopedic traction accessories for bed	35
35	Mini surgery instrument set	1
36	Micro surgery instrument set	1
37	Neurology/ Craniotomy surgery instrument set/ Fast drill	1
38	Large fragment surgery instrument set	1
39	Small fragment surgery instrument set	1
40	Maxillo-facial surgery instrument set	1
41	Vascular surgery instrument set	1
42	Plastic surgical instrument set	1
43	Abdominal surgical instrument set	1
44	Chest surgical instrument set	1
45	Urology surgical instrument set	1
46	ENT Surgical instrument set	1
47	Mobile endoscopic workstation	1
48	Benign prostatic hyperplasia (BPH) treatment and bladder polyp or tumor treatment	1
49	Cystoscope	1
50	Urinary stone treatment	1
51	Urethral stricture treatment	1
52	Laparoscopic surgery for urology	1
53	Surgical laparoscopic equipment	2
54	Laparoscopic smoke evacuation set	1
55	Surgical tissue management system electro surgical generator set	1
56	Cavitron ultrasonic surgical aspirator (CUSA) set	1
57	Ligasure valley lab set	1
58	Gastroscope set	1
59	Dermatome	1
60	OPD examination set	1
61	Dental chair	3
62	Dental instrument set	3

No.	Equipment name	Total Q'ty
63	ENT unit	1
64	ENT examination set	1
65	ENT endoscope	1
66	ENT headlight	1
67	Exercise stairs	1
68	X-ray fixed with CR system	1
69	Autoclave	5
70	EO Gas sterilization machine	2
71	Washing machine	8
72	Dryer machine	4



No.	Equipment Name	Q'ty
Sotnil	kum Hp.	
Pedia	ric Applicator electric	T
2	Aspirator, electric	4
3	Diagnostic Oto-Lalvago-Onbtalmoscone	
4	Nebulizer atomizer w/Electric compressor	
5	Oxygen concentrator	
6	Perfusor (infusion pump)	1
7	Oxyflow care	2
8	Resuscitator infant	3
9	Resuscitator child	3
10	Infant incubator	1
11	Thermometer digital	5
Gener	al Medicine	
1	Aspirator, electric	1
2	Diagnostic Oto-Lalyngo-Ophtalmoscope	2
3	Oxyflow care	2
4	Stretcher combination wheel and carry	2
5	Adult resuscitator	1
Sirgici	A pervice	T
0	Cart dragging (diagonaling	
2	Minor surreny set	
3	Drum sterilizing cylindrical	3
4 5		2
6	Starilizer dressing pressure type	
7	Illtraviolet Lamo	F
Ohete	trics/Gupecology Department	I
1	Doppler, fetal beart detector	T
2	Dilatation & Curettage set	
3	Oxyflow care	1
4	Pump breast manual	1
5	Stethoscope fetal Pinard monaural	
6	Vacuum-extractor	1
7	Fetal monitor (CTG)	1
Opera	ting Theatre	4
1	Apparatus anesthesia w/accessories	T 1
2	Aspirator, electric	2
3	Adult resuscitator (Ambu bag 6 Mask)	5
4	Sterilizer (Autoclave)	2
5	Electro surgical unit	1
6	Laryngoscope set	1
7	Laryngoscope set of 3 blades, Adult, Macintosh	1
8	Oxygen Concentrator	1
9	Patient Monitor	2
10	Stretcher, combination wheel and carry	2
11	Sterilizer, dressing, pressure type	2
12	Table anesthesia without tray	1
Emerg	ency Services Depatment	
1	Adult resuscitator	4
2	Airway, Adult	5
	Aspirator, electric	2
4	ICU Bed	5
	Laryngoscope set of 3 blades, Adult	1
6	ECG Unit	1
/	Patient Monitor	2
8	Blood pressure machine, automatic	2
9	Nebulizer	2
mage	<u>y</u>	
1	Scanner Ultrasound, portable	1
2	A-ray diagnostic table, stand	1
3	A-ray dosimeter	1
4	X-ray film dryer	1
5	A-ray tilm name printer	1
6		1
abora		
1	Analyzer (N+,K+,GI-,Ga+, Mg+)	1
2	Diocnemistry analyzer	1
3	Complete blood count machine	1
4	Electrophoresis system	1

No.	Equipment Name	Q'ty
Kralar	h Hp.	
Pedia	tric	
1	Aspirator, electric	
2	Drum sterilizing cylindrical small	1
3	Diagnostic Oto-Lalyngo-Ophtalmoscope	
4	Nebulizer atomizer w/Electric compressor	
5	Oxygen concentrator	
6	Perfusor (infusion pump)	-
/	Oxyflow care	
8	Resuscitator Infant	_
10	Resuscitator child	
10	Intant incubator	
Gener		
0	Aspirator, electric	
2	Diagnostic Oto-Laiyngo-Ophtaimoscope	_
0	Oxynow care	_
4	Oversen Concentration wheel and carry	_
6	Adult requestator	-
Sirgio	Adult resuscitator	l
Jirgica 1	Aspirator electric	
2	Cart drassing/dispansing	
2	Minor surgery set	-
1	Drum starilizing cylindrical	-
5		
6	Sterilizer dressing pressure type	
7		-
8	Scissors plaster	-
9	Stretcher army type folding	-
10	Operating Jamp stand type	-
Ohste	trics/Gynecology Department	
1	Doppler fetal heart detector	
2	Dilatation & Curettage set	
3	Oxyflow care	-
4	Vacuum-extractor	
5	Fetal monitor (CTG)	
Inera	ting Theatre	
1	Apparatus anesthesia w/accessories	
2	Aspirator, electric	
3	Adult resuscitator (Ambu bag 6 Mask)	-
4	Sterilizer (Autoclave)	-
5	Larvngoscope set	-
6	Laryngoscope set of 3 blades Adult Macintosh	-
7	Oxygen concentrator	-
8	Patient Monitor	1
9	Stretcher, combination wheel and carry	-
10	Sterilizer dressing pressure type	
11	Table anesthesia without trav	
merg	ency Services Denatment	
1	Adult resuscitator	····T······
2	Pediatric resuscitator	-
3	Airway Adult	
4	Airway, Infant	
5	Aspirator, electric	
6	ICU Bed	
7	arvngoscope set of 3 blades. Adult	-
8	FCG Unit	
9	Patient Monitor	-
10	Blood pressure machine, automatic	
11	Nebulizer	-
nage	W	
1	Scanner Ultrasound nortable	
2	X-ray diagnostic table stand	
2	X-ray dosimeter	-
1	X-ray film dryer	
4	X-ray film name printer	-
6	FCG Unit	
about		
abora	Applyzor (N+ K+ Cl- Co+ Mz+)	
1	Analyzer (INT, NT, UIT, UAT, Mgt)	-
2	Complete blood count mechine	
3	Complete blood count machine	
4	Lieurophoresis system	

No.	Equipment Name	Q'ty
Puok	Hp.	
Emer	gency Services Depatment	
1	Blood presser machine, automatic	2
2	2 ECG Unit, 6ch.	2
3	3 Laryngoscope	2
4	1 Nebulizer atomizer w/Electric compressor	4
5	5 Oxygen concentrator, mobile	5
6	6 Patient monitor (ECG, Plus any vital sign)	5
7	7 Pulse oxymetry	6
8	3 Suction unit, electric	3
9	Otoscope	3
Labor	ratory	
1	Analyzer (N+,K+,CI-,Ca+, Mg+)	1
2	2 Biochemistry analyzer	1
3	3 Complete blood count machine	1
4	Electrophoresis system	1
OB/C	GY	
1	Doppler, fetal heart detector	1
2	2 Examination table for gynecology	1
3	Fetal monitor (CTG)	1
Surge	ery	
1	Ultraviolet lamp	5
2	2 Sterilizer (Autoclave)	2
3	Sterilizer (Autoclave)	3
4	Anesthesia apparatus	1
5	Cesarean instrument set	2
6	Abdominal instrument set	2
7	Orthopedic instrument set	2
8	Operation table and their accessories	1
9	Suction unit	2
10	Coagulator (surgical unit)	1
Image	ry	
1	Ultrasound machine	1
2	X-ray Machine	1
3	X-ray dosimeter	1
4	X-ray film dryer	1
5	X-ray film name printer	1
Denta	al unit	
1	Dental chair	1

qQ.

No.	Equipment Name	Q'ty
Angko	ingkor Chum Hp.	
Emer	rency Services Depatment	
1	Blood presser machine, automatic	2
2	ECG Unit, 6ch.	2
3	Laryngoscope	2
4	Nebulizer atomizer w/Electric compressor	4
5	Oxygen concentrator, mobile	5
6	Patient monitor (ECG, Plus any vital sign)	5
7	Pulse oxymetry	6
8	Suction unit, electric	3
9	Otoscope	3
10	Hematocrit machine	1
11	Spot check vital singns monitor	1
Labor	atory	
1	Analyzer (N+,K+,Cl-,Ca+, Mg+)	T 1
2	Biochemistry analyzer	1 1
3	Complete blood count machine	1 1
4	Electrophoresis system	i i
5	Coagulator machine (INR) (APTT)	1
6	Instrument for gynecology exam	+
OB/G	Y	··k
1	Doppler, fetal heart detector	T
2	Examination table for gynecology	1
3	Fetal monitor (CTG)	1
Surge	V	. L
1	Ultraviolet lamp	T
2	Sterilizer (Autoclave)	0
3	Sterilizer (Autoclave)	2
4	Anesthesia annaratus	3
5	Cesarean instrument set	1 0
6	Abdominal instrument set	2
7	Orthonedia instrument act	2
8	Operation table and their accessories	2
0	Suction unit	1
10	Coogulator (aurrical unit)	2
11	ED abourdouloge survivel en entire les	1
10	LED showdowless surgical aperating lamp	1
12	Vacuum extractor machine	1
13	Defibrilator	1
14	Digital ventilation machine	11
mager	<u>y</u>	·····
1	Ultrasound machine	1
2	X-ray Machine	1
3	X-ray dosimeter	1
4	X-ray film dryer	1
5	X-ray film name printer	1
Dental	unit	
1	Dental chair	1
2	Dental X-ray	1

JAPANESE GRANT

The Japanese Grant is non-reimbursable fund provided to a recipient country (hereinafter referred to as "the Recipient") to purchase the products and/or services (engineering services and transportation of the products, etc.) for its economic and social development in accordance with the relevant laws and regulations of Japan. Followings are the basic features of the project grants operated by JICA (hereinafter referred to as "Project Grants").

1. Procedures of Project Grants

Project Grants are conducted through following procedures (See "PROCEDURES OF JAPANESE GRANT" for details):

(1) Preparation

- The Preparatory Survey (hereinafter referred to as "the Survey") conducted by JICA

(2) Appraisal

-Appraisal by the government of Japan (hereinafter referred to as "GOJ") and JICA, and Approval by the Japanese Cabinet

(3) Implementation

Exchange of Notes

-The Notes exchanged between the GOJ and the government of the Recipient

Grant Agreement (hereinafter referred to as "the G/A")

-Agreement concluded between JICA and the Recipient

Banking Arrangement (hereinafter referred to as "the B/A")

-Opening of bank account by the Recipient in a bank in Japan (hereinafter referred to as "the Bank") to receive the grant

Construction works/procurement

-Implementation of the project (hereinafter referred to as "the Project") on the basis of the G/A

(4) Ex-post Monitoring and Evaluation

-Monitoring and evaluation at post-implementation stage

2. Preparatory Survey

(1) Contents of the Survey

The aim of the Survey is to provide basic documents necessary for the appraisal of the the Project made by the GOJ and JICA. The contents of the Survey are as follows:

- Confirmation of the background, objectives, and benefits of the Project and also institutional capacity of relevant agencies of the Recipient necessary for the implementation of the Project.

T

- Evaluation of the feasibility of the Project to be implemented under the Japanese Grant from a technical, financial, social and economic point of view.
- Confirmation of items agreed between both parties concerning the basic concept of the Project.
- Preparation of an outline design of the Project.
- Estimation of costs of the Project.
- Confirmation of Environmental and Social Considerations

The contents of the original request by the Recipient are not necessarily approved in their initial form. The Outline Design of the Project is confirmed based on the guidelines of the Japanese Grant.

JICA requests the Recipient to take measures necessary to achieve 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 executing agency of the Project. Therefore, the contents of the Project are confirmed by all relevant organizations of the Recipient based on the Minutes of Discussions.

(2) Selection of Consultants

For smooth implementation of the Survey, JICA contracts with (a) consulting firm(s). JICA selects (a) firm(s) based on proposals submitted by interested firms.

(3) Result of the Survey

JICA reviews the report on the results of the Survey and recommends the GOJ to appraise the implementation of the Project after confirming the feasibility of the Project.

3. Basic Principles of Project Grants

- (1) Implementation Stage
- 1) The E/N and the G/A

After the Project is approved by the Cabinet of Japan, the Exchange of Notes (hereinafter referred to as "the E/N") will be singed between the GOJ and the Government of the Recipient to make a pledge for assistance, which is followed by the conclusion of the G/A between JICA and the Recipient to define the necessary articles, in accordance with the E/N, to implement the Project, such as conditions of disbursement, responsibilities of the Recipient, and procurement conditions. The terms and conditions generally applicable to the Japanese Grant are stipulated in the "General Terms and Conditions for Japanese Grant (January 2016)."

2) Banking Arrangements (B/A) (See "Financial Flow of Japanese Grant (A/P Type)" for details)

- a) The Recipient shall open an account or shall cause its designated authority to open an account under the name of the Recipient in the Bank, in principle. JICA will disburse the Japanese Grant in Japanese yen for the Recipient to cover the obligations incurred by the Recipient under the verified contracts.
- b) The Japanese Grant will be disbursed when payment requests are submitted by the Bank to JICA under an Authorization to Pay (A/P) issued by the Recipient.

3) Procurement Procedure

The products and/or services necessary for the implementation of the Project shall be procured in accordance with JICA's procurement guidelines as stipulated in the G/A.

4) Selection of Consultants

In order to maintain technical consistency, the consulting firm(s) which conducted the Survey will be recommended by JICA to the Recipient to continue to work on the Project's implementation after the E/N and G/A.

5) Eligible source country

In using the Japanese Grant disbursed by JICA for the purchase of products and/or services, the eligible source countries of such products and/or services shall be Japan and/or the Recipient. The Japanese Grant may be used for the purchase of the products and/or services of a third country as eligible, if necessary, taking into account the quality, competitiveness and economic rationality of products and/or services necessary for achieving the objective of the Project. However, the prime contractors, namely, constructing and procurement firms, and the prime consulting firm, which enter into contracts with the Recipient, are limited to "Japanese nationals", in principle.

6) Contracts and Concurrence by JICA

The Recipient will conclude contracts denominated in Japanese yen with Japanese nationals. Those contracts shall be concurred by JICA in order to be verified as eligible for using the Japanese Grant.

7) Monitoring

The Recipient is required to take their initiative to carefully monitor the progress of the Project in order to ensure its smooth implementation as part of their responsibility in the G/A, and to regularly report to JICA about its status by using the Project Monitoring Report (PMR).

8) Safety Measures

The Recipient must ensure that the safety is highly observed during the implementation of the Project.

9) Construction Quality Control Meeting

Construction Quality Control Meeting (hereinafter referred to as the "Meeting") will be held for quality assurance and smooth implementation of the Works at each stage of the Works. The member of the Meeting will be composed by the Recipient (or executing agency), the Consultant, the Contractor and JICA. The functions of the Meeting are as followings:

- a) Sharing information on the objective, concept and conditions of design from the Contractor, before start of construction.
- b) Discussing the issues affecting the Works such as modification of the design, test, inspection, safety control and the Client's obligation, during of construction.

(2) Ex-post Monitoring and Evaluation Stage

1) After the project completion, JICA will continue to keep in close contact with the Recipient in order to monitor that the outputs of the Project is used and maintained properly to attain its expected outcomes.

2) In principle, JICA will conduct ex-post evaluation of the Project after three years from the completion. It is required for the Recipient to furnish any necessary information as JICA may reasonably request.

(3) Others

1) Environmental and Social Considerations

The Recipient shall carefully consider environmental and social impacts by the Project and must comply with the environmental regulations of the Recipient and JICA Guidelines for Environmental and Social Considerations (April, 2010).

2) Major undertakings to be taken by the Government of the Recipient

For the smooth and proper implementation of the Project, the Recipient is required to undertake necessary measures including land acquisition, and bear an advising commission of the A/P and payment commissions paid to the Bank as agreed with the GOJ and/or JICA. The Government of the Recipient shall ensure that customs duties, internal taxes and other fiscal levies which may be imposed in the Recipient with respect to the purchase of the Products and/or the Services be exempted or be borne by its designated authority without using the Grant and its accrued interest, since the grant fund comes from the Japanese taxpayers.

3) Proper Use

The Recipient is required to maintain and use properly and effectively the products and/or services under the Project (including the facilities constructed and the equipment purchased), to assign staff necessary for this operation and maintenance and to bear all the expenses other than those covered by the Japanese Grant.

4) Export and Re-export

The products purchased under the Japanese Grant should not be exported or re-exported from the Recipient.

Annex-4

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PROCEDURES OF JAPANESE GRANT

Stage	Procedures	Remarks	Recipient Government	Japanese Government	JICA	Consultants	Contractors	Agent Bank
Official Request	Request for grants through diplomatic channel	Request shall be submitted before appraisal stage.	x	x				
1. Preparation	(1) Preparatory Survey Preparation of outline design and cost estimate		x		x	x		
	(2)Preparatory Survey Explanation of draft outline design, including cost estimate, undertakings, etc.		x		x	x		
2. Appraisal	(3)Agreement on conditions for implementation	Conditions will be explained with the draft notes (E/N) and Grant Agreement (G/A) which will be signed before approval by Japanese government.	x	x (E/N)	x (G/A)			
	(4) Approval by the Japanese cabinet			x				
	(5) Exchange of Notes (E/N)		x	x				
	(6) Signing of Grant Agreement (G/A)		x		x			
	(7) Banking Arrangement (B/A)	Need to be informed to ЛСА	x					x
	(8) Contracting with consultant and issuance of Authorization to Pay (A/P)	Concurrence by JICA is required	x			x		x
	(9) Detail design (D/D)		x	5		x		
3. Implementation	(10) Preparation of bidding documents	Concurrence by JICA is required	x			x		
	(11) Bidding	Concurrence by JICA is required	x			x	x	
	(12) Contracting with contractor/supplier and issuance of A/P	Concurrence by JICA is required	x				x	x
	(13) Construction works/procurement	Concurrence by JICA is required for major modification of design and amendment of contracts.	x			x	x	
	(14) Completion certificate		x			x	x	
4. Ex-post monitoring &	(15) Ex-post monitoring	To be implemented generally after 1, 3, 10 years of completion, subject to change	x		x			
evaluation	(16) Ex-post evaluation	To be implemented basically after 3 years of completion	x		x			

notes:

1. Project Monitoring Report and Report for Project Completion shall be submitted to JICA as agreed in the G/A.

2. Concurrence by JICA is required for allocation of grant for remaining amount and/or contingencies as agreed in the G/A.





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Project Monitoring Report on Project Name Grant Agreement No. XXXXXXX 20XX, Month

Organizational Information

Signer of the G/A (Recipient)	Person in Charge Contacts	(Designation) Address: Phone/FAX: Email:	
Executing Agency	Person in Charge Contacts	(Designation) Address: Phone/FAX: Email:	
Line Ministry	Person in Charge Contacts	(Designation) Address: Phone/FAX: Email:	

General Information:

Project Title	
E/N	Signed date: Duration:
G/A	Signed date: Duration:
Source of Finance	Government of Japan: Not exceeding JPYmil. Government of ():

1: Project Description

1-1 Project Objective

1-2 Project Rationale

- Higher-level objectives to which the project contributes (national/regional/sectoral policies and strategies)
- Situation of the target groups to which the project addresses

1-3 Indicators for measurement of "Effectiveness"

Indicators	Original (Yr)	Target (Yr)

2: Details of the Project

2-1 Location

Components	Original (proposed in the outline design)	Actual
1.		

2-2 Scope of the work

Components	Original* (proposed in the outline design)	Actual*
1.		

Reasons for modification of scope (if any).

(PMR)

A-29

2-3 Implementation Schedule

of signing Actua

Reasons for any changes of the schedule, and their effects on the project (if any)

2-4 Obligations by the Recipient 2-4-1 Progress of Specific Obligations See Attachment 2.

- **2-4-2 Activities** See Attachment 3.
- 2-4-3 Report on RD See Attachment 11.

2-5 Project Cost

2-5-1 Cost borne by the Grant(Confidential until the Bidding)

Actual Origina	al ^{1),2)} Actual
lification) the out desig	ea m fline m)
1	dification) the out desig

Note: 1) Date of estimation: 2) Exchange rate: 1 US Dollar = Yen

2-5-2 Cost borne by the Recipient

Components		Cost (1,000 Taka)	
Original (proposed in the outline design)	Actual (in case of any modification)	Original ^{1),2)} (proposed in the outline design)	Actual
1.			

3

Note: 1) Date of estimation:

2) Exchange rate: 1 US Dollar =

Reasons for the remarkable gaps between the original and actual cost, and the countermeasures (if any)

(PMR)

2-6 Executing Agency

- Organization's role, financial position, capacity, cost recovery etc,
- Organization Chart including the unit in charge of the implementation and number of employees.

Original (at the time of outline design)

name: role:

financial situation:

institutional and organizational arrangement (organogram):

human resources (number and ability of staff):

Actual (PMR)

2-7 Environmental and Social Impacts

- The results of environmental monitoring based on Attachment 5 (in accordance with Schedule 4 of the Grant Agreement).

- The results of social monitoring based on in Attachment 5 (in accordance with Schedule 4 of the Grant Agreement).

- Disclosed information related to results of environmental and social monitoring to local stakeholders (whenever applicable).

3: Operation and Maintenance (O&M)

3-1 Physical Arrangement

- Plan for O&M (number and skills of the staff in the responsible division or section, availability of manuals and guidelines, availability of spareparts, etc.)

Original (at the time of outline design)

Actual (PMR)

3-2 Budgetary Arrangement

- Required O&M cost and actual budget allocation for O&M

Original (at the time of outline design)

4: Potential Risks and Mitigation Measures

- Potential risks which may affect the project implementation, attainment of objectives, sustainability
- Mitigation measures corresponding to the potential risks

Assessment of Potential Risks	(at the time of outline design)
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Potential Risks	Assessment	
1. (Description of Risk)	Probability: High/Moderate/Low	
	Impact: High/Moderate/Low	
	Analysis of Probability and Impact:	
	Mitigation Measures:	
	Action required during the implementation stage:	
	Contingency Plan (if applicable):	
2. (Description of Risk)	Probability: High/Moderate/Low	
(I	Impact: High/Moderate/Low	
	Analysis of Probability and Impact:	
	Mitigation Measures:	
	Action required during the implementation stage:	
	Contingency Plan (if applicable):	
3. (Description of Risk)	Probability: High/Moderate/Low	
	Impact: High/Moderate/Low	
	Analysis of Probability and Impact:	
	Mitigation Measures:	
	Action required during the implementation stage:	

	PMR prepared of DD/MM/YY
	Contingency Plan (if applicable):
Actual Cituation and Cours	tormood and the second s
Actual Situation and Coun	termeasures
(PMR)	

5: Evaluation and Monitoring Plan (after the work completion)

5-1 Overall evaluation

Please describe your overall evaluation on the project.

5-2 Lessons Learnt and Recommendations

Please raise any lessons learned from the project experience, which might be valuable for the future assistance or similar type of projects, as well as any recommendations, which might be beneficial for better realization of the project effect, impact and assurance of sustainability.

5-3 Monitoring Plan of the Indicators for Post-Evaluation

Please describe monitoring methods, section(s)/department(s) in charge of monitoring, frequency, the term to monitor the indicators stipulated in 1-3.
Attachment

- 1. Project Location Map
- 2. Specific obligations of the Recipient which will not be funded with the Grant
- 3. Monthly Report submitted by the Consultant

Appendix - Photocopy of Contractor's Progress Report (if any)

- Consultant Member List
- Contractor's Main Staff List
- 4. Check list for the Contract (including Record of Amendment of the Contract/Agreement and Schedule of Payment)
- 5. Environmental Monitoring Form / Social Monitoring Form
- 6. Monitoring sheet on price of specified materials (Quarterly)
- Report on Proportion of Procurement (Recipient Country, Japan and Third Countries) (PMR (final)only)
- 8. Pictures (by JPEG style by CD-R) (PMR (final)only)
- 9. Equipment List (PMR (final)only)
- 10. Drawing (PMR (final)only)
- 11. Report on RD (After project)

Annex-6

Monitoring sheet on price of specified materials

1. Initial Conditions (Confirmed)

1		Initial Voluma	Initial Unit	Initial total	1% of Contract	Condition (of payment
	Items of Specified Materials	A	Price (¥) B	Price C=A×B	Price D	Price (Decreased) E=C-D	Price (Increased) F=C+D
1	Item 1	•	•	•	•	•	
5	Item 2	0¢t	•	•			
3	Item 3						
4	Item 4						
2	Item 5						

2. Monitoring of the Unit Price of Specified Materials(1) Method of Monitoring : ●●

(2) Result of the Monitoring Survey on Unit Price for each specified materials

	Items of Specified Materials	1st Omonth, 2015	2nd month, 2015	3rd • month, 2015	4th	5th	6th
1	Item 1						
5	Item 2						
3	Item 3						
4	Item 4						
20	Item 5						

(3) Summary of Discussion with Contractor (if necessary)

Annex-6

Report on Proportion of Procurement (Recipient Country, Japan and Third Countries) (Actual Expenditure by Construction and Equipment each)

	Domestic Procurement (Recipient Country) A	Foreign Procurement (Japan) B	Foreign Procurement (Third Countries) C	Total
Construction Cost	(%)D%)	(B/D%)	(C/D%)	
Direct Construction Cost	(WD%)	(B/D%)	(C/D%)	
others	(A/D%)	(B/D%)	(C/D%)	
Equipment Cost	(A/D%)	(B/D%)	(C/D%)	
Design and Supervision Cost	(A/D%)	(B/D%)	(C/D%)	
Total	(A/D%)	(B/D%)	(C/D%)	

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Major Undertakings to be taken by Recipient Government

1. Before the Tender

NO	Items	Deadline	In charge	Cost	Ref.
1	To coordinate with the National Bank of Cambodia to open Bank Account (Banking Arrangement (B/A))	Immediately after G/A	МОН		
2	To approve IEE/EIA, if necessary	Before the tender	MOH/ SRPRH		
3	To implement EIA, if necessary	Before the tender	MOH/ SRPRH		
4	 To secure the following lands Project construction site including building area and temporary construction yard and stockyard within Siem Reap Provincial Referral Hospital 	Before E/N	MOH/ SRPRH		
5	 To clear, level and reclaim the Project site including removal of the existing buildings, the existing pavement, underground obstacles and trees, including the followings: 1) Building No. 11, ICU/ Rehabilitation 2) Building No. 12, Surgery Ward 3) Building No. 25, ICU 4) Building No.19C, TB Ward (for construction access route) 5) Building No. 26, Old wooden house (for construction yard) Note: Secure the temporary rooms within the existing buildings for the above buildings to be demolished. 	Before the tender	MOH/ SRPRH		
6	To obtain the planning, zoning, building permit	Before the tender	MOH/ PHD/ SRPRH/		
7	To arrange the land and/or rooms of the followings within Siem Reap Provincial Referral Hospital. 1) ICU/ Rehabilitation 2) Surgery Ward 3) ICU	Before removal of these buildings	MOH/ SRPRH		

G/A: Grant Agreement

B/A: Banking Arrangement

A/P: Authorization to pay

N/A: Not Applicable

MOH: Ministry of Health

SRPRH: Siem Reap Provincial Referral Hospital

PHD: Provincial Health Department of Siem Reap

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2. During the Project Implementation

NO	Items	Deadline	In charge	Cost	Ref.
1	 To issue A/P to a bank in Japan (the Agent Bank) for the payment to the consultant and supplier(s) 	Within 1 month after the signing of the agreement and contract(s)	мон		
	 To bear the following commissions to a bank of Japan for the banking services based upon the B/A 				
	Advising commission of A/P	Within 1 month after the singing of the contract	мон		
	Payment commission for A/P	Every payment	MOH		0
2	To ensure prompt unloading and customs clearance at the port of disembarkation in recipient country				
	 Facilitate tax exemption and customs clearance of the products at the port of disembarkation 	During the Project	МОН		
3	To accord Japanese physical persons and/or physical persons of third countries whose services may be required in connection with the supply of the products and the services such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work	During the Project	мон		
4	To ensure that customs duties, internal taxes and other fiscal levies which may be imposed in the country of the Recipient with respect to the purchase of the Products and/or the Services be exempted; Such customs duties, internal taxes and other fiscal levies mentioned above include VAT, commercial tax, income tax and corporate tax of Japanese nationals, resident tax, fuel tax, but not limited, which may be imposed in the recipient country with respect to the supply of the products and services under the verified contract	During the Project	мон		
5	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	During the Project	MOH/ SRPRH		
6	To submit Project Monitoring Report.	Every quarter and when necessary	MOH/ SRPRH		MD
	Enlawings shall be exemined forther through the study.				
7	To provide facilities for the distribution of electricity, water supply, drainage and other ncidental facilities				
	1) Electricity				
	The distributing line to the site	3 months before completion of the construction	MOH/ SRPRH		
	2) Water Supply				
	The city water distribution main to the site, if necessary	3 months before completion of the construction	MOH/ SRPRH		
	3) Drainage The city drainage main (for storm, sewer and others) to the site, if necessary	3 months before completion of the	MOH/ SRPRH		
	4) Telephone System	oonea aoaon			-
1	The telephone trunk line and internet line to the main distribution frame/panel (MDF) of the new constructed facility, if necessary.	3 months before completion of the	MOH/ SRPRH		
	5) Gas Supply (if any)	Construction		1	-
	The city gas main to the site, if necessary.	3 months before completion of the	MOH/ SRPRH		
	3) Furniture and Equipment	CONSTRUCTION			-
	Transferring and Purchasing general furniture for new constructed facilities.	1 month after completion of the	MOH/ SRPRH		

-				Annex-7
8	Carry out detection and removal if necessary of landmines and unexploded ordnance within the project site	Before the foundation work	MOH/ SRPRH	
9	To implement EMP and EMoP, if necessary	During the construction	MOH/ SRPRH	
	To submit results of environmental monitoring to JICA, by using the monitoring form, on a quarterly basis as a part of Project Monitoring Report	During the construction	MOH/ SRPRH	
	To implement RAP (livelihood restoration program, if needed)	For a period based on livelihood restoration program	MOH/ SRPRH	
	To implement social monitoring, and to submit the monitoring results to JICA, by using the monitoring form, on a quarterly basis as a part of Project Monitoring Report - Period of the monitoring may be extended if affected persons' livelihoods are not sufficiently restored. Extension of the monitoring will be decided based on agreement between Ministry of Health and JICA.	 Until the end of livelihood restoration program (In case that livelihood restoration program is provided) For two years after land acquisition and resettlement complete (In case that livelihood restoration program is not provided) 	MOH/ SRPRH	

3. After the Project

NO	Items	Deadline	In charge	Cost	Ref.
1	 To maintain and use properly and effectively the facilities constructed and equipment provided under the Grant Aid 1) Allocation of sufficient budget for operation and maintenance 2) Operation and maintenance structure 3) Routine check/Periodic inspection 4) Contracting with agents for maintenance of specialized medical equipment and lift 5) Regular collection and proper disposals of medical waste and wastewater 	After completion of the construction	MOH/ SRPRH		
2	To implement EMP and EMoP, if necessary	For a period based on EMP and EMoP	MOH/ SRPRH		
	To submit results of environmental monitoring to JICA, by using the monitoring form, semiannually - The period of environmental monitoring may be extended if any significant negative impacts on the environment are found. The extension of environmental monitoring will be decided based on the agreement between Ministry of Health and JICA.	For three years after the Project	MOH/ SRPRH		

E/N: Exchange of Note

G/A: Grant Agreement

B/A: Banking Arrangement

A/P: Authorization to pay N/A: Not Applicable

MOH: Ministry of Health

SRPRH: Siem Reap Provincial Referral Hospital

PHD: Provincial Health Department of Siem Reap

*Deadline, person in charge and cost shall be further examined through the study.

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Annex-7

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Major Undertakings to be Covered by the Japanese Grant

No	Items	Deadline	Cost Estimated (Million Japanese Yen)*	Ref.
1	To construct a hospital facility			
	- Facility for improvement of Siem Reap Provincial Referral Hospital			
	 To ensure prompt unloading and customs clearance at the port of disembarkation in recipient country 			
	a) Marine(Air) transportation of the products from Japan to the recipient country			1
	b) Internal transportation from the port of disembarkation to the project site			
	2) To construct access roads			
	a) Within the site			
	3) To construct the temporary building			
	 To provide facilities for the distribution of electricity, water supply, drainage and other incidental facilities 			
	a) Electricity			
	- The drop wiring and internal wiring within the site			
	- The main circuit breaker and transformer		- +	
	b) Water Supply		-	
	- The supply system within the site (receiving and/or elevated tanks)			
	c) Drainage		-	
	 The drainage system (for toilet sewer, ordinary waste, storm drainage and others) within the site 		-	
	d) Furniture and Equipment			
	- Project equipment			
2	To procure medical equipment			
	 Medical Equipment for improvement of Siem Reap Provincial Referral Hospital, Kralanh District Referral Hospital, Angkor Chum District Referral Hospital, Puok District Referral Hospital and Sotnikum District Referral Hospital, 			
3	To implement detailed design, tender support, construction and procurement supervision and soft component (Consultant)			
4	Contingencies			
	Total			

*; Items shall be further examined through the study.

*; Deadline and the cost estimates shall be further examined through the study. This is subject to the approval of the Government of Japan.



4-2 Explanation of the Draft Report

Minutes of Discussions on the Preparatory Survey for the Project for Improvement of Referral Hospitals in Siem Reap Province (Explanation on Draft Preparatory Survey Report)

With reference to the minutes of discussions signed between the Royal Government of Cambodia (hereinafter referred to as "RGC"), and the Japan International Cooperation Agency (hereinafter referred to as "JICA") on 5 June, 2019 and in response to the request from the Government of the Kingdom of Cambodia (hereinafter referred to as "Cambodia") dated 6 August, 2017, JICA dispatched the Preparatory Survey Team (hereinafter referred to as "the Team") for the explanation of Draft Preparatory Survey Report (hereinafter referred to as "the Draft Report") for the Project for Improvement of Referral Hospitals in Siem Reap Province (hereinafter referred to as "the Project"), headed by Tomoya YOSHIDA, Deputy Director, Human Development Department from 26 January to 4 February, 2020.

As a result of the discussions, both sides agreed on the main items described in the attached sheets.

Phnom Penh, 4 February 2020

Mr. Tomoya Yoshida Leader Preparatory Survey Team Japan International Cooperation Agency Japan

Prof. Eng Huot Secretary of State Ministry of Health The Kingdom of Cambodia

ATTACHMENT

1. Objective of the Project

The objective of the project is to strengthen health system of Siem Reap Province and the neighboring areas by construction of facilities and procurement and installation of medical equipment, thereby contributing to improvement of the health status of the region.

2. Title of the Preparatory Survey

Both sides confirmed the title of the Preparatory Survey as "the Preparatory Survey for the Project for Improvement of Referral Hospitals in Siem Reap Province".

3. Project site

Both sides confirmed that the site of the Project is in Siem Reap Province, including Siem Reap Provincial Referral Hospital and four district referral hospitals, and the construction site of Siem Reap Provincial Referral Hospital is shown in Annex 1.

4. Line Agency and Executing Agency

Both sides confirmed the line agency and the executing agency as follows:

- 4-1. The line agencies are Ministry of Health and Siem Reap Provincial Health Department, which would be the agency to supervise the executing agency.
- 4-2. The executing agencies are the Department of International Cooperation, Ministry of Health and Siem Reap Provincial Referral Hospital and four district referral hospitals. The executing agencies shall coordinate with all the relevant agencies to ensure smooth implementation of the Project and ensure that the Undertakings are taken by relevant agencies properly and on time.
- 5. Contents of the Draft Report

After the explanation of the contents of the Draft Report by the Team, the both sides agreed to its contents.

6. Cost estimate

Both sides confirmed that the cost estimate including the contingency described in the Draft Report is provisional and will be examined further by the Government of Japan for its approval. The contingency would cover the additional cost against natural disaster, unexpected natural conditions, etc.

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- Confidentiality of the cost estimate and technical specifications
 Both sides confirmed that the cost estimate and technical specifications in the Draft
 Report should never be duplicated or disclosed to any third parties until all the
 contracts under the Project are concluded.
- 8. Timeline for the project implementation

The Team explained to the Cambodia side that the expected timeline for the project implementation is as attached in Annex 2.

9. Expected outcomes and indicators

Both sides agreed that key indicators for expected outcomes are as follows. The Cambodia side will be responsible for the achievement of agreed key indicators targeted in year 2026 and shall monitor the progress based on those indicators.

[Quantitative indicators]

Increase the number of Surgical inpatients (people/year)

Decrease the Surgical bed occupancy rate (%)

Increase the number of Surgical Operations excluding ophthalmology, OB/GYN (cases/year)

Decrease the percentage of transferred critical surgical inpatients of surgical inpatients (%)

[Qualitative indicators]

- At the target hospitals, high quality medical services will be provided, centering on emergency and surgical patients.
- The medical referral system in northern Cambodia will be strengthened.
- Medical staff's motivation to work will be improved at the target hospitals.
- The maintenance management system is strengthened, and both new and existing buildings will be properly maintained and used continually over the long term.

10. Technical assistance ("Soft Component" of the Project)

Considering the sustainable operation and maintenance of the products and services granted through the Project, following technical assistance is planned under the Project. The Cambodia side confirmed to deploy necessary number of staff who are appropriate and competent in terms of its purpose of the technical assistance as described in the Draft Report.

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11. Undertakings of the Project

Both sides confirmed the undertakings of the Project as described in Annex 3. With regard to exemption of customs duties, internal taxes and other fiscal levies as stipulated in 2.4 of Annex 3 shall be clarified in the bid documents by Ministry of Health during the implementation stage of the Project.

The Cambodia side assured to take the necessary measures and coordination including allocation of the necessary budget which are preconditions of implementation of the Project. It is further agreed that the costs are indicative, i.e. at Outline Design level. More accurate costs will be calculated at the Detailed Design stage.

Both sides also confirmed that the Annex 3 will be used as an attachment of G/A.

12. Monitoring during the implementation

The Project will be monitored by the line agencies and the executing Agencies with support of the consultant and reported to JICA by using the form of Project Monitoring Report (PMR) attached as Annex 4. The timing of submission of the PMR is described in Annex 3.

13. Project completion

Both sides confirmed that the project completes when all the facilities constructed and equipment procured by the grant are in operation. The completion of the Project will be reported to JICA promptly, but in any events not later than six months after completion of the Project.

14. Ex-Post Evaluation

JICA will conduct ex-post evaluation after three (3) years from the project completion, in principle, with respect to five evaluation criteria (Relevance, Effectiveness, Efficiency, Impact, Sustainability). The result of the evaluation will be publicized. The Cambodia side is required to provide necessary support for the data collection.

15. Schedule of the Study

JICA will finalize the Preparatory Survey Report based on the confirmed items. The report will be sent to the Cambodia side around May 2020.

16. Environmental and Social Consideration

Environmental Guidelines and Environmental Category

The Team explained that 'JICA Guidelines for Environmental and Social Considerations (April 2010)' (hereinafter referred to as "the Guidelines") is applicable for the Project. The Project is categorized as C because the Project is likely to have minimal adverse impact on the environment under the Guidelines.

Also, as the Project is a medical facility, an Environmental Impact Assessment (EIA) is not required by the Environment Law set forth by the Cambodian Ministry of Health. However, although the Project has a total area of 8,000 m2 or less, the building height exceeds 12 m, making it necessary to obtain an assessment from the Impact Assessment Department of the Ministry of Environment of Cambodia.

17. Other Relevant Issues

17-1. Disclosure of Information

Both sides confirmed that the Preparatory Survey Report from which project cost is excluded will be disclosed to the public after completion of the Preparatory Survey. The comprehensive report including the project cost will be disclosed to the public after all the contracts under the Project are concluded.

17-2. Detection of landmines

Both sides agreed that Referral Hospitals in Siem Reap Province coordinates with relevant agencies to conduct detection of landmine and unexpected ordnances in accordance of the progress of the excavation works down to 2 meters deep before hand-over of the site, and from 2 to 6 meters deep after the contractor excavated down to 2 meters.

17-3. Relocation of CT scanner and X-ray machine

Both sides agreed that Siem Reap Provincial Referral Hospital will relocate and utilize existing a CT scanner and a X-ray machine from existing buildings to new building.

17-4. Remote diagnosis

The Team confirmed that the introduction of CR system at district hospitals will improve the quality of remote diagnosis currently implemented only by telephone and SNS by Siem Reap Provincial Referral Hospital.

17-5. Staff allocation

Both sides confirmed that Siem Reap Provincial Referral Hospital will need to increase the number of medical staff described in the Draft Report. Cambodian side agreed to hire necessary number of staff before the operation of the new hospital building.

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Annex 1 Project Site

- Annex 2 Project Implementation Schedule
- Annex 3 Major Undertakings to be taken by the Government of Cambodia
- Annex 4 Project Monitoring Report (template)

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Year	2021	2022	2023	2024	2025	2026
Detail Design & Bidding Dec	<u>(2020)</u> Au	g.				· ·
Construction	Sep.		Jun.			
Procurement	Sep.		Jun.			
Soft Component			Jul. = = Au	g.		
One Year Warranty Inspection				Jun.		
Maintenance Contract					Jun.	Jun.
Inspection						

Timeline for the project implementation

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Major Undertakings to be taken by Recipient Government

1. Before the Tender

NO	Items	Deadline	In charge	Cost (USD)	Ref.
1	To coordinate with the National Bank of Cambodia to open Bank Account (Banking Arrangement (B/A))	Immediately after G/A	мон	N/A	
2	To approve IEE/EIA	Before the tender	MOH/ SRPRH	N/A	
3	To implement EIA	Before the tender	MOH/ SRPRH	N/A	
4	 To secure the following lands Project construction site including building area and temporary construction yard and stockyard within Siem Reap Provincial Referral Hospital 	Before E/N	MOH/ SRPRH	N/A	
5	 To clear, level and reclaim the Project site including removal of the existing buildings, the existing pavement, underground obstacles and trees, including the followings: Building No.11, ICU/ Rehabilitation Building No.12, Surgery Ward B Building No.19C, TB Ward (for construction access route) Building No.26 and No.27, Old wooden house (for construction yard) Parking for ambulance, Connecting corridor, Pavement Underground pipe, Electric cable Trees Note: Secure the temporary rooms within the existing buildings for the above buildings to be demolished. 	Before the tender	MOH/ SRPRH	75,450	
6	To obtain the planning, zoning, building permit	Before the tender	MOH/ PHD/ SRPRH/	N/A	
7	To arrange the land and/or rooms of the followings within Siem Reap Provincial Referral Hospital. 1) ICU/ Rehabilitation 2) Surgery Ward B 3) Parking for ambulance	Before removal of these buildings	MOH/ SRPRH	N/A	
E/N					

G/A: Grant Agreement

B/A: Banking Arrangement

A/P: Authorization to pay

N/A: Not Applicable

MOH: Ministry of Health

SRPRH: Siem Reap Provincial Referral Hospital

PHD: Provincial Health Department of Siem Reap

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2. During the Project Implementation

NO	Items	Deadline	In charge	Cost (USD)	Ref.
1	 To issue A/P to a bank in Japan (the Agent Bank) for the payment to the consultant and supplier(s) 	Within 1 month after the signing of the agreement and contract(s)	мон		
	 To bear the following commissions to a bank of Japan for the banking services based upon the B/A 			19,652	
	Advising commission of A/P	Within 1 month after the singing of the contract	МОН		
	Payment commission for A/P	Every payment	MOH		
2	To ensure prompt unloading and customs clearance at the port of disembarkation in recipient country				
	 Facilitate tax exemption and customs clearance of the products at the port of disembarkation 	During the Project	МОН	N/A	
3	To accord Japanese physical persons and/or physical persons of third countries whose services may be required in connection with the supply of the products and the services such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work	During the Project	мон	N/A	
4	To ensure that customs duties, internal taxes and other fiscal levies which may be imposed in the country of the Recipient with respect to the purchase of the Products and/or the Services be exempted; Such customs duties, internal taxes and other fiscal levies mentioned above include VAT, commercial tax, income tax and corporate tax of Japanese nationals, resident tax, fuel tax, but not limited, which may be imposed in the recipient country with respect to the supply of the products and services under the verified contract	During the Project	мон	N/A	
5	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	During the Project	MOH/ SRPRH	N/A	
6	To submit Project Monitoring Report.	Every quarter and when necessary	MOH/ SRPRH	N/A	MD
7	To provide facilities for the distribution of electricity, water supply, drainage and other incidental facilities 1) Electricity	when hecessary			
	The distributing line to the site	3 months before completion of the construction	MOH/ SRPRH	111	
	2) Water Supply				
	I ne city water distribution main to the site	3 months before completion of the construction	Moh/ Srprh	3,250	
	3) Drainage				
	The city drainage main (for storm, sewer and others) to the site	3 months before completion of the construction	MOH/ SRPRH	2,700	

4				Anne
4)	Telephone System		·	
	The telephone trunk line and internet line to the main distribution frame/panel	3 months before	MOH/	
	(MDF) of the new constructed facility	completion of the	SRPRH	N/A
		construction		
5)	Furniture and Equipment			
	Transferring and Purchasing general furniture for new constructed facilities.	1 month after	MOH/	
		completion of the	SRPRH	20,000
		construction		
6)	Planting			
	Planting trees and flowers in the flower beds.	1 month after	MOH/	
		completion of the	SRPRH	11,400
	·	construction		
Car	ry out detection and removal if necessary of landmines and unexploded ordnance	Before the	MOH/	NU/A
with	in the project site	foundation work	SRPRH	N/A
Rela	ocate a CT scanner and a X ray machine to the new building from existing building.	1 month before	MOH/	
		completion of the	SRPRH	22,000
		construction		

E/N: Exchange of Note

G/A: Grant Agreement

B/A: Banking Arrangement

A/P: Authorization to pay

N/A: Not Applicable

MOH: Ministry of Health

SRPRH: Siem Reap Provincial Referral Hospital

PHD: Provincial Health Department of Siem Reap

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Annex-3

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3. After the Project

NO	Items	Deadline	In charge	Cost (USD)	Ref.	
1	To maintain and use properly and effectively the facilities constructed and equipment	After completion of	MOH/	Facility		
	provided under the Grant Aid	the construction	SRPRH	105,500		
	 Allocation of sufficient budget for operation and maintenance 			per year		
	2) Operation and maintenance structure					
	3) Routine check/Periodic inspection			Equipme		
	4) Contracting with agents for maintenance of specialized medical equipment and			nt		
	lift			124,250		
	5) Regular collection and proper disposals of medical waste and wastewater			per year		
E/N	E/N: Exchange of Note					
G/A	G/A: Grant Agreement					
B/A	B/A: Banking Arrangement					

A/P: Authorization to pay

N/A: Not Applicable

MOH: Ministry of Health

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SRPRH: Siem Reap Provincial Referral Hospital

PHD: Provincial Health Department of Siem Reap

*The cost estimates are provisional. This is subject to the approval of the Government of Japan.

Annex-3

Major Undertakings to be Covered by the Japanese Grant

No	ltems	Deadline	Cost Estimated	Ref.
			Japanese Yen)*	
1	To construct a hospital facility			
	- Facility for improvement of Siem Reap Provincial Referral Hospital			
ŀ	1) To ensure prompt unloading and customs clearance at the port of			
	disembarkation in recipient country			_
	a) Marine(Air) transportation of the products from Japan to the recipient country			
	b) Internal transportation from the port of disembarkation to the project site			
	2) To construct access roads			
	a) Within the site			
	3) To construct the temporary building			
	 To provide facilities for the distribution of electricity, water supply, drainage and other incidental facilities 		1 332	
	a) Electricity		1,002	
	- The drop wiring and internal wiring within the site			
	- The main circuit breaker and transformer			
	b) Water Supply			
	- The supply system within the site (receiving and/or elevated tanks)			
	c) Drainage			
	 The drainage system (for toilet sewer, ordinary waste, storm drainage and others) within the site 			
	d) Furniture and Equipment			
	- Project equipment	· · · · · · · · · · · · · · · · · · ·		
2	To procure medical equipment			
_	 Medical Equipment for improvement of Siem Reap Provincial Referral Hospital, Kralanh District Referral Hospital, Angkor Chum District Referral Hospital, Puok District Referral Hospital and Sotnikum District Referral Hospital, 		512	
3	To implement detailed design, tender support, construction and procurement supervision and soft component (Consultant)		269	
4	Contingencies	-	80	
	Total		2193	
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Project Monitoring Report on Project Name Grant Agreement No. XXXXXXX 20XX, Month

Organizational Information

Signer of the G/A (Recipient)	Person in Charge Contacts	(Designation) Address: Phone/FAX: Email:
Executing Agency	Person in Charge Contacts	(Designation) Address: Phone/FAX: Email:
Line Ministry	Person in Charge Contacts	(Designation) Address: Phone/FAX: Email:

General Information:

Project Title	
E/N	Signed date: Duration:
G/A	Signed date: Duration:
Source of Finance	Government of Japan: Not exceeding JPY <u>mil.</u> Government of ():

1: Project Description

1-1 Project Objective

1-2 Project Rationale

- Higher-level objectives to which the project contributes (national/regional/sectoral policies and strategies)
- Situation of the target groups to which the project addresses

1-3 Indicators for measurement of "Effectiveness"

Quantitative indicators to me	asure the attainment of	project ol	ojectives	
Indicators	Original (Yr		Target (Yr)
Qualitative indicators to measure	e the attainment of projec	t objective	s	
· · · · · · · · · · · · · · · · · · ·	 /		· · · · · · · · · · · · · · · · · · ·	

2: Details of the Project

2-1 Location

Components	Original (proposed in the outline design)	Actual
1.		

2-2 Scope of the work

Components	Original*	Actual*
	(proposed in the buttine design)	
<u> </u>		

Reasons for modification of scope (if any).

(PMR)

2-3 Implementation Schedule

	Or	iginal	, , , <u>, , , , , , , , , , , , , , , , </u>
Items	(proposed in the	(at the time of signing	Actual
	outline design)	the Grant Agreement)	

Reasons for any changes of the schedule, and their effects on the project (if any)

2-4 Obligations by the Recipient

- 2-4-1 Progress of Specific Obligations See Attachment 2.
- **2-4-2 Activities** See Attachment 3.
- 2-4-3 Report on RD See Attachment 11.

2-5 Project Cost

2-5-1 Cost borne by the Grant(Confidential until the Bidding)

Components		Co (Million	st n Yen)
Original (proposed in the outline design)	Actual (in case of any modification)	Original ^{1),2)} (proposed in the outline design)	Actual
 1.			
Total	- I		

Note: 1) Date of estimation: 2) Exchange rate: 1 US Dollar = Yen

2-5-2 Cost borne by the Recipient

 Components		Cost (1,000 Ta	ika)
Original (proposed in the outline design)	Actual (in case of any modification)	Original ^{1),2)} (proposed in the outline design)	Actual
1.			
			······································

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Note: 1) Date of estimation: 2) Exchange rate: 1 US Dollar =

Reasons for the remarkable gaps between the original and actual cost, and the countermeasures (if any)

(PMR)

2-6 Executing Agency

- Organization's role, financial position, capacity, cost recovery etc,
- Organization Chart including the unit in charge of the implementation and number of employees.

Original (at the time of outline design) name: role:

role:

financial situation:

institutional and organizational arrangement (organogram):

human resources (number and ability of staff):

Actual (PMR)

2-7 Environmental and Social Impacts

- The results of environmental monitoring based on Attachment 5 (in accordance with Schedule 4 of the Grant Agreement).

- The results of social monitoring based on in Attachment 5 (in accordance with Schedule 4 of the Grant Agreement).

- Disclosed information related to results of environmental and social monitoring to local stakeholders (whenever applicable).

3: Operation and Maintenance (O&M)

3-1 Physical Arrangement

- Plan for O&M (number and skills of the staff in the responsible division or section, availability of manuals and guidelines, availability of spareparts, etc.)

Original (at the time of outline design)

Actual ($PM\overline{R}$)

3-2 Budgetary Arrangement

- Required O&M cost and actual budget allocation for O&M

Original (at the time of outline design)

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4: Potential Risks and Mitigation Measures

- Potential risks which may affect the project implementation, attainment of objectives, sustainability
- Mitigation measures corresponding to the potential risks

Assessment of Potential Risks (at the time of outline design)

Potentia	l Risks	Assessment
1. (Description of R	isk)	Probability: High/Moderate/Low
		Impact: High/Moderate/Low
		Analysis of Probability and Impact:
		Mitigation Measures:
		Action required during the implementation stage:
		Contingency Plan (if applicable):
2. (Description of R	isk)	Probability: High/Moderate/Low
		Impact: High/Moderate/Low
		Analysis of Probability and Impact:
		Mitigation Measures:
		Action mentional during that I have a
		Action required during the implementation stage:
		Contingency Plan (if applicable):
2 (Decemination of D		
5. (Description of K	15K)	Probability: High/Moderate/Low
		Applying of Probability and Investig
		Analysis of Probability and impact:
1		Mitigation Measures:
		Action required during the implementation stage:

· · · · · · · · · · · · · · · · · · ·	Contingency Plan (if applicable):
Actual Situation and Countermeasure	S
(PMR)	

5: Evaluation and Monitoring Plan (after the work completion)

5-1 Overall evaluation

Please describe your overall evaluation on the project.

5-2 Lessons Learnt and Recommendations

Please raise any lessons learned from the project experience, which might be valuable for the future assistance or similar type of projects, as well as any recommendations, which might be beneficial for better realization of the project effect, impact and assurance of sustainability.

5-3 Monitoring Plan of the Indicators for Post-Evaluation

Please describe monitoring methods, section(s)/department(s) in charge of monitoring, frequency, the term to monitor the indicators stipulated in 1-3.

Attachment

- 1. Project Location Map
- 2. Specific obligations of the Recipient which will not be funded with the Grant
- 3. Monthly Report submitted by the Consultant

Appendix - Photocopy of Contractor's Progress Report (if any)

- Consultant Member List
- Contractor's Main Staff List
- 4. Check list for the Contract (including Record of Amendment of the Contract/Agreement and Schedule of Payment)
- 5. Environmental Monitoring Form / Social Monitoring Form
- 6. Monitoring sheet on price of specified materials (Quarterly)
- 7. Report on Proportion of Procurement (Recipient Country, Japan and Third Countries) (PMR (final)only)
- 8. Pictures (by JPEG style by CD-R) (PMR (final)only)
- 9. Equipment List (PMR (final)only)
- 10. Drawing (PMR (final)only)
- 11. Report on RD (After project)

Monitoring sheet on price of specified materials

Confirmed)
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Conditions
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1 of payment) Price (Increased)	F=C+D						
Condition	Price (Decreased	E=C-D						
1% of Contract	Price	Q						
Initial total	Price	C=A×B	•					
Initial Unit	Price $()$	В	•		:			
Tnitial Valume		V	100	● t				
	Items of Specified Materials		Item 1	Item 2	Item 3	Item 4	Item 5	
			Г	2	က	4	ß	

2. Monitoring of the Unit Price of Specified Materials(1) Method of Monitoring : •••

(2) Result of the Monitoring Survey on Unit Price for each specified materials

				_	_	_
6th						
5th						
4th						
3rd \oplus month, 2015						
2nd Omonth, 2015						
1st Omonth, 2015						
Items of Specified Materials	tem 1	tem 2	tem 3	tem 4	tem 5	
	1 I	2 I	3 I	4 I:	5 I:	

(3) Summary of Discussion with Contractor (if necessary) . Attachment 7

Report on Proportion of Procurement (Recipient Country, Japan and Third Countries) (Actual Expenditure by Construction and Equipment each)

	Domestic Procurement (Recipient Country)	Foreign Procurement (Japan)	Foreign Procurement (Third Countries)	Total D
	A	В	C	
Construction Cost	(%Q/V)	(B/D%)	(C/D%)	
Direct Construction Cost	(A/D%)	(B/D%)	(C/D%)	
others	(%D/V)	(B/D%)	(C/D%)	
Equipment Cost	(%D/V)	(B/D%)	(C/D%)	
Design and Supervision Cost	(%D/V)	(B/D%)	(C/D%)	
Total	(A/D%)	(B/D%)	(C/D%)	

THE PROJECT FOR IMPROVEMENT OF SIEM REAP PROVINCIAL REFERRAL HOSPITAL IN THE KINGDOM OF CAMBODIA

Soft component Plan

August 2019

The Consortium of

Azusa Sekkei Co., Ltd.

and

INTEM Consulting, Inc.

Table of Contents

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2.	Objectives of the Soft Components	5
3.	Output of the Soft Components	6
4.	Evaluation of the Output	7
5.	Activities of Soft Components (Input Plan)	7
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1. Background of incorporating soft components into the Project

The Project aims to improve the medical service levels in Siem Reap province and to strengthen its referral system by constructing facilities and providing equipment to the top referral hospital of the province (CPA3), as well as by providing equipment to the four bottom-level district hospitals (CPA2&1) in the Kingdom of Cambodia (hereinafter referred to as the "Hospital"). While significant supports have been given to the provincial hospital so far (Obstetrics and Gynecology sector: Korea, Ophthalmic sector: Australia etc), surgical and imaging equipment were requested in the Project, based on which the equipment plan was made. The district hospitals requested equipment of all departments; however, from the point of view to establish consistency of the Project direction and to reduce the budget, the targeted equipment was limited to surgical and surgery-related equipment.

Investigation and discussion were held with evaluation of validity at the site investigation regarding such as necessity, frequency of use, use experiences, the final requested equipment so that the plan content was basically manageable with the recipients' skill levels. Digitalization of imaging data, mainly for X-ray images, was additionally requested with the purpose of sharing and managing the medical images unified in the Project. Considering effectiveness of digital images, Digital Radiography (DR)¹ of X-ray equipment was selected for the provincial hospital, and PACS² (Picture Archiving and Communication System) was introduced from the perspective of sharing images within the hospitals. Computed radiography (CR) system³ was also chosen at the district hospitals. Regarding the digitalized images, and only IT equipment (server etc.) is to be added besides the equipment used so far; hence, no particular problems occur in handling.

On the other hand, image processing after shooting to obtain high precision images which are the advantage of digitalized images, is not the method used for the existing analogue image, and instruction of basic image processing techniques is required for installed equipment to be used effectively. In addition, since methods for data management and transfer are slightly different from that of the existing analogue images, basic skill instructions are preferably to be provided.

Due to the viewpoints mentioned above, instruction for basic management associated with digitalization of diagnostic imaging equipment was requested from the recipients, and Soft Components Plan is made including these contents.

Maintenance and management skills of the provided equipment and skill supports for prevention of nosocomial infections were also requested from the province health department and the director of the provincial hospital. Concerning maintenance and management skills, although the achievements of the past technical cooperation project (refer to 1. (3)) have been taken over, update of knowledges and skills corresponding to current situations is considered needed as the time has passed since the technical cooperation project completed. Basic maintenance system for the district hospitals is also needed because of poorly working maintenance and management system of medical equipment. Prevention of nosocomial infections is a significantly important topic, but its contents are in a quite wide range. Therefore, instruction of nosocomial infection prevention is decided to be provided, mainly focusing on handling of the

¹ DR system : an abbreviation of Digital Radiography system. It is a system to obtain images, receiving an object by using a flat detector called as Flat Panel Detector: FPD instead of films that conventional systems use and then transforming to digital signals. DR system does not require a reading equipment as CR system does, and enables to interpret images on a screen of personal computer through a network. ² PACS : an abbreviation of picture archiving and communication system. An information management system to allow access to medical images across clinical boundaries in a hospital, which will be acquired by a CT scanner to be supplied, an X-ray machine, and ultrasound machine requested for the Project. ³ CR system: an abbreviation of computed radiography system. Replacing the conventional films, this system acquires images using a plate called an image plate (IP) which captures a relative intensity of X-ray. The extracted images can be viewed on a computer screen.

introduced equipment.

Targeted equipment is as follows: disinfection / sterilization method for endoscopes installed in the provincial hospital, reliable sterilization method of surgical instruments in the provincial/district hospitals, effective handling and maintenance inspection method of sterilized equipment

Considering those backgrounds, Soft Component Plan mainly focusing on practical skills such as practices and On-the-Job training (OJT), is made regarding three challenges below.

(1) Technical trainings on appropriate operations and maintenance management of digital system⁴ and Picture Archiving and Communication System (PACS)

Currently, the necessity of digitalization and sharing information within the hospital as well as with other hospitals has been increasing. As the digital system of the Project, CR system is to be introduced to the district hospitals and DR system is to be introduced to the provincial hospital and in addition, PACS is to be planned.

Digitalization of images and sharing those digitalized images by digital systems (CR system and DR system) have many advantages such as making remote diagnosis be easy in addition to improvement in diagnostic functions (improvement of X-ray image quality) and speed for diagnosis (reading images online), and reduction in environmental burden (disuse of films and developers); upon discussion on the requests, introducing CR system to the district hospitals was therefore judged as valid because CR system has been already distributed in other domestic hospitals in Cambodia. Regarding the situations of PCAS, it is hardly said that it has been distributed over Cambodia. However, CR system was already installed in hospitals in Siem Reap, and bulk-management of image data for X-ray diagnostic equipment and ultrasound diagnostic equipment and sharing that image information among all departments, are highly effective. In addition, since aversion to computer processing of medical staffs has been decreased because of the widespread of personal computers, introduction of PACS is considered valid.

However, the methods for digital system and PACS are different from the existing analogue method transferring image information by sending and receiving X-ray films, and digital images which are accumulated as digital data in an X-ray room, are shared with each department through Local Area Network (LAN).

On the server, PACS manages patient information, diagnosis, and image information which have been written on papers so far, and effective image information is needed to be obtained by data processing based on gained imaging data. Hence, development of operation system which is different from the existing system is necessary. Due to reasons mentioned above, sufficient skill transfer is delivered by manufactures regarding operation of the procured equipment and daily maintenance and inspection. In addition to the operating instructions by manufactures, an effective use of the introduced equipment is expected with development of operating system for digital image information across the hospital and with instructions of digital processing skills delivered as Soft Components. In addition to the development of the operating system, it is expected that the system will be fully capable and the equipment will be used appropriately for a long time of period after handing over the equipment, by trouble-shooting and skill transfers of daily/regular maintenance and inspection with examples of problematic points which are encountered at actual operations. The Project inquired a manufacture if hardware manufactures or software vendors could offer the above-mentioned technical training as part of its on-site training instructed by the

⁴ Digital system: an abbreviation of X-ray digital imaging system. Imaging system from digital data by digitalizing X-ray imaging information. Mainly, digital system includes CR system and DR system.

technical staff upon the system installation. It was responded that manufacturers or vendors would provide a technical assistance only on an operation check and handling of the product they supplied and that providing comprehensive operating training of the whole system is not possible. Accordingly, supports for development of operating system as soft component is appropriate, and soft components will be quite beneficial.

(2) Technical training on appropriate operation and maintenance management of endoscopes, instruments related operation theatre and sterilized equipment.

Provision of many endoscopes to the provincial hospital is planned based on the investigation. Currently, the hospital has some endoscopes and they are used on daily basis. However, all those products were supplied as second-hand products, and functions of most of the equipment are insufficient due to aging deterioration. Enough maintenance management and disinfection of these equipment are not necessarily performed. Although sterilization of surgical instruments and equipment by using autoclave are performed at the district hospitals, there is no structured system for sterilization as a hospital. Due to those reasons mentioned above, to this challenge, acquisition of the regular maintenance and inspection method before/after use at the users' level as well as development of operational system including appropriate operation and maintenance/inspection of newly introduced sterilized equipment as daily inspection of endoscopes (including rigid scopes and flexible scopes), are considered to improve the medical service quality at the targeted hospitals.

(3) Technical training on system installation of medical equipment maintenance management

Over the past five years between 2014 and 2019, by the technical cooperation project of JICA "Project for Strengthening Medical Equipment Management at Referral Hospital" (hereafter referred as MEDEM-2), maintenance management system of medical equipment had been developed at the targeted provincial hospitals across Cambodia. The Siem Reap Provincial Referral Hospital was also included in the project; a working group specifically contributing to maintenance and management of medical equipment was established, and management method to report on operating status of equipment to the Ministry of Health twice a year was introduced, creating a book for appropriate maintenance management of equipment. During the implementation of the Project, this system has expanded the targets from provincial hospitals to district hospitals, yet the situations in which the equipment is not appropriately used are confirmed at the targeted 4 district hospitals of this survey. Since provision of medical equipment to the district hospitals is planned in this Project, re-development of the system is considered essential in order that equipment after the supply is to be operated appropriately and safely.

For the reasons mentioned above, in order to introduce the maintenance management system to the district hospitals, an equipment maintenance book as well as a simple manual for daily maintenance inspection of medical equipment installed by the Project are to be developed, and the equipment maintenance management system is to be established for the future.

2. Objectives of the Soft Components

In addition to the output of delivering soft components, the Project aims to achieve the objectives as below (after three years) through which the counterpart agency of Cambodia sustains its own efforts. "The medical services of the provincial hospital which should be provided as the top referral hospital are achieved, the medical equipment

introduced to the district hospitals are properly used, and the referral system across the province is improved with a cooperation among all targeted hospitals."

3. Output of the Soft Components

The output to be gained by delivering the proposed soft components are as follows.

(1) Technical training on appropriate use and maintenance management of the digital system and PACS

In the targeted hospitals, the Project will undergo a consultation process involving Administrative Department, each department related to digital system and PACS, deliver a technical training for radiologists, doctors of each clinical department, and the ME staff. The following output will be obtained accordingly;

- ① The hospital staff have gained essential understandings of the procured equipment and developed a proper operational framework for the installed systems.
- ⁽²⁾ The hospital staff have learned how to process images, and thereby achieving better quality of diagnostic radiographic images.
- ③ In addition to improved transfer speed of digital image information, acquisition of diagnostic techniques of digital images contributes to improvement of image diagnosis processes (effectiveness).
- ④ The methods for inspection and maintenance regarding related equipment are acquired.

(2) Technical training on proper use and maintenance management of the procured equipment and on infection prevention for the procured equipment

For the medical staffs, engineers in maintenance department who use provided equipment, technical trainings on maintenance of medical equipment and methods of disinfection and sterilization are given. The following output will be obtained accordingly;

- ① By acquitting techniques of appropriate use and maintenance of the procured equipment, the equipment is properly maintained and managed, resulting in operation of the equipment over a long time of period.
- ② Appropriate cleaning, disinfection and sterilization of the procured equipment are performed by learning essential knowledges of infection prevention.

(3) Technical trainings on system introduction of medical equipment maintenance and management

The following output will be obtained by introducing the system of medical equipment maintenance and management to the district hospitals.

- ① By developing and using an appropriate equipment management book, grasping the operation status of the equipment in the hospital is to be possible.
- ② A manual for daily maintenance and inspection of medical equipment is prepared in conjunction with the preparation of the equipment inventory list.
4. Evaluation of the Output

The output of delivering the soft components is assessed as followed.

	Output	Evaluation
	 The hospital staff have gained essential understandings of the provided equipment and developed a proper operational framework for the installed systems. 	 Documents are prepared, including an operational framework diagram and operational manual. Access to a server in each clinical department is checked. Implement pre/post technical trainings and check the understanding level.
(1) Technical training of the	2 The hospital staff have learned how to process images, and thereby achieving better quality of diagnostic radiographic images.	 Check whether processing of X-ray images and digital images according to the operation manual is possible, and whether appropriate digital X-ray images are output on image viewer in the technical trainings. Implement pre/post technical trainings and check the understanding level.
Digital system and PACS	③ Acquisition of diagnostic techniques of digital images contributes to improvement of the quality of image diagnosis processes (such as effectiveness of improvement in processes of diagnostic image).	 Check and evaluate actual techniques of each participant in the training.
	Trouble-shooting and handling techniques are improved by acquisition of daily/regular inspection and management of the provided equipment.	 Add a manual for the targeted equipment to the existing system of maintenance system. Implement pre/post technical trainings and check the understanding level.
(2) Technical training on proper use and maintenance management of the procured	① By acquitting techniques of appropriate use and maintenance of the provided equipment, the equipment is properly maintained and managed, resulting in operation of the equipment over a long time of period.	 Implement pre/post technical trainings and check the understanding level. Develop a manual for maintenance system of procured equipment. Added information on the procured equipment to the existing equipment management book.
equipment and on infection prevention for the procured equipment	① By learning essential knowledges of infection prevention, appropriate cleaning, disinfection and sterilization of the procured equipment are performed.	 Implement pre/post technical trainings and check the understanding level. Check the actual cleaning, disinfection and sterilization processes of the provided equipment.
(3) Technical trainings on maintenance and management	① By developing and using an appropriate equipment management book, grasping the operation status of the equipment in the hospital is to be possible.	 Implement pre/post technical trainings and check the understanding level. Added information on the provided equipment to the existing equipment management book. Check the newly developed equipment management book.
introduction of medical equipment	② By performing appropriate daily and regular inspection of the medical equipment, failure of the equipment is prevented, and out-of-order medical equipment is reduced.	Check each report of maintenance and daily inspection performed.

5. Activities of Soft Components (Input Plan)

Activities to obtain the proposed output (Input Plan) are as follows.

(1) Trainers

- Consultant for technical training of the digital system and PACS (Japanese): 1 person The consultant with a Japanese license of medical radiologist who has enough experiences and knowledge of operation and maintenance on handling of digital X-ray system currently spread, is to be allocated.
- ② Consultant for technical training of the appropriate maintenance and infection prevention (Japanese): 1 person The consultant with a license of clinical engineer who has experiences and knowledge on handling, operation, and maintenance of endoscopes and sterilized equipment at hospitals inside/outside of Japan, is to be allocated.
- ③ Training consultant for system instruction of medical equipment maintenance management (Japanese):1 person The consultant with a clinical engineer who has experiences of being involved in development of a series of maintenance management system (planning, maintenance, dispose, and operation planning of medical equipment in hospitals) is to be allocated.
- ④ Consultant for technical training planning (Japanese): 1 person

To be implemented in an efficient manner, careful preparation such as arrangement with each institution and establishment of technical training planning before the implementation, is essential. The consultant 1 for technical training planning (Japanese) will visit the local site for a short time of period before the training, and to have an establishment of technical training plan, a meeting with Ministry of Health, the targeted hospitals and related institutions. The consultant also perform arrangement with three Japanese technical training consultants mentioned above, arrangement of transportation, business coordination including scheduling. Additionally, after completion, reporting to JICA and Ministry of Health are to be done.

(2) Activity plan

Activities: (1) Preparation work in Japan, (2) Discussion in Cambodia, (3) Training in Cambodia, (4) Work in Japan are as provided below.

① Preparation work in Japan

In a preparation stage, lecture materials (guidelines and textbook) are prepared in English, which will be required in each technical training sessions. The lecture materials are requested to be translated to Khmer language, and the translated materials are sent to the director of provincial hospitals and the director of provincial health department for the contents confirmed (including the completed level of translation). The duration for preparation work in Japan is as follows: 4 days for the consultant for technical training of endoscopes and sterilized equipment, and 4 days for the consultant for technical training of system introduction of medical equipment maintenance. Approximately 2 weeks are expected for translation.

② Discussion in Cambodia

To implement training effectively and to sustain its effects, discussion is held with Ministry of Health, the Siem Reap hospital, district hospitals and other related members, and preparation such as correction of lecture materials, selection of a place for implementation, establishment of implementation schedule is to be performed. Since the Project includes 5 targeted hospitals, arrangement which enables the participants to

attend the meeting on the day certainly, is important investment to obtain sufficient effects of Soft Components. For the preparation meeting, a consultant for technical training planning (Japanese): 1 person, is sent to Cambodia due to a difficulty in communication such as emails and phone calls. The place for discussion is assumed to be Ministry of Health in the city of Siem Reap and the provincial health department of Siem Reap. Duration is to be 8 days. The evidence for the duration is described below:

Day	Content	Day	Content
1	Travelling (Tokyo- Phnom Penh)	5	The provincial hospital and each hospital: Arrangement
			of schedule, participants, and place for training, and
			procurement of required materials for Soft Component
2	Contents explained for the Ministry of Health	6	The provincial hospital and each hospital: Arrangement
			of schedule, participants, and place for training, and
			procurement of required materials for Soft Component
3	Travelling (Phnom Penh – Siem Reap)	7	Travel day
4	The provincial health department:	8	Travel day
	Explanation, discussion and arrangement of		
	lecture contents		

③ Training in Cambodia

For the training in Cambodia, 3 components are set up, and the trainees are hospital managers related to each component, medical staffs, and technical engineers who work for equipment maintenance and management.

		Activity Plan		
	Outputs	Trainer	Outline of training	Training receiver
(1) Technical training of the digital system and PACS	 The hospital staff have gained essential understandings of the procured equipment and developed a proper operational framework for the installed systems. The hospital staff have learned how to process images, and thereby achieving better quality of diagnostic radiographic images. Acquisition of diagnostic techniques of digital images contributes to improvement of the quality of image diagnosis processes (such as effectiveness of diagnosis). Trouble-shooting and handling techniques are improved by acquisition of daily/regular 	Consultant for technical training of the digital system and PACS	 Ensuring the operation principle Ensuring intended purposes Instructing radiation protection procedures Replacing to the new systems and developing an operational framework Training at each department for image processing in which the digital system is used Instructing efficient interpretation and diagnosis by using the image viewer and PACS Familiarizing maintenance procedures on the procured equipment Continuous training for 	Radiology technicians, doctors who interpret images, and ME staff
	inspection and		establishment of maintenance and	

		management of the procured equipment.		management planning, detection of failure, correction, and troubleshooting techniques	
(2) Technical training on proper use and maintenance management of the procured equipment and on infection prevention for the procured equipment	1	By acquitting techniques of appropriate use and maintenance of the procured equipment, the equipment is properly maintained and managed, resulting in operation of the equipment over a long time of period.	Consultant for operation and maintenance training of	Leaning how to handle, operate, and maintain endoscopes related equipment and the procured equipment Content of the procured of the procure of	Endoscope operators (doctors and nurses), equipment maintenance engineers, handling managers and operators of sterilized equipment
	2	By learning essential knowledges of infection prevention, appropriate cleaning, disinfection and sterilization of the procured equipment are performed.	endoscopes and al sterilized equipment iate on he are	 infection prevention to handle medical equipment A series of operation methods including cleaning, disinfection and storage Leaning how to handle, operate, and maintain sterilized equipment (Autoclave) Leaning how to operate sterilization processes 	
(3) Technical trainings on maintenance and management system introduction of medical equipment	2	By developing and using an appropriate equipment management note, grasping the operation status of the equipment in the hospital is to be possible. By performing appropriate daily and regular inspection of the medical equipment, failure of the equipment is prevented, and out-of-order medical equipment is reduced.	Consultant for technical training of system introduction of medical equipment maintenance	 Checking operational situations of the existing equipment maintenance system, and technical training to reveal challenges and to solve them in the provincial hospital Development of equipment management book at the district hospitals, collection of equipment information data for account book record, and accusation of input method Development of simple maintenance check-up manual for newly introduced medical equipment Acquisition of operation of equipment maintenance management system in the district hospitals 	Working group of the provincial hospital for equipment maintenance, equipment maintenance managers of the district hospitals, equipment maintenance engineers of the district hospitals

Lecturers and specialists for each technical training and duration of work in Cambodia are as follows:

• Consultant for technical training of the digital system and PACS

:1 person

:1 person

- Duration of work in Cambodia :42 days
- Consultant for technical training of operation and maintenance of endoscopes, surgical equipment, and sterilized equipment as well as for training of maintenance and management system introduction of medical equipment :1 person
 - Duration of work in Cambodia :20 days
- · Consultant for technical training of system introduction of medical equipment maintenance

Duration of work in Cambodia: 11 days

1) Technical training of the digital system and PACS

i Training contents:

Gathering all related members of the targeted hospitals to a meeting room in the Siem Reap provincial hospital, basic orientation and explanation of basic contents of image digitalization are provided. Subsequently, training of basic operation such as appropriate equipment operation (data collection, data processing, data transfer), and maintenance and inspection are given, showing operation of actual equipment set up in a department of image diagnosis of the provincial hospital. It is not effective that related members of all hospitals operate the equipment together, and technical levels of the members are different between the provincial hospital members and the district hospital members. Hence, members of the provincial hospital receive the training separately from the district hospitals, and members of the district hospitals receive the training divided into 2 groups (2 hospitals each).

ii Trainees:

The operators of the digital system are assumed to be X-ray imaging technicians, doctors who interpret diagnostic images, and equipment engineers who perform equipment management. The assumed numbers of people are approximately 10 X-ray imaging technicians who operate digital system in the provincial hospital. The participants of PACS training are assumed to be around 23 members in total: Approximately 10 people from the departments where Client PCs are installed (3 to 4 people each from surgical department, recovery/intensive care unit (ICU), emergency department, ENT, and approximately 3 equipment engineers). From the district hospitals, approximately 2 X-ray imaging technicians and approximately 2 surgical doctors, 4 members in total, are assumed to attend.

iii Place for implementation:

The Siem Reap provincial hospital, a meeting room, X-ray examination room, each district hospital

iv The time of implementation and duration:

The Project is to be implemented right after the equipment procurement of grant fund aid. Details are as follows.

Day-number	Day	Job contents	Lecturers and staffs of the training	Trainees
Day 1	Sat	Travelling Tokyo—Phnom Penh		
Day 2	Sun	Travelling Phnom Penh-Siem Reap		
		•Setting up training venues, conformation of the participants		
		list, providing explanation of training process and contents		
		to the manager of Cambodian side		
		•Preparation such as optimization and printing of training		
		materials		

Day 3MosTraining briefing (explanation of training processes and materials)Staffs of the district materials)1) Basic knowledge to handle radiation] (1) Basic knowledge to handle radiation] (2) Stratures of radiation and roles (2) Stratures of radiation add roles (2) Stratures of trainagement of CR system] (1) Outlines use and management of CR system] (1) Outlines use and management of CR system) (2) Operation system of CR system and its maintenanceConsultant for technical training of the digital system and PACS staffs of the district for operation demonstration of the procured equipment and cooperation with CR system and its nutlines, and cooperation with CR system and protections of factors (7) Questions and answersConsultant for technical training of the digital system and PACS staffs of the staffs (6) Durino demonstration of the procured equipment and cooperation with CR system and protectices (flow) (2) Observation of procured equipment and simple practices (flow) (2) Observation of procured equipment and simple practices (flow) (2) Observation of PACS system and protectices (flow) (2) Observation of PAC system and protectices (flow) (2) Observation of PAC system and protectices (flow) (2) Observation of PAC system and protection) management] (1) Radiation management] (1) Radiation related acamination expectially frecting protectices of radiation on human body and the method for radiation for acquisition of knowledge and techniques. and answers (2) During the fing (explanation (capitantion related questions including reviews) (2) Distribution of participate certification (2) Distr	Day-number	Day	Job contents	Lecturers and staffs of the training	Trainees
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(4) Introduction of PACS system and its outlines, and (approximately			(5) Daily/regular inspection of CK system and its		staffs, ME
(4) Introduction of FACS system and its outlines, and (approximately			(4) Introduction of DACS system and its sufficient and		staffs
cooperation with ('R system			(4) Introduction of FACS system and its outlines, and		(approximately
(6) Operation demonstration of the procured equipment and			(6) Operation demonstration of the procured equipment and		10 people
operation training to the participants			operation training to the participants		
(6) Cautions for use, and trouble-shooting in a case of failure			(6) Cautions for use, and trouble-shooting in a case of failure		
(7) Questions and answers			(7) Questions and answers		

Day-number	Day	Job contents	Lecturers and staffs of the training	Trainees
Day 7	Fri	[Observation of procured equipment and simple practices] (1) Observation of CR system and practices (flow) (2) Observation of PACS system and practices (flow)		
		(3) Simple practices (such as measuring) on interpretation	Same as above	Same as above
		diagnostic viewer by using X-ray images		
		(4) Questions and answers		
Day 8	Sat	[Radiation (explosion and protection) management]		
		(1) Radiation medical examination		
		(2) Impacts of radiation on human body and the method for		
		radiation protection		
		(3) Question and answers		
		Examination for acquisition of knowledge and techniques,		
		narts on techniques and knowledge	Same as above	Same as above
		(1) Post-training examination (radiation related questions		
		including reviews		
		(2) Answers and explanations (explanation especially		
		focusing on low correct answers		
		(3) Questions and answers		
	~	(4) Distribution of participate certification		
Day 9	Sun	Reviews of training contents which have done until the day		
		days		
Day 10	Mon	•Training briefing (explanation of training processes and		
		materials)		
		 Implementation of pre-examination and survey 		
		Essential knowledge to handle radiation		Staffs of the
		(1) Basic knowledge on radiation and roles		district
		(2) Structures of radiation equipment		hospital
		(3) Differences between analogue and digital		(Group I)
		(4) Questions and answers		such as
		(1) Outlines of transfer for digitalization and CR system	Consultant for technical training	doctors,
		(2) Operation system of CR system	of the digital system and PACS	nurses,
		(3) Daily/regular inspection of CR system and its		radiation
		maintenance		staffs
		(4) Introduction of PACS system and its outlines, and		(approximately
		cooperation with CR system		15 people
		(5) Operation demonstration of the procured equipment and		
		(6) Cautions for use, and trouble-shooting in a case of failure		
		(7) Questions and answers s		
Day 11	Tue	[Outlines, use and management of transformation to PACS]		
		(1) Outlines of PACS system and cooperation with digital		
		system		
		(2) Operation system of PACS system		
		(3) Daily and regular inspection and maintenance method of PACS system		
		(4) Operation demonstration of procured equipment, and		
		training of operation method for the participants		
		(5) Cautions on using and trouble-shooting in a case of failure	Same as above	Same as above
		(6) Questions and answers		
		[Observation of procured equipment and simple practices]		
		(1) Observation of digital system and actual practices (flow)		
		(2) Observation of PACS system and actual practices		
		(3) Simple practices (such as measuring) on interpretation		
		diagnostic viewer by using X-ray images		
		(4) Questions and answers		

Day-number	Day	Job contents	Lecturers and staffs of the training	Trainees
Day 12	Wed	[Radiation (explosion and protection) management]		
		(1) Radiation medical examination		
		(2) Impacts of radiation on human body and the method for		
		radiation protection		
		(3) Question and answers		
		Examination for acquisition of knowledge and techniques,		
		and answers and supplementary explanation for the lacking	Same as above	Same as above
		parts on techniques and knowledge		
		(1) Post-training examination (radiation related questions		
		including reviews		
		(2) Answers and explanations (explanation especially		
		focusing on low correct answers)		
		(3) Questions and answers (4) Distribution of portioinste cortification		
Day 12	Thu	(4) Distribution of participate certification		
Day 15	inu	materials)		
		Implementation of pre-examination and survey		
		[Essential knowledge to handle radiation]		
		(1) Basic knowledge on radiation and roles		Staffs of the
		(2) Structures of radiation equipment		district
		(3) Differences between analogue and digital		hospital
		(4) Questions and answers		(Group I)
		[Outlines, use and management of CR system]		such as
		(1) Outlines of transfer for digitalization and CR system	Same as above	doctors,
		(2) Operation system of CR system		nurses,
		(3) Daily/regular inspection of CR system and its		stoffs ME
		maintenance		stalls, ME
		(4) Introduction of PACS system and its outlines, and		(approximately
		cooperation with CR system		15 people
		(5) Operation demonstration of the procured equipment and		is people
		operation training to the participants		
		(6) Cautions for use, and trouble-shooting in a case of failure		
		(/) Questions and answers		
Day 14	Fri	[Outlines, use and management of transformation to PACS]		
		system		
		(2) Operation system of PACS system		
		(3) Daily and regular inspection and maintenance method of		
		PACS system		
		(4) Operation demonstration of procured equipment, and		
		training of operation method for the participants		
		(5) Cautions on using and trouble-shooting in a case of failure	Same as above	Same as above
		(6) Questions and answers		
		[Observation of procured equipment and simple practices]		
		(1) Observation of digital system and actual practices (flow)		
		(2) Observation of PACS system and actual practices		
		(explanation)		
		(3) Simple practices (such as measuring) on interpretation		
		diagnostic viewer by using X-ray images		
	-	(4) Questions and answers		
Day 15	Sat	[Radiation (explosion and protection) management]		
		(1) Radiation medical examination		
		(2) impacts of radiation on numan body and the method for		
		(3) Questions and answers		
		Examination for acquisition of knowledge and techniques	Same as above	Same as above
		and answers and supplementary explanation for the lacking		
		parts on techniques and knowledge		
		(1) Post-training examination (radiation related questions		
		including reviews		

Day-number	Day	Job contents	Lecturers and staffs of the training	Trainees
		(2) Answers and explanations (explanation especially		
		focusing on low correct answers		
		(3) Questions and answers		
D 16	C	(4) Distribution of participate certification		
Day 16	Sun	before and propagation of training materials for the		
		following days		
Day 17	Mon	[Techniques and management of digital system]		Staffs of the
Duy I	mon	(1) Clinical practices of the digital system (flow)		department
		(2) Practices of operation and management		radiology of
		(3) Practices for daily and regular inspection		the provincial
		(4) Developing inspection chart in the group discussion with		hospital (10
		the staffs of radiology department	Consultant for technical training	members) 💥
		(5) Questions and answers	of the digital system and PACS	the lecturers
				see around the
				nospital and
				instructions of
				On-The-Job
				(OJT) training
Day 18	Tue	Same training as above to be continued following the day	Same as above	Same as above
		before	Same as above	Same as above
Day 19	Wed	[Techniques and management of PACS system]		
		(1) Clinical practices of PACS system (flow) (2) Practices for the method of operation and management of		
		(2) Fractices for the method of operation and management of server (such as retention period)		
		(3) Practices of daily and regular maintenance inspections		
		(4) Developing inspection sheet in the group discussion with	Same as above	Same as above
		the staffs of radiology department		
		(5) Practices to use X-ray imaging diagnosis viewer		
		(6) The methods of handling trouble shooting etc.		
Day 20	Thu	Same training as above to be continued following the day		
Duj 20	Thu	before	Same as above	Same as above
Day 21	Fri	[Techniques and management of radiation dosimeter]		
		(1) Clinical practices of radiation dosimeter		
		(2) Practices of operation and management methods		
		(3) Practices of daily and regular maintenance inspection	Same as above	Same as above
		(4) Developing monthly radiation exposure dosimeter sheet		
		radiology department		
		(5) Questions and answers		
Day 22	Sat	Same training as above to be continued following the day	Sama as above	Sama as abova
		before	Same as above	Same as above
Day 23	Sun	Reviews of training contents which have done until the day		
		before, and preparation of training materials for the following		
Day 24	Mon	Techniques and management of diagnostic image viewer		Doctors from
Day 24	Tue	(Personal computer) connected from PACS		each
Day 26	Wed	(1)Practical training by using diagnostic image viewer of		department
Day 27	Thu	each department (measurement and density control of		of the
		digital images by using tools of personal computers)		provincial
		(2) Practical trainings for operation and management methods	Consultant for technical training	hospital (15
		of diagnostic image viewer of each department and for	of the digital system and PACS	members)
		trouble-shooting for the case of failure		* Trainers
				a hospital
				and five
				OJT

Day-number	Day	Job contents	Lecturers and staffs of the training	Trainees
				instructions
Day 28	Fri	Practices for medical equipment maintenance and		
	-	trouble-shooting in a case of failure		Medical
Day 29	Sat	(1) Training of comprehensive operation and maintenance		equipment
		methods of medical equipment in a hospital		maintenance
		(2) Training for trouble-shooting and handling methods for	Same as above	engineers of
		the case of failure		the provincial;
		(3) Training for daily and regular maintenance of medical		hospital (3
		equipment		members)
D 20	C	(4) Questions and answers		
Day 30	Sun	Reviews of training contents which have done until the day		
		device device and preparation of training materials for the following		
Day 31	Mon	Eollow up training by OIT Targeted hospital: Kralanh		
Day 31	MOII	district		Staffs of the
Day 32	Tue	Practices for management methods of medical equipment		Kralanh
		and trouble-shooting for the case of failure		district
		(1) Practical training for image processing techniques of the		hospital (10
		digital (CR) system and management	Consultant for technical training	members) 💥
		(2) Practical training for operation methods of image data at	of the digital system and PACS	Trainers go
		the district hospital		around the
		(3) Cautions and maintenance methods (daily and regular) of		hospital and
		using in clinical setting, and practices of trouble-shooting		give OJ I
		for the case of failure		training
Day 33	Wed	[Follow-up training by OJT-Targeted hospital: Angkor Chum		Staffs of the
		district		Angkor Chum
Day 34	Thu	Practices for management methods of medical equipment		district
		and trouble-shooting for the case of failure		hospital (10
		(1)Practical training for image processing techniques of the	Consultant for technical training	members) 💥
		digital (CR) system and management	of the digital system and PACS	Trainers go
		(2) Practical training for operation methods of image data at		around the
		the district hospital		hospital and
		(3) Cautions and maintenance methods (daily and regular) of		give OJT
		for the area of failure		training
Day 35	Eri	[Follow up training by OIT Targeted hospital: Puck district]		
Day 35	TH C	Practices for management methods of medical equipment		Puok district
Day 36	Sat	and trouble-shooting for the case of failure		hospital (10
		(1) Practical training for image processing techniques of the		members) 🔆
		digital (CR) system and management	Consultant for technical training	Trainers go
		(2) Practical training for operation methods of image data at	of the digital system and PACS	around the
		the district hospital		hospital and
		(3) Cautions and maintenance methods (daily and regular) of		give OJT
		using in clinical setting, and practices of trouble-shooting		training
		for the case of failure		
Day 37	Sun	Reviews of training contents which have done until the day		
		before, and preparation of training materials for the following		
		days		
Day 38	Mon	[Follow-up training by OJT-Targeted hospital: Sout Nikom		a
Day 39	Tue	district		Sotnikum
		Practices for management methods of medical equipment		district
		and trouble-shooting for the case of failure		nospital (10
		(1) Fractical training for image processing techniques of the digital (CP) system and management	Consultant for technical training	Trainers co
		(2) Practical training for operation methods of image data at	of the digital system and PACS	around the
		the district hospital		hospital and
		(3) Cautions and maintenance methods (daily and regular) of		give OJT
		using in clinical setting, and practices of trouble-shooting		training
		for the case of failure		~ 0

Day-number	Day	Job contents	Lecturers and staffs of the training	Trainees
Day 40	Wed	Travelling Siem Reap-Phnom penh		
Day 41	Thu	Business completion report (Ministry of Health and JICA		
		office)		
		Travelling Phnom pen-Tokyo		
Day 42	Fri	Back to Tokyo		

2) Technical trainings for appropriate maintenance and infection prevention of the provided equipment

a) Training at the provincial hospital for endoscopes and operation theatre-related equipment

i Training contents:

Endoscopes to be trained, are upper gastrointestinal electroscopes, laparoscopies and flexible endoscopies such as bronchoscopies, rigid endoscopies such as cystoscopies. Operation theatre related equipment includes anesthesia machine, electrical surgery instrument, operating tables, operation lamps, and surgery instruments. The training contents are planned to be lectures and practices regarding the way to handle and operate each instruments, the way of daily and regular inspection, and the way of appropriate operation (cleaning \rightarrow disinfection \rightarrow storage). In addition, basic knowledge and awareness of infection prevention are to be improved and regarding operation, the way to clean and disinfect endoscopy equipment is to be acquired by practices.

ii Trainees:

Doctors and nurses of the departments such as traumatology, urology and abdominal surgery, and equipment engineers who are in charge of regular equipment inspection (assumed number of people: medical staffs: 6-8 members, equipment engineers: 1-2 members)

iii Place for implementation:

The Siem Reap provincial hospital, meeting rooms, endoscope examination room, and surgical rooms which have a laparoscopy

iv The time of implementation and duration:

To be implemented after equipment installation and initial operation instruction. Details are referred to the schedule chart mentioned below.

b) Inspection training including cleaning and disinfection of surgical room related equipment and instruments at the district hospitals.

i Training contents :

Regarding surgical room related equipment and instruments, lectures on basic knowledge of infection prevention are delivered in order to improve awareness of its necessity. Subsequently, practices by using actual equipment are undertaken regarding the way to wash, clean, disinfect, and store the equipment and instruments after using and regarding the method of inspection before and after using.

A-80

ii Trainees :

Doctors and nurses of the department of surgery, and equipment engineers who are in charge of regular equipment inspection (assumed number of people: medical staffs: 6-8 members, equipment engineers: 1-2 members).

iii Place for implementation :

Meeting rooms and surgical rooms in the district hospitals.

iv The time of implementation and duration :

To be implemented after equipment installation and initial operation instruction. Details are referred to the schedule chart mentioned below.

c) Operation and maintenance of sterilized equipment (The provincial and district hospitals are targeted)

i Training contents :

The lecture contents and ways regarding sterilized equipment are basically the same as a). However, as the equipment is planned to be installed at provincial hospital as well as district hospitals, the trainings are delivered at the provincial hospital and the district hospitals separately. At the provincial hospital, CSSD is planned to be constructed, and the method to develop basic operation system of CSSD is therefore included. On the other hand, since construction work is not planned at the district hospitals, the place for setting up the sterilized equipment and the surrounding environment are to be checked. Hearing on the operating policies of the hospitals from related staffs is to be performed, and operation plans which fit their policies shall be established. Based on the established operation plans, trainings on the way to handle sterilized equipment and the way to inspect them are to be delivered.

ii Trainees :

Nurses who are involved in operation of CSSD, staffs of the central sterile services department, and equipment engineers who are in charge of regular equipment inspection (assumed number of people: medical staffs: 6-8 members, equipment engineers: 1-2 members)

iii Place for implementation :

Meeting rooms of the provincial and district hospitals, and the central sterile services department (CSSD)

iv The time of implementation and duration :

To be implemented after equipment installation and initial operation instruction. Details are referred to the schedule chart mentioned below.

Day-number	Day	Job contents	Lecturers and staffs of the training	Trainees
Day 1	Sat	Travelling Tokyo – Phnom Penh		
Day 2	Sun	Travelling Phnom Penh-Siem Reap		
		•Setting up training venues, conformation of the		
		participants list, providing explanation of training		
		process and contents to the manager of Cambodian side		
		•Preparation such as optimization and printing of training		
		materials		

Day-number	Day	Job contents	Lecturers and staffs of the training	Trainees
Day 3	Mon	Training briefing (explanation of training processes and	Consultant for technical training	Siem Reap
		materials)	on maintenance and management	provincial
		•Implementation of pre-examination and survey	of the procured equipment and on	hospital
		Acquisition of essential knowledge for infection	infection prevention for the	•Hospital
		prevention (lectures)	procured equipment	staffs(6-8
		•Outlines on infections which occur in handling of		members)
		•Knowledge on infection prevention while handing		• ME working
		equipment		members)
		Training on maintenance and management of endoscopes		memoersy
		and surgery related equipment •Provincial hospital		
		•Outlines of endoscopes and surgery related equipment		
		•The structure and mechanism of the above equipment		
		•Operation system of the above equipment		
		•Questions and Answers		
Day 4	Tue	Training on maintenance and management of endoscopes	Consultant for technical training	Siem Reap
		and surgery related equipment •Provincial hospital	on maintenance and management	provincial
		•Practices of washing, disinfecting, and sterilizing of	of the procured equipment and on	hospital
		endoscopes and surgery related instruments	infection prevention for the	•Hospital
		• Practices of using endoscopes and trouble-shooting in the	procured equipment	starrs(6-8
		• Outlines of daily and regular inspection of endoscopes		•ME working
		•Practices of daily and regular inspection by using		group (4
		inspection management sheet		members)
		•Implementation of post-training examination and		
		questionnaires		
		•Post-examination result announcement and analysis of		
		each answer and question • Answers and questions		
Day 5	Wed	•Training briefing (explanation of training processes)	Consultant for technical training	Siem Reap
		•Implementation of pre-examination	on maintenance and management	provincial
		Training on maintenance and management of endoscopes	of the procured equipment and on	hospital
		and surgery related equipment •Provincial hospital	infection prevention for the	•Hospital
		1. Essential knowledge on washing and disinfecting of	procured equipment	staffs(6-8
		Basic knowledge on starilization		•ME working
		• Regarding structure operation the way to use and		group (3
		inspection of sterilized equipment		members)
		•Regarding how to handle medical equipment after		
		sterilization		
		2. Training of high – pressure steam sterilizers and		
		low-temperature sterilizers:		
		•Structures and mechanism of high-pressure steam		
		sterilizers and low-temperature sterilizers		
		•Practices on operation and handling of the above		
		equipment and daily inspection		
		3. I faining on sterilization related equipment:		
		machine washer disinfector dryer		
		• Structure and mechanism of sterilization sealer		
		•Practices on operation, handling, and daily inspection		
		of the above equipment		
Day 6	Thu	Comprehensive practices	Consultant for technical training	Siem Reap
		•Practices are held by using actual equipment regarding	on maintenance and management	provincial
		operation, handling, and inspection of each equipment	of the procured equipment and on	hospital
		which are acquired until the day before	infection prevention for the	•Hospital
			procured equipment	staffs(6-8
		[Workshop to develop check sheet for daily inspection]		members)
		• 10 develop check sheet for daily inspection of each		•ME working
		(BME), and to implement record management by		members)

Day 7 Fri [Workshop to develop job operation manual for CSND] Consultant for technical training, or maintenance and management of carriers interior on seemplay management of carriers interior on exemplay management of carriers interior on exemplay management of carriers interior of the provincial hospital strategies of CSSD statis, and recommunit of the first interior of the provincial of effective work processes and line of flow schart Consultant for technical training, or matites and the way to use flow chart Section analysis of CSSD statis, and recommunit of the first, and the way to use flow chart Section analysis of provincial of the provincial of the processes and line of flow schart Section analysis of the provincial of the processes and line of provincial of the provincis and provincial of the provincial or the above equip	Day-number	Day	Job contents	Lecturers and staffs of the training	Trainees
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by 10 Mon Consultant for technical training on similarity and training control of each equipment of CSSD join flow chart - Development of CSSD join flow chart - Start from onsistenance and management of - Basic knowledge on washing and disinfecting of machine prevention settilizes and - Development and duily inspection - Practices on operation malandling and disin prevention - Practices on operation malandling, and disin prevention - Practices on operation malandling, and disin prevention - Practices of operation by using actual equipment - regarding operation. Handling, and lain prevention of - Develop check sheet for daily inspection - Develop check sheet for daily inspection - Practice	Day /	Ffi	Workshop to develop job operation manual for CSSD	on maintenance and management	Siem Reap
Day 9 Sate Training on sterilization of sterilization of the proceed equipment and or provide of the proceed equipment of CSSD permittion and its merits, and the way to use flow chart *Hospital staffs(5 all staffs(6 all s			•Introduction on exemplary management of central	of the procured equipment and on	hospital
Parton analysis of CSSD staffs, and reconfirmation of effective work processes and line of how - 10-weekpanet of CSSD job fow chart - The necessity of job visualization and its merits, and the way to use flow chart - 10-bevelopment of CSSD operation manual (draft) Implementation of prot-examination - 10-size - scanniation review performed by the time, and preparation for prost-examination - 10-size - scanniation result announcement and analysis of the answers Implementation of prost-examination - 10-size - scanniation - 10-size - scanniation result announcement and analysis of the answers Implementation of prost-examination - 10-size - scanniation - 10-size - scanni			sterilization management (Japan side)	infection prevention for the	•Hospital
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Image: Second			effective work processes and line of flow		members)
Pay 8 Sut Reviews of training review performed by the time, and repraintion for post-examination group (3) members) Day 8 Sut Reviews of training review performed by the time, and repraintion for post-examination members) members) Day 8 Sut Reviews of training contents which have done until the day before, and perparation of training materials for the following days Consultant for technical training on maintenance and management of endoscoper and surgery related equipment "District hospital 1. Essential knowledge on washing and disinfecting of medicial equipment "Basic knowledge on sterilization Consultant for technical training informer (-S.SD staffs (-S.G members), "Staffs from needial equipment for the procured equipment and low-temperature sterilizers and low-temperature sterilizers and low-temperature sterilizers in "Fractices on operation, handling, and laiy inspection of the above equipment and daily inspection of for the procured equipment and daily inspection of featoring machine, washer distinct for day in training on sterilization related equipment: "Structure and mechanism of thigh- pressure steam sterilizers on operation, handling, and laiy inspection of the above equipment and daily inspection of the above equipment and daily inspection of the above equipment that traines have acquired until the day before. Workshop to develop theck sheet for daily inspection] Consultant for technical training dartifs (-5 members), staffs (-5 members), staff			•Development of CSSD job flow chart		•ME working
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		equipment under instructions of BME, and to implement		engineers (1-2
		record management by performing actual inspection		members)
Day 12	Wed	Comprehensive practices (trainer visits each district	Consultant for technical training	Sotnikum
		hospital and implements the training) (at Sout Nikom	on maintenance and management	district hospital,
		district)	of the procured equipment and on	CSSD staffs
		 Practices of operation by using actual equipment 	infection prevention for the	(5-6 members),
		regarding operation, handling, and inspection of each	procured equipment	staffs from each
		equipment that trainees have acquired until the day		department (1-2
		before.		members),
		[Workshop to develop check sheet for daily inspection]		maintenance
		•To develop check sheet for daily inspection of each		management
		equipment under instructions of BME, and to implement		engineers (1-2
		record management by performing actual inspection.		members)
		•Reviews of trainings implemented by the time, and		
		preparation for post-examination.		
		•Post-examination result announcement, and analysis of		
		the answer		
Day 13	Thu	[Follow-up training by OJT-Provincial hospital]	Consultant for technical training	Siem Reap
		• Reviews on actual implement process of daily and regular	on maintenance and management	provincial
		Checking actual ich processes of cleaning disinfaction	of the procured equipment and on	hospital and
		and starilization of andoscopes and surgery related	procured equipment	(6.8 members)
		equipment and follow-up training depending on its	procured equipment	•Medical
		results		engineer
		results		working group
				(3 members)
Day 14	Fri	[Follow-up training by OJT-Provincial hospital] To be	Consultant for technical training	Siem Reap
2		continued from the day before	on maintenance and management	provincial
		•Reviews on actual implement process of daily and regular	of the procured equipment and on	hospital and
		inspection of endoscopes and surgery related equipment	infection prevention for the	hospital staffs
		·Checking actual job processes of cleaning, disinfection	procured equipment	(6-8 members)
		and sterilization of endoscopes and surgery related		•Medical
		equipment, and follow-up training depending on its		engineer
		results		working group
		•Reviews of whole training for provincial hospital,		(3 members)
		explanations related to summary, and answers and		
		questions		
		Awarding of completion certification		
Day 15	Sat	Reviews of training contents which have done until the		
		day before, and preparation of training materials for the		
Day 16	Com	following days		Varlagh district
Day 16	Sun	[Follow-up training by OJ1-Targeted hospital: Kralann	Consultant for technical training	Kralann district
		• Paviaws on actual implement process of daily and regular	of the procured equipment and on	CSSD staffs
		inspection of andoscopes and surgery related equipment	infaction prevention for the	(5.6 members)
		•Checking actual job processes of sterilization related	procured equipment	•Staffs from
		equipment and follow-up training depending on its	procurea equipment	each medial
		results		department (1_2
		100410		members
				•Maintenance
				and
				management
				department
				engineers (1-2
				members)

Day-number	Day	Job contents	Lecturers and staffs of the training	Trainees
Day 17	Mon	Follow-up training by OJT-Targeted hospital: Puok	Consultant for technical training	Puok district
		district hospital and Sotnikum district hospital	on maintenance and management	hospital, CSSD
		·Reviews on actual implement process of daily and regular	of the procured equipment and on	staffs (5-6
		inspection of endoscopes and surgery related equipment	infection prevention for the	members),
		 Checking actual job processes of sterilization related 	procured equipment	staffs from each
		equipment, and follow-up training depending on its		department (1-2
		results		members),
				maintenance
				management
				engineers (1-2
				members)
Day 18	Tue	Travelling Siem Reap-Phnom Penh		
Day 19	Wed	Business completion report (Ministry of Health and JICA		
		office)		
		Travelling Phnom pen-Tokyo		
Day 20	Thu	Back to Tokyo		

3) Technical training related to medical equipment maintenance system

a) Training for the provincial hospital

i Training contents:

Regarding the provincial hospital, hearing survey is undertaken concerning a series activities of medical equipment maintenance system developed in MEDEM-2 and operation status from ME working group established at the provincial hospital (consisted of 3 members: equipment manager, administrative manager, and maintenance inspection technician). Using status of each tool such as an equipment management book actually used in the management system is also checked. Subsequently, problematic points and challenges related to current situations of medical equipment maintenance management are to be revealed, for which suggestions shall be made to solve those problems and challenges.

ii Trainees :

ME working group (assumed number of people: 3-5 members)

iii Place for implementation :

Meeting rooms of the provincial hospital, and workshop of medical equipment maintenance

iv The time of implementation and duration :

To be implemented after equipment installation and a trial run. Details are referred to the schedule chart mentioned below.

b) Training for the district hospitals

i Training contents:

For the district hospital, equipment management book used for equipment maintenance management system is to be developed, and OJT trainings regarding information on medical equipment newly installed, data collecting methods, collected data entering methods to the maintenance book, are to be implemented. In addition, inspection manual (daily use) for the newly introduced equipment is developed.

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ii Trainees :

Staffs who are in charge of a series of equipment management (procurement-operation- banishment) (hospital manager) and equipment management engineers (assumed number of people: 3-5 members)

iii Place for implementation :

Meeting rooms of the district hospitals, and workshop of medical equipment maintenance

iv The time of implementation and duration :

To be implemented after equipment installation and initial operation instruction. Details are referred to the schedule chart mentioned below.

Dav-number	Dav	Job contents	Lecturers and staffs of the training	Trainees
Day 1	Sat	Travelling Tokyo – Phnom Penh		
Day 2	Sun	Travelling Phnom Penh—Siem Reap		
2		•Setting up training venues, conformation of the participants		
		list, providing explanation of training process and contents		
		to the manager of Cambodian side		
		•Preparation such as optimization and printing of training		
		materials		
Day 3	Mon	•Training briefing (training process and explanation of	Training consultant for medical	Working
		materials)	equipment maintenance system	group of
		 Implementation of pre-examination and questionnaires 		medical
		Workshop regarding the existing equipment maintenance		equipment
		system		maintenance
		•Checking the operation situations of the existing equipment		of the
		maintenance system, and discussion related to revealing		provincial
		challenges		hospital
		•Workshop to solve the challenges revealed		
		·Discussion and strategy development for specific activities		
		and methods on solutions mentioned during above workshop		
		•Actual implementation (practice) of the detailed activities and		
		reviews of equipment maintenance manual, depending on		
		which modification and revise are to be performed		
		•Data and information entry of handling reviews of an		
		equipment management book and equipment newly installed		
		this time		
		•Establishment of items for daily and regular inspection of the		
		equipment newly installed		
		•Based on the established inspection items, the inspection		
		method and the process are practiced by using actual		
		equipment.		
Day 4	Tue	Practices to be continued from the day before		
		•Establishment of items for daily and regular inspection of the		
		equipment newly installed		
		•Based on the established inspection items, the inspection		
		method and the process are practiced by using actual		
		equipment.		
		 Implementation of post-examination and questionnaires 		
		•Post-examination result announcement and analysis of each		
		question		
Day 5	Wed	Lectures and practices are to be undertaken at one of the	Training consultant for medical	Maintenance
		district hospitals	equipment maintenance system	engineers
		• Training briefing (training process and explanation on the		(1-2
		materials)		members),
		• Implementation of pre-examination and questionnaires		administrative
		•Explanation on medical equipment maintenance system		mangers (1-2
1		installed in the provincial hospital	1	members)

Day-number	Day	Job contents	Lecturers and staffs of the training	Trainees
Day 6	Thu	[Practices for equipment management system]	Training consultant for medical	Maintenance
		•Development of an equipment management book	equipment maintenance system	engineers
		•Information and data entry of equipment installed this time to		(1-2
		the equipment management book mentioned above		members),
		•Development of simple inspection manual for each equipment		administrative
		which is registered to the equipment management book		mangers (1-2
		mentioned above		members)
		•Development of inspection check sheet of each equipment		
		•Based on maintenance inspection manual and check sheet,		
		inspection of each equipment is practiced		
Day 7	Fri	Practices to be continued from the day before	Training consultant for medical	Maintenance
		Practices for development of an equipment maintenance management report	equipment maintenance system	engineers
		•Reviews of the whole training		(1-2 members)
		•Implementation of post-examination and questionnaires		administrative
		•Post-examination result announcement and analysis of each		mangers (1-2
		duestion		members)
		[Follow-up training]		inenieers)
		The trainers visit 2 hospitals out of 4 hospitals, and		
		implementation practices (OJT) are held at each hospital based		
		on the trainings (lectures and practices) until the day before		
		•Practices on maintenance inspection of each equipment		
		installed in each hospital		
Day 8	Sat	[Follow-up training]	Training consultant for medical	Maintenance
-		The trainers visit the other 2 hospitals, and implementation	equipment maintenance system	engineers
		practices (OJT) are held at each hospital based on the trainings		(1-2
		(lectures and practices) until the day before		members),
		•Practices on maintenance inspection of each equipment		administrative
		installed in each hospital		mangers (1-2
				members)
Day 9	Sun	Travelling Siem Reap-Phnom Penh		
Day 10	Mon	Business completion report (Ministry of Health and JICA		
		office)		
		Travelling Phnom pen-Tokyo		
Day 11	Tue	Back to Tokyo		

④ Work in Japan

A summary report of the results including technical trainings is to be made. One technical training planning consultant (Japanese) makes the report, and the duration for wok in Japan is 3 day.

6. The way to procure implementation resources for Soft component

A Japanese consultant with specialized knowledges on the targeted equipment, is to be in charge of all trainings of soft component implementation

7. Soft component implementation process

Implementation processes (plan) as of this report are as follows. Final implementation plan is to be planned with consideration of schedules of Cambodia side and each technical training consultant.

Provisional Implementation Schedule

Tota	l number of months	1	2	3	4	5		9	10	11	12	13	14	15	16	17	18	19
	Facility																	
	Equipment																	
	procurement																	
	Implementation																	
I	Implementation of																	
mple	Soft											Troi	ing im	lomont	ation			
eme	Component											Irai	ning imj	piement	ation			
ntati	(1) Technical																	
on p	Technical Digital																	
roce	system and PACS																	
sses	(2) Technical																	
	trainings for																	
	maintenance and																	
	infection																	
	prevention of the																	
	procured																	
	equipment (3) Installation of						-											
	medical equipment																	
	maintenance																	
	Consultant for									Р	reparat	ion in J	apan					
	technical training																	
	of digital system																	
	Consultant for																	
	technical trainings										Prepara	tion in a	lapan					
	for appropriate																	
<u> </u>	maintenance and																	
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ulta	procured																	
nt	equipment																	
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	for installation of																	
	medical equipment																	
	Consultant for											_			_			
	technical training										Discu	ission ri	ght befo	re	L Report			
	planning										ir	nplemei	itation	sur	nmarizir	ıg		
Delive	erables																	
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8. Deliverables of Soft Component

In addition to completion report to the donor and Japan side, the following deliverables are planned to be deliverables of Soft Component.

	Training items	Deliverables
	Trainings for operation and management techniques of targeted equipment	
(1) Technical training on digital system and PACS (2) Technical	 Basic knowledge check of digital system and PACS, and supports for development of operation system Technical trainings for digital image processing Trainings for the methods of digital image diagnosis Trainings for the methods of digital data management and operation by using PACS Technical trainings for daily and regular inspection of procured medical equipment Technical trainings for maintenance management of endoscopes (flexible and rigid) (the ways of cleaning and daily/regular inspection) at the provincial hospital 	 Manuals for operation and maintenance management of digital system and PACS Pre/post-examinations to evaluate the levels of participants'' understanding The questionnaire results of participants etc. Manuals for operation and maintenance management of endoscopes Manuals for operation and maintenance management of sterilized equipment
trainings for appropriate maintenance and infection prevention of the procured equipment	 2 Technical trainings on operation system of sterilized equipment and maintenance management at the provincial hospital and the district hospitals 3 Acquisition of basic knowledge on infection prevention to handle the equipment mentioned above 	 Pre/post-examinations to evaluate the levels of participants'' understanding The questionnaire results of participants etc.
(3) Installation of medical equipment maintenance	 Revision and modification of existing medical equipment maintenance system installed in the provincial hospital Installation of equipment maintenance management system for the district hospitals (existing system at the provincial hospital) 	 Revised equipment management book, manuals and inspection sheet for preventive maintenance inspection Management book for the equipment installed in the district hospitals, and each attached document needed for inspection Pre/post-examinations to evaluate the levels of participants'' understanding The questionnaire results of participants etc.

9. Responsibilities of the Counterpart Agency in the Recipient Country

Project stakeholders of the Ministry of Health, the Siem Reap Provincial Referral Hospital, 4 District hospitals and the provincial health department shall coordinate a technical training schedule and provide a training venue. They shall also appoint the target trainees and have them engage in the proposed technical trainings. Each hospitals, furthermore, is required to take immediate actions needed for facility operations, such as continual staff training, budget allocation, and procurement of spare parts and consumables, improving upon skills obtained from soft component implementation.

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tional Stra	blic Inves	The Third H	Guidelines	June 2014	June 2014 Health Infor	June 2014 Health Infori Population F	June 2014 Health Infor Population F Drinking wa	June 2014 Health Inforr Population P Drinking wa	June 2014 June 2014 Health Inforr Population P Drinking wa National Gui	June 2014 June 2014 Health Inforr Population P Drinking wa National Gui National Gui Sub-decree	June 2014 June 2014 Health Inforr Population P Drinking wa National Gui National Gui Sub-decree c Environmen	June 2014 June 2014 Health Infor Population P Drinking wa National Gui National Gui Sub-decree c Environmen Environmen	June 2014 June 2014 Health Infor Population P Drinking wa National Gui Sub-decree c Environmen Environmen National gui	June 2014 June 2014 Health Infor Population P Drinking wa National Gui Sub-decree c Environment Environment National gui Technical G	June 2014 June 2014 Health Infor Population P Drinking wa National Gui Sub-decree c Environment Environment Environment National gui National gui	June 2014 June 2014 Health Inforr Population P Drinking wa National Gui National Gui Sub-decree c Environment Cambodia N Environment National gui National gui Heath Sector	June 2014 June 2014 Health Inforr Population P Drinking wa National Gui National Gui Sub-decree c Environment Environment Environment National gui National gui Heath Sector Heath Sector
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6. Other Relevant Data



7-2 Geological Survey





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BORING LOG

					FOU	IDMEN	T·ROT		RME	THOD	Einished data : 02/07/2010
		01		~	EQU	PIVIEN	I : RUI	TARY AUGE	RIVIE	THOD	Finished date : 02/07/2019
		Type		Thick	pc				FI	IELD TEST	ING
t	ples	ple.	DESCRIPTION OF STRATA	h &	egel	Pocket	Vane	Depth			SPT
Dep	Sam	Sam	DESCRIPTION OF STRAFA	Dept	-	Test	Test	testing	No	N ₁ N ₂	N- value (Blows / 300mm)
m	N°			m		kPa	kPa	m	Blow	s / 150mm	n
1	-	-	Made ground	(8.58)	XXXXXX			1.00 to 1.45	2	2 2	0 30 60 90 120
2	1	UU		(0.00)	2023			1.50 2.00 to 2.45	2	3 2	• 4
3	3	U	Grey very loose silty SAND	(3.00)				2.50 3.00 to 3.45	1	2 2	• 5
4	4	U		3.50	11			3.50 4.00 to 4.45	3	3 4	7
5	5	U			11			4.50 5.00 to 5.45	2	4 4	
6	6	U			11			5.50 6.00 to 6.45	2	3 5	8
7	7	U	Yellow white loose clavey SAND	(7.00)	11	-		6.50 7.00 to 7.45	2	5 4	9
8	8	U			114			7.50 8.00 to 8.45	3	4 5	• 9
9	9	U		-	11			8.50 9.00 to 9.45	5	5 5	• 10
10	10	U			11			10.0 to 10.45	4	5 4	9
1	11	U		10.50	11			11.0 to 11.45	5	7 7	4 14
12	12	U			11			12.0 to 12.45	6	9 9	18
13	13	U			11			13.0 to 13.45	3	7 8	• 15
4	14	U			11			14.0 to 14.45	4	5 9	• 14
15	15	U			111	-		15.0 to 15.45	3	7 7	- 14
16	16	U			11			16.0 to 16.45	5	6 7	• 13
17	17	U			114	-		17.0 to 17.45 17.50	6	8 8	16
18	18	U			11			18.0 to 18.45 18.50	5	8 7	• 1 <u>5</u>
19	19	U	Yellow white medium dense clavey SAND	(17.50)	1/4			19.0 to 19.45 19.50	4	6 5	4 11
20	20	U	,,		11			20.0 to 20.45 20.50	5	5 5	• 10
21	21	U			11			21.0 to 21.45 21.50	6	6 7	13
22	22	U	253 E 150000 110 55 55 50		11	-		22.0 to 22.45 22.50	7	7 8	15
23	23	0	Sec. Manin		11			23.0 to 23.45 23.50	8	9 8	17
24	24	U	🐵 (เม็พ ซึ่ง เหละโลทอ b. ศ) 🍩)		111			24.0 to 24.45 24.50	6	8 10	18
26	25		FIRST BUILD ENGINEERING		11	-		25.0 to 25.45 25.50	7	7 9	• 16
77	20	U U	GOOM OF CAMB		111			26.50 27.0 to 27.45	1	0 0	16
28		0		28.00	11			27.50 28.0 to 28.45	12	13 15	10
29	28 29	U U	Yellow medium dense clavey SAND	(1.50)	11			28.50 29.0 to 29.45	14	15 14	28
30	30	U	Vellewyery dense elevey CAND	29.50	× × / ·	-		29.50 30.0 to 30.45	6	23 34	29
31	31	U	reliow very dense clayey SAIND	30.50	1 1 1			30.50 31.0 to 31.45	9	9 10	5/
32	32	U	White medium dense clayey SAND	(2.00)	11			31.50 32.0 to 32.45	10	8 12	20
33	33	U		32.50	11			32.50 33.0 to 33.45	10	15 16	31
34	34	U			11			33.50 34.0 to 34.45	10	16 19	35
35	35	U	Yellow white dense clayey SAND	(4.00)	1/1			34.50 35.0 to 35.45	10	13 14	27
36	36	U		100	11			35.50 36.0 to 36.45	10	10 18	28
37	37	U		36.00	11	-		36.50 37.0 to 37.45	15	25 28	53
38	38	U			11			37.50 38.0 to 38.45	18	25 32	57
39	39	U	Brown very dense clayey SAND	(4.50)	1/1			39.0 to 39.45	20	28 35	63
40	40	U			11			40.0 to 40.45	19	26 34	60
11	41	IJ		41.00	111	240		41.0 to 41.45	15	22 36	58
42			Brown hard sandy lean CLAY	(1.50)	1.1.	220		42.0 to 42.45 42.50	15	18 26	K44
13	42	U		42.50	1			43.0 to 43.45 43.50	25	35 40	75
14	43	U			1/1			44.0 to 44.45 44.50	28	38 49	87
45	44	U	Brown very dense clavey SAND	(5.50)		-	-	45.0 to 45.45 45.50	32	48 30	78
16	45	U	DIOWIT VELY DELISE DIAYEY SAND	(0.00)	1/1	-		46.0 to 46.45 46.50	31	45 25	70
17	46	U			11			47.0 to 47.45 47.50	33	42 30	72
8	47	U		48.00	11			48.0 to 48.45	35	47 30	\$ 77
11	GEN	D	D - Disturbed Sample	Wat	er Strike	:					Sheet N° 1
-		1	U - Undisturbed Sample	Wat	er level A.	.93:	2.00m				FIGURE N° 3

PROJI	ECT: P	REPAR	ATORY SURVEY ON THE PROJECT FOR IMPROVEMENT OF SI	EM REAF	PROVINCIAL	REFERRA	L HOSPIT	AL IN THE KING	DOM OF	CAME	BODIA	Borehole	N°	: 2		
SITE:	LOCAT	TED AT	2 THNOU STREET, MONDUL 1 VILLAGE, SVAY DANGKUM CO	OMMUN	E, SIEM REAP	CITY, SIEN	I REAP P	ROVINCE				Started da	ate	: 2	7/06/:	20
					FOU	IPMEN	T·RO		R MF1	ног)	Finished	atch	. 20	9/06/	20
-	-			×			1.110	ANT AUGE		not		I IIIIsileu u	Jace	. 2.	5/00/2	20
		ype		Thic	pr				FI	ELD	TEST	ING				
ų	ples	ple 7	DESCRIPTION OF STRATA	ih &	egel	Pocket	Vane	Depth				SPT				
Dept	Sam	Sam		Dept		Test	Test	testing	No	N ₁	N ₂	N-value	e (Blo	ws / 30	00mm)	
m	N°	07		m		kPa	kPa	m	Blows	5/15	0mm					
	-	-	Made ground	(0.50)	888888							0 30	6	90	12	0
1	1	0	Yellow medium dense silty SAND	(2.00)				1.00 to 1.45 1.50	5	7	9	16				
2	2	U		2.70				2.00 to 2.45 2.50	4	10	12	/ 2	2			
3	3	0	Yellow medium dense silty SAND	(1.20)				3.00 to 3.45 3.50	3	4	1	7 11				
4	4	0			14			4.00 to 4.45 4.50	1	1	2		_	_		
6	6	U U	Yellow white very loose clayey SAND	(3.00)	111			5.50 6.00 to 6.45	1	2	2					
7	7	U		6.70	×			6.50 7.00 to 7.45	2	4	3	7				
8	8	U			111			7.50 8.00 to 8.45	4	5	5	10				
9	9	U	Vellow white loose devey SAND	(4.90)	11			8.50 9.00 to 9.45	2	4	3	7				
10	10	U	COST SAINTE CODE Crayey SAIND	(4.80)	11			9.50 10.0 to 10.45	3	3	5	8				
11	11	U	in the second		111			10.50 11.0 to 11.45	4	6	5	11				
12	12	U	(เมือง ซึ่ง เมลซิลาร์อ b ค่าสอ)	11.50	17			11.50 12.0 to 12.45	6	6	8	14		_		
13	13	U	FIRST BUILD ENGINEERING		11			12.50 13.0 to 13.45	5	8	6	14				
14	14	υ	GOOM OF CAMBOD		11			13.50 14.0 to 14.45	5	5	9	• 14			_	
15	15	U	Yellow white medium dense clavey SAND	(7.00)	11			14.50 15.0 to 15.45	6	7	7	- 14		_		
16	16	U		(7.00)	11	-		15.50 16.0 to 16.45	7	5	8	13			_	
17	17	U			11			16.50 17.0 to 17.45	4	7	7	• 14	-	-	_	
18	18	U			114			18.0 to 18.45	5	7	8	• 15	-	_		
19	19	U		18.50				19.0 to 19.45	6	7	9	16				
20	20	U	white medium dense silty SAND	(2.00)				20.0 to 20.45	7	9	8	17				
21	21	U		20.50	11			21.0 to 21.45 21.50	4	5	10	15				
22	22	U			11			22.0 to 22.45 22.50	6	8	9	4 17				-
23	23	U			1/1			23.0 to 23.45 23.50	8	10	10	20)			
24	24	U	White medium dense clayey SAND	(7.00)	11			24.0 to 24.45 24.50	7	9	11	20)			
25	25	U			11			25.0 to 25.45 25.50	7	8	9	17				
26	26	U			11			26.0 to 26.45 26.50	6	9	9	18			-	
21	27	0		27.50	11			27.0 to 27.45 27.50	10	12	10	2	2	_		
20	28	0	White very dense clayey SAND	(1.00) 28.50	124			28.50 28.50	0	30	40		1	≫ 70	_	
29	30				114			29.0 to 29.45 29.50	9	12	10		27		_	
31	31	U	White medium dense clayey SAND	(4.00)	11			30.50 31.0 to 31.45	10	13	15		29			
32	32	u			14			31.50 32.0 to 32.45	10	14	15		20			
33	33	U		32.50	14			32.50 33.0 to 33.45	13	16	19		29			
34	34	υ	White dance clavov SAND	(3.00)	11			33.50 34.0 to 34.45	11	15	19	I	24			
35	35	U	WITTLE UETSE CLAYEY SAIND	(0.00)	11			34.50 35.0 to 35.45	12	18	19	I	37			
36	36	U		35.50	174			35.50 36.0 to 36.45	22	23	30		1	53		
37	37	U			14			36.50 37.0 to 37.45	20	22	33			55		
38	38	U			11			37.50 38.0 to 38.45	21	25	33		-1	58		
39	39	U			11			38.50 39.0 to 39.45	23	28	35		1	63	_	
40	40	U	Grey brown very dense clavev SAND	(8.50)	111		_	39.50 40.0 to 40.45	25	30	37			67		
41	41	U			11			40.50 41.0 to 41.45	29	32	40			72	_	
42	42	U			11		-	41.50 42.0 to 42.45	32	30	33		9	63		
43	43	U			11		1	43.0 to 43.45 43.50	30	25	35		-	60		
44		U		44.00	111			44.0 to 44.45	31	35	25		-	60		

ROJE	CT: P	REPAR	RATORY SURVEY ON THE PROJECT FOR IMPROVEMENT OF S	IEM REAP	PROVINCIAI	CITY, SIEN	l Hospit M REAP P	AL IN THE KING	DOM OF	FCAMB	ODIA	Borehol Started	e N° date	: :	3 24/06/2	2019
					EQU	JIPMEN	T : RO	TARY AUGE	R ME	THOD		Finished	l date	: 2	26/06/2	2019
		ype		r hick	g				FI	ELD T	EST	ING				
÷	ples	ple T	DESCRIPTION OF STRATA	th & 1	egen	Pocket	Vane	Depth				SP	т			
Dept	Sam	Sam	DESCRIPTION OF STRATA	Dept	-	Test	Test	testing	No	N_1	N ₂	N- valı	ue (Blo	ws / 3	00mm)	
m	N°			m		kPa	kPa	m	Blow	s / 150)mm	0 5	0 10	00 1	150 20	o m
1	-	- U	Yellow very loose silty SAND	0.50		2		1.00 to 1.45	1	2	3	5				
2	2	U	Yellow dense silty SAND	1.50				1.50 2.00 to 2.45	10	17	18	\rightarrow	35			
3	3	U		`2.50'	11			3.00 to 3.45	1	1	2	3				
4	4	U			1			4.00 to 4.45 4.50	1	2	2	• -4				
5	5	U	Vellow white very loose clavey SAND	(6 10)	11	1		5.00 to 5.45 5.50	2	1	3	4		_	-	
6	6	U	Tellow white very loose clayey on the	(0.10)	11			6.00 to 6.45 6.50	1	3	2	• 5				
/	0	0			11	-		7.00 to 7.45 7.50	2	2	3	10				
9	0	11		8.60	11	1	_	8.00 to 8.45 8.50	4	4	5	10				-
10	10	U	Yellow medium dense clayey SAND	(1.90)	11	-		9.50 10.0 to 10.45	4	5	7	12		_		
11	11	U		10.50	5 17	-		10.50 11.0 to 11.45	8	24	30		- 54		-	
12			White grey very dense clayey SAND	(1.50)	11	1		11.50 12.0 to 12.45	6	8	10	18				
13	12 13	UU		12.00	11			12.50 13.0 to 13.45	5	6	7	13				
14	14	U			11			13.50 14.0 to 14.45	5	7	9	16				
15	15	U			1			15.0 to 15.45	8	9	10	19				
16	16	U			1/1	-		16.0 to 16.45	8	8	8	16				
17	17	U			11			17.0 to 17.45 17.50	9	6	11	17				-
18	18	U			11			18.0 to 18.45 18.50	5	6	7	13		_		
20	19	0	Yellow white medium dense clavey SAND	(15.00)	11			19.0 to 19.45 19.50	10	9	11)			
20	20	0			11			20.0 to 20.45 20.50 21.0 to 21.45	0	10	14		1			_
22	22	U	255272512555555		11			21.50 22.0 to 22.45	7	10	12	2	4 2			
23	23	U	Per Manis		11			22.50 23.0 to 23.45	6	7	10	17	-			_
24	24	U	🗇 เบ็พ ชีม เหลรีลาเอ b. ศ 🍩		11	-		23.50 24.0 to 24.45	8	9	12	2	-			
25	25	U	TIN CO., LTD.		111	-		24.50 25.0 to 25.45	10	12	12	2	4			
26	26	U	SDOM OF CAMBO		11			25.50 26.0 to 26.45	6	9	12	2	-			
27	27	- 11		27.00	1	-		20.50 27.0 to 27.45	10	13	18		31			
28	28	Ŭ	Yellow white dense clayey SAND	(1.70)	11			28.0 to 28.45 28.50	15	15	18	-	33			
29	29	U		28.70	11			29.0 to 29.45 29.50	10	25	30		55			_
30	30	U	Yellow white very dense clayey SAND	(2.10)	1	-		30.0 to 30.45 30.50	15	34	40		7	4		
31	31	U		30.80	11			31.0 to 31.45 31.50	11	15	10		31			
33	33	U	Yellow white dense clavey SAND	(3.70)	1	-		32.50 32.50 33.0 to 33.45	7	10	19		34			_
34	34	U	Follow white denote dayby of the	(0.70)	11	-		33.50 34.0 to 34.45	10	15	15		30			
35	35	U		34.50	1			34.50 35.0 to 35.45	10	24	27		51			
36	36	U			11			35.50 36.0 to 36.45	12	23	32		55			
37	37	U	Yellow verv dense clavev SAND	(5.00)	11			36.50 37.0 to 37.45	16	23	27		50			
38	38	U			11			37.50 38.0 to 38.45	21	40	20		60			
39	39	U		20.50	11			39.0 to 39.45 39.50	23	42	18		60			
40	40	U	Yellow white hard sandy SILT	39.50		150		40.0 to 40.45 40.50	14	16	15		31		-	
41	41	U		40.50	1.1.1	1000		41.0 to 41.45 41.50	22	36	45		78	1		
42	42	U	Yellow white very hard sandy lean CLAY	(3.00)	1///	360		42.0 to 42.45 42.50	21	29	43		72	-		
+3	43	0		43.50	1.11	400		43.0 to 43.45 43.50	24	34	116			>	150	
15	44	U	14/0 1/		114			44.0 to 44.45 44.50	25	42	50	-	/	104		
16	46	U	White grey very dense clayey SAND	(3.00)	11			45.0 to 45.45 45.50 46.0 to 46.45	32	J4	20	-	1	34		
1		~	D. Disturbed Consul-	46.50	* * / /*			40.0 10 40.40	JE	1	13		• 76)	-	
LE	GEN	D	u - uisturbed Sample	wat	er Strike	Ċ.	2.50				ł	Shee	et N°	3		
			u - Undisturbed Sample	Wat	ter level Λ	-95	2.50m					FIGU	RE N°	5		

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1	OD SHE	£ an	2	
13	1	1	121	
4	U) "	
121	-	1	st	
1	A NEWLOW	CERCISION.	/	

ର୍ଭ୍ତିଶ ହିଁଷ ଖେଛଟିଛାଁଡେ ଅ.ଙ୍କ FIRST BUILD ENGINEERING CO., LTD

BORING LOG

					EQU	IPMEN	T : RO	TARY AUGE	RME	THO)	Finished date	: 23/06/	2019
-		9G		×					F	FID	TESTI	NG	. 20/00/	
	es	e Typ		& Thic	end	Pocket	Vano	Dopth	-	LLD	ILS III	срт		-
epth	ampl	ampl	DESCRIPTION OF STRATA	epth 8	Leg	Test	Test	testing	N	N.	N.	N- value (Blows	(300mm)	-
m	N°	S		m		kPa	kPa	m	Blow	r / 15	0mm	it value (blow.	s / 500mm	1
in .	-	-	Made ground	(0.50)	XXXXXX	KFd	кга	m	BIOW	5/15	onnin	0 30 60	90 12	20
1	1	U	Yellow loose silty SAND	(1.50)				1.00 to 1.45 1.50	2	4	3	• 7		
2	2	U	Brown medium dense clavey SAND	2.00	11			2.00 to 2.45 2.50	9	10	14	24		
3	3	U		3.00	1.1.4			3.00 to 3.45 3.50	2	4	4	8		
4			Yellow loose slity SAND	(1.50)		-		4.00 to 4.45 4.50	5	4	5	9		
5	4	0	Yellow white very loose clayey SAND	(1.50)	11			5.00 to 5.45 5.50	4	2	2	4		
7	5	U		6.00	11			6.00 to 6.45 6.50	2	4	3	• 7		
/	0				11			7.00 to 7.45 7.50	3	5	5	• 10		
0	0	0	Yellow white loose clayey SAND	(4.70)	1/1			8.00 to 8.45 8.50	3	4	8	12		
3	0	0			11			9.00 to 9.45	4	4	0	10		
11	10			10.70	11		-	10.0 to 10.45	5	3	4	7		
17	11				11			11.0 to 11.45	7	0	10	17		
12	12				11			12.0 to 12.45	6	0	10	19		
14	12				11			13.0 to 13.45 13.50	0	0	10	• 18		
15	14				14	-		14.0 to 14.45 14.50	10	9	11	1 20		
16	15				11			15.0 to 15.45 15.50	6	0	15	23		-
17	16				14			16.50 17.0 to 17.45	6	0	9	• 17		
18	17		Yellow white medium dense clayey SAND	(13.80)	111			17.0 to 17.45 17.50	6	0	10	18		_
19	18				41			18.50 19.0 to 19.45	6	0	0	24		_
20	19		25127233751555		114			19.50 19.50 20.0 to 20.45	5	8	9	17		
21	20	U	elere Manis		114			20.50 21.0 to 21.45	6	9	10	9 14		
22	21	U	(() () () () () () () () () (11			21.50 22.0 to 22.45	7	10	11	19	-	
23	22	U	FIRST BUILD ENGINEERING F		11			22.50 23.0 to 23.45	7	8	q			
24	23	U	DOM OF CAMP		111			23.50 24.0 to 24.45	8	q	11			_
25	24	U		24.50	11			24.50 25.0 to 25.45	12	14	17	20		
26	25	U			11			25.50 26.0 to 26.45	14	17	18	31		
27	26	U			11			26.50 27.0 to 27.45	12	15	16	35		_
28	27	U			14			27.50 28.0 to 28.45	8	10	20			
29	28	U	Yellow white dense clavev SAND	(8.50)	11			28.50 29.0 to 29.45	10	12	24	20		
30	29	U			11			29.50 30.0 to 30.45	13	17	20	27		
31	30	U			114			30.50 31.0 to 31.45	10	16	19	1 37		
32	31	U			11	-		31.50 32.0 to 32.45	9	14	23	27		
33		1		33.00	11			32.50 33.0 to 33.45	16	22	29	51		
34	32 33	U U		55.00	14			33.50 34.0 to 34.45	14	24	39		63	
35	34	U	Brown very dense clavey SAND	(4.00)	14			34.50 35.0 to 35.45	17	25	37		62	_
36	35	U	Drown very dense clayey SAND	(4.00)	11			35.50 36.0 to 36.45	14	22	29	1	02	
37				37.00	11	360		36.50 37.0 to 37.45	17	28	36	101	64	
38	36	U	Brown very hard sandy lean CLAY	(1.00)	1.1.1			37.50 38.0 to 38.45	14	25	40		65	
39	37 38	UU		50.00	14			38.50 39.0 to 39.45	13	28	35		63	
40	39	U	Brown very dense clayey SAND	(3.00)	14			39.50 40.0 to 40.45	13	28	32		00	
41				41.00	11.	370	-	40.50 41.0 to 41.45	19	30	39	1	60	-
	40	U	Brown very hard sandy lean CLAY (0.50)	41.50	er Strike						1	Shoot Nº	1	
	GEN	D				00					H	JIECUN	7	

ROJE	CT: PI	REPAF	ATORY SURVEY ON THE PROJECT FOR IMPROVEMENT OF SI	EM REAP	PROVINCIAL	REFERRAL	HOSPIT	AL IN THE KING	ром о	FCAMB	ODIA	Borehole N ^o	:	5	
TE: L	OCAT	ED AT	2 THNOU STREET, MONDUL 1 VILLAGE, SVAY DANGKUM CO	OMMUN	E, SIEM REAP	CITY, SIEN	REAP PI	ROVINCE				Started date	:	18/06/:	2019
					EQU	IPMEN	T : ROT	TARY AUGE	RME	THOD		Finished date	:	20/06/3	2019
		pe		hick	1.25				F	ELD T	ESTI	NG	1		
	es	le Ty		\$ T	gend	Pocket	Vane	Depth	1			SPT			-
eptu	dme	dme	DESCRIPTION OF STRATA	epth	Leg	Tost	Tost	tosting	N	N	N	N value (Bl	owe / :	200mm)	-
2	S.	Si		0		IESL	Test	testing	140	1	IN2	N- Value (Dic	JW5/ -	sooning	
m	N		Made ground	m (0.50)	XXXXX	кРа	кРа	m	Blow	s / 150	mm	0 30	60	90 12	n n
1	1	U	Drown medium dense silty CAND	`0.50'	500000			1.00 to 1.45	5	15	13	28			
2	2	U	Brown medium dense sitty SAND	(2.00)				2.00 to 2.45 2.50	5	13	13	26	-		
3	3	U		2.50	14			3.00 to 3.45 3.50	3	4	3	7	-		
4 c	4	0			11	-		4.00 to 4.45 4.50	5	4	3				
5	5	11		(7.00)	11			5.00 to 5.45 5.50	2	3	3	6			_
7	7	U	white grey loose clayey SAND	(7.00)	1/1			6.50 7.00 to 7.45	3	4	5		-		
8	8	U	STETRAJES		11			7.50 8.00 to 8.45	4	5	5	10			
9	9	U	Stands and		11			8.50 9.00 to 9.45	5	6	6	12	-		
10	10	U	🗇 เบ็ม ยี่ณ และชี้ลาเอ b. ส่	9.50	17	-		9.50 10.0 to 10.45	6	7	8	15	-		
1	11	U	FIRST BUILD ENGINEERING		11			10.50 11.0 to 11.45	10	9	9	18	-		
12	12	U	GOOM OF CAMBOD		1			11.50 12.0 to 12.45	10	12	11	23			
3	13	U	Yellow white medium dense clayey SAND	(7.00)	11	-		13.0 to 13.45	6	8	9	17			_
4	14	U		(1.00)	11			14.0 to 14.45	5	7	10	• 17			
.5	15	U			114			15.0 to 15.45 15.50	8	10	8	18			
.6	16	U		16.50	11			16.0 to 16.45 16.50	3	8	7	15	-		
.7	17	U		10.00				17.0 to 17.45 17.50	5	5	9	• 14			
8	18	0	White medium dense silty SAND	(4.00)				18.0 to 18.45 18.50	5	10	10	14	-		
20	20	u						19.0 to 19.45	5	10	8	20			
21	21	U		20.50	200			20.50 21.0 to 21.45	6	11	11	20			
22	22	U	Vellow white medium dense clavey SAND	(3.00)	11		-	21.50 22.0 to 22.45	8	10	11	21			
23	23	U	Tellow while medium dense clayey SAND	(3.00)	11			22.50 23.0 to 23.45	11	9	12	21	-		
24	24	U		23.50				23.50 24.0 to 24.45	11	15	24	39	,		
25	25	U	White dense silty SAND	(3.00)				24.50 25.0 to 25.45	10	13	19	32	-	-	
26	26	U		00.50				26.0 to 26.45	10	15	21	36			
27	27	U	White dense alovey CAND	26.50	11			27.0 to 27.45 27.50	10	15	21	36			
28	28	U	white dense clayey SAND	(2.00)	14			28.0 to 28.45 28.50	11	18	24	4	2		
29	29	U		20.00	1 and a			29.0 to 29.45 29.50	8	9	12	121			
1	30	0	Yellow white medium dense clavey SAND	(4.00)	11			30.0 to 30.45 30.50	9	10	15	25	-		
12	32	U			11		_	31.50 32.0 to 32.45	5 A	0	12	20	-		
3	33	U		32.50	1			32.50 33.0 to 33.45	10	13	20	22			
34	34	U			11			33.50 34.0 to 34.45	16	18	19	37			
5	35	U			11			34.50 35.0 to 35.45	17	17	20	37			
6	36	U	White dense clayey SAND	(6.00)	14			35.50 36.0 to 36.45	15	17	22	- 39)	+	
7	37	U			11			37.0 to 37.45	16	18	21	• 39	-		
8	38	U		20.50	11			38.0 to 38.45 38.50	15	19	22	41	-		
9	39	U		38.50	11			39.0 to 39.45 39.50	12	27	21	-	48		
0	40	U			11			40.0 to 40.45 40.50	11	29	31		60		
1	41	U	Brown red very dense clavey SAND	(6.00)	14			41.0 to 41.45 41.50	18	29	34	-	63		
2	42	U	Stown rou vory donse oldyby onito	,	11			42.0 to 42.45 42.50	20	32	38		70		
5	43	0			11			43.0 to 43.45 43.50	17	35	39		7	4	
-	74	0		11 50	1114	1		44.0 10 44.45	10	34	42	_	0	76	

qi Sint qi Si m N° 1 - 1 2 3 3 4 4 5 5 6 6 7 7 8 8 9 9 10 10 11 11 12 12 13 13 14 14 15 16 16 16 17 17 18 18 19 19 20 20 21 21 22 22 23 23 24 24 25 26 26 27 27 27 28 28 29 30	u u u u u u u u u u u u u u u u u u	DESCRIPTION OF STRATA Made ground Brown medium dense silty SAND White dense clayey SAND Yellow medium dense clayey SAND White loose clayey SAND White medium dense clayey SAND White medium dense clayey SAND	xy Huese m (0.50) (2.00) 2.50 (1.00) 3.50 (2.00) 5.50 (2.00) 5.50 (2.00) 7.50 (3.00) 10.50		JIPMEN Pocket Test kPa	Vane Test kPa	Depth testing m 1.00 to 1.45 1.50 2.00 to 2.45 2.50 3.00 to 3.45 3.50 4.00 to 4.45 4.50 5.00 to 5.45 5.50 6.00 to 6.45 6.50 7.00 to 7.45 7.50 8.00 to 8.45	R MET FI N ₀ Blows 11 13 12 5 4 3 3	N ₁ N ₁	N₂ mm 14 13 19 6 5	Started date Finished date ING S P T N- value (Blo 0 40 80 26 26 26 26 39 41	: 16 : 18 ws/30	0mm)	01! 01!
Hate Sale m N° 1 - 1 1 2 2 3 3 4 4 5 5 6 6 7 7 8 8 9 0 10 10 11 11 12 12 13 13 14 14 15 15 16 16 17 17 18 18 19 10 20 20 21 21 22 22 23 24 24 25 26 26 27 27 28 29 29 20 20 20		DESCRIPTION OF STRATA Made ground Brown medium dense silty SAND White dense clayey SAND Yellow medium dense clayey SAND White loose clayey SAND White medium dense clayey SAND	m Debth & Thick (0.50) (2.00)		Pocket Test kPa	Vane Test kPa	Depth testing m 1.00 to 1.45 1.50 2.00 to 2.45 2.50 3.00 to 3.45 3.50 4.00 to 4.45 4.50 5.00 to 5.45 5.50 6.00 to 6.45 6.50 7.00 to 7.45 7.50 8.00 to 8.45	R MET FI No Blows 11 13 12 5 4 3 3	N 1 S /1500 12 13 20 5 5 3	N₂ mm 14 13 19 6 5	Finished date ING S P T N- value (Blo 0 40 80 26 26 26 39 11	: 18 ws/30	0mm)	01!
upda sape m N° 1 1 2 2 3 3 4 4 5 5 6 6 7 7 8 9 9 9 10 10 11 11 12 12 13 13 14 14 15 15 16 16 17 17 18 18 19 19 20 20 21 21 22 22 23 23 24 24 25 26 26 27 28 28 29 30	α α α α α α α α α α α α α α α α α α	DESCRIPTION OF STRATA Made ground Brown medium dense silty SAND White dense clayey SAND Yellow medium dense clayey SAND White loose clayey SAND White medium dense clayey SAND White medium dense clayey SAND	m Debth & Link (0.50) (2.00) 2.50 (1.00) 3.50 (2.00) 5	Legend	Pocket Test kPa	Vane Test kPa	Depth testing m 1.00 to 1.45 1.50 2.00 to 2.45 2.50 3.00 to 3.45 3.50 4.00 to 4.45 4.50 5.00 to 5.45 5.50 6.00 to 6.45 6.50 7.00 to 7.45 7.50 8.00 to 8.45	FI No Blows 11 13 12 5 4 3 3	N ₁ N ₁ (150) 12 13 20 5 5 3	N₂ mm 14 13 6 5	ING SPT N-value (Blo 0 40 80 26 26 26 26 39	ws / 30	0mm)	r
und Sale m N° 1 1 2 2 3 3 4 4 5 6 6 7 7 7 8 8 9 9 10 10 11 11 12 12 13 13 14 14 15 15 16 16 17 17 18 18 19 10 20 20 21 21 22 22 23 23 24 25 25 26 26 27 27 27 28 28 29 30	c c c c c c c c c c c c c c c c c c	DESCRIPTION OF STRATA Made ground Brown medium dense silty SAND White dense clayey SAND Yellow medium dense clayey SAND White loose clayey SAND White medium dense clayey SAND	L of the second		Pocket Test kPa	Vane Test kPa	Depth testing m 1.00 to 1.45 1.50 2.00 to 2.45 2.50 3.00 to 3.45 3.50 4.00 to 4.45 4.50 5.00 to 5.45 5.50 6.00 to 6.45 6.50 7.00 to 7.45 7.50 8.00 to 8.45	N ₀ Blows 11 13 12 5 4 3 3	N ₁ 5/1500 12 13 20 5 5 5 3	N ₂ mm 14 13 19 6 5	S P T N- value (Blov 0 40 8 26 26 26 39	ws / 30	0mm)	r
Head Iac I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I II II III II III III III IIII III IIIII	ampl ampl ampl ampl ampl ampl ampl ampl	DESCRIPTION OF STRATA Made ground Brown medium dense silty SAND White dense clayey SAND Yellow medium dense clayey SAND White loose clayey SAND White medium dense clayey SAND	m (0.50) (2.00) (2.00) (2.00) (2.00) (2.00) (2.00) (2.00) (2.00) (2.00) (3.00) (3.00) 10.50		Test kPa	Test kPa	testing m 1.00 to 1.45 1.50 2.00 to 2.45 2.50 3.00 to 3.45 3.50 4.00 to 4.45 5.50 6.00 to 5.45 5.50 6.00 to 6.45 6.50 7.00 to 7.45 7.50 8.00 to 8.45	N ₀ Blows 11 13 12 5 4 3 3	N ₁ 5/1500 12 13 20 5 5 3	N ₂ mm 14 13 19 6 5	N- value (Blo	ws / 30	0mm)	I
B C I I I I I I I I I I I I I I I I I I I I I I I I I II II III III IIII III IIII IIII <td< td=""><td>2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2</td><td>Made ground Brown medium dense silty SAND White dense clayey SAND Yellow medium dense clayey SAND White loose clayey SAND White medium dense clayey SAND</td><td>m (0.50) (2.00) (2.00) (2.00) (2.00) (2.00) (2.00) (2.00) (2.00) (2.00) (3.00) (3.00) (3.00)</td><td></td><td>kPa</td><td>kPa</td><td>m 1.00 to 1.45 1.50 2.00 to 2.45 2.50 3.00 to 3.45 3.50 4.00 to 4.45 4.50 5.00 to 5.45 5.50 6.00 to 6.45 6.50 7.00 to 7.45 7.50 8.00 to 8.45</td><td>N₀ Blows 11 13 12 5 4 3 3</td><td>N1 5 / 1500 12 13 20 5 5 5 3</td><td>14 13 19 6 5</td><td>N- value (Bio</td><td>) 120</td><td>0 160</td><td>1</td></td<>	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	Made ground Brown medium dense silty SAND White dense clayey SAND Yellow medium dense clayey SAND White loose clayey SAND White medium dense clayey SAND	m (0.50) (2.00) (2.00) (2.00) (2.00) (2.00) (2.00) (2.00) (2.00) (2.00) (3.00) (3.00) (3.00)		kPa	kPa	m 1.00 to 1.45 1.50 2.00 to 2.45 2.50 3.00 to 3.45 3.50 4.00 to 4.45 4.50 5.00 to 5.45 5.50 6.00 to 6.45 6.50 7.00 to 7.45 7.50 8.00 to 8.45	N ₀ Blows 11 13 12 5 4 3 3	N1 5 / 1500 12 13 20 5 5 5 3	14 13 19 6 5	N- value (Bio) 120	0 160	1
N° - 1 2 3 4 5 6 7 7 8 9 10 11 12 13 14 15 16 17 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 20 21 22 23 24 25 26 27 28 29 30		Made ground Brown medium dense silty SAND White dense clayey SAND Yellow medium dense clayey SAND White loose clayey SAND White medium dense clayey SAND	m (0.50) (2.00) (2.00) (1.00) (3.50) (2.00) 5.50 (2.00) 7.50 (3.00) 10.50		kPa	kPa	m 1.00 to 1.45 1.50 2.00 to 2.45 2.50 3.00 to 3.45 3.50 4.00 to 4.45 4.50 5.00 to 5.45 5.50 6.00 to 6.45 6.50 7.00 to 7.45 7.50 8.00 to 8.45	Blows 11 13 12 5 4 3 3	12 13 20 5 5 3	mm 14 13 19 6 5) 120	0 160	-
- 1 2 3 3 4 5 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 20 20 20 21 22 23 24 25 26 27 28 29 20 21 22 23 24 25 26 27 28 29 30		Made ground Brown medium dense silty SAND White dense clayey SAND Yellow medium dense clayey SAND White loose clayey SAND White medium dense clayey SAND White medium dense clayey SAND White medium dense clayey SAND	(0.50) (2.00) 2.50 (1.00) 3.50 (2.00) 5.50 (2.00) 7.50 (3.00) 10.50				$\begin{array}{c} 1.00 \ {\rm to} \ 1.45\\ 1.50\\ 2.00 \ {\rm to} \ 2.45\\ 2.50\\ 3.00 \ {\rm to} \ 3.45\\ 3.50\\ 4.00 \ {\rm to} \ 4.45\\ 4.50\\ 5.00 \ {\rm to} \ 5.45\\ 5.50\\ 6.00 \ {\rm to} \ 6.45\\ 6.50\\ 7.00 \ {\rm to} \ 7.45\\ 7.50\\ 8.00 \ {\rm to} \ 7.45\\ \end{array}$	11 13 12 5 4 3 3	12 13 20 5 5 3	14 13 19 6 5	26 26 39			
2 2 3 3 4 4 5 5 6 6 7 7 8 8 9 9 10 10 11 11 12 12 13 13 14 14 15 15 16 16 17 17 18 18 19 19 20 20 21 21 22 22 23 23 24 24 25 25 26 26 27 27 28 28 29 29 30 30		Brown medium dense silty SAND White dense clayey SAND Yellow medium dense clayey SAND White loose clayey SAND White medium dense clayey SAND	(2.00) 2.50 (1.00) 3.50 (2.00) 5.50 (2.00) 7.50 (3.00) 10.50				1.50 2.00 to 2.45 2.50 3.00 to 3.45 3.50 4.00 to 4.45 4.50 5.00 to 5.45 5.50 6.00 to 6.45 6.50 7.00 to 7.45 7.50 8.00 to 8.45	13 12 5 4 3 3	13 20 5 5 3	13 19 6 5	26			_
3 3 4 4 5 5 6 6 7 7 8 8 9 9 10 10 11 11 12 12 13 13 14 14 15 15 16 16 17 17 18 18 19 19 20 20 21 21 22 22 23 23 24 24 25 25 26 26 27 27 28 28 29 20 30 30		White dense clayey SAND Yellow medium dense clayey SAND White loose clayey SAND White medium dense clayey SAND White medium dense clayey SAND	2.50 (1.00) 3.50 (2.00) 5.50 (2.00) 7.50 (3.00) 10.50				$\begin{array}{c} 2.50\\ 3.00\ {\rm to}\ 3.45\\ 3.50\\ 4.00\ {\rm to}\ 4.45\\ 4.50\\ 5.00\ {\rm to}\ 5.45\\ 5.50\\ 6.00\ {\rm to}\ 6.45\\ 6.50\\ 7.00\ {\rm to}\ 7.45\\ 7.50\\ 8.00\ {\rm to}\ 8.45\\ \end{array}$	13 12 5 4 3 3	20 5 5 3	19 6 5	39			
3 3 4 4 5 5 6 6 7 7 8 8 9 9 10 10 11 11 12 12 13 13 14 14 15 15 16 16 17 17 18 18 19 19 20 20 21 21 22 22 23 23 24 24 25 25 26 26 27 27 28 28 29 20 30 30		White dense clayey SAND Yellow medium dense clayey SAND White loose clayey SAND White medium dense clayey SAND	(1.00) 3.50 (2.00) 5.50 (2.00) 7.50 (3.00) 10.50				3.50 3.50 4.00 to 4.45 4.50 5.00 to 5.45 5.50 6.00 to 6.45 6.50 7.00 to 7.45 7.50 8.00 to 8.45	5 4 3 3	5 5 3	6 5	11			
4 4 5 5 6 6 7 7 8 8 9 9 10 10 11 11 12 12 13 13 14 14 15 15 16 16 17 17 18 18 19 19 20 20 21 21 22 22 23 23 24 24 25 25 26 26 27 27 28 28 29 29 30 30		Yellow medium dense clayey SAND White loose clayey SAND White medium dense clayey SAND	(2.00) 5.50 (2.00) 7.50 (3.00) 10.50				4.00 to 4.45 4.50 5.00 to 5.45 5.50 6.00 to 6.45 6.50 7.00 to 7.45 7.50 8.00 to 8.45	3 3 3	5 5 3	5				_
3 3 6 6 7 7 8 8 9 9 10 10 11 11 12 12 13 13 14 14 15 15 16 16 17 17 18 19 19 20 20 20 21 21 22 22 23 23 24 24 25 25 26 26 27 27 28 28 29 30		White loose clayey SAND White medium dense clayey SAND White medium dense clayey SAND	5.50 (2.00) 7.50 (3.00) 10.50				5.00 to 5.45 5.50 6.00 to 6.45 6.50 7.00 to 7.45 7.50 8.00 to 8.45	4 3 3	5 3	С				-
b 6 7 7 8 8 9 9 10 10 11 11 12 12 13 13 14 14 15 15 16 16 17 17 18 19 20 20 21 21 22 22 23 23 24 24 25 25 26 26 27 27 28 28 29 29 30 30		White loose clayey SAND White medium dense clayey SAND White medium dense clayey SAND	(2.00) 7.50 (3.00) 10.50				6.50 7.00 to 7.45 7.50 8.00 to 8.45	3	3	0	10			_
7 7 8 8 9 9 10 10 11 11 12 12 13 13 14 14 15 15 16 16 17 17 18 18 19 19 20 20 21 21 22 22 23 23 24 24 25 25 26 26 27 27 28 28 29 29 30 30		White medium dense clayey SAND	(3.00) (3.00) 10.50				7.00 to 7.45 7.50 8.00 to 8.45	3		3	6			_
8 8 9 9 10 10 11 11 12 12 13 13 14 14 15 15 16 16 17 17 18 18 19 19 20 20 21 21 22 22 23 23 24 24 25 25 26 26 27 27 28 28 29 20 30 30		White medium dense clayey SAND White medium dense clayey SAND	(3.00) 10.50				8.00 to 8.45		3	3	4 6			_
9 9 10 10 11 11 12 12 13 13 14 14 15 15 16 16 17 17 18 19 20 20 21 21 22 22 23 23 24 24 25 25 26 26 27 27 28 28 29 29 30 30		White medium dense clayey SAND White medium dense clayey SAND	(3.00) 10.50		-		8.50	4	5	7	12			
10 10 11 11 12 12 13 13 14 14 15 15 16 16 17 17 18 18 19 19 20 20 21 21 22 23 23 23 24 24 25 25 26 26 27 27 28 28 29 29 30 30	U U U U U U U	White medium dense clavev SAND	10.50	1/2			9.00 to 9.45 9.50	5	5	8	13			_
11 11 12 12 13 13 14 14 15 15 16 16 17 17 18 19 20 20 21 21 22 22 23 23 24 24 25 25 26 26 27 27 28 29 30 30		White medi um depse c lavev SAND	10.50	the second se	1	-	10.0 to 10.45	5	5	6	4 11			
12 12 13 13 14 14 15 15 16 16 17 17 18 18 19 19 20 20 21 21 22 22 23 23 24 24 25 25 26 26 27 27 28 28 29 30	U U U U U	White medium dense clavev SAND		11			11.0 to 11.45	8	8	12	20			_
13 13 14 14 15 15 16 16 17 17 18 18 19 19 20 20 21 21 22 23 23 23 24 24 25 25 26 26 27 27 28 28 29 30 30 30	U U U U	White medium.dense.slavev SAND		11	-		12.0 to 12.45	8	8	8	1 6			
14 14 15 15 16 16 17 17 18 18 19 19 20 20 21 21 22 22 23 23 24 24 25 25 26 26 27 27 28 28 29 30 30 30	U U U	White medium dense clavev SAND		11	1		13.0 to 13.45	6	7	7	4 14			_
15 15 16 16 17 17 18 18 19 19 20 20 21 21 22 22 23 23 24 24 25 25 26 26 27 27 28 28 29 30	U U	2221101E	(6.00)	11,			13.50 14.0 to 14.45	8	10	12	22		-	-
16 16 17 17 18 18 19 19 20 20 21 21 22 22 23 23 24 24 25 25 26 26 27 27 28 28 29 29 30 30	U	1900 18902		11	1		14.50 15.0 to 15.45	9	10	11	21			_
17 17 18 18 19 19 20 20 21 21 22 22 23 23 24 24 25 25 26 26 27 27 28 28 29 30 30 30		(a) in in the main of the last		11	1		15.50 16.0 to 16.45	7	12	13	25			-
18 18 19 19 20 20 21 21 22 22 23 23 24 24 25 25 26 26 27 27 28 28 29 30 30 30	U	FIRST BUILD ENGINEERING	16.50	1			16.50 17.0 to 17.45	6	9	10	10		_	
19 19 20 20 21 21 22 22 23 23 24 24 25 25 26 26 27 27 28 28 29 30 30 30	11	WGDOW CO. LTD. MBODY					17.50 18.0 to 18.45	6	q	15				
20 20 21 21 22 22 23 23 24 24 25 25 26 26 27 27 28 28 29 30		Grey medium dense silty SAND	(4.00)				18.50 19.0 to 10.45	0	10	11				_
20 20 21 21 22 22 23 23 24 24 25 25 26 26 27 27 28 29 30 30							19.50	5	0	10				
21 21 22 22 23 23 24 24 25 25 26 26 27 27 28 28 29 30 30 30	0		20.50				20.0 to 20.45	0	0	13	<u>+ 21</u>	-		
22 22 23 23 24 24 25 25 26 26 27 27 28 28 29 30 30 30				14			21.0 to 21.45 21.50	6	8	13	21			-
23 23 24 24 25 25 26 26 27 27 28 28 29 29 30 30	U			11			22.0 to 22.45 22.50	7	10	9	19		_	_
24 24 25 25 26 26 27 27 28 28 29 29 30 30	U			1/2	1		23.0 to 23.45 23.50	5	9	12	21			_
25 25 26 26 27 27 28 28 29 29 30 30	U	Yellow white medium dense clayey SAND	(7.00)	11			24.0 to 24.45 24.50	5	10	11	21			
26 26 27 27 28 28 29 29 30 30	U			11	-		25.0 to 25.45 25.50	8	11	7	18			_
27 27 28 28 29 29 30 30	U			11,		-	26.0 to 26.45	5	10	8	• 18			_
28 28 29 29 30 30	U		1	11	1		27.0 to 27.45	7	8	11	4 19			_
29 29 30 30	U		27.50	11			28.0 to 28.45	9	14	19	33			_
30 30	U	White dance dayou CAND	12 500	11			29.0 to 29.45	9	12	22	4 34			_
	U	WITTLE DELISE GLAYEY SAIND	(3.50)	11			29.50 30.0 to 30.45	7	19	13	\$ 32		_	_
31			31.00	11	1		30.50 31.0 to 31.45	11	15	11	26			_
31 32 32	U		10.50	11.			31.50 32.0 to 32.45	10	13	13	• 26			
33 33	U	vvnite medium dense clayey SAND	(2.50)	14	1		32.50 33.0 to 33.45	12	15	13	28			-
34 34	U		33.50	1/1	4		33.50 34.0 to 34.45	14	21	25	46			
35 35	U	White dance clayou SAND	(2.00)	11	1		34.50 35.0 to 35.45	15	23	26	10			
36 36	U	White dense dayey SAND	(0.00)	11		-	35.50 36.0 to 36.45	15	18	18	45			
37 37	U		36.50	1 1-1	-		36.50 37.0 to 37.45	13	23	28	200			-
38 38	U	Militia upper deservations OAAID	10.000	11	1		37.50 38.0 to 38.45	12	25	30	51			
39 30		vvnite very dense clayey SAND	(3.00)	11			38.50 39.0 to 30.45	15	25	33	• 55			
40 40	1 11		39.50	1.	700		39.50 40.0 to 40.45	10	20 .	50	58			
41 41	0	Yellow very hard sandy lean CLAY	(2.00)	1.1.	100		40.0 10 40.45	23	24	10		>	120	
41 41	U		41.50	1.1.1	462		41.0 to 41.45 41.50	21	31 4	40		71		
42 42	U U U		(1.00)		468		42.0 to 42.45	20	33 3	39		72		_

ROJE	CT: P	REPAR	RATORY SURVEY ON THE PROJECT FOR IMPROVEMENT OF SI	IEM REAP	PROVINCIAL	REFERRA	HOSPIT	AL IN THE KING	DOM O	FCAM	BODIA	Borehol	le N ^o	:	7	
TE: I	OCA1	TED AT	T 2 THNOU STREET, MONDUL 1 VILLAGE, SVAY DANGKUM C	OMMUN	E, SIEM REAP	CITY, SIEN	I REAP P	ROVINCE				Started	date	:	14/06	5/20
					EQU	IPMEN	T : RO	TARY AUGE	R ME	тно	þ	Finishec	date	:	15/06	5/20
		pe		nick					F	IELD	TEST	NG		11		
3	es	e Ty		& TI	gend	Pocket	Vane	Depth	1			SP	т			
epth	ampl	ampl	DESCRIPTION OF STRATA	epth	Lei	Test	Test	testing	No	N.	N ₂	N- val	ue (Blo	ows /	300mr	m)
0 m	N°	Š		0		kPa	kDa	m	Blow	···1	0mm	iii van	ac (bic			,
1	-	-	Made ground	(0.50)	XXXXX	KPd	KPd	m	BIOW	5/15	Unin	0 5	50 1	00	150	200
1	1	U		0.50	11			1.00 to 1.45	2	2	2	• 4		-	-	-
2	2	U	Brown loose clayey SAND	(2.00)	11			2.00 to 2.45	2	3	3	6		-	-	-
3	3	U		2.50	11			3.00 to 3.45	7	9	8	17			-	_
4	4	U	Yellow white medium dense clayey SAND	(2.00)	14	-		4.00 to 4.45	15	14	4	18				-
5	5	U		4.50	11			4.50 5.00 to 5.45	3	3	5	8		-	-	+
6	6	U	White loose clavey SAND	(3.00)	14			5.50 6.00 to 6.45	2	4	4	8		-	-	1
7	7	U			11			6.50 7.00 to 7.45	2	3	5	4 8				1
8	8	U		7.50	11			7.50 8.00 to 8.45	4	8	10	18	-	-	-	1
9	9	U			11			8.50 9.00 to 9.45	6	7	10	17		-	-	-
10	10	U			11			9.50 10.0 to 10.45	6	5	7	12		-	-	-
11	11	U			11		-	10.50 11.0 to 11.45	7	9	11	20	3		-	-
12	12	U	Velleurophie medium demos aleuro CAND	(0.00)	11			11.50 12.0 to 12.45	6	9	8	17			-	-
13	13	u	Yellow white medium dense clayey SAND	(9.00)	11			12.50 13.0 to 13.45	4	5	6	11				-
14	14		STERSTESS		11			13.50	5	5	8	12				-
15	15		Hanjs (1)		11			14.50 15.0 to 15.45	6	7	0	10		-		-
16	15		((เมื่อ เมื่อ เหละ โลเรีย b. ก) ()		14		-	15.50	0	6	9	10			-	-
17	10	0	FIRST BULD ENGINEERING F	16.50	11			16.50	0	0	1	13		-	-	1
1/	1/	0	SOM OF CAN					17.0 to 17.45 17.50	6	8	8	16		-	-	
18	18	U	White medium dense silty SAND	(3.00)				18.0 to 18.45 18.50	6	11	16		7	-	-	1
19	19	U		19.50				19.0 to 19.45 19.50	9	13	11	2	4		-	1
20	20	U	Yellow white medium dense clayey SAND	(1.00)	11			20.0 to 20.45 20.50	11	14	17	7	31		-	-
21	21	U		20.00	14			21.0 to 21.45 21.50	7	7	11	- 18			-	-
22	22	U			11			22.0 to 22.45 22.50	6	8	10	+ 18	-			-
23	23	U			1/1			23.0 to 23.45 23.50	6	9	9	18				-
24	24	U	Yellow white medium dense clayey SAND	(7.00)	11			24.0 to 24.45 24.50	8	9	10	4 19)			-
25	25	U			1/4			25.0 to 25.45	9	14	15	2	9	-		-
26	26	U			11			26.0 to 26.45	10	13	14	+2	7		-	-
27	27	U		1 gala	11			27.0 to 27.45	8	10	11	2				1
28	28	U		27.50	11			28.0 to 28.45	18	15	17		32		-	1
29	29	U	White grey dense clayey SAND	(3.00)	14			29.0 to 29.45	11	15	17	-	32			1
30	30	U			11			30.0 to 30.45	15	16	18		34		-	1
31	31	U		30.50	11			30.50 31.0 to 31.45	35	63	63		~	-	126	1
32	32	U	White very dense clayey SAND	(2.00)	14			31.50 32.0 to 32.45	53	64	64				128	1
33	33	U	Yellow white dense clavey SAND	32.50	1/			32.50 33.0 to 33.45	14	22	24		46		-	1
34	34	U		33.50	1			33.50 34.0 to 34.45	21	26	35		61			-
35	35	U	Yellow red very dense clovey SAND	(3.00)	11			34.50 35.0 to 35.45	20	28	41		60			-
36	36	U	Tellow reu very dense clayey SAIND	(0.00)	11	-		35.50 36.0 to 36.45	14	35	52		100	97		-
				36.50	4.14									07		

10 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	G	10 10 M	ญี่ เรื่อง ซึ่ง เหลร์ลาเอ	ත. ස	i				B	01	R	ING LOG	
12	Co Parama	and d'	FIRST BUILD ENGINEERING	co.,	LTD								
PROJ	ECT: P	REPAI	RATORY SURVEY ON THE PROJECT FOR IMPROVEMENT OF SI	EM REAR	PROVINCIAL	REFERRAL	HOSPIT	AL IN THE KING	DOM O	FCAMBO	DIA	Borehole N° : 8	
ITE:	LOCA	TED A	T 2 THNOU STREET, MONDUL 1 VILLAGE, SVAY DANGKUM CO	OMMUN	E, SIEM REAP	CITY, SIEN	REAP PI	ROVINCE				Started date : 11/06/2	019
					EQU	IPMEN	T : RO1	TARY AUGE	RME	THOD		Finished date : 13/06/2	2019
		e		ck					F		EST	ING	.0
	s	Typ		& Th	end	Dealert	Mana	Death			-011	CDT	y rat
btn	nple	nple	DESCRIPTION OF STRATA	pth 8	Leg	Роскет	vane	Depth	1 4	1000		SPT	over
ne	Sar	Sar		De	_	Test	Test	testing	No	N ₁	Nz	N- value (Blows / 300mm)	Rec
n	N°			m		kPa	kPa	m	Blow	s / 150	mm	0 30 60 90 120	mm
1	- 1	- U	Made ground	(0.50)	*****			1.00 to 1.45	2	3	7	9 10	
2	2	U	Brown medium dense silty SAND	(2.00)				1.50 2.00 to 2.45	5	7	7		
3	3	U		2.70	11			2.50 3.00 to 3.45	2	4	4	8	
1	4	U			11			3.50 4.00 to 4.45	3	4	4	• 8	
5	5	U			11			4.50 5.00 to 5.45	4	4	4	8	
5	6	U			11			5.50 6.00 to 6.45	4	3	4	-7	
7	7	U	Yellow white loose clayey SAND	(7.80)	11			6.50 7.00 to 7.45	3	3	3	6	
3	8	U	Dist Elaster France		14			7.50 8.00 to 8.45	4	4	4	8	
9	9	U	the finds and		14			8.50 9.00 to 9.45	4	4	4	- 8	
.0	10	U	🗇 เบิม ชีม เหลริสที่อ b. ศ) 🕸		11			9.50 10.0 to 10.45	4	4	5	9	
1	11	U	CO. LTD. CON	10.50	11			10.50 11.0 to 11.45	4	6	6	12	
2	12	U	OOM OF CAMBO		11			11.50 12.0 to 12.45	5	7	7	14	
3	13	U	Yellow white medium dense clayey SAND	(4.50)	11			12.50 13.0 to 13.45	5	5	5	10	
4	14	U			11			13.50 14.0 to 14.45	5	5	5	10	
5				15.00	11			14.50 15.0 to 15.45	6	8	9	7	
6	15 16	UU		15.00	14			15.50 16.0 to 16.45	9	10	11	21	
7	17	U			14	-		16.50 17.0 to 17.45	9	7	8	15	
8	19	U	Yellow white medium dense clayey SAND	(5.00)	11			17.50 18.0 to 18.45	7	8	8		
9	20	U			1/1			18.50 19.0 to 19.45	9	10	10	20	
0				2.00	11			19.50 20.0 to 20.45	5	18	29		
1	21 22	U U	White dense silty SAND	20.50	11			20.50 21.0 to 21.45	8	8	8		
2	23	U			11			21.50 22.0 to 22.45	7	7	9		
3	24	U	White medium dense clayey SAND	(4.00)	14			22.50 23.0 to 23.45	6	8	10		
4	25	U			114			23.50 24.0 to 24.45	10	9	14		
25	26	U	Valleurutite danas slaveu CAND	24.50	11	-		24.50 25.0 to 25.45	14	18	24		
6	27	U	fellow white dense clayey SAND	25.50	174			25.50 26.0 to 26.45	9	9	10	10	
27	28	U	Yellow medium dense clayey SAND	(2.00)	11			26.50 27.0 to 27.45	7	9	10		
8	29	U	Vollow white years dense clayer CAND	27.50	1			27.50 28.0 to 28.45	19	25	26	51	_
29	30	U	Tenow write very dense clayey SAND	28.50	14			28.50 29.0 to 29.45	6	8	7	15	
30	31	U	Yellow medium dense clayey SAND	(2.00)	11			29.50 30.0 to 30.45	19	10	12		
31	32	U	Vollow white years dones alove CAND	30.50	11			30.50 31.0 to 31.45	36	37	38	75	
2	33	U	Yellow white very dense clayey SAND	31.50	1 1 1			31.50 32.0 to 32.45	8	10	14		
3	34	U	Yellow medium dense clayey SAND	32.50	1 1 1			32.50 33.0 to 33.45	16	17	18	24	
4	35	U	Yellow white dense clayey SAND	33.50	170			33.50 34.0 to 34.45	14	30	32	35	
5	36	U	renow while very dense clayey SAND	34.50	1.1.	350		34.50 35.0 to 35.45	15	23	25		
6	37	U	Yellow white hard sandy lean CLAY	(2.00)	1.1.	180	-	35.50 36.0 to 36.45	16	20	22		
7	39	U		36.50	1.1.1.			36.50 37.0 to 37.45	29	35	36	42	
8	40	υ			11			37.50 38.0 to 38.45	12	23	28		
9	41	U	Yellow red very dense clayey SAND	(3.50)	14			38.50 39.0 to 39.45	12	31	33		
0	42	υ			11			39.50 40.0 to 40.45	18	25	37	04	
1			D. Dicturbed Sample	40.50	A P K							Cheet NP 02	
LE	GEN	ID	U - Ulsturbed sample	wat	er strike	1	2.00				-	Sheet N° 8	
			o - Undisturbed Sample	Wa	Ler levelA-	100	2.00m					FIGURE N° 10	11

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නິສ ອິ້ສ ເສລະສິສາໂອ ລ.ສ FIRST BUILD ENGINEERING CO., LTD

BORING LOG

					FOI	IPMEN	T : RO	TARY ALICE	RME	THO		Finished date	. 06/07/	2010
-	-	be		ck	EQU	IPIVIEN	1. KU	TARTAUGE			TESTIN		: 06/07/	2019
	es	le Tyl		& Thi	end	Pocket	Vane	Depth		ELD	TESTIN	SPT		-
Jepth	amp	amp	DESCRIPTION OF STRATA	epth	Leg	Test	Test	testing	No	N ₁	N ₂	N- value (Blo	ws / 300mm)	
m	N°	S		m		kPa	kPa	m	Blow	s / 15	0mm			m
	-	-	Made ground	(0.50)	XXXXX	2						0 30 60	90 12	20
1	1	U		0.50				1.00 to 1.45 1.50	3	4	4	98		
2	2	U	Grey loose silty SAND	(3.00)				2.00 to 2.45 2.50	4	3	3	• 6		
3	3	U		0.50				3.00 to 3.45	7	5	5	10		
4	4	U		3.50	11			4.00 to 4.45	3	2	3	5		
5	5	U			11			5.00 to 5.45	4	4	2	• 6		
6	6	U	White grey loose clavey SAND	(5.00)	119			6.00 to 6.45	2	3	4	7		
7	7	U			11			6.50 7.00 to 7.45	2	3	3	6		
3	8	U			11			7.50 8.00 to 8.45	4	4	4	8		
,	9	U		8.50	11			8.50 9.00 to 9.45	5	6	5	11		
0	10	U			11			9.50 10.0 to 10.45	6	8	5	12		
1	11	u	White medium dense clayey SAND	(4.00)	11			10.50	2	6	7			-
	12				11	-		11.50	3	0				
-	12	0		12.50	111			12.0 to 12.45	4	6	6	12		
3	13	U	White medium dense clavey SAND	(2 00)	14	-		13.0 to 13.45 13.50	6	8	9	17		
1	14	U	While mediam dense dayey SAND	14.50	11	-		14.0 to 14.45 14.50	8	9	10	19		-
	15	U	White grey dense clayey SAND	(1.00)	11			15.0 to 15.45	10	12	20	32		
	16	U		15.50	11			16.0 to 16.45	8	9	11	20		
7	17	U			11			17.0 to 17.45	8	10	10	20		-
3	18	υ			11			17.50 18.0 to 18.45	10	11	13	24		
9	19	U			11			18.50 19.0 to 19.45	3	7	8	15		-
)	20	U			11			19.50 20.0 to 20.45	4	6	6	12		-
1	21	U			1/4	-		20.50 21.0 to 21.45	6	7	8	15		
)	22	u			11			21.50 22.0 to 22.45	9	8	8			
,	22				11			22.50	0	0	10	10		
,	20				11	-		23.50	0	0	10			
	24	U	White medium dense clayey SAND	(17.00)	114			24.0 to 24.45 24.50	1	8	8	• 16		
-	25	U			11			25.0 to 25.45 25.50	8	9	8	17		
5	26	U			11			26.0 to 26.45 26.50	7	9	10	19		
	27	U	2000255		14	1		27.0 to 27.45 27.50	9	10	10	20		
	28	υ	sold service sold and		11			28.0 to 28.45	8	12	12	24		
1	29	U	A line Hor more than the		11			29.0 to 29.45	7	7	9	16		
	30	U	FIRST BUILD ENGINEERING		14	1		30.0 to 30.45	6	7	8	15		
	31	U	TINGDOM OF CAMBOD		11	1		30.50 31.0 to 31.45	7	12	13	25		
	32	υ	OW OF OF		11			31.50 32.0 to 32.45	9	13	15	28		
	33	U	White year dance clayor SAND	32.50	1	ŕ		32.50 33.0 to 33.45	13	30	34		64	
	34	U	while very dense clayey SAND	33.50		330		33.50 34.0 to 34.45	15	31	35		66	
	35	u	Red very hard SILT	(2.00)		340		34.50 35.0 to 35.45	15	28	40		00	
-	36			35.50		>1000	1	35.50 36.0 to 26.45	22	20	20		68	
,	00					-1000	1	36.50	23	30	50		65	
	37	U	Brown very hard sandy SILT	(3.50)		>1000		37.0 to 37.45 37.50	25	3/	32		69	
5	38	U	Brown vory nard oundy off	(0.00)		>1000		38.0 to 38.45 38.50	23	35	33		68	
-	39	U		39.00		>1000		39.0 to 39.45	32	38	30		68	
11	GEN	ID	D - Disturbed Sample	Wat	er Strike	:						Sheet N°	9	
-8	ULIN	U	II - Undisturbed Sample	Wat	ter level A	101	0.50m					EIGHDE Nº	11	

ROU	Pagina P	REDAR	FIRST BUILD ENGINEERING	r CO.,	LTD	DECEDDA	HOCDET	AL IN THE PINC	DOM	ECAN		Berry L. L. St.	0	10	
NUIL		REPAR				CITY CITY	ADCAR	AL IN THE KING	UUM C	r CAM	DUDIA	Borehole N		10	<i>, ,</i>
116:1	LUCA	IEDAI	2 THNOU STREET, MONDOL I VILLAGE, SVAT DANGRUM	COMMUNI	E, SIEIVI KEAP	CITT, SIER	A REAP P	ROVINCE	5.0.0		-	Started dat	e :	02/07	1
		_		~	EQU	IPMEN	T:RO	TARY AUGE	R ME	THO)	Finished da	te :	04/07	1
		ype		Thick	pt			_	F	IELD	TESTI	NG			
th	ples	ple 1	DESCRIPTION OF STRATA	th &	eger	Pocket	Vane	Depth				SPT			
Dep	Sam	Sam		Dep		Test	Test	testing	N ₀	N_1	N ₂	N- value (Blows	/ 300mr	n)
m	N°			m		kPa	kPa	m	Blov	vs / 15	0mm	0 30	60	90	12
1	- 1	- U	Made ground	0.50	XXXXXX	2		1.00 to 1.45	3	2	4	• 6			
2	2	U	Grey loose silty SAND	(2.00)				1.50 2.00 to 2.45	4	4	4	8		_	-
3	3	U	White medium dense clayey SAND	2.70 (0.80)	11			2.50 3.00 to 3.45	6	7	6	13			_
4	4	U		3.50	11		-	4.00 to 4.45	2	3	2	\$ 5	_		-
5	5	U			11			5.00 to 5.45 5.50	1	2	2	4	_	_	-
6	6	U			11	1		6.00 to 6.45 6.50	2	4	3	7	_	_	-
7	7	U			11.			7.00 to 7.45 7.50	2	3	2	5		_	1
ð	8		White grey loose clayey SAND	(10.00)	11	1		8.00 to 8.45 8.50	3	3	5	8	_		-
10	10	U			11			9.50 10 0 to 10 45	2	4	6	9			-
11	11	U	285757525112555555		11			10.50 11.0 to 11.45	3	3	6				-
12	12	U	A Standard b alab		11			11.50 12.0 to 12.45	2	4	4	8			-
13	13	U	FIRST BUILD ENGINEERING		11			12.50 13.0 to 13.45	3	4	6	10			1
14	14	U	THE CONTER CAMBOON	13.50	11			13.50 14.0 to 14.45	5	8	7	15	-		_
15	15	U			11.			15.0 to 15.45	6	8	8	16			-
16	16	U	White medium dense clayey SAND	(5.00)	1/2	-		16.0 to 16.45 16.50	6	8	8	16	-		-
17	17	U			11		-	17.0 to 17.45 17.50	6	7	7	14	-	_	-
18	18	U		18.50	11			18.0 to 18.45 18.50	6	7	8	15	-		-
19	19	U	White arey medium dense silty SAND	(2.00)				19.0 to 19.45 19.50	5	8	8	16		_	1
20	20	0		20.50	1000 A			20.0 to 20.45 20.50	4	9	8	17	-	-	-
22	21	u			11			21.0 to 21.45 22.0 to 22.45	7	7	9	15	-	-	-
23	23	U			11			22.50 23.0 to 23.45	7	8	9	10			-
24	24	U	White medium dense clavey SAND	(7.00)	1	-		23.50 24.0 to 24.45	6	6	7	13	-		-
25	25	U	Wille median dense dayey er ne	(7.00)	11			24.50 25.0 to 25.45	6	5	6	4 11	-		1
26	26	U			11			26.0 to 26.45	9	8	12	20-	-	_	-
27	27	U		07.50	11			27.0 to 27.45	10	12	13	25			7
28	28	U	White dense clayey SAND	(1.00)	*//.			28.0 to 28.45 28.50	6	18	24		42		-
29	29	U		20.50	14			29.0 to 29.45 29.50	9	12	13	25		-	-
30	30	U			1/1			30.0 to 30.45 30.50	8	10	17	27	-		-
31	31	0			11			31.0 to 31.45 31.50	9	10	12	22	-		1
33	33	u	White medium dense clayey SAND	(7.00)	11	-		32.50 33.0 to 33.45	10	12	14	26	-		7
34	34	U			11			33.50 34.0 to 34.45	9	12	10	20	-		-
35	35	u			11			34.50 35.0 to 35.45	8	10	10	22			-
36	36	U		35.50	11			35.50 36.0 to 36.45	10	13	20	3	3	-	-
37	37	υ	White grey dense clayey SAND	(2.00)	11			37.0 to 37.45	13	16	23		39		-
38	38	U		37.50	11		-	38.0 to 38.45 38.50	18	32	36		1	68	-
39	39	U			11			39.0 to 39.45 39.50	21	35	42			77	-
40	40	U	Brown very dense clavey SAND	(6.00)	1/2			40.0 to 40.45 40.50	18	33	40		+	73	-
41	41	U	Brown very dense ordjey on the	10.001	11.			41.0 to 41.45 41.50	18	35	42			77	-
42	42				11	1		42.0 to 42.45 42.50	20	32	39		1	71	-
12	-13			43.00	111	1		-0.0 (0 40.40	20	50	52			70	1

1. LOCATION OF WATER SAMPLE COLLECTION



2. RESULT OF ANALYSIS

2.1. RESULT OF TREATMENT WATER



RESEARCH AND INNOVATION CENTER

No. 14a, St. 185, Sangkat Tumnubtek, Khan Chamkarmorn, Phnom Penh, Cambodia Tel.: 012 531000 / 016 531000 / 088 5531000 E-mail: Davinuy@gmail.com

Ref.: AS2019-377

RESULT OF ANALYSIS

Organization / company	Saita (Cambodia) Co., Ltd. Tel.: 012 812425	
Type of sample	Water ID: Treatment Water	
Sample submitted date	5 June, 2019	

N	Parameter	Standard of drinking water	Unit	Testing Result
1	Temperature	-	С	29.0
2	Color	< 5	TCU	< 1.00
3	Taste	Acceptable		Acceptable
4	Order	Acceptable	-	Acceptable
5	Turbidity	< 5	NTU	2.90
6	Arsenic (As)	< 0.05	mg/L	0
7	Barium (Ba)	< 0.7	mg/L	< 0.01
8	Cadmium (Cd)	< 0.003	mg/L	Not detected (< 0.002)
9	Chromium (Cr)	< 0.05	mg/L	Not detected (< 0.005)
10	Cyanide (CN)	< 0.07	mg/L	Not detected (< 0.01)
11	Fluoride (F)	< 1.5	mg/L	< 0.10
12	Lead (Pb)	< 0.01	mg/L	Not detected (< 0.005)
13	Mercury (Hg)	< 0.001	mg/L	Not detected (< 0.001)
14	Nickel (Ni)	< 0.02	mg/L	Not detected (< 0.005)
15	Nitrate (NO ₃)	< 50	mg/L	0.20
16	Nitrite (NO ₂)	< 3	mg/L	< 0.01
17	Selenium (Se)	< 0.01	mg/L	Not detected (< 0.005)
18	Residual chlorine (Cl ^o)	0.2 - 0.5	mg/L	< 0.1
19	pН	6.50 - 8.50	-	6.10
20	Aluminum (Al)	< 0.2	mg/L	< 0.001
21	Ammonium (NH ₄)	< 1.5	mg/L	< 0.01
22	Chloride (Cl)	< 250	mg/L	1.40
23	Copper (Cu)	< 1	mg/L	< 0.01
24	Total hardness (CaCO ₃)	< 300	mg/L	< 5.00
25	Iron (Fe)	< 0.3	mg/L	< 0.001
26	Manganese (Mn)	< 0.1	mg/L	0.001
27	Sodium (Na)	< 200	mg/L	2.10
28	Sulfate (SO ₄)	< 250	mg/L	< 0.01



29	Total dissolved solid (TDS)	< 800	mg/L	10.0
30	Zinc (Zn)	< 3	mg/L	< 0.01
31	Coliform bacteria	0	cfu/100 mL	0
32	Fecal Coliform	0	cfu/100 mL	0

Phnom Penh, 8 June, 2019 Head of Laboratory



DR DAVIN UY

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2.2. RESULT OF DEEP WELL



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Ref.: AS2019-377

RESULT OF ANALYSIS

Organization / company	Saita (Cambodia) Co., Ltd. Tel.: 012 812425	
Type of sample	Water ID: Deep well	
Sample submitted date	5 June, 2019	

N	Parameter	Standard of drinking water	Unit	Testing Result
1	Temperature	-	С	29.0
2	Color	< 5	TCU	< 1.00
3	Taste	Acceptable	-	Acceptable
4	Order	Acceptable		Acceptable
5	Turbidity	< 5	NTU	4.00
6	Arsenic (As)	< 0.05	mg/L	0
7	Barium (Ba)	< 0.7	mg/L	< 0.01
8	Cadmium (Cd)	< 0.003	mg/L	Not detected (< 0.002)
9	Chromium (Cr)	< 0.05	mg/L	Not detected (< 0.005)
10	Cyanide (CN)	< 0.07	mg/L	Not detected (< 0.01)
11	Fluoride (F)	< 1.5	mg/L	0.20
12	Lead (Pb)	< 0.01	mg/L	Not detected (< 0.005)
13	Mercury (Hg)	< 0.001	mg/L	Not detected (< 0.001)
14	Nickel (Ni)	< 0.02	mg/L	Not detected (< 0.005)
15	Nitrate (NO ₃)	< 50	mg/L	4.10
16	Nitrite (NO ₂)	< 3	mg/L	0.10
17	Selenium (Se)	< 0.01	mg/L	Not detected (< 0.005)
18	Residual chlorine (Clo)	0.2 - 0.5	mg/L	< 0.1
19	pH	6.50 - 8.50	-	4.90
20	Aluminum (Al)	< 0.2	mg/L	< 0.001
21	Ammonium (NH ₄)	< 1.5	mg/L	0.02
22	Chloride (Cl)	< 250	mg/L	35.0
23	Copper (Cu)	< 1	mg/L	0.32
24	Total hardness (CaCO ₃)	< 300	mg/L	40.0
25	Iron (Fe)	< 0.3	mg/L	0.30
26	Manganese (Mn)	< 0.1	mg/L	0.02
27	Sodium (Na)	< 200	mg/L	26.0



28	Sulfate (SO ₄)	< 250	mg/L	0.15
29	Total dissolved solid (TDS)	< 800	mg/L	90.0
30	Zinc (Zn)	< 3	mg/L	0.01
31	Coliform bacteria	0	cfu/100 mL	0
32	Fecal Coliform	0	cfu/100 mL	0

Phnom Penh, 8 June, 2019 Head of Laboratory

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2.3. RESULT OF WATER SUPPLY



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Ref.: AS2019-377

RESULT OF ANALYSIS

Organization / company	Saita (Cambodia) Co., Ltd. Tel.: 012 812425	
Type of sample	Water ID: Water Supply	
Sample submitted date	5 June, 2019	

N	Parameter	Standard of drinking water	Unit	Testing Result
1	Temperature	-	С	29.0
2	Color	< 5	TCU	< 1.00
3	Taste	Acceptable	-	Acceptable
4	Order	Acceptable	÷.	Acceptable
5	Turbidity	< 5	NTU	1.00
6	Arsenic (As)	< 0.05	mg/L	0
7	Barium (Ba)	< 0.7	mg/L	< 0.01
8	Cadmium (Cd)	< 0.003	mg/L	Not detected (< 0.002)
9	Chromium (Cr)	< 0.05	mg/L	Not detected (< 0.005)
10	Cyanide (CN)	< 0.07	mg/L	Not detected (< 0.01)
11	Fluoride (F)	< 1.5	mg/L	0.20
12	Lead (Pb)	< 0.01	mg/L	Not detected (< 0.005)
13	Mercury (Hg)	< 0.001	mg/L	Not detected (< 0.001)
14	Nickel (Ni)	< 0.02	mg/L	Not detected (< 0.005)
15	Nitrate (NO ₃)	< 50	mg/L	0.30
16	Nitrite (NO ₂)	< 3	mg/L	0.01
17	Selenium (Se)	< 0.01	mg/L	Not detected (< 0.005)
18	Residual chlorine (Clo)	0.2-0.5	mg/L	0.25
19	pН	6.50 - 8.50	-	6.75
20	Aluminum (Al)	< 0.2	mg/L	< 0.001
21	Ammonium (NH4)	< 1.5	mg/L	< 0.01
22	Chloride (Cl)	< 250	mg/L	15.0
23	Copper (Cu)	< 1	mg/L	0.22
24	Total hardness (CaCO ₃)	< 300	mg/L	20.0
25	Iron (Fe)	< 0.3	mg/L	0.01
26	Manganese (Mn)	< 0.1	mg/L	0.002
27	Sodium (Na)	< 200	mg/L	4.56
28	Sulfate (SO ₄)	< 250	mg/L	0.25



29	Total dissolved solid (TDS)	< 800	mg/L	45.0
30	Zinc (Zn)	< 3	mg/L	< 0.01
31	Coliform bacteria	0	cfu/100 mL	0
32	Fecal Coliform	0	cfu/100 mL	0

Phnom Penh, 8 June, 2019 Head of Laboratory



DR DAVIN UY

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