Chapter 3 Project Evaluation

Chapter 3. Project Evaluation

3-1 Preconditions

This project involves the removal of part of the existing facilities on the property of Battambang Provincial Hospital, the construction of a central examination and treatment department for the surgery, emergency, radiology, Surgical ward and General Medicine ICU, which are aging and difficult to keep sterile, and the procurement of required medical equipment to replace aging and inadequate existing equipment. The acquisition of a building site is not a prerequisite, as the Ministry of Health owns the hospital property. However, a prerequisite of implementing the project is that the Cambodian side performs the following required procedures as stated in “Obligations of Recipient Country” in section 3-3 without delay so that no hindrances to the project arise: tax-exemption measures, provision of access to imported materials and equipment, land usage authorization, banking arrangements/issuance of authorization to pay, and the removal of obstructions from the planned construction site, land maintenance work, infrastructural improvement, relocation of existing equipment and furniture and appropriate processing system of inspection wastewater,etc.

3-2 Necessary Inputs by Recipient Country

In order for overall aims of the project to be achieved, the Cambodian side must implement the following items or carry out preparations accordingly:

・Implement the aforementioned items that are the counterpart nation’s responsibility in “Obligations of Recipient Country” in section 3-3.

・Secure the necessary equipment to be used in and procured for the facilities to be built, and the necessary personnel and budget to maintain those facilities.

3-3 Important Assumptions

The project calls for the construction of facilities and procurement of medical equipment required by Battambang Provincial Hospital. Ideally, hospital staff will utilize these facilities and equipment effectively, strengthening the medical referral system and improving medical services. The project also calls for the soft component of in relation to assistance in improving the operating frameworks and maintenance skills of the CR system and PACS system, technical guidance establishing appropriate separation and processing system of inspection wastewater. Ideally, when this is complete, hospital staff will be able to continually provide training at this hospital.

3-4 Project Evaluation

In light of the following points, this project is considered relevant as a target project implemented with Japanese grant aid.

3-4-1 Relevance

(1) Focus of the project's benefits

The focus region of the project is Battambang Province, in which the project site of Battambang Provincial hospital is located, and nearby provinces. Battambang Province has a population of 1,173,000 people (2016, Battambang PHD); when combined with the nearby provinces, a huge population will be the direct beneficiaries. The Tsubasa Bridge, a Japanese grant aid project on which National Route 1 crosses the Mekong River, opened in 2015. Battambang Province is set to become a hub of the Southern Economic Corridor in which Route 1 links National Route 5, which runs from the Cambodian border with Thailand through northwest Cambodia to Vietnam. Thus, it is expected that population influx and traffic will increase with the economic development, and that traffic casualties will also increase, further increasing the province's medical needs. In Battambang Province, where these types of health and medical needs are expected to increase further, the project will enhance the medical care referral system, improve medical care services, and greatly contribute to the training of medical staff in northwest Cambodia; therefore it is deemed to be highly relevant.

(2) From a Human Security Standpoint

The project aims to enhance rural healthcare services through the improvement of Battambang Provincial Hospital, located in Battambang Province, one of the most economically important provinces in the country, to serve as a central hospital in the northwest region of Cambodia. The project concretely contributes to human security, by mainstreaming Universal Health Coverage (UHC), which advocates Japan's Strategy on Global Health Diplomacy (May 2013) ensuring safety against the ailments threatening the survival and lives of the habitants of the project target province. Therefore, it is highly necessary and relevant to implement the project under Japan's Grant Aid.

(3) Contribution to achieving Cambodia's targets for its mid- to long-term development plan

This project exists to help strengthen the 7 strategic areas (health service delivery, health financing, human resources, drug supply, infrastructure improvement, health information, and governance) illustrated in HSP3, an implementation plan that is part of the NSDP of Cambodia. Strategies for improving infrastructure include strengthening facilities and equipment, as well improving referral systems based on the CPA of referral hospitals such as Battambang Provincial Hospital. Therefore, the project is deemed to be highly relevant.

(4) Consistency with Japan's Assistance Policy

Section (2) Promotion of Social Development, (b) Enhancement of Health and Medical Care of the Country Assistance Strategy for Cambodia (2012) established by the Japanese Ministry of Foreign Affairs, sets forth "strengthening of the insurance system centering on maternal and child health fields" as a priority area (central target). Improving Battambang Provincial Hospital as the core regional hospital will contribute to the improvement of not only maternal and child health, but also the health care conditions in the region, and therefore the project is sufficiently consistent with Japan's assistance policy.

3-4-2 Effectiveness

Below are the expected target levels of implementing this project.

(1) Quantitative Effects

Table 3- 1 Outcome Indicators for Quantitative Effects

Indicators	Current Value (2015 Result Value)	Target Value (2020, three years after project completion)
No. of Patients Hospitalized for Surgery (people-days/year)	2,738	3,356
No. of Internal Medicine ICU Inpatients (people/year)	1,261	1,618
No. of Outpatient Surgeries (cases/year)	970	1,101

(2) Qualitative Effects

v) Quality medical service is provided, centered on emergency and surgery patients.

vi) The referral system in northwest Cambodia is enhanced.

vii) The training function is improved for medical staff and medical students in northwest Cambodia.

viii) Motivation to work is improved among the medical staff at Battambang Provincial Hospital.

Appendices

1. Member List of the Study Team
2. Study Schedule
3. List of Parties Concerned in the Recipient Country
4. Minutes of Discussions
5. Soft Component (Technical Assistance) Plan
6. Other Relevant Data
7. References

1. Member List of the Study Team

1-1 Outline Design Study From 12th June to 16th July, 2016 (35 days)

Position	Name	Period (2016)	Organization
1.Leader	Mr. Tomoya YOSHIDA	18/Jun.-25/Jun	Director, Health Term 3, Health Group 2 Human Development Department, JICA
2.Technical Adviser	Dr. Hiroshi TAKENAKA	13/Jun.-. 25/Jun.	Senior Adviser in Health Human Development Department, JICA
3.Program Coordinator	Ms. Kyoko SAKURAI	18/Jun.-25/Jun	Program Officer, Health Division 3, Health Group 2, Human Development Department, JICA
4.Chief Consultant/ Architectural Planning	Mr. Yasuhiro MATSUMOTO	12/Jun.-9/Jul.	Azusa Sekkei Co., Ltd.
5.Vice Chief Consultant/ Architectural Design/ Site Investigation	Mr. Hozumi OGAWA	12/Jun.-9/Jul.	Azusa Sekkei Co., Ltd.
6. Mechanical Engineer	Ms. Yuka NAKAMURA	19/Jun.-2/Jul.	Azusa Sekkei Co., Ltd.
7. Electrical Engineer	Ms. Kaoru KUME	19/Jun.-2/Jul.	Azusa Sekkei Co., Ltd.
8.Construction Planning/ Cost Estimation	Mr. Mikihiro MATSUYAMA	19/Jun.-16/Jul.	Azusa Sekkei Co., Ltd.
9.Equipment Planning	Mr. Yasumichi DOI	12/Jun.-9/Jul.	INTEM Consulting, Inc.
10.Procurement Planning/ Cost Estimation	Ms. Misato OHARA	12/Jun.-9/Jul.	INTEM Consulting, Inc.
11.Health Care Planning	Mr. Kyo HANADA	12/Jun.-2/Jul.	Estrella Inc.
12.Health Care Planning	Mr. Kazufumi UCHIDA	12/Jun.-2/Jul.	Estrella Inc.

1-2 Explanation of the Draft Report From 30th November to 10th December, 2016 (11days)

Position	Name	Period (2013)	Organization
1.Leader	Mr. Tomoya YOSHIDA	19/Nov..-26/Nov..	Director, Health Term 3, Health Group 2 Human Development Department &, JICA
2.Program Coordinator	Ms. Yuko TAKAHASHI	19/Nov..-26/Nov..	Program Officer Health Division 3, Health Group 2 Human Development Department, JICA
3.Project Manager/ Architectural Planning	Mr. Yasuhiro MATSUMOTO	16/Nov..-26/Nov..	Azusa Sekkei Co., Ltd.
4.Equipment Planning	Mr. Yasumichi DOI	16/Nov..-26/Nov	INTEM Consulting, Inc.

2. Study Schedule

2-1 Outline Design Study From 12th June to 16th July, 2016 (35 days)

No.	Date	Time	Activity
01	12 Jun. (Sun.)	10:35	Lv. Tokyo by TG-683 (Mr. Matsumoto, Mr. Ogawa, Mr. Doi, Ms. Ohara, Mr. Hanada & Mr. Uchida)
		15:05	Ar. at Bangkok
		18:15	Lv. Bangkok by TG-584
		19:25	Ar. at Phnom Penh
02	13 Jun. (Mon)	08:00	Courtesy call to Dr. Vinntak, MOH and submission and explanation of the Inception Report, Questionnaire and Construction Site, Confirmation of the Schedule. Dr. Vinntak will leave to Myanmar on this afternoon and he will return to Cambodia on 18 June.
		10:00	Courtesy call to Mr. Yonamine, Embassy of Japan and submission and explanation of the Inception Report, Questionnaire and Construction Site, Confirmation of the Schedule
		11:30	Courtesy call to Mr. Kojima and Ms. Mizusawa and submission and explanation of the Inception Report, Questionnaire and Construction Site, Confirmation of the Schedule
		14:30	Courtesy call to Prof. Eng Huot, MOH and submission and explanation of the Inception Report, Questionnaire and Construction Site, Confirmation of the Schedule.
03	14 Jun. (Tue)	10:00	Visiting local sub-contractors (Mr. Matsumoto & Mr. Ogawa) Observation of Japanese grant aid facilities in Phnom Penh
			Visiting local medical agents (Mr. Doi & Ms. Ohara)
			Visiting MOH for medical information (Mr. Hanada & Mr. Uchida)
04	15 Jun. (Wed.)	09:05	Ar. at Phnom Penh (Dr. Takenaka)
		09:30	Lv. Phnom Penh (Dr. Takenaka, Mr. Matsumoto, Mr. Ogawa, Mr. Doi, Ms. Ohara, Mr. Hanada & Mr. Uchida)
		11:00	Observation of Kampong Chhnang Provincial Referral Hospital
		14:30	Observation of Pursat Provincial Referral Hospital
		17:00	Ar. at Battambang
05	16 Jun. (Thu.)	08:30	Courtesy call to Dr.Voeurrng, Director of Battambang PHD with Dr. Kak Seila, Director o Batttambang Provincial Referral and submission and explanation of the Inception Report, Questionnaire and Construction Site, Confirmation of the Schedule (Dr. Takenaka, Mr. Matsumoto, Mr. Ogawa, Mr. Doi, Ms. Ohara, Mr. Hanada & Mr. Uchida)
		10:00	Meeting with Battambang Province Referral Hospital and submission and explanation of the Inception Report, Questionnaire and Construction Site, Confirmation of the Schedule, observation of Hospital
		14:30	Observation of Batttambang Provincial Referral
06	17 Jun. (Fri.)	09:00	Meeting with Battambang Province Referral Hospital and observation of hospital (Dr. Takenaka, Mr. Matsumoto, Mr. Ogawa, Mr. Doi, Ms. Ohara, Mr. Hanada & Mr. Uchida)
		15:00	Observation of The World Mate Emergency Hospital (Private Hospital)
		16:30	Observation of Sovann Polybattannbann clinic (Private Hospital)
07	18 Jun. (Sat.)	09:00	Meeting with Battambang Province Referral Hospital (Dr. Takenaka, Mr. Matsumoto, Mr. Ogawa, Mr. Doi, Ms. Ohara, Mr. Hanada & Mr. Uchida)
			Filing documents (Mr. Hanada & Mr. Uchida)
		17:30	Ar. at Battambang (Mr. Yoshida and Ms. Sakurai)
08	19 Jun. (Sun.)	All day	Internal Meeting (Mr. Yoshida, Dr. Takenaka, Ms. Sakurai, Mr. Matsumoto, Mr. Ogawa, Mr. Doi, Ms. Ohara, Mr. Hanada & Mr. Uchida) Preparing of the draft of Minutes of Meeting
		10:35	Lv. Haneda by TG-683 (Ms. Nakamura, Ms. Kume & Mr. Matsuyama)
		15:05	Ar. at Bangkok
		18:15	Lv. Bangkok by TG-584
		19:25	Ar. at Phnom Penh

No.	Date	Time	Activity
09	20 Jun. (Mon.)	08:30	Courtesy call and meeting with Battambang Province Referral Hospital, Equipment, and observation of existing buildings (Mr. Yoshida, Dr. Takenaka, Ms. Sakurai, Mr. Matsumoto, Mr. Ogawa, Mr. Doi & Ms. Ohara)
			Collection data of Hospital & PHD (Mr. Hanada & Mr. Uchida)
		08:00	Lv. Phnom Penh (Ms. Nakamura, Ms. Kume & Mr. Matsuyama)
		13:30	Ar. at Battambang
		14:00	Observation of Battambang Province Referral Hospital
10	21 Jun. (Tue.)	07:30	Lv. Battambang (Mr. Yoshida, Dr. Takenaka, Ms. Sakurai, Mr. Matsuyama, Mr. Ogawa, Ms. Nakamura, Ms. Kume, Mr. Matsuyama, Mr. Doi, Ms. Ohara, Mr. Hanada & Mr. Uchida)
		09:00	Ar. at Mongkul Borey
		09:00	Observation of Mongkul Borey Hospital
		10:30	Lv. Mongkul Borey
		12:00	Ar. at Battambang
		14:30	Meeting with Battambang Province Referral Hospital for the draft of Minutes of Meeting (Dr. Takenaka, Mr. Matsumoto, Mr. Ogawa, Mr. Doi, Ms. Ohara, Mr. Hanada & Mr. Uchida)
11	22 Jun. (Wed.)	07:30	Lv. Battambang (Mr. Yoshida, Dr. Takenaka, Ms. Sakurai, Mr. Matsuyama, Mr. Ogawa, Mr. Doi, Ms. Ohara, Mr. Hanada & Mr. Uchida)
		12:30	Ar. at Phnom Penh
		14:30	Meeting with MOH for the draft of Minutes of Meeting
		09:00	Survey of existing Battambang Province Referral Hospital facilities (Mr. Matsuyama)
			Survey of existing Hospital infrastructure (Ms. Nakamura & Ms. Kume)
12	23 Jun. (Thu.)	09:00	Meeting with MOH the Minutes of Meeting (Mr. Yoshida, Ms. Sakurai, Mr. Matsuyama)
		14:30	Signing on the Minutes of Meeting at MOH(Mr. Yoshida, Dr. Takenaka, Ms. Sakurai, Mr. Matsuyama, Mr. Ogawa, Mr. Doi, Ms. Ohara)
		16:00	Internal meeting at JICA
		09:00	Meeting with Battambang Province Referral Hospital (Ms. Nakamura, Ms. Kume & Mr. Matsuyama)
13	24 Jun. (Fri.)	09:00	Meeting with local contractor for geological survey, topographical survey & trial excavation (Mr. Matsumoto & Mr. Ogawa)
			Survey for local medical agents (Mr. Doi & Ms. Ohara)
			Gathering medical information (Mr. Hanada & Mr. Uchida)
		14:00	Report to the Embassy of Japan (Mr. Yoshida, Dr. Takenaka, Ms. Sakurai, Mr. Matsumoto, Mr. Ogawa, Mr. Doi, Ms. Ohara, Mr. Hanada & Mr. Uchida)
		16:00	Report to JICA
		19:30	Lv. Phnom Penh by PG-936 (Mr. Yoshida)
		20:40	Ar. at Bangkok
		22:45	Lv. Bangkok by TG-585
		20:45	Lv. Phnom Penh TG-845 (Ms. Sakurai)
		21:50	Ar. at Bangkok
		23:55	Lv. Bangkok by TG-642
		09:00	Meeting with Battambang Province Referral Hospital (Ms. Nakamura, Ms. Kume & Mr. Matsuyama)
14	25 Jun. (Sat.)	06:25	Ar. at Haneda (Mr. Yoshida)
		07:35	Ar. at Narita (Ms. Sakurai)
		09:00	Lv. Phnom Penh (Mr. Matsumoto, Mr. Ogawa, Mr. Doi, Ms. & Ohara)
		15:00	Ar. at Battambang
		15:30	Internal meeting (Mr. Matsumoto, Mr. Ogawa, Mr. Doi, Ms. Ohara, Ms. Nakamura, Ms. Kume & Mr. Matsuyama)
		All day	Filing documents (Mr. Hanada & Mr. Uchida)
		20:45	Lv. Phnom Penh byTG-585 (Dr. Takeuchi) to Tajikistan via Bangkok

No.	Date	Time	Activity
15	26 Jun. (Sun.)	All day	Filing documents and planning of facilities & equipment (Mr. Matsumoto, Mr. Ogawa, Mr. Doi, Ms. Ohara, Ms. Nakamura, Ms. Kume & Mr. Matsuyama)
			Filing documents (Mr. Hanada & Mr. Uchida)
16	27 Jun. (Mon.)	08:30	Meeting with Battambang Province Referral Hospital, facilities and equipment (Mr. Matsumoto, Mr. Ogawa, Mr. Doi, Ms. Ohara, Ms. Nakamura, Ms. Kume & Mr. Matsuyama)
		14:00	Meeting with local contractor for geological survey, topographical survey & trial excavation
		15:00	Continuance of meeting with Battambang Province Referral Hospital, facilities and equipment (Mr. Matsumoto, Mr. Ogawa, Mr. Doi, Ms. Ohara, Ms. Nakamura, Ms. Kume & Mr. Matsuyama)
		09:00	Survey for Health Planning at Phnom Penh (Mr. Hanada & Mr. Uchida)
17	28 Jun. (Tue.)	08:30	Meeting with Battambang Province Referral Hospital, facilities and equipment (Mr. Matsumoto, Mr. Ogawa, Mr. Doi, Ms. Ohara)
		08:30	Survey for EDC at Battambang (Ms. Nakamura & Ms. Kume)
		10:00	Survey for sewage office at Battambang
		14:00	Continuance of meeting with Battambang Province Referral Hospital, facilities and equipment (Mr. Matsumoto, Mr. Ogawa, Mr. Doi, Ms. Ohara, Ms. Nakamura, Ms. Kume & Mr. Matsuyama)
		09:00	Survey for Health Planning at Phnom Penh (Mr. Hanada & Mr. Uchida)
18	29 Jun. (Wed.)	08:30	Meeting with Battambang Province Referral Hospital, facilities and equipment (Mr. Matsumoto, Mr. Ogawa, Mr. Doi, Ms. Ohara & Mr. Matsuyama)
			Survey for infrastructure at Battambang (Ms. Nakamura & Ms. Kume)
		09:00	Survey for Health Planning at Phnom Penh (Mr. Hanada & Mr. Uchida)
19	30 Jun. (Thu.)	08:30	Meeting with Battambang Province Referral Hospital, facilities and equipment (Mr. Matsumoto, Mr. Ogawa, Mr. Doi, Ms. Ohara & Mr. Matsuyama)
			Survey for infrastructure at Battambang (Ms. Nakamura & Ms. Kume)
		09:00	Confirmation of local contractor for trial excavation (Mr. Matsumoto, Mr. Ogawa & Mr. Matsuyama)
		10:00	Confirmation of heritage facility at Battambang Governor (Mr. Matsumoto, Mr. Ogawa & Mr. Matsuyama)
		14:00	Continuance of meeting with Battambang Province Referral Hospital, facilities and equipment (Mr. Matsumoto, Mr. Ogawa, Mr. Doi, Ms. Ohara, Ms. Nakamura, Ms. Kume & Mr. Matsuyama)
		17:00	Observation of YIKUOK CLINIC (Mr. Matsumoto, Mr. Ogawa, Mr. Doi, Ms. Ohara, Ms. Nakamura, Ms. Kume & Mr. Matsuyama)
		09:00	Survey for Health Planning at Phnom Penh (Mr. Hanada & Mr. Uchida)
20	1 Jul . (Fri.)	08:30	Meeting with Battambang Province Referral Hospital, facilities and equipment (Mr. Matsumoto, Mr. Ogawa, Mr. Doi, Ms. Ohara & Mr. Matsuyama)
		14:15	Meeting with Department of Public Works and Transport, Battambang Province (Mr. Matsumoto & Mr. Ogawa)
		15:30	Continuance of meeting with Battambang Province Referral Hospital, facilities and equipment (Mr. Matsumoto, Mr. Ogawa, Mr. Doi, Ms. Ohara & Mr. Matsuyama)
		08:30	Lv. Battambang (Ms. Nakamura & Ms. Kume)
		14:00	Ar. at Phnom Penh & observation of Phnom Penh City
		09:00	Survey for Health Planning at Phnom Penh (Mr. Hanada & Mr. Uchida)
		20:45	Lv. Phnom Penh TG-585 (Ms. Nakamura, Ms. Kume, Mr. Hanada & Mr. Uchida)
		21:50	Ar. at Bangkok
		22:45	Lv. Bangkok by TG-682
21	2 Jul. (Sat.)	08:30	Internal meeting about Technical Note (Mr. Matsumoto, Mr. Ogawa, Mr. Doi, Ms. Ohara & Mr. Matsuyama)
		14:30	Explanation and confirmation about Technical Note to Director of PHD & Director of Hospital
		06:55	Ar. at Haneda (Ms. Nakamura, Ms. Kume, Mr. Hanada & Mr. Uchida)

No.	Date	Time	Activity
22	3 Jul. (Sun.)	09:00	Lv. Battambang (Mr. Matsumoto, Mr. Ogawa, Mr. Doi, Ms. Ohara & Mr. Matsuyama) Ar. at Phnom Penh
23	4 Jul. (Mon.)	09:00	Meeting with MOH for Technical Note (Mr. Matsumoto, Mr. Ogawa, Mr. Doi, Ms. Ohara & Mr. Matsuyama)
24	5 Jul. (Tue.)	14:30	Meeting with MOH for Technical Note (Mr. Matsumoto, Mr. Ogawa, Mr. Doi, Ms. Ohara & Mr. Matsuyama)
25	6 Jul. (Wed.)	09:00	Survey for construction (Mr. Matsumoto, Mr. Ogawa, Mr. & Mr. Matsuyama)
			Survey for medical equipment (Mr. Doi & Ms. Ohara)
		16:00	Meeting with MOH for Technical Note (Mr. Matsumoto)
26	7 Jul. (Thu.)	09:00	Survey for construction (Mr. Matsumoto, Mr. Ogawa, Mr. & Mr. Matsuyama)
			Survey for medical equipment (Mr. Doi & Ms. Ohara)
27	8 Jul. (Fri.)	08:00	Report to Embassy of Japan (Mr. Matsumoto, Mr. Ogawa, Mr. Doi, Ms. Ohara & Mr. Matsuyama)
		10:00	Signing of on the Technical Note at MOH
		14:00	Report to JICA
		20:45	Lv. Phnom Penh by TG-585 (Mr. Matsumoto, Mr. Ogawa, Mr. Doi, & Ms. Ohara)
		21:50	Ar. at Bangkok
		22:45	Lv. Bangkok by TG-682
28	9 Jul. (Sat.)	09:00	Filing documents (Mr. Matsuyama)
		06:55	Ar. at Haneda (Mr. Matsumoto, Mr. Ogawa, Mr. Doi, & Ms. Ohara)
29	10 Jul (Sun.)	All day	Filing documents (Mr. Matsuyama)
30	11 Jul. (Mon.)	09:00	Survey for construction materials and costs (Mr. Matsuyama)
31	12 Jul. (Tue.)	09:00	Survey for construction materials and costs (Mr. Matsuyama)
32	13 Jul. (Wed.)	09:00	Survey for construction materials and costs (Mr. Matsuyama)
		16:00	Meeting with MOH for Technical Note 2
33	14 Jul. (Thu.)	09:00	Signing of on the Technical Note 2 at MOH (Mr. Matsuyama)
		11:00	Survey for construction materials and costs
34	15 Jul. (Fri.)	09:00	Supplementary survey and filing documents (Mr. Matsuyama)
		20:45	Lv. Phnom Penh by TG-585
		21:50	Ar. at Bangkok
		22:45	Lv. Bangkok by TG-682
35	16 Jul. (Sat.)	06:55	Ar. at Haneda (Mr. Matsuyama)

2-2 Explanation of the Draft Report From 30th November to 10th December, 2016 (11days)

No.	Date	Time	Activity
01	30 Nov.	10:35	Lv. Tokyo by TG-683 (Mr. Matsumoto & Mr. Doi)
	(Wed.)	15:40	Ar. at Bangkok
		18:20	Lv. Bangkok by TG-584
		19:35	Ar. at Phnom Penh
02	1 Dec.	14:00	Courtesy Call to Embassy of Japan, explanation of the Draft Report
	(Thu,)		
03	2 Dec.	08:00	Courtesy call to JICA Cambodia Office, explanation of Draft Report
	(Fri)	10:30	Courtesy call to MOH, explanation and discussion of Draft Report
04	3 Dec.	10:50	Lv. Tokyo by NH-817 (Mr. Yoshida & Ms. Takahashi)
	(Sat.)	15:40	Ar. At Phnom Penh
		17:00	Internal meeting
05	4 Dec.	09:00	Lv. Phnom Penh
	(Sun.)	15:30	Ar. at Battambang
		17:00	Internal meeting, drafting Minutes of Discussions (M/D)
06	5 Dec.	08:15	Courtesy Call to Battambang Provincial Referral Hospital
	(Mon.)	08:30	Explanation and discussion of Draft Report to Battambang PHD Director, Battambang Hospital Director and chief of departments
		14:30	Explanation and discussion of undertakings by each countries, draft specification of equipment and M/D
		17:00	Internal meeting
07	6 Dec.	All day	Site survey in Battambang Provincial Referral Hospital, discussion of the draft specification of equipment and M/D
	(Tue.)		
08	7 Dec.	08:00	Lv. Battambang
	(Wed.)	14:30	Ar. At Phnom Penh
		15:00	Discussion on M/D with MOH
09	8 Dec.	09:30	Survey of agents for equipment to be procured
	(Thu.)	15:00	Report to Embassy of Japan
10	9 Dec.	11:00	Report to JICA Cambodia Office
	(Fri.)	15:00	Signing on the Minutes of Meeting at MOH
		22:50	Lv. Phnom Penh by NH-818
11	10 Dec.	06:30	Ar. at Tokyo
	(Sat.)		

3. List of Parties Concerned in the Recipient Country

Organization	Position	Name
Ministry of Health (MOH)	Secretary of State	PROF ENG HUOT
	Director, Department of International Cooperation (DIC)	Dr. SUNG VINNTAK, M.D., MBA, MPH
	Chief/Bilateral Relation Officer (DIC)	Mr. KANG PISETH
	Director, Hospital Services	Mr. SRUN SOK
	Chief, Hospital Services and ME Bureau	Mr. CHEU SIVUTHY
	Director, Planning Health Information	Mr. LO VEASNAKIRY
Battambang Province, Ministry of Interior	Deputy Governor, Battambang Province	Mr. NGUON TATTANAK
Battambang Provincial Health Department (PHD)	Director of PHD	Pr. Assi. VOEURNG BUNRETH, PharmD
	Chief of Finance	Mr. AING PORANG
	Finance	Mr. MEAS VEASNA
	Administration	Mr. NEAN NICH
Battambang Provincial Referral Hospital	Director	Dr. KAK SEILA
	Chief of Administration	Mr. EAP THOEUNG
	Deputy Chief, Cardiology, Internal Medicine	Dr. PHOUY SONAROTH
	ICU, Internal Medicine	Dr. KOY LENIN
	Neurology, Internal Medicine	Dr. UNE PHALKUN
	Infection Diseases, Internal Medicine	Dr. KAO BOU
	Head of Surgery	Dr. HUOT SOCHEAT
	Surgery	Dr. ON TEPSANYA
	Surgery(hemorrhoid)	Dr. HUOT SOKUN
	Chief of ER	Dr. PEL VANNA
	Medical Imaging	Dr. YI KUOK
		Mr. CHAP YILEN
	Microbiology Laboratory	Mr. PHAI SOPHANNA
	Pharmacy	Mr. CHEA DAVUTH
	CSSD	Mr. CHHOEUTH KHUNLEAK
		Mr. KONG SORANN
		Mr. CHHUN RATANA
	Deputy Chief of Water Supply, Electricity, and Equipment Section	Mr. CHHOEUTH KHUNLEAK
	Plumbing & Electricity	Mr. THUY SAMITH
		Mr. LEE RATANAK
		Mr. DOEUNG REACH
		Mr. SO SIRIRITHY
	Member of Bio. Medical Equipment Technology	Mr. SEAB SEYLA
		Ms. EANG SREY NEANG
		Mr. MEAK SOPHEAK
	Nurse, Training Unit (Nursing care)	Ms. HIEP RASY
	Senior Volunteer, JICA	Ms. MASAYO GESHI
Mongkul Borey Hospital	Director	Dr. CHAN VITHINAVUYH
	Assistant Director	Dr. TOUK BARANG
Pursat Referral Hospital	Director	Dr. CHAN SOKHA
The World Mate Emergency Hospital (Handa Medical Center) (Battambang)	Admin / Admin Office	Mr. MOEM SREYTEP
	Nursing Educator / Nursing Office	Ms. MICHEAL DE LEON
Sovann Polyclinic (Battambang)	Managing Director	Dr. SOVANNA BUN,M.D
Yi Kuok Clinic (Battambang)	Director, Imagery Specialist	Dr. YI KUOK
	Surgery Doctor	Dr. HUOT SOCHEAT

Organization	Position	Name
National Blood Transfusion Center	Clinical Laboratory Technician, Senior Volunteer, JICA	Ms. IKUMI SAITOU
Cambodia Mining Action Center (CMAC)	Manager	Mr. NET NATH
	Medical officer	Dr. SUOS SAM
Department of Public Works and Transport, Battambang Province	Deputy Director	Ms. KEM SOKUNTHEARY
	Drainage & Contamination Section	Mr. NOU CHHORUYVORN
Battambang Water Supply	Director	Mr. TAUCH CHHUONSAORITH
	Deputy Director	Mr. UTH KLOUENG
Electricite Du Battambang	Chief	Mr. TIV RAVUTH
Battambang Provincial Police Commissariat Office of Fire Accident and Rescue	Head of Fire Department	Mr. KIA BUNTHOEUN
	Deputy Head of Fire Department	Mr. REAM SARETH
Provincial Department of Water Resources and Meteorology	Deputy Director	Mr. KHAY SODA
SOM Construction (Contractor)	Vice President	Mr. SOM SANGKHARr
Norak Engineering Co., Ltd. (Contractor)	Managing Director	Mr. VANN SOPHAL
Goldenbuild Co., Ltd. (Contractor)	Vice President	Mr. SOUN NOMOL
Kubota Construction Co., Ltd. The Project for Expansion of Water Supply Systems in Battambang	Project Manager	Mr. NAOKI IHARA
Dynamic Pharma Co., Ltd. (Local Agent for Medical Equipment)	Business Manager	Mr. HOR THEARITH
	Service manager	Mr. CHEY SOK
	Sales Supervisor	Mr. YEN SORIYA
MET GROUP CO., LTD. (Local Agent for Medical Equipment)	Managing Director	Mr. KEO VIBOL
europ continents (Local Agent for Medical Equipment)	Head of Business	Mr. SRBASTIEN MEZAILLES
	Technical Service Manager	Mr. JULIEN THIRIET
	Business Coordinator	Ms. AYU SEKIOKA
SCI Co., Ltd. (Local Agent for Medical Equipment)	General Manager	Ms. ANNELICE EA
General Electric International Inc. (Branch for Medical Equipment)	Director- Market Development	Mr. DARARITH LIM
Embassy of Japan	Second Secretary (until July, 2016)	Mr. MORIYASU YONAMINE
	Second Secretary (from July, 2016)	Mr. YOHEI NAKAJIMA
JICA Cambodia Office	Chief Representative	Mr. ITSU ADACHI
	Senior Representative	Mr. TAKEHARU KOJIMA
	Senior Program Officer	Ms. AYA MIZUSAWA
	Program Officer	Mr. IN SOPHEARUM

4. Minutes of Discussions

4-1. Outline Design Survey

Minutes of Discussions
on the Preparatory Survey for the Project for
Improvement of Battambang Provincial Referral Hospital

In response to the request from the Royal Government of Cambodia (hereinafter referred to as "RGC"), the Government of Japan (hereinafter "GOJ") decided to conduct a Preparatory Survey for the Project for Improvement of Battambang Provincial Referral Hospital (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 Tomoya YOSHIDA, Director, Health Division 3, Health Group 2, Human Development Department, and is scheduled to stay in the country from 6 June to 15 July, 2016.

The Team held a series of discussions with the officials concerned of RGC and conducted a field survey in the Project area. 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, 23 June, 2016

Mr. Tomoya Yoshida	Prof. Eng Huot
Leader	Secretary of State
Preparatory Survey Team	Ministry of Health
Japan International Cooperation Agency	The Kingdom of Cambodia
Japan	

ATTACHEMENT

1. Objective of the Project

The objective of the project is to strengthen health system of Battambang 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 Battambang Provincial Referral Hospital".

3. Project Site

Both sides confirmed that the site of the Project is in Battambang 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 Battambang 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 Battambang 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 the Royal Government of Cambodia

As a result of discussions, both sides confirmed that 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 appropriateness of the above requested items through the survey and will report findings to GOJ. The final components of the Project would be decided by GOJ.

6. Japanese Grant Scheme

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6-1. The Cambodian side understands the Japanese Grant Scheme and its procedures as described in Annex 3, Annex 4 and Annex 5, and necessary measures to be taken by the RGC. A template of the Project Monitoring Report to be submitted by the executing agency is as attached in Annex 6.

6-2. The Cambodian side understands to take the necessary measures, as described in Annex7, for smooth implementation of the Project, as a condition for the Japanese Grant to be implemented. The detailed contents of the Annex 7 will be worked out during the survey and shall be agreed no later than by the Explanation of the Draft Preparatory Survey Report.

The contents of Annex 7 will be used to determine the following:

(1) The scope of the Project.

(2) The timing of the Project implementation.

(3) Timing and possibility of budget allocation.

Contents of Annex 7 will be updated as the Preparatory Survey progresses, and will finally be the Attachment to the Grant Agreement.

7. Schedule of the Survey

7-1. The Team will proceed with further survey in Cambodia until 15 July 2016.

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 November 2016.

7-3. If the contents of the draft Preparatory Survey Report is accepted in principle and the Undertakings are fully agreed by the Cambodian side, JICA will complete the final report in English and send it to Cambodia around February 2017.

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 Annex 8.

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.

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 Japan 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 Kingdom of 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

Annex 1 Requested Facilities
Annex 2 Requested Equipment
Annex 3 Japanese Grant
Annex 4 Flow Chart of Japanese Grant Procedures
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

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List of Requested Facilities

No.	Section	Point	Component of requested department	Priority*
1	Clinical Services	1.1	Emergency Service and ICU	1
		1.2	Surgical Service	1
		1.3	ENT Service	2
		1.4	Operation Theatre	1
		1.5	Internal Medicine	1
2	Para Clinical and Supportive Services	2.1	Laboratory	1
		2.2	Imagery (X-ray, Echo, etc.)	1
		2.3	Drug management	1
		2.4	Drug Store	3
3	Technical Works	3.1	Sterilization and Laundry	1
		3.2	Warehouse	3
4	Hospital Infrastructure	4.1	Electricity reception and Generator	1
		4.2	Sewage Treatment System	1
5	Others	5.1	Corridor, etc.	1

*Priority: 1=Very High 2=High 3=Low

Requested Equipment List Annex-2

Code No.	Equipment Name	Quantity	Unit
Imagery			
IM-01	DICOM System	1	Set
IM-02	CR System	1	Set
IM-03	Dosimeter	1	Set
IM-04	Radiology Protection Instruments set	1	Set
IM-05	Ultrasound Machine	1	Unit
IM-06	Examination Bed for Ultrasound Machine	1	Unit
IM-07	Film Viewer	1	Unit
IM-08	C-arm X-ray Machine	1	Unit
IM-09	General X-ray Machine	1	Unit
IM-10	Mobile X-ray Machine	1	Unit
IM-11	Coach for Waiting Space	1	Set
Emergency			
EM-01	Stethoscope	6	Units
EM-02	Stretcher	2	Units
EM-03	Dressing Cart	1	Unit
EM-04	Instrument Cart	1	Unit
EM-05	Irrigation Stand	10	Units
EM-06	Wheel Chair	1	Unit
EM-07	Patient Monitor	4	Units
EM-08	Pulse Oximeter	3	Units
EM-09	Operation Light (Mobile)	2	Units
EM-10	Suction Machine	2	Units
EM-11	Ventilator	1	Unit
EM-12	Emergency Bed	7	Units
EM-13	Flowmeter for Central Oxygen Supply System	1	Set
Internal Medicine ICU			
MI-01	Stool for Doctor	5	Units
MI-02	ICU Bed (Manual)	20	Units
MI-03	Stretcher	2	Units
MI-04	Dressing Cart	1	Unit
MI-05	Stethoscope	4	Units
MI-06	Irrigation Stand	20	Units
MI-07	Wheel Chair	2	Units
MI-08	ECG	1	Unit
MI-09	Patient Monitor	5	Units
MI-10	Defibrillator	1	Unit
MI-11	Pulse Oximeter	3	Units
MI-12	Ultrasound Machine	1	Unit
MI-13	Operation Light (Mobile)	1	Unit
MI-14	Suction Machine	2	Units
MI-15	Ventilator	1	Unit
MI-16	Flowmeter for Central Oxygen Supply System	1	Set
Internal Medicine			
MD-01	Treadmill	1	Unit
MD-02	Holter ECG	1	Unit
MD-03	Patient Bed	1	Set
MD-04	Screen	3	Units
MD-05	Medicine Cabinet	1	Unit
MD-06	Instrument Cabinet	1	Set
MD-07	Stethoscope	5	Units
MD-08	Sphygmomanometer	3	Units
MD-09	Stool for Doctor	7	Units
MD-10	Instrument Cart	2	Units
MD-11	Irrigation Stand	20	Units
MD-12	Stretcher	2	Units
MD-13	Fording Litter	1	Unit

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Code No.	Equipment Name	Quantity	Unit
MD-14	Wheel Chair	4	Units
MD-15	File Cart	4	Units
MD-16	Film Viewer	1	Set
MD-17	Suction Machine	2	Units
CSSD			
CS-01	Autoclave (large)	1	Set
CS-02	Autoclave (Medium)	1	Unit
CS-03	Formalin Sterilizer	1	Unit
CS-04	Laminating Machine	1	Unit
CS-05	Shelves	1	Set
CS-06	Labeling gun	2	Units
CS-07	Instrument Cart	2	Units
CS-08	Working Table for Sterilizing	1	Set
CS-09	Sink Unit	1	Set
CS-10	Tube Washer	1	Set
CS-11	Tube Dryer	1	Set
CS-12	Office Table/Chair	1	Unit
CS-13	Sterilizing Container Set	1	Unit
CS-14	Washing Machine	1	Set
CS-15	Dryer	1	Set
CS-16	Work Bench for Laundry	1	Set
CS-17	Shelves for Laundry	1	Set
Pediatric			
PD-01	Infant Incubator	3	Units
PD-02	Oxygen Cylinder Set	3	Units
PD-03	Patient Monitor	3	Units
PD-04	Infusion Pump	2	Units
PD-05	CPAP	3	Units
PD-06	Digital Weight Height Scale	1	Unit
PD-07	Laryngoscope Set for Neonatal	1	Unit
PD-08	Ambu Bag	2	Units
PD-09	Stethoscope	5	Units
PD-10	Sphygmomanometer	2	Units
PD-11	Patient Bed	1	Set
PD-12	Pediatric Bed	1	Set
PD-13	Examination Table	1	Unit
PD-14	Wheel Chair	1	Unit
PD-15	Film Viewer	1	Unit
PD-16	Nebulizer	3	Units
PD-17	Suction Machine	2	Units
Laboratory			
LB-01	CO2 Incubator	1	Unit
LB-02	Ultra-low Freezer	1	Unit
LB-03	Medical Refrigerator	1	Unit
LB-04	Water Purified System	1	Unit
LB-05	Centrifuge	2	Units
LB-06	Water Bath	1	Unit
LB-07	Blood Cell Counter	1	Unit
LB-08	Storage Cabinet	1	Unit
LB-09	Semi-auto Biochemistry Machine	1	Unit
LB-10	Hemoglobin Meter	1	Unit
LB-11	Automatic Pipette	1	Set
LB-12	Microscope with Monitor	1	Unit
LB-13	Electrolyte Analyzer	1	Unit
LB-14	Safety Cabinet	1	Unit
Surgery			
SG-01	Cystoscope Set	1	Set
SG-02	Resectoscope	1	Unit

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Code No.	Equipment Name	Quantity	Unit
SG-03	Urological Examination Chair	1	Unit
SG-04	Bougie Set	1	Set
SG-05	Ultrasound Machine	1	Unit
SG-06	Patient Bed	1	Set
SG-07	Film Viewer	1	Set
SG-08	Dressing Cart	1	Set
SG-09	Instrument Cart	1	Set
Operation Theater			
OT-01	Electric Artery Touraiquet	2	Units
OT-02	Rectoscope	1	Unit
OT-03	Abdominal Operation Instrument Set	2	Units
OT-04	Surgical Instrument Set for Infant	2	Units
OT-05	Gastrectomy Instrument Set	2	Units
OT-06	Cholecystectomy Instrument Set	2	Units
OT-07	Nephrectomy Instrument Set	1	Unit
OT-08	Prostatectomy Instrument Set	1	Unit
OT-09	Thyroidectomy Instrument Set	2	Units
OT-10	Emergency Tracheotomy Instrument Set	1	Unit
OT-11	Appendectomy Instrument Set	4	Units
OT-12	Venotomy Instrument Set	1	Unit
OT-13	Air Pressure Skull Operation Set	1	Unit
OT-14	Electrical Surgical Unit	2	Units
OT-15	Soft Brain Spatulas	1	Unit
OT-16	Neurosurgery Instrument Set	1	Unit
OT-17	Electric Bone Drill Unit	2	Units
OT-18	Kirschner Wire Traction Instrument Set	2	Units
OT-19	Orthopedic Instrument Set	1	Set
OT-20	Microvascular Surgical Instrument Set	1	Set
OT-21	Cervical Operation Set	1	Unit
OT-22	Gypsum Cutter	2	Units
OT-23	Cast Spreader	2	Units
OT-24	Gypsum Table	1	Unit
OT-25	Dermatome Set	2	Units
OT-26	Patient Monitor	1	Set
OT-27	Syringe Pump	1	Set
OT-28	Operation Table	1	Set
OT-29	Operation Light (Ceiling Mount)	1	Set
OT-30	Suction Machine	1	Set
OT-31	Anesthesia Machine	1	Set
OT-32	Infant Anesthesia Circuit	1	Set
OT-33	Anesthesia Table	1	Set
OT-34	Laryngoscope Set	1	Set
OT-35	Ambu Bag Set	1	Set
OT-36	Airway Set	1	Set
OT-37	Stool	1	Set
OT-38	Irrigation Stand	1	Set
OT-39	Mobile Suction Machine	1	Unit
OT-40	Instrument Table	1	Set
OT-41	Foot Step	1	Set
OT-42	Instrument Cabinet	1	Set
OT-43	Film Viewer	1	Set
OT-44	Hysteroscope	1	Unit
OT-45	Cryosurgery Machine	1	Unit
OT-46	Vaginal Speculum	3	Units
OT-47	Ambu Bag	2	Units
OT-48	Laryngoscope for Neonatal	2	Units
Recovery Room/Post-surgery ICU			
RE-01	ICU Bed	1	Set

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Code No.	Equipment Name	Quantity	Unit
RE-02	Patient Monitor	5	Units
RE-03	Defibrillator	1	Unit
RE-04	Ventilator	1	Unit
RE-05	Stretcher	2	Units
RE-06	Wheel Chair	2	Units
RE-07	Dressing Cart	2	Units
RE-08	Instrument Table	1	Unit
RE-09	Irrigation Stand	10	Units
RE-10	Patient Warmer	2	Units
RE-11	Instrument Cabinet	2	Units
RE-12	Stool	2	Units
RE-13	Working Table	1	Unit
RE-14	Ambu Bag Set	1	Set
RE-15	Suction Machine	2	Units
RE-16	Laryngoscope	1	Set
RE-17	Flowmeter for Central Oxygen Supply System	1	Set
ENT			
EN-01	Endoscope for ENT	1	Unit
EN-02	Instrument Set for Septoplasty	1	Unit
EN-03	Audiometer	1	Unit
EN-04	Tonsil Dissector Instrument Set	1	Unit
EN-05	Adenoidectomy Instrument Set	1	Unit
EN-06	Laryngoscope Operation Set	1	Unit
EN-07	Binocular Operating Microscope	1	Unit
EN-08	Micro motor Hand Drill	1	Unit
EN-09	ENT Chair	1	Unit
EN-10	Head Light	2	Units
EN-11	Electrical Surgical Unit for ENT	1	Unit
EN-12	Suction Machine (Benchtop type)	2	Units
EN-13	Irrigation Stand	10	Units
EN-14	Surgical Instrument Set for Ear	1	Unit
EN-15	Micro Debrider	1	Unit
EN-16	Film Viewer	1	Unit
Pharmacy			
PH-01	Shelves	1	Set
PH-02	Storage Cabinet	1	Set
PH-03	Working Table	1	Set
PH-04	Chair	1	Set
PH-05	Medical Refrigerator	1	Set
PH-06	File Cabinet	1	Set

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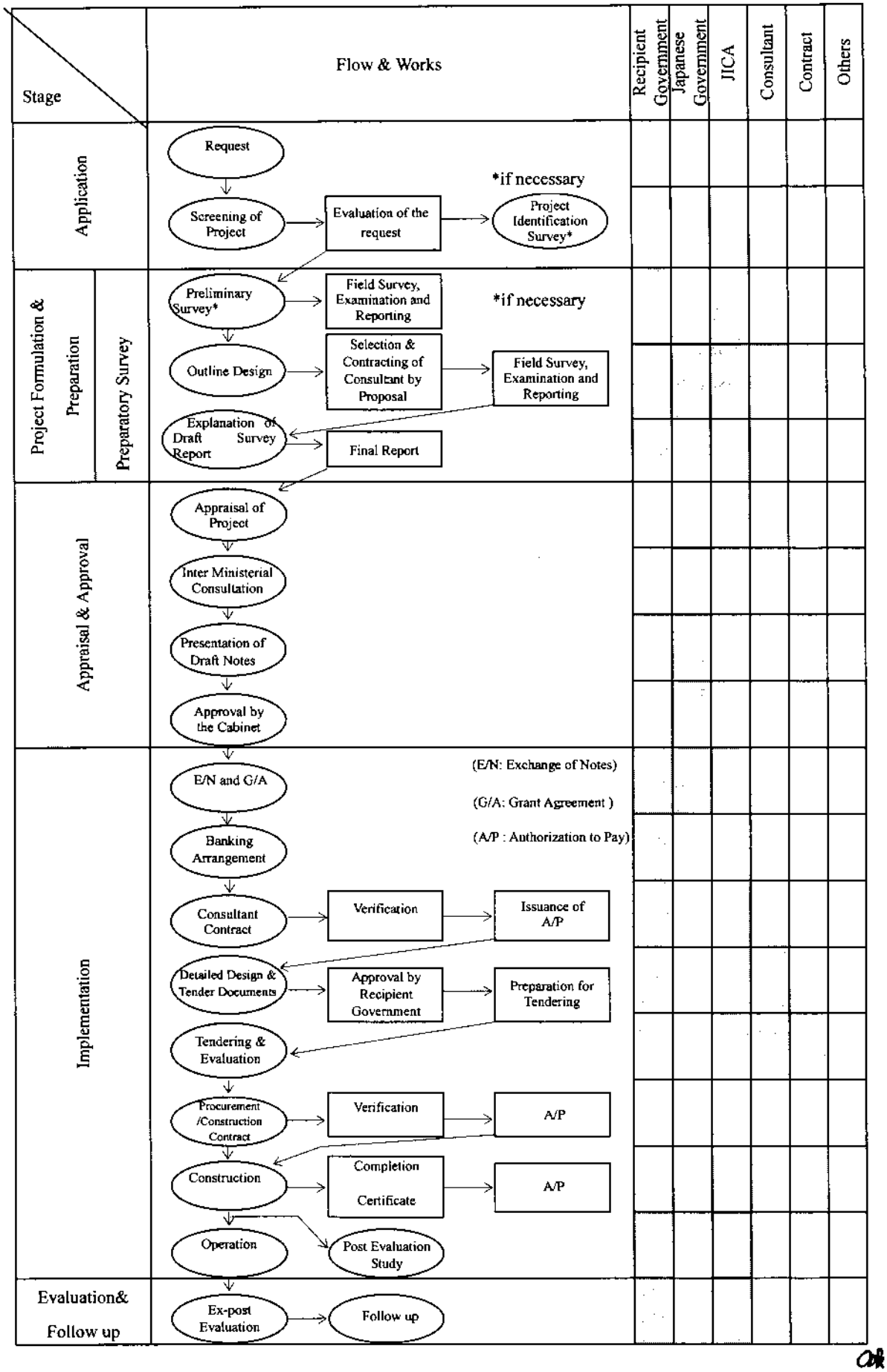
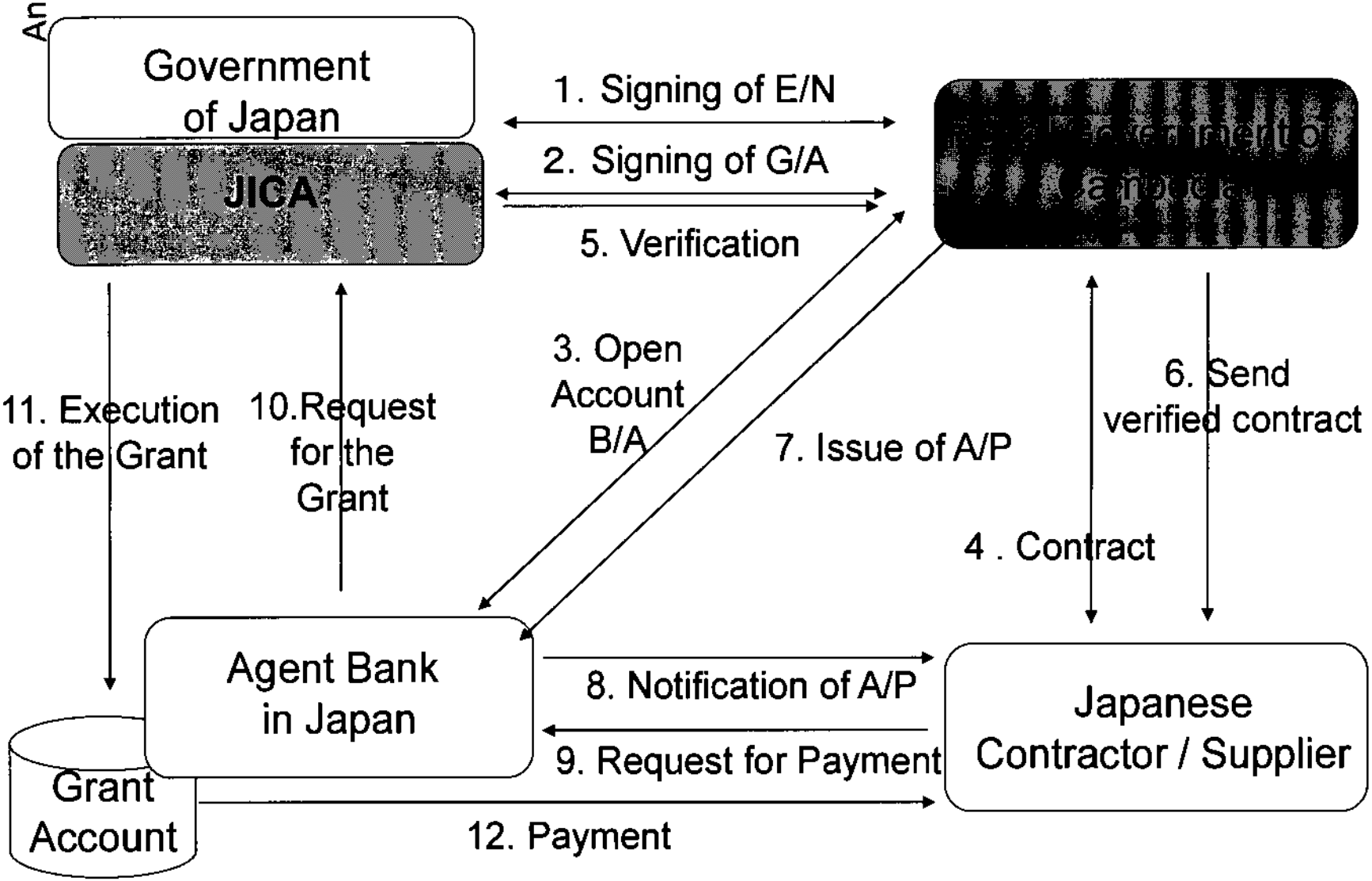
FLOW CHART OF JAPANESE GRANT PROCEDURES



Annex 4

Financial Flow of Grant Aid (A/P Type)



JAPANESE GRANT

The Japanese Grant (hereinafter referred to as the "Grant") is non-reimbursable fund provided to a recipient country to procure the facilities, equipment and 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. The Grant is not supplied through the donation of materials as such.
Based on a JICA law which was entered into effect on October 1, 2008 and the decision of the GOJ, JICA has become the executing agency of the Japanese Grant for Projects for construction of facilities, purchase of equipment, etc.

1. Grant Procedures

The Grant is supplied through following procedures :

- Preparatory Survey
  - The Survey conducted by JICA
- Appraisal &Approval
  - -Appraisal by the GOJ and JICA, and Approval by the Japanese Cabinet
- Authority for Determining Implementation
  - -The Notes exchanged between the GOJ and a recipient country
- Grant Agreement (hereinafter referred to as "the G/A")
  - -Agreement concluded between JICA and a recipient country
- Implementation
  - -Implementation of the Project on the basis of the G/A

2. Preparatory Survey

(1) Contents of the Survey

The aim of the preparatory Survey is to provide a basic document necessary for the appraisal of 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 country necessary for the implementation of the

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Project.

- Evaluation of the appropriateness of the Project to be implemented under the Grant Scheme 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.

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

JICA requests the Government of the recipient country to take whatever 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 organization of the recipient country which actually implements the Project. Therefore, the implementation of the Project is confirmed by all relevant organizations of the recipient country based on the Minutes of Discussions.

(2) Selection of Consultants

For smooth implementation of the Survey, JICA employs (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 appropriateness of the Project.

3. Japanese Grant Scheme

(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 country to make a pledge for assistance, which is followed by the conclusion of the G/A between JICA and the Government of the recipient country to define the necessary articles, in accordance with the E/N, to implement the Project, such as payment conditions, responsibilities of the Government of the recipient

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country, and procurement conditions.

(2) 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 country to continue to work on the Project's implementation after the E/N and G/A.

(3) Eligible source country

Under the Grant, in principle, Japanese products and services including transport or those of the recipient country are to be purchased. The Grant may be used for the purchase of the products or services of a third country, if necessary, taking into account the quality, competitiveness and economic rationality of products and services necessary for achieving the objective of the Project. However, the prime contractors, namely, constructing and procurement firms, and the prime consulting firm are limited to "Japanese nationals", in principle.

(4) Necessity of "Verification"

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

(5) Major undertakings to be taken by the Government of the Recipient Country

In the implementation of the Grant Project, the recipient country is required to undertake such necessary measures as Annex. The Japanese Government requests the Government of the recipient country to exempt all customs duties, internal taxes and other fiscal levies such as VAT, commercial tax, income tax, corporate tax, 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, since the Grant fund comes from the Japanese taxpayers.

(6) "Proper Use"

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

(7) "Export and Re-export"

The products purchased under the Grant should not be exported or re-exported from the recipient

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country.

(8) Banking Arrangements (B/A)

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

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

(9) Authorization to Pay (A/P)

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

(10) Environmental and Social Considerations

The Government of the recipient country must carefully consider environmental and social impacts by the Project and must comply with the environmental regulations of the recipient country and JICA Guidelines for Environmental and Social Consideration (April, 2010) .

(11) Monitoring

The Government of the recipient country must 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 must regularly report to JICA about its status by using the Project Monitoring Report (PMR).

(12) Safety Measures

The Government of the recipient country must ensure that the safety is highly observed during the implementation of the Project.

(13) 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 Client, 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, before start of construction.

b) Discussing the issues affecting Works such as construction progress, modification of the design, test, inspection, safety control and the Client's obligation progress, during of construction.

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Project Monitoring Report
on
Project Name
Grant Agreement No. XXXXXXX

20XX, Month

Organization Information

Authority (Signer of the G/A)	Person in Charge _____ (Division) _____ Contacts Address: _____ Phone/FAX: _____ Email: _____
Executing Agency	Person in Charge _____ (Division) _____ Contacts Address: _____ Phone/FAX: _____ Email: _____
Line Agency	Person in Charge _____ (Division) _____ Contacts Address: _____ Phone/FAX: _____ Email: _____

Outline of Grant Agreement:

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

1: Project Description

1-1 Project Objective

1-2 Necessity and Priority of the Project

- Consistency with development policy, sector plan, national/regional development plans and demand of target group and the recipient country.

1-3 Effectiveness and the indicators

- Effectiveness by the project

Quantitative Effect (Operation and Effect indicators)		
Indicators	Original (Yr)	Target (Yr)
Qualitative Effect		

2: Project Implementation

2-1 Project Scope

Table 2-1-1a: Comparison of Original and Actual Location

Location	**Original:** *(M/D)* **Attachment(s):Map**	**Actual:** *(PMR)* **Attachment(s):Map**

Table 2-1-1b: Comparison of Original and Actual Scope

Items	Original	Actual
(M/D)	*(M/D)*	*(PMR)* Please state not only th e most updated schedul e but also other past re visions chronologically.

'Soft component' shall be included in 'Items'.		All change of design shal l be recorded regardless of its degree.

(Sample)Table 2-1-1b: Comparison of Original and Actual Scope

Items	Original	Actual
1. Upgrading of the Kukum Highway	length 20km, single lane (3.47m*2), path(1.25m*2) Concrete Pavement 200mm (motor lane only)	length 20km, single lane (3.47m*2), path(1.00m*2) C oncrete Pavement 200mm (motor lane only)
2. Replacement of Old Mataniko Bridge	Bridge length 40m, Width 9.5m, path(1.00m*2), compound steel box-girder bridge, Inverted T type-abutment spread foundation	Ditto

(Sample)Table 2-1-1b: Comparison of Original and Actual Scope

Items	Original	Actual
1. Outpatient Department	RC, Double Storey Ground floor: Consultation room 6 Reception Satellite Lab. Pharmacy, etc 1st floor: Consultation room 5 Dental Clinic 2	RC, Double Storey Ground floor: Consultation room 5 ditto
2. Operation Theatre, Casualty Unit, Maternity Ward	RC, Double Storey Ground Floor: Operation room 2 Casualty Unit 1st Floor: Maternity Ward 50 beds	 ditto Maternity Ward 60 beds

(Sample)Table 2-1-1b: Comparison of Original and Actual Scope

Items	Original	Actual
1. Primary and Secondary Surveillance Radars at Chittagong Int'l Airport	i) OSR/SSR 1 set ii) RDP 1 set iii) VHF Transmitters 2 sets	Ditto
2. Access Control System for Dhaka Int'l Airport	1 set	Ditto
3. Doppler VOR/DME at Saidpur Airport	1 set	Ditto
4. Aerodrome Simulator for Civil Aviation Training Center	1 set	Ditto

5. Baggage Inspection System for Dhaka Int'l Airport	i) Hold Baggage Xray Inspectin system 7sets ii) Hold Baggage Explosive Trace Detecting System 7sets iii) Cabin Baggage Xray Inspection System 2sets	Ditto
6. Airport Fire Fighting Vehicles for Dhaka Int'l Airport	2 sets	3 sets

2-1-2 Reason(s) for the modification if there have been any.

(PMR)

2-2 Implementation Schedule

2-2-1 Implementation Schedule

Table 2-2-1: Comparison of Original and Actual Schedule

Items	Original		Actual
	DOD	G/A	
[M/D] 'Soft component' shall be stated in the column of 'Items'. Project Completion Date*	*(M/D)*		*(PMR)* As of (Date of Revision) Please state not only the most updated schedule but also other past revisions chronologically.

*Project Completion was defined as _____ at the time of G/A.

(Sample)Table 2-2-1: Comparison of Original and Actual Schedule

Items	Original		Actual
	DOD	G/A	
Cabinet Approval	11/2015	-	-
E/N	12/2015	1/2016	24/1/2016
G/A	12/2015	1/2016	24/1/2016 Amended 13/3/2017
Detailed Design	12/2015-4/2016	1/2016-5/2016	1/2016-5/2016
Tender Notice	5/2016	5/2016	1/6/2016
Tender	6/2016	6/2016	15/7/2016
(Lot1) Construction Period	7/2016-11/2018	7/2016-11/2018	8/8/2016-30/11/2018
(Lot2) Installarion of Equipement	7/2016-6/2018	7/2016-6/2018	6/8/2016-30/60/2017

Project Completion Date	11/2018	11/2018	30/11/2018
Defect Liability Period	11/2019	11/2019	30/11/2019

*Project Completion was defined as __Check-out of Construction work__ at the time of G/A.

2-2-2 Reasons for any changes of the schedule, and their effects on the project.

2-3 Undertakings by each Government

2-3-1 Major Undertakings

See Attachment 2.

2-3-2 Activities

See Attachment 3.

2-3-3 Report on RD

See Attachment 4.

2-4 Project Cost

2-4-1 Project Cost

Table 2-4-1a Comparison of Original and Actual Cost by the Government of Japan
(Confidential until the Tender)

Items			Cost (Million Yen)	
	Original	Actual	Original	Actual
Construction Facilities (or Equipment)	'Soft component' shall be included in 'Items'.			Please state not only the most updated schedule but also other past revisions chronologically.
Consulting Services	- Detailed design -Procurement Management -Construction Supervision			
Total				

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

Table 2-4-1b Comparison of Original and Actual Cost by the Government of XX

Items			Cost (Million USD)	
	Original	Actual	Original	Actual
				Please state not only the most

TY

				updated schedule but also other past revisions chronologically.
Total				

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

(Sample)Table 2-4-1a Comparison of Original and Actual Cost by the Government of Japan
(Confidential until the Tender)

Items			Cost (Million Yen)	
	Original	Actual	Original[1),2)]	Actual
Construction Facilities	1. Outpatient Department 2. Operation Theatre, Casualty Unit, Maternity Ward	Ditto Ditto	1,169.5	1,035.0
Equipment	1) Primary and Secondary Surveillance Radars at Chittagong Int'l Airport 2) Access Control System for Dhaka Int'l Airport 3) Doppler VOR/DME at Saidpur Airport 4) Aerodrome Simulator for Civil Aviation Training Center 5) Baggage Inspection System for Dhaka Int'l Airport 6) Airport Fire Fighting Vehicles for Dhaka Int'l Airport	Ditto	2,374.6	2,110.0
Consulting Services	- Detailed design -Procurement Management -Construction Supervision -Soft Component	Ditto	0.87	0.87
Total			3544.97	3145.87

Note: 1) Date of estimation: October, 2014
2) Exchange rate: 1 US Dollar = 99.93 Yen

(Sample)Table 2-4-1b Comparison of Original and Actual Cost by the Government of Bangladesh

Items			Cost (1,000 Taka)	
	Original	Actual	Original[1),2)]	Actual
Dhaka International Airport	Modification of software of existing Rader Data Processing System	Ditto	8,000	9,240
	Provision of a partition, lighting, air conditioning and electric power supply at transfer hold baggage check point	Ditto	5,000	2,453

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	Replacement of five doors in the international passenger terminal building	Ditto	4,000	5,340
Chittagong Int'l Airport	Preparation of the radar site including felling of trees, clearing and grabbing	Ditto	5,000	3,400
Total			22,000	20,433

Note: 1) Date of estimation: October, 2014
2) Exchange rate: 1 US Dollar = 0.887 Bangladesh Taka (local currency)

2-4-2 Reason(s) for the wide gap between the original and actual, if there have been any, the remedies you have taken, and their results.

(PMR)

2-5 Organizations for Implementation

2-5-1 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: *(M/D)*

Actual, if changed: *(PMR)*

2-6 Environmental and Social Impacts

- The results of environmental monitoring as attached in [redacted] in accordance with Schedule 4 of the Grant Agreement.
- The results of social monitoring as attached [redacted] in accordance with Schedule 4 of the Grant Agreement.
- Information on the disclosed results of environmental and social monitoring to local stakeholders, whenever applicable.

3: Operation and Maintenance (O&M)

3-1 O&M and Management

- Organization chart of O&M
- Operational and maintenance system (structure and the number ,qualification and skill of staff or other conditions necessary to maintain the outputs and benefits of the project soundly, such as manuals, facilities and equipment for maintenance, and spare part stocks etc)

Original: *(M/D)*
Actual: *(PMR)*

3-2 **O&M Cost and Budget**
- The actual annual O&M cost for the duration of the project up to today, as well as the annual O&M budget.

Original: *(M/D)*

4: Precautions (Risk Management)

- Risks and issues, if any, which may affect the project implementation, outcome, sustainability and planned countermeasures to be adapted are below.

Original Issues and Countermeasure(s): *(M/D)*	
Potential Project Risks	Assessment
1.	Probability: H/M/L
(Description of Risk)	Impact: H/M/L
	Analysis of Probability and Impact:
	Mitigation Measures:
	Action during the Implementation:
	Contingency Plan (if applicable):
2.	Probability: H/M/L
(Description of Risk)	Impact: H/M/L
	Analysis of Probability and Impact:
	Mitigation Measures:
	Action during the Implementation:
	Contingency Plan (if applicable):

3.	Probability: H/M/L
(Description of Risk)	Impact: H/M/L
	Analysis of Probability and Impact:
	Mitigation Measures:
	Action during the Implementation:
	Contingency Plan (if applicable):
Actual issues and Countermeasure(s)	
(PMR)	

5: Evaluation at Project Completion and Monitoring Plan

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 for 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.

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Attachment

1. Project Location Map
2. Undertakings to be taken by each Government
3. Monthly Report
4. Report on RD
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) (Final Report Only)

Monitoring sheet on price of specified materials

1. Initial Conditions (Confirmed)

	Items of Specified Materials	Initial Volume A	Initial Unit Price (¥) B	Initial total Price C=A×B	1% of Contract Price D	Condition of payment	
						Price (Decreased) E=C−D	Price (Increased) F=C+D
1	Item 1	●●t	●	●	●	●	●
2	Item 2	●●t	●	●	●		
3	Item 3						
4	Item 4						
5	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 ●month, 2015	2nd ●month, 2015	3rd ●month, 2015	4th	5th	6th
1	Item 1						
2	Item 2						
3	Item 3						
4	Item 4						
5	Item 5						

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

-
-
-

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 D
Construction Cost	(A/D%)	(B/D%)	(C/D%)	
Direct Construction Cost	(A/D%)	(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%)	

Annex 7

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))		Ministry of Health (MOH)		
2	To secure the following lands 1) site of the facility at Battambang Provincial Referral Hospital		MOH/Battambang Hospital		
3	To clear, level and reclaim the following sites 1) the facility site		MOH/Battambang Hospital		
4	To obtain the planning, zoning, building permit		MOH/Battambang Hospital		

TY

2. During the Project Implementation

NO	Items	Deadline	In charge	Cost	Ref.
1	To bear the following commissions to a bank of Japan for the banking services based upon the B/A				
	1) Advising commission of A/P (authorization to pay)	within 1 month after the singing of the contract	MOH		
	2) Payment commission for A/P	every payment	MOH		
2	To ensure prompt unloading and customs clearance at the port of disembarkation in recipient country		MOH		
	1) Facilitate tax exemption and customs clearance of the products at the port of disembarkation	during the Project	MOH		
3	To accord Japanese nationals and/or physical persons of third countries whose services may be required in connection with the supply of the products and the services under the verified contract such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work	during the Project	MOH		
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, and any other taxes, which may be imposed in the recipient country with respect to the supply of the products and services under the verified contract of the project	during the Project	MOH		
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/Battambang Hospital		
6	To submit Project Monitoring Report.	every month	MOH/Battambang Hospital		MD
7	To provide facilities for the distribution of electricity, water supply, drainage and other incidental facilities				
	1) Electricity The distributing line to the site	before start of the construction	MOH/Battambang Hospital		
	2) Water Supply The city water distribution main to the site	6 months before completion of the construction	MOH/Battambang Hospital		
	3) Drainage The city drainage main (for storm, sewer and others) to the site	6 months before completion of the construction	MOH/Battambang Hospital		
	4) Furniture and Equipment General furniture	1 month before completion of the construction	MOH/Battambang Hospital		

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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 maintenance cost 2) Operation and maintenance structure 3) Routine check/Periodic inspection	After completion of the construction	MOH/Battambang Hospital		

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

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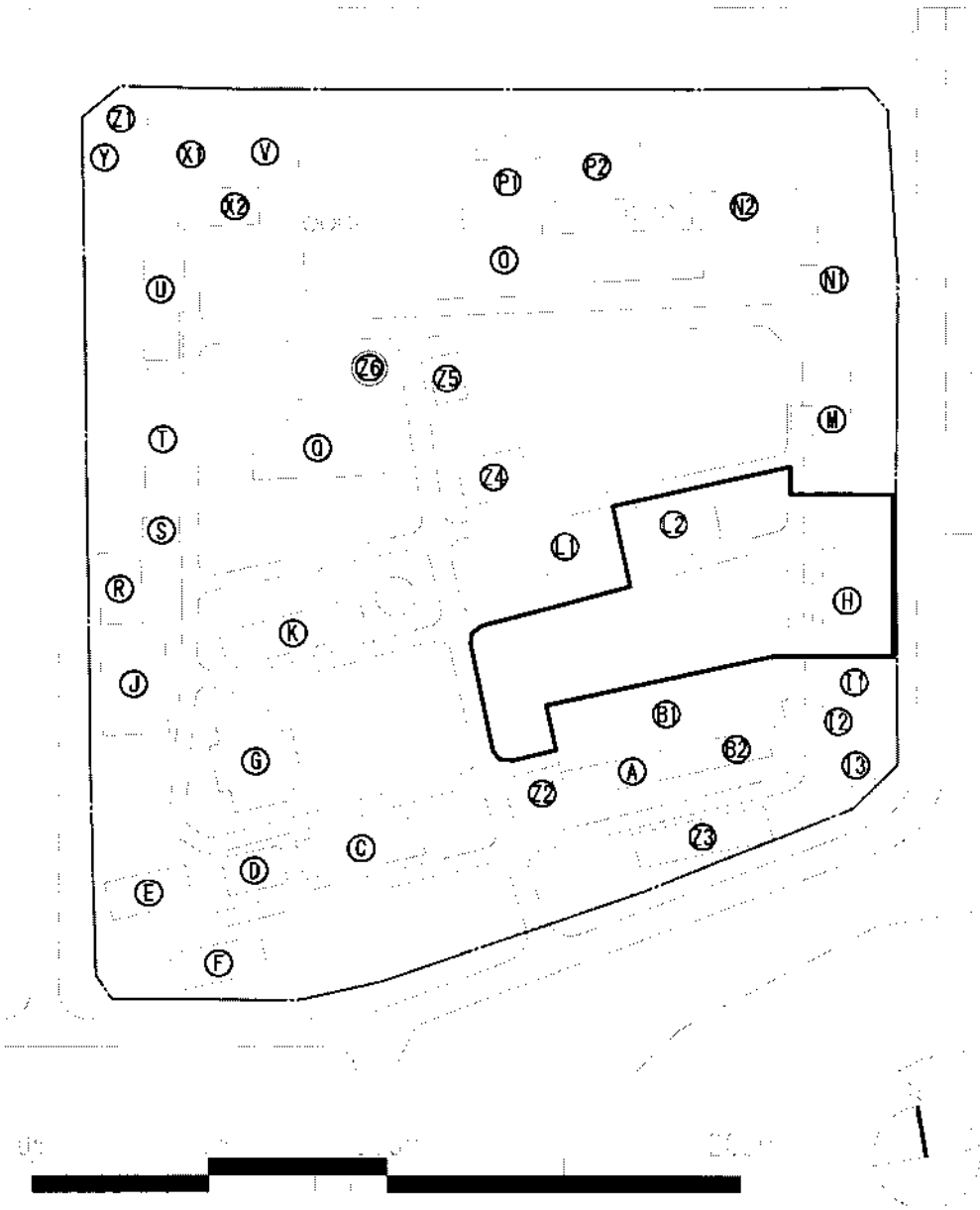
Major Undertakings to be Covered by the Japanese Grant

No	Items	Deadline	Cost Estimated (Million Japanese Yen)*	
1	To construct a hospital facility			
	- Facility for improvement of Battambang Provincial Referral Hospital			
	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			
	4) To provide facilities for the distribution of electricity, water supply, drainage and other incidental facilities		XX.XX	
	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		VV.VV	
	- Medical Equipment for improvement of Battambang Provincial Referral Hospital			
3	To implement detailed design, tender support, construction and procurement supervision end soft component (Consultant)		YY.YY	
4	Contingencies		ww.ww	
	Total		ZZ.ZZ	

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

Site Plan for the Facility



A: Administration
B1: ER, OPD & Triage
B2: Mental Disease
C: ENT
D: Student Dormitory
E: Prisoner's Ward
F: Blood Bank
G: General Medicine ICU
H: General Medicine
I1: Leg Wound Care
I2: Dermatology
I3: Kinetics
J: Ophthalmology
K: Laboratory
L1: Drug Distribution
L2: Drug Storage
M: Pneumology
N1: Tuberculosis A
N2: Tuberculosis B
O: Surgery & CSSD
P1: OB/GY
P2: Delivery & NICU
Q: Pediatrics
R: Family Health Clinics
S: Nursing Care
T: General Medicine
U: HIV/AIDS & STD
V: Kitchen
X1: Kitchen & Generator
X2: Warehouse
Y: Mortuary
Z1: Incinerator
Z2: Health Equity Fund
Z3: Bikes Parking
Z4: Canteen
Z5-Z6: Water Tank

Site Plan for the Facility

Minutes of Discussions
on the Preparatory Survey for the Project for
Improvement of Battambang Provincial Referral Hospital
(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 23 June, 2016 and in response to the request from the Government of the Kingdom of Cambodia (hereinafter referred to as " Cambodia") dated 3 August, 2015, 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 Battambang Provincial Referral Hospital (hereinafter referred to as "the Project"), headed by Tomoya YOSHIDA, Director, Health Team 3, Health Group 2, Human Development Department from 3 December to 10 December, 2016.

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

Phnom Penh, 9 December, 2016

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 Battambang 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 country.

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 Battambang Provincial Referral Hospital".

3. Project site

   Both sides confirmed that the site of the Project is in the site of Battambang Provincial Refferal Hospital, which is shown in Annex 1.

4. Line Agency and Executing Agency

   Both sides confirmed that the line agencies and the executing agencies are Ministry of Health and Battambang Provincial Health Department. The line agencies and 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.

7. 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

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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 Annex2.

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 2022 and shall monitor the progress based on those indicators.

[Quantitative indicators]

Increace the number of Surgical inpatients (people/year)

Increace the number of Internal Medicine ICU inpatients (people/year)

Increace the number of Surgical Operations (cases/year)

[Qualitative indicators]

- The quality of medical services are provided to the patients including emergency and outpatients.
- The referral system of Battambang Province and the northwest area of Cambodia is enhanced.
- The function as a central training center in the area is expanded.
- The motivation of medical staff working in Battambang Provincial Referral Hospital is improved.

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.

11. Undertakings of the Project

Both sides confirmed the undertakings of the Project as described in Annex3. With regard to exemption of customs duties, internal taxes and other fiscal levies as stipulated in 2.4 of Annex3 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

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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 Annex3 will be used as an attachment of G/A.

12. Monitoring during the implementation

The Project will be monitored by the line agencies and Executing Agencies with support of the consultant and reported to JICA by using the form of Project Monitoring Report (PMR) attached as Annex4. The timing of submission of the PMR is described in Annex3.

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 event 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 March 2017.

16. Environmental and Social Consideration

16-1. 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.

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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 Battambang Provincial Refferal Hospital 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 4 meters deep after the contractor excavated down to 2 meters.

17-3. Installation of elevator

Both sides agreed that one elevator will be included in the project. But the extra space for another elevator will be secured for future installation by the Battambang Provincial Refferal Hospital.

17-4. Relocation of X-ray machine

Both sides agreed that Battambang Provincial Refferal Hospital will relocate and utilize exsiting X-ray machine procured by the previous grant aid project.

17-5. Relocation of equipment for pediatric department

Both sides agreed that Battambang Provincial Refferal Hospital will relocate existing and newly procured equipment for current pediatric department to new pediatric department which will be located in the currrent surgical department immediately after the completion of the project.

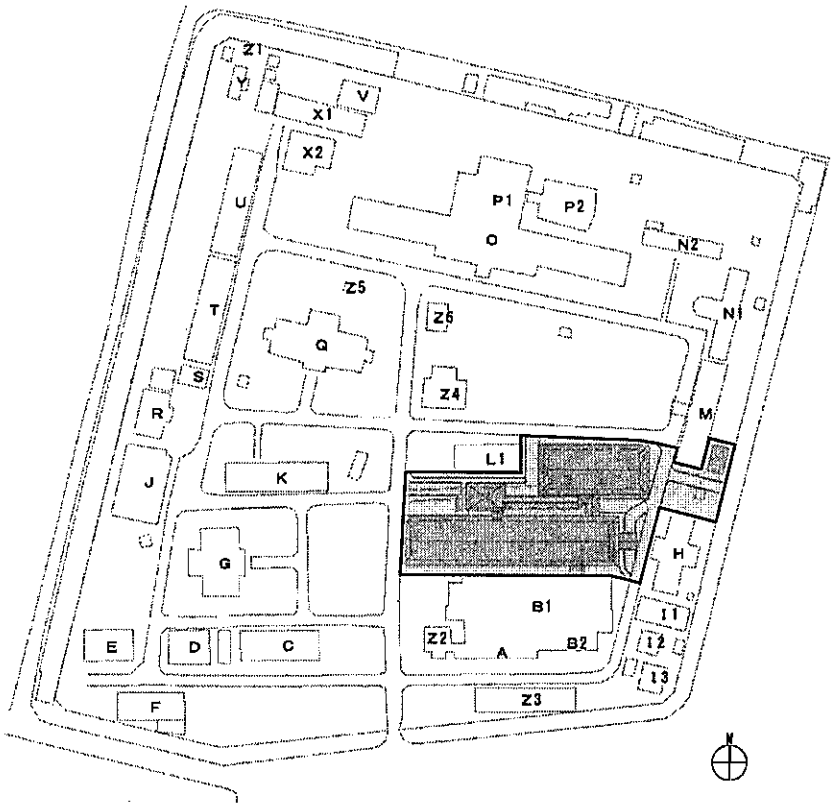
Annex 1 Project Site

Annex 2 Project Implementation Schedule

Annex 3 Major Undertakings to be taken by the Government of Cambodia

Annex 4 Project Monitoring Report (template)

Site of the Project



A: Administration
B1: ER, OPD & Triage
B2: Mental Disease
C: ENT
D: Student Dormitory
E: Prisoner's Ward
F: Blood Bank
G: General Medicine ICU
H: General Medicine
I1: Leg Wound Care
I2: Dermatology
I3: Kinetics
J: Ophthalmology
K: Laboratory
L1: Drug Distribution
L2: Drug Storage
M: Pneumology
N1: Tuberculosis A
N2: Tuberculosis B
O: Surgery & CSSD
P1: OB/GY
P2: Delivery & NICU
Q: Pediatrics
R: Family Health Clinics
S: Nursing Care
T: General Medicine
U: HIV/AIDS & STD
V: Kitchen
X1: Kitchen & Generator
X2: Warehouse
Y: Mortuary
Z1: Incinerator
Z2: Health Equity Fund
Z3: Bikes Parking
Z4: Canteen
Z5-Z6: Water Tank

Site of the Project

Annex 2. Timeline for the project implementation

Year	2017	2018	2019	2020	2021	2022
Detail Design	Mar. ▬▬ Sep.					
Construction Supervision	Oct. ▬▬	▬▬	▬▬ Mar.			
Procurement Supervision	Oct. ▬▬	▬▬	▬▬ Mar.			
Soft Component			Mar. ▪ ▪ ▪ Jun.			
One Year Inspection				Mar. ▬		
Maintenance Contract Monitoring				Apr. ▬	Mar. ▬	Mar. ▬

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))	Soon after signing of Grant Agreement (G/A)	Ministry of Health (MOH)	N/A	
2	To secure the following lands 1) the Project site including building area and temporary construction yard and stock yard within Battambang Provincial Referral Hospital	Before Tender Opening	MOH/Battambang Provincial Health Department (PHD)	N/A	
3	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 L2 (medical storage) 2) ambulance parking	Before the Approval of Tender Documents (approx. 6 month after signing of G/A)	MOH/ Battambang PHD	35,425	
4	To obtain the planning, zoning, building permit	Before Tender Opening (approx. 8 months after signing of G/A)	MOH/ Battambang PHD	N/A	
5	To arrange the land and/or rooms of the followings within Battambang Provincial Referral Hospital. 1) medical storage 2) ambulance parking	Before Tender Opening	MOH/ Battambang PHD	N/A	

2. During the Project Implementation

NO	Items	Deadline	In charge	Cost (USD)	Ref.
1	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)	MOH		
	2) To bear the following commissions to a bank of Japan for the banking services based upon the B/A				
	Advising commission of A/P (authorization to pay)	within 1 month after the singing of the agreement/contract	MOH	13,756	
	Payment commission for A/P	every payment	MOH		
2	To ensure prompt unloading and customs clearance at the port of disembarkation in recipient country				
	1) Facilitate tax exemption and customs clearance of the products at the port of disembarkation	during the Project	MOH	N/A	
3	To accord the Japanese physical persons and/or physical persons of third countries whose services may be required in connection with the supply of the products and/or the services such facilities as may be necessary for their entry into the country of the Recipient and stay therein for the performance of their work	during the Project	MOH	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.	during the Project	MOH coordinate with relevant authorities	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/Battam bang PHD	N/A	
6	To submit Project Monitoring Report.	every quarter and when necessary	MOH/Battam bang PHD	N/A	MD
7	To provide facilities for the distribution of electricity, water supply, drainage and other incidental facilities				
	1) Electricity The distributing line to the site	3 months before completion of the construction	MOH/Battam bang PHD	2,300	
	2) Water Supply The city water distribution main to the site	3 months before completion of the construction	MOH/Battam bang PHD	1,450	
	3) Drainage The city drainage main (for storm, sewer and others) to the site	3 months before completion of the construction	MOH/Battam bang PHD	2,700	
	4) Telecommunications Telephone line and Internet line to the site	3 months before completion of the construction	MOH/Battam bang PHD	2,000	
	5) Furniture and Equipment General furniture	1 month before completion of the construction	MOH/Battam bang PHD	34,000	
8	Carry out detection and removal if necessary of landmines and unexploded ordnance within the Project site (depth 0~2m, 2~4m).	during earth works (1 month after start of the construction)	MOH/Battam bang PHD	4,700	
9	Prepare storage for the laboratory wastewater (size 8mx5m, in conformity with the National Guideline on Health Care Waste Management), including containers for the wastewater.	Before completion of the construction	MOH/Battam bang PHD	12,500	

3. After the Project

NO	Items	Deadline	In charge	Cost	Ref.
1	To maintain and use properly and effectively the facilities constructed and equipment procured under the Grant Aid 1) Allocation of sufficient budget for operation and maintenance 2) Routine check/Periodic inspection 3) Contracting with agents for maintenance of specialized medical equipment and lift 4) Regular collection and proper disposals of medical waste and wastewater	After completion of the construction	MOH/Battambang PHD	67,725 per year for equipment, 66,611 per year for facility	
2	To prepare additional storage for laboratory wastewater, if the storage prepared during the Project is full.	Before the first storage is full	MOH/Battambang PHD	12,500	

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

Major Undertakings to be Covered by the Japanese Grant

This page is closed due to confidentiality.

Project Monitoring Report
on
Project Name
Grant Agreement No. XXXXXXX

20XX, Month

Organizational Information

Signer of the G/A (Recipient)	Person in Charge (Designation) _____ Contacts Address: _____ Phone/FAX: _____ Email: _____
Executing Agency	Person in Charge (Designation) _____ Contacts Address: _____ Phone/FAX: _____ Email: _____
Line Ministry	Person in Charge (Designation) _____ Contacts 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 _____ mil. 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 measure the attainment of project objectives		
Indicators	Original (Yr)	Target (Yr)
Qualitative indicators to measure the attainment of project objectives		

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)

2-3 Implementation Schedule

Items	Original		Actual
	(proposed in the outline design)	*(at the time of signing 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			Cost (Million Yen)	
	Original *(proposed in the outline design)*	Actual *(in case of any modification)*	Original[1),2)] *(proposed in the outline design)*	Actual
	1.			
Total				

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.			

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)*

Actual *(PMR)*

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)*

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
	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:

	Contingency Plan (if applicable):
Actual Situation and Countermeasures	
(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)

Attachment 6

Monitoring sheet on price of specified materials

1. Initial Conditions (Confirmed)

	Items of Specified Materials	Initial Volume A	Initial Unit Price (¥) B	Initial total Price C=A×B	1% of Contract Price D	Condition of payment	
						Price (Decreased) E=C−D	Price (Increased) F=C+D
1	Item 1	●●t	●	●	●	●	●
2	Item 2	●●t	●	●	●		
3	Item 3						
4	Item 4						
5	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 ●month, 2015	2nd ●month, 2015	3rd ●month, 2015	4th	5th	6th
1	Item 1						
2	Item 2						
3	Item 3						
4	Item 4						
5	Item 5						

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

-
-
-

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 D
Construction Cost	(A/D%)	(B/D%)	(C/D%)	
Direct Construction Cost	(A/D%)	(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%)	

The Project for Improvement of Battambang Provincial Referral Hospital in the Kingdom of Cambodia

Soft Component Plan

October 2016

The Consortium of
Azusa Sekkei Co., Ltd.
and
INTEM Consulting, Inc.

Table of Contents

1. Background of incorporating soft components into the Project

Targeting Battambang Provincial Referral Hospital (hereinafter referred to as the "Hospital") serving as the highest level referral facility in the province of the Kingdom of Cambodia (hereinafter referred to as "Cambodia"), the Project intends to construct its facility components and supply the equipment with an objective to ameliorate the current conditions under which the deteriorating and inadequate hospital infrastructure and equipment have undermined its standard medical service provision.

With provision of the necessary equipment, the Project will rehabilitate such facilities as in clinical departments, including Operation Department, Diagnostic Radiological Imaging Department, Emergency Department, Laboratory, and ENT Department. The equipment has been primarily selected for these departments. At the same time, the Project has decided to supply the equipment justifying the priority identified in Pediatric Department and Internal Medicine Ward.

The requested project components include a CR system to digitize medical images and a PACS to provide an online image sharing platform. With a view to the usefulness of these devices, the Project has planned to procure the essential systems. On the other hand, the said systems have a marked difference in the underlying concepts, compared with a conventional film-handling scheme. Therefore, it is desirable that the Project aid a start-up of the systems in a post-delivery phase.

Furthermore, the Project will build a better-equipped Laboratory in a newly constructed structure. Disposal of liquid waste generated there will be determined to take relevant procedures, for instance, by designating disposal sinks according to potential impacts on the environment. Previously, the Hospital has not segregated liquid waste, and the use of such disposal facilities will require developing a new operational framework. It is thus desirable that the Project assist the Hospital to segregate liquid waste and establish disposal management in a post-delivery phase.

In light of the above, the following soft components will be incorporated in the Project.

1-1. Technical training on a CR system[1] and a medical image sharing system (PACS[2]) –supporting development of an operational framework and training practical skills and maintenance procedures-

With today's growing needs of digitization of medical images and hospital-wide information integration, requested project components include a CR system and a PACS.

Reviewing the request being made, the Project identified various advantages of sharing image data digitized in the CR system which helps efficient diagnosis (better X-ray image quality, reduction in repeat radiographic imaging, elimination of film developing, and saving time for diagnosis processing with online image output and read-out), mitigates environmental burdens (disuse of films and developer), and reduces expenditures (disuse of films and developer). Furthermore, considering that some medical facilities in Cambodia have already started to operate a CR system, the Project concluded that this system was relevant for provision.

As for PACS, on the other hand, it is less operated across the country. Nonetheless, the Hospital has decided to start using CT, and also the system will enable effective cross-department sharing of image data collectively stored in the CR system and an ultrasound machine to be supplied in the Project. With personal computers commonly used in the country, moreover, medical workers find it less uncomfortable than before in pursuing computerized work practices. Under these circumstances, therefore, PACS is also included in the procurement of the Project as a relevant component.

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[1] 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.

[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.

It should be noted, however, that the CR system and PACS are different from the conventional scheme of image sharing by which X-ray films and ultrasound images are printed on photographic papers. These systems are connected to clinical departments via a LAN to access to X-ray, CT, and ultrasound image files. They replace the existing paper-based diagnosis reports with online archive. Furthermore, acquired image data must undergo digital processing to improve the good image quality. All these aspects of the systems require developing an operational framework different from the prevailing practices. Accordingly, handling and daily maintenance of the procured equipment will be trained by the suppliers to ensure technical adequacy of the users. Apart from this, the Project intends to provide soft-component assistance to develop an operational framework to handle digital image files across the hospital facilities and to guide digital processing techniques, which will help the effective use of the procured systems. While such operational framework is being developed, moreover, a technical knowledge handover on troubleshooting and routine maintenance skills, demonstrated with specific problems encountered during operations, will be useful in a variety of proper applications of these systems in an extended period after the delivery.

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 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. Thus, a comprehensive training to operate the new system cannot be tailored to lecture on the operating principle, a transitional support service to start a new operational framework, and data management system development. Accordingly, soft components will be quite beneficial to aid such operational framework development.

1-2. Assistance in developing disposal management of liquid laboratory waste

A Laboratory will be allocated in a new building constructed by the Project. The Hospital pointed out that the Laboratory should take some appropriate measures to dispose liquid waste generated therefrom. In response to this account, the on-site survey of the Project made a further inquiry for the Sewerage Bureau, which regulates sewage treatment and disposal. It was stated that the Laboratory would not be allowed to release its liquid waste to local sewers. The Project therefore has considered the disposal methods, classifying liquid waste in the following three types according to the degree of potential impacts on the environment.

(1) Liquid waste entailing risk of seriously affecting the environment: This type of liquid waste must be stored in a designated container. When reached to the specified volume, the container must be collected by a special agency for treatment and disposal.

(2) Liquid waste entailing risk of affecting the environment, but is less likely to cause a serious problem: This type of liquid waste must be drained to an underground leach pit, and then is percolated through the soil.

(3) Liquid waste entailing low risk of affecting the environment: This type of liquid waste may be released to local sewers as in the case of general wastewater.

It should be noted that regarding a disposal procedure defined in (1), the final disposal is not possible at this stage, because such special agency does not exist in Cambodia. The Ministry of Health fully understands the needs related to medical waste disposal, and will probably start developing a legal framework along with training of waste disposal specialists. Therefore, the Project has planned to prepare for storage of liquid waste in a certain period time. It anticipates approximately ten years required until waste disposal agencies are available.

The survey revealed that laboratory technicians were highly aware of liquid waste disposal, with relevant expertise. Thus, provided with disposal facilities to separate liquid waste, they will be able to implement the above-mentioned disposal procedures as intended. Nonetheless, it is desirable to technically assist the laboratory technicians and other

specialists in launching disposal management to ensure that disposal facilities are properly operated in the post-delivery phase.

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 CR system and PACS are properly operated in Battambang Provincial Referral Hospital."

"Liquid laboratory waste generated in Battambang Provision Referral Hospital is properly managed."

3. Output of the Soft Components

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

I. Technical training on the CR system and PACS

In the Hospital, the Project will undergo a consultation process involving Administrative Department (the Director) and departments related to the CR system and PACS (Imagery Department and clinical departments connected to client PCs) and 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) The hospital staff have learned inspection and maintenance procedures.

II. Disposal management of liquid laboratory wastes

The Project will have discussions with the Laboratory and the administrative staff, prepare a disposal manual, deliver a training on disposal procedures. The following output will be obtained accordingly;

(1) The hospital staff are familiar with proper disposal of liquid laboratory waste.

(2) The hospital staff understand the necessary separation of liquid laboratory waste.

(3) The hospital staff dispose liquid laboratory waste with prescribed procedures.

4. Evaluation of the Output

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

Output		Evaluation
I Technical training of the CR system and PACS	① The hospital staff have gained essential understandings of the procured equipment, and developed a proper operational framework for the installed systems.	References are prepared, including an operational framework diagram and operational manual. Access to a server in each clinical department is checked.
	② The hospital staff have learned how to process images, and thereby obtaining diagnostic radiographic images with appropriate density and contrast.	A skill assessment is carried out before and after a technical training to check to what extent users understand the systems.
	③ The hospital staff have leaned routine and scheduled maintenance procedures, and thereby enhancing their skills of fault diagnosis and troubleshooting.	A manual for the provided equipment is included in the existing maintenance system. A skill assessment is carried out before and after a technical training to check to what extent users understand the systems.
II Assistance in developing disposal management of liquid laboratory waste	① The hospital staff have defined proper separation procedures of liquid laboratory waste.	A disposal manual is checked.
	② The hospital staff understand the necessary separation of liquid laboratory waste.	A skill assessment is carried out before and after a technical training to check to what extent the Hospital staff understand the disposal method.
	③ The hospital staff dispose liquid laboratory waste with prescribed procedures.	Work reports are checked.

5. Activities of Soft Components (Input Plan)

Activities to obtain the proposed output are as follows.

5-1. Trainers

- Consultant for technical training of the CR system/PACS (Japanese) : 1 person
- Consultant for liquid waste disposal management (Japanese) : 1 person
- Technical training planner (locally employed Cambodian)*[1] : 1 person

*[1] To be implemented in an efficient manner, the proposed training requires elaborate arrangements, including coordination with related organizations and preliminary planning of technical training components. A technical training planner 1 (locally employed Cambodian) will arrange a schedule with the Hospital, prepare a training venue, and decide on trainees. During the training period, furthermore, the planner will chiefly serve as a liaison between trainers and trainees. The Project will allocate a Cambodian staff for the technical training planner, who is knowledgeable of local circumstances and the personnel related to medical institutions.

5-2. Activity plan

Activities: Details of 1) Preparation work in Japan, 2) Training in Cambodia, 3) Work in Japan are as provided below.

1) Preparation work in Japan

Lecture materials are prepared, which will be required in each technical training sessions. The preparation work in Japan entails three days for a technical training consultant for the CR system/PACS, three days for a consultant for liquid waste management, and two days for a technical training planner1 (locally employed Cambodian), respectively.

2) Training in Cambodia

Detailed output		Activity plan		
		Trainers	Main training components	Trainees
I Technical training of the CR system and PACS	① The hospital staff have gained essential understandings of the procured equipment, and developed a proper operational framework for the installed systems.	Consultant for technical training of the CR system/PACS	・Ensuring the operation principle ・Ensuring intended purposes ・Instructing radiation protection procedures ・Replacing to the new systems and developing an operational framework	Radiology technicians, doctors who interpret images, and ME staff
	② The hospital staff are able to obtain accurate diagnostic images by processing them in a proper manner.		・Clinic-based image processing ・Instructing efficient X-ray interpretation and diagnosis	
	③ The hospital staff have leaned routine and scheduled maintenance procedures, and thereby enhancing their skills of fault diagnosis and troubleshooting.		・Familiarizing maintenance procedures on the procured equipment ・Instructing a series of components including preparation of a maintenance and management scheme, detection of failure, correction, and troubleshooting techniques	
II Assistance in developing disposal management of liquid laboratory waste	① The hospital staff have defined a proper separation scheme of liquid laboratory waste.	Consultant for liquid waste disposal management	・Classifying and analyzing liquid waste components to be released ・Studying disposal procedures required for various kinds of liquid waste ・Defining separation and classification of liquid waste ・Preparing a disposal manual for liquid waste	Laboratory technicians and the hospital administrators
	② The Hospital staff understand the necessary separation of liquid waste.		・Lecturing on the necessary separation of liquid waste	
	③ The hospital staff dispose liquid laboratory waste with prescribed procedures.		・Hands-on training on separation and storage procedures	

I. Technical training on the CR system and PACS

This part of training will be carried out in a meeting room in the Hospital as well as where the target equipment is allocated. Immediately after the equipment procurement schedule is completed, the hands-on training will be conducted, using the equipment supplied. The target trainees include Imagery Department staff, doctors in clinical departments who interpret radiographs, and ME (Medical Engineering) staff. The number of target trainees are approximately 40, comprising seven staff members in Imagery Department, departments connected with PACS clients (five to six staff members respectively participating from Surgical Department, Recovery/ICU, Emergency Department, and ENT), and ME staff (approximately three staff members). Note that a technical training planner 1 will be locally employed and deployed from Phnom Penh.

The training will be delivered in depth and more efficiently when learning components are tailored to the target trainees. To this end, the trainees will be divided into groups.

A detailed training schedule is as shown below.

Training components	Target	Number of trainees	Number of days
・Ensuring the operation principle ・Ensuring intended purposes ・Instructing radiation protection procedures ・Server management ・Troubleshooting	Imagery Department staff	7	3
・Ensuring the operation principle ・Ensuring intended purposes ・Instructing radiation protection procedures ・Replacing to the new systems and developing an operational framework ・Instructing routine inspection procedures for the procured equipment	Doctors in clinical departments who interpret diagnostic images	Approximately 30	6 days×2 groups (15 trainers per group)
・Instructing handling, and efficient radiographic interpretation and diagnosis ・Hands-on training for clinical use	Doctors in clinical departments who interpret diagnostic images	Approximately 30	1×3 groups (10 trainers per group)
・Routine and scheduled maintenance procedures ・Troubleshooting	ME staff	3	1

II. Developing liquid laboratory waste management

This part of training will be carried out in a meeting room and the Laboratory in the Hospital. The hospital staff will inspect the existing test items and additional ones to be performed, and classify reagents and samples used in various tests.

Based on the classification made, the consultant and the hospital staff will discuss over issues related to disposal of the reagents and samples, such as potential environmental impact, risks during storage, and precautions in handling.

For those reagents and samples properly classified for post-analytical disposal, a manual on fixed disposal procedures will be prepared, specifically on liquid laboratory waste. Laboratory technicians will be guided by this manual regarding necessary separation and treatment and the procedures.

After explained, the hospital staff will be trained on the disposal methods and procedures in their actual work process.

A Japanese consultant and the hospital staff will work together to institutionalize the new disposal management. The Japanese consultant will prepare and explain the manual, and instruct the hospital staff with a support of a technical training planner (local consultant). Laboratory technicians and the Administrative Department staff, including the hospital director, the deputy hospital director, will attend the above consultative process and training.

A detailed training schedule is as shown below.

Activity components	Target	Number of trainees	Number of days
Output The hospital staff have defined a proper separation scheme of liquid laboratory waste ① Inspecting the current test items and other test items to be performed in the target clinical laboratory ② Inspecting specific reagents and samples used for the above test items ③ Checking the ongoing liquid waste disposal ④ Evaluating toxicity of the reagents inspected as above and the degree of potential impact on human body and the environment ⑤ Classifying and organizing the reagents in accordance with disposal procedures prescribed on the basis of the above evaluation ⑥ Deliberating on liquid waste disposal according to classification and organization made prior to the above step ⑦ Preparing an operational manual for liquid waste disposal	Chief laboratory technician, laboratory technicians concerned, and the Administrative Department staff	Approximately 3	9 days
Output The Hospital staff understand the necessary separation of liquid waste ① Lecturing on the necessary liquid waste separation a) Understanding of the toxic substances contained in reagents handled b) Understanding of potential infection risks in handled samples c) Potential impact on the environment and human body when liquid waste is not disposed properly d) Briefing of an operational manual e) Instruction on recording liquid waste management	Laboratory personnel, and the Administrative Department staff	Approximately 20	3 days
Output The hospital staff dispose liquid laboratory waste with prescribed procedures ① Hands-on training of liquid waste separation at source, procedures and storage pertinent to the manual ② Sorting out problems identified in disposal practices ③ Deliberating on countermeasures to respond to the identified problems ④ Revising the manual to incorporate the above countermeasures ⑤ Briefing of the revised manual	Laboratory personnel, and the Administrative Department staff	Approximately 20	3 days

The Project intends to allocate trainers and specialists in the proposed technical trainings as well as periods during which they will be serving.

I. Technical training on the CR system and PACS

・ Consultant for technical training of the CR system/PACS : 1 person

28 days in total (4 days for transportation, 19 days for training, 2 days for reporting project-related organizations, and 3 days for filing)

II. Assistance in developing disposal management of liquid laboratory waste

・ Consultant for liquid waste disposal management: 1 person

24 days in total (4 days for transportation, 15 days for training, 2 days for reporting project-related organizations, and 3 days for filing)

Allocated for both activity components above

・ Technical training planner 1 (locally employed Cambodian) : 1 person

21 days in total (2 days for transportation and 19 days for training)

3) Work in Japan

A report will be prepared to summarize results of the technical trainings. The proposed work in Japan will entail 3 days for a (Japanese) consultant who delivers a technical training of the CR system and PACS and 3 days for a consultant who assists developing disposal management of liquid laboratory waste.

6. Procurement of Resources to Implement the Soft Components

Specialized in the project-procured equipment, Japanese consultants will be assigned respectively to provide the technical training of the CR system and PACS and to assist in developing disposal management of liquid laboratory waste.

7. Schedule of Soft Component Implementation

At the present stage, the provisional implementation schedule is as illustrated below. It will be finalized in coordination with the counterpart staff in Cambodia and technical training consultants.

Provisional Implementation Schedule

Total number of months		1	2	3	4	5	…	9	10	11	12	13	14	15	16	17	18	19
Implementation Process	Facility construction																	
	Equipment procurement																	
	Implementation of soft components														Work in Japan	Work in Japa		
																On-site training		
	I. Technical training on the CR system and PACS																	
	II. Technical training on disposal of liquid laboratory water																	
Deliverables																	▲	
																Completion report		

8. Deliverables for the Soft Components

The Project plans the following deliverables for the soft components, including a Completion Report to be submitted to the Hospital and the Japanese project stakeholders.

Training component		Deliverables
	Technical training on operation and management of the procured equipment	
II Technical training on the CR system and PACS	① Mainstreaming essential knowledge on the CR system and PACS and assisting in an operational ② Training on image processing ③ Training on routine and scheduled maintenance of the procured equipment	Implementation report on technical training ・Training materials ・Operational manual ・Trainers report ・Results of questionnaires for trainees
Assistance in developing disposal management of liquid laboratory waste	① Classification of liquid waste disposal ② Assistance in developing disposal management of liquid waste	Implementation report on technical training ・Training materials ・Operational manual ・Trainers report ・Results of questionnaires for trainees

9. Responsibilities of the Counterpart Agency in the Recipient Country

Project stakeholders of the Ministry of Health, the Hospital, and 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. The Hospital, furthermore, is required to take immediate actions needed for facility operations, such as continual staff training, budget appropriation, and procurement, building upon skills obtained from soft component implementation.

6. Other Relevant Data

Project Title : THE PROJECT FOR IMPROVEMENT OF BATTAMBANG PROVINCE REFERRAL HOSPITAL IN THE KINGDOM OF CAMBODIA

No.	Title	Issuing Institution	Issued year
1	National Strategic development plan 2014-2018	Royal government of Cambodia	2014
2	Health Strategic Plan 2008-2015 Accounting Efficiency Quality Equity	Ministry of Health	2008
3	CPA Guideline 2014	Ministry of Health	2014
4	Cambodia – Demographic and Health Survey 2014	Ministry of Health	2015
5	Annual Health Financing Report 2015	Ministry of Health	2015
6	Public Investment Program 2015-2017	Ministry of Planning	2014
7	Health Sector Progress in 2013	Ministry of Health	2014
8	Cambodia Inter - Censal Population Survey 2013	Ministry of Planning	2013
9	Staff statistics 2016 (in Khmer)	Ministry of Health	2016
10	Staff statistics 2015 (in Khmer)	Ministry of Health	2015
11	Staff statistics 2014 (in Khmer)	Ministry of Health	2014
12	Drinking water quality standards	Ministry of industry mines and energy	2004
13	Infection Prevention and Control Guidelines for Health Care Facilities	Ministry of Health	2010
14	National guideline on health care waste management	Ministry of Health	2012
15	Technical Guidelines on Healthcare Waste Management	Ministry of Health	2011
16	PRAKAS on health-care waste management in Cambodia	Ministry of Health	2009

7. References
7-1. Topographic Map of the Site

PROJECT	The Project for Improvement of Batambang Provincial Referral Hospital
SITE	Batambang Provincial Referral Hospital
DWG TITLE	SITE SURVEY PLAN
SCALE	SCALE: A0: 1/30000 A1: 1/15000
DATE	27/07/2016
PROJECT No.	
DWG No.	

AZUSA SEKKEI
Architects, Engineers & Consultants

7-2. Boring Data of the Site

(1) Bore Hole Point BH-1

Figure A2.1: BORING LOG AND STANDARD PENETRATION TEST RESULTS

BOREHOLE: **BH1**

Project Name: FOR IMPROVEMENT OF BATTAMBANG PROVINCIAL REFERRAL HOSPITAL

Project Location: SANGKAT SVAY POR, BATTAMBANG CITY, KINGDOM OF CAMBODIA

Coordinate:
X = 305 083
Y = 1 449 782

Elevation: 0.0 m
- Assumed: ☑
- Measured: ☐

Ground water:
- Water inflow ▽ :
- Water level ▼ : 1.2m (07/07/2016)

Depth of borehole: 20.0 m

Weather: Sunny

Start date: 06/07/2016

End date: 06/07/2016

Depth (m)	LAYER: Bottom elevation (m) / Bottom depth (m)	LAYER: Thickness of layer (m)	LAYER: Layer No.	Soil sample symbol	Soil description and classification	SAMPLE TYPE	SPT: N value (N30cm)	SPT: SPT Graph
0	0.0				Ground surface			
0	0.0 / -0.8	0.8			**Fills** Top soil: CLAY with sand, yellowish grey			
1	0.8					UD1 (1.3 - 1.5m)	01/01/01 (02)	2
2		3.2	1		**(CL)s** Soft lean CLAY with sand, ligh brown	UD2 (2.8 - 3.0m)	01/01/01 (02)	2
3						UD3 (4.3 - 4.5m)	07/09/05 (14)	14
4	-4.0 / 4.0					UD4 (5.8 - 6.0m)	03/04/05 (09)	9
5		3.0	2		**(SC)** Loose to medium dense clayey SAND, brown	UD5 (7.3 - 7.5m)	02/03/05 (08)	8
6						UD6 (8.8 - 9.0m)	02/03/04 (07)	7
7	-7.0 / 7.0					UD7 (10.3 - 10.5m)	04/08/08 (16)	16
8						UD8 (11.8 - 12.0m)	05/05/09 (14)	14
9						UD9 (13.3 - 13.5m)	04/07/10 (17)	17
10						UD10 (14.8 - 15.0m)	05/10/12 (22)	22
11		>13.0	3		**(CH)** Firm to very stiff fat CLAY, yellowish brown - yellowish grey	UD11 (16.3 - 16.5m)	05/06/06 (12)	12
12						UD12 (17.8 - 18.0m)	04/08/10 (18)	18
13						UD13 (19.3 - 19.5m)	06/05/09 (14)	14
14								
15								
16								
17								
18								
19								
20	-20.0 / 20.0				Bottom of borehole at depth of 20.0m			
21								

SAMPLE TYPE: Undisturbed, Disturbed, Core run, SPT

SPT Graph: 10 20 30 40

PHNOM PENH-CAMBODIA

Equipment: Mobile Drill (Texas USA)

Borehole diameter: D = 110 mm

Drilling method: Rotary drilling with bentonite flushing

Logged by: KHIEV BORIN

Compiled by: KORNG VUTHA

Sheet: 1 of 1

(2) Bore Hole Point BH-2

Figure A2.2: BORING LOG AND STANDARD PENETRATION TEST RESULTS | BOREHOLE: **BH2**

Project Name: FOR IMPROVEMENT OF BATTAMBANG PROVINCIAL REFERRAL HOSPITAL

Project Location: SANGKAT SVAY POR, BATTAMBANG CITY, KINGDOM OF CAMBODIA

Coordinate:
X = 305 103
Y = 1 449 803

Elevation: 0.0 m
- Assumed: ☑
- Measured: ☐

Ground water:
- Water inflow :
- Water level : 0.7m (08/07/2016)

Depth of borehole: 20.0 m

Weather: Sunny

Start date: 07/07/2016

End date: 07/07/2016

Depth (m)	LAYER: Bottom elevation (m) / Bottom depth (m)	LAYER: Thickness of layer (m)	LAYER: Layer No.	Soil sample symbol	Soil description and classification	SAMPLE TYPE	SPT: N value (N30cm)	SPT: SPT Graph
0	0.0				Ground surface			
0	0.0 / -0.8	0.8			**Fills** Top soil: CLAY with sand, yellowish grey			
1	0.8	1.2	1			UD1 (1.3 - 1.5m)	01/01/01 (02)	2
2	2.0 / -2.0				**(CL)s** Soft lean CLAY with sand, ligh brown	UD2 (2.8 - 3.0m)	02/03/05 (08)	8
3						UD3 (4.3 - 4.5m)	03/04/06 (10)	10
4						UD4 (5.8 - 6.0m)	03/03/05 (08)	8
5						UD5 (7.3 - 7.5m)	04/06/07 (13)	13
6						UD6 (8.8 - 9.0m)	03/06/07 (13)	13
7						UD7 (10.3 - 10.5m)	04/07/09 (16)	16
8						UD8 (11.8 - 12.0m)	04/05/06 (11)	11
9		14.0	3		**(CH)** Stiff to very stiff fat CLAY, yellowish brown - yellowish grey	UD9 (13.3 - 13.5m)	09/10/10 (20)	20
10						UD10 (14.8 - 15.0m)	06/08/11 (19)	19
11						UD11 (16.3 - 16.5m)	05/06/08 (14)	14
12						UD12 (17.8 - 18.0m)	04/08/12 (20)	20
13						UD13 (19.3 - 19.5m)	08/12/15 (27)	27
14								
15								
16	-16.0 / 16.0							
17		>4.0	4		**(SC)** Medium dense clayey SAND, yellowish grey			
18								
19								
20	-20.0 / 20.0				Bottom of borehole at depth of 20.0m			
21								

SPT Graph: 10 20 30 40

PHNOM PENH-CAMBODIA

Equipment: Mobile Drill (Texas USA)

Borehole diameter: D = 110 mm

Drilling method: Rotary drilling with bentonite flushing

Logged by: KHIEV BORIN

Compiled by: KORNG VUTHA

Sheet: 1 of 1

(3) Bore Hole Point BH-3

Figure A2.3: BORING LOG AND STANDARD PENETRATION TEST RESULTS

BOREHOLE: **BH3**

Project Name: FOR IMPROVEMENT OF BATTAMBANG PROVINCIAL REFERRAL HOSPITAL

Project Location: SANGKAT SVAY POR, BATTAMBANG CITY, KINGDOM OF CAMBODIA

Coordinate:
X = 305 123
Y = 1 449 794

Elevation: 0.0 m
- Assumed: ☑
- Measured: ☐

Ground water:
- Water inflow :
- Water level : 1.0m (09/07/2016)

Depth of borehole: 20.0 m

Weather: Sunny

Start date: 08/07/2016

End date: 08/07/2016

Depth (m)	LAYER: Bottom elevation (m) / Bottom depth (m)	LAYER: Thickness of layer (m)	LAYER: Layer No.	Soil sample symbol	Soil description and classification	SAMPLE TYPE	SPT: N value (N30cm)	SPT Graph
0	0.0				Ground surface			
	0.0 / -0.8	0.8			**Fills** Top soil: CLAY with sand, yellowish grey			
1	0.8	1.2	1			UD1 (1.3 - 1.5m)	01/01/02 (03)	3
2	-2.0 / 2.0				**(CL)s** Soft lean CLAY with sand, ligh brown	UD2 (2.8 - 3.0m)	02/03/03 (06)	6
3						UD3 (4.3 - 4.5m)	02/04/05 (09)	9
4						UD4 (5.8 - 6.0m)	02/04/06 (10)	10
5						UD5 (7.3 - 7.5m)	04/05/07 (12)	12
6						UD6 (8.8 - 9.0m)	02/03/05 (08)	8
7						UD7 (10.3 - 10.5m)	03/06/07 (13)	13
8						UD8 (11.8 - 12.0m)	04/06/08 (14)	14
9						UD9 (13.3 - 13.5m)	07/09/11 (20)	20
10		15.5	3		**(CH)** Firm to very stiff fat CLAY, yellowish brown - yellowish grey	UD10 (14.8 - 15.0m)	06/09/10 (19)	19
11						UD11 (16.3 - 16.5m)	06/08/08 (16)	16
12						UD12 (17.8 - 18.0m)	08/10/11 (21)	21
13						UD13 (19.3 - 19.5m)	07/09/09 (18)	18
14								
15								
16								
17	-17.5 / 17.5							
18		>2.5	4		**(SC)** Medium dense clayey SAND, yellowish grey			
19								
20	-20.0 / 20.0				Bottom of borehole at depth of 20.0m			
21								

SPT Graph: 10 20 30 40

PHNOM PENH-CAMBODIA

Equipment: Mobile Drill (Texas USA)

Borehole diameter: D = 110 mm

Drilling method: Rotary drilling with bentonite flushing

Logged by: KHIEV BORIN

Compiled by: KORNG VUTHA

Sheet: 1 of 1

(4) Bore Hole Point BH-4

Figure A2.4: BORING LOG AND STANDARD PENETRATION TEST RESULTS

BOREHOLE: **BH4**

Project Name: FOR IMPROVEMENT OF BATTAMBANG PROVINCIAL REFERRAL HOSPITAL

Project Location: SANGKAT SVAY POR, BATTAMBANG CITY, KINGDOM OF CAMBODIA

Coordinate:
X = 305 130
Y = 1 449 820

Elevation: 0.0 m
- Assumed: ☑
- Measured: ☐

Ground water:
- Water inflow :
- Water level : 1.0m (10/07/2016)

Depth of borehole: 20.0 m

Weather: Sunny

Start date: 09/07/2016

End date: 09/07/2016

Depth (m)	LAYER: Bottom elevation (m) / Bottom depth (m)	LAYER: Thickness of layer (m)	LAYER: Layer No.	Soil sample symbol	Soil description and classification	SAMPLE TYPE	SPT: N value (N30cm)	SPT: SPT Graph
0	0.0				Ground surface			
	0.0 / -0.8	0.8			**Fills** Top soil: CLAY with sand, yellowish grey			
1	0.8	1.2	1			UD1 (1.3 - 1.5m)	01/01/01 (02)	2
	-2.0				**(CL)s** Soft lean CLAY with sand, ligh brown	UD2 (2.8 - 3.0m)	02/04/04 (08)	8
2	2.0					UD3 (4.3 - 4.5m)	02/03/04 (07)	7
3						UD4 (5.8 - 6.0m)	03/04/05 (09)	9
4						UD5 (7.3 - 7.5m)	03/05/05 (10)	10
5						UD6 (8.8 - 9.0m)	02/04/05 (09)	9
6						UD7 (10.3 - 10.5m)	03/05/04 (09)	9
7						UD8 (11.8 - 12.0m)	05/05/10 (15)	15
8						UD9 (13.3 - 13.5m)	07/09/09 (18)	18
9						UD10 (14.8 - 15.0m)	07/09/11 (20)	20
10						UD11 (16.3 - 16.5m)	06/10/12 (22)	22
11		>18.0	3		**(CH)** Firm to very stiff fat CLAY, yellowish brown - yellowish grey	UD12 (17.8 - 18.0m)	07/09/10 (19)	19
12						UD13 (19.3 - 19.5m)	09/09/11 (20)	20
13								
14								
15								
16								
17								
18								
19								
20	-20.0 / 20.0				Bottom of borehole at depth of 20.0m			
21								

SAMPLE TYPE: Undisturbed; Disturbed; Core run; SPT

SPT Graph: 10 20 30 40

PHNOM PENH-CAMBODIA

Equipment: Mobile Drill (Texas USA)

Borehole diameter: D = 110 mm

Drilling method: Rotary drilling with bentonite flushing

Logged by: KHIEV BORIN

Compiled by: KORNG VUTHA

Sheet: 1 of 1

(5) Bore Hole Point BH-5

Figure A2.5: BORING LOG AND STANDARD PENETRATION TEST RESULTS | BOREHOLE: **BH5**

Project Name: FOR IMPROVEMENT OF BATTAMBANG PROVINCIAL REFERRAL HOSPITAL

Project Location: SANGKAT SVAY POR, BATTAMBANG CITY, KINGDOM OF CAMBODIA

Coordinate:
X = 305 153
Y = 1 449 812

Elevation: 0.0 m
- Assumed: ☑
- Measured: ☐

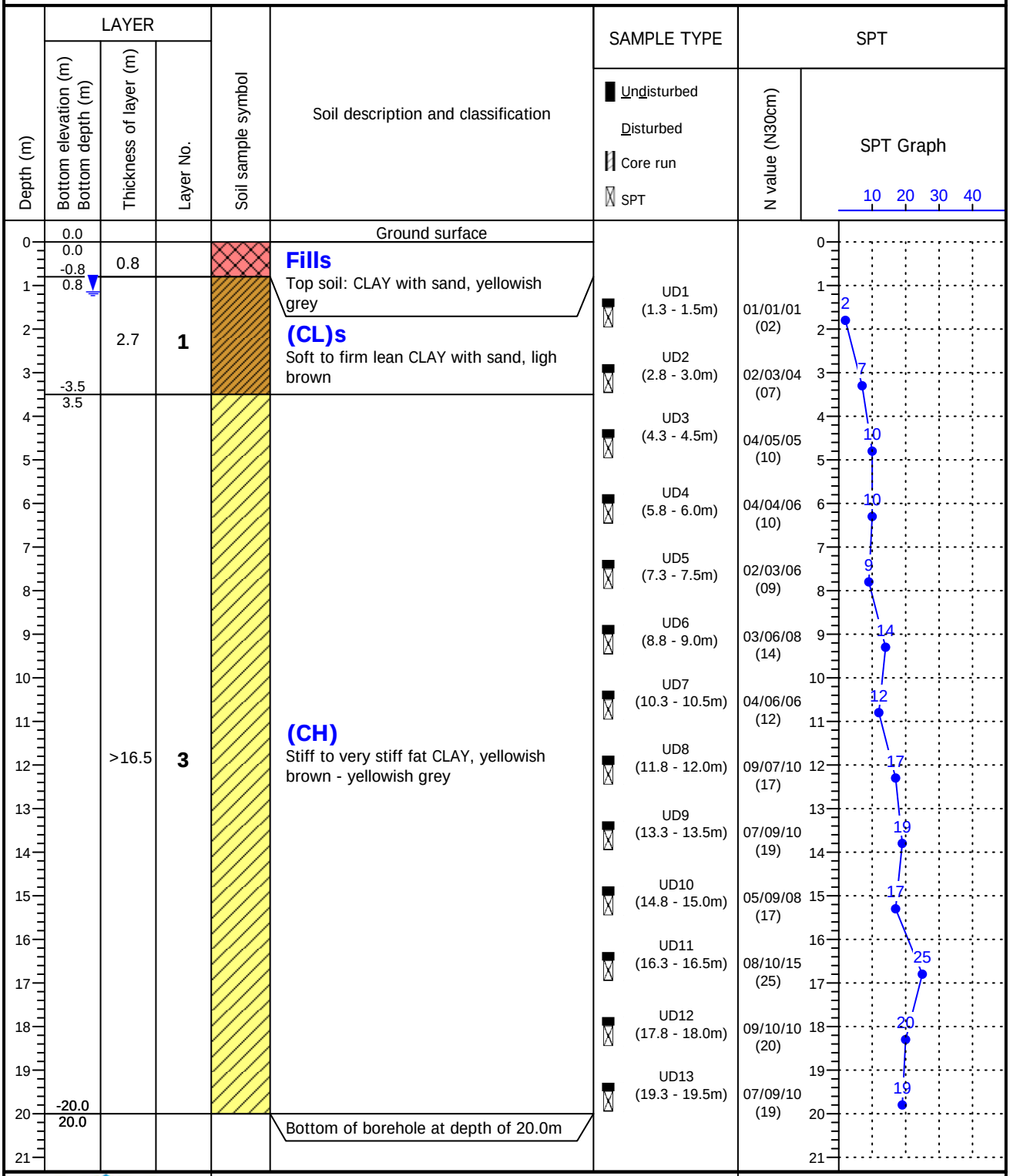
Ground water:
- Water inflow :
- Water level : 1.2m (09/07/2016)

Depth of borehole: 20.0 m

Weather: Sunny

Start date: 08/07/2016

End date: 08/07/2016



PHNOM PENH-CAMBODIA

Equipment: Mobile Drill (Texas USA)

Borehole diameter: D = 110 mm

Drilling method: Rotary drilling with bentonite flushing

Logged by: KHIEV BORIN

Compiled by: KORNG VUTHA

Sheet: 1 of 1

(6) Bore Hole Point BH-6

Figure A2.6: BORING LOG AND STANDARD PENETRATION TEST RESULTS | BOREHOLE: **BH6**

Project Name: FOR IMPROVEMENT OF BATTAMBANG PROVINCIAL REFERRAL HOSPITAL
Project Location: SANGKAT SVAY POR, BATTAMBANG CITY, KINGDOM OF CAMBODIA
Coordinate:
X = 305 106
Y = 1 449 790
Elevation: 0.0 m
- Assumed: ☑
- Measured: ☐
Ground water:
- Water inflow ▽ :
- Water level ▼ : 1.2m (27/07/2016)
Depth of borehole: 60.0 m
Start date: 23/07/2016
Weather: Sunny
End date: 26/07/2016

Depth (m)	LAYER: Bottom elevation (m) / Bottom depth (m)	LAYER: Thickness of layer (m)	LAYER: Layer No.	Soil sample symbol	Soil description and classification	SAMPLE TYPE	SPT: N value (N30cm)	SPT Graph
0	0.0				Ground surface			
0	0.0 / -0.8	0.8			**Fills** Top soil: CLAY with sand, yellowish grey			
1	0.8					UD1 (1.3 - 1.5m)	01/01/02 (03)	3
2						UD2 (2.8 - 3.0m)	01/02/02 (04)	4
3		4.6	1		**(CL)s** Soft to firm lean CLAY with sand, ligh brown	UD3 (4.3 - 4.5m)	02/02/02 (04)	4
4								
5	-5.4					UD4 (5.8 - 6.0m)	03/04/05 (09)	9
5	5.4					UD5 (7.3 - 7.5m)	03/04/06 (10)	10
6						UD6 (8.8 - 9.0m)	03/04/06 (10)	10
7						UD7 (10.3 - 10.5m)	03/04/05 (09)	9
8						UD8 (11.8 - 12.0m)	05/06/08 (14)	14
9						UD9 (13.3 - 13.5m)	05/06/08 (14)	14
10		10.2	3		**(CH)** Stiff to very stiff fat CLAY, yellowish brown - yellowish grey	UD10 (14.8 - 15.0m)	06/08/08 (16)	16
11						UD11 (16.3 - 16.5m)	06/08/10 (18)	18
12						UD12 (17.8 - 18.0m)	04/16/18 (34)	34
13						UD13 (19.3 - 19.5m)	08/13/17 (30)	30
14						UD14 (20.8 - 21.0m)	06/11/16	
15	-15.6							
15	15.6							
16								
17		3.1	4		**(SC)** Medium dense to dense clayey SAND, yellowish grey			
18	-18.7							
18	18.7							
19								
20								
21								

SAMPLE TYPE: Undisturbed, Disturbed, Core run, SPT
SPT Graph: 10 20 30 40

STL PHNOM PENH-CAMBODIA

Equipment: Mobile Drill (Texas USA)
Borehole diameter: D = 110 mm
Drilling method: Rotary drilling with bentonite flushing

Logged by: KORNG VUTHA
Compiled by: KORNG VUTHA
Sheet: 1 of 3

7-3. Water Quality Survey Result
(1) Tubewell

RDI CAMBODIA

Resource Laboratory Water Analytical Results

Client: **S.O.M Corporation**		Water Source:	***Tubewell***
Date Received:	8-Jul-16	Province:	Battambang
Collection Date:	1-Jul-16	District:	NA
# of samples:	2	Commune:	NA
Preservation:	Regular	Village:	NA

Sample ID: A

Parameter	Results	Units	Method	Date Analyzed	DL	CDWQS
Ammonia	0.01	mg/L as NH3	Colorimetric	12-Jul-2016	-	1.50
Arsenic	<DL	ppb	AFS	12-Jul-2016	1.6	50
E.coli	0	cfu/100 mL	MF	8-Jul-2016	-	0
Total Coliforms	0	cfu/100 mL	MF	8-Jul-2016	-	0
Chloride	23.51	mg/L	IC	15-Jul-2016	0.18	250
Chlorine Combined	0.12	mg/L	Colorimetric	15-Jul-2016	-	-
Chlorine Free	0.17	mg/L	Colorimetric	15-Jul-2016	-	0.2 - 0.5
Chlorine Total	0.29	mg/L	Colorimetric	15-Jul-2016	-	-
Color	20	TCU	TCU	19-Jul-2016	-	5
Cyanide	0.008	mg/L	Colorimetric	19-Jul-2016	-	0.07
Fluoride	<DL	mg/L	IC	15-Jul-2016	0.35	1.5
Total Hardness	54	mg/L	Titration	15-Jul-2016	-	300
Iron	0.09	mg/L	Colorimetric	12-Jul-2016	-	0.30
Manganese	0.06	mg/L	AAS	12-Jul-2016	0.05	0.10
Mercury	0	mg/L	AFS	11-Jul-2016	-	0.001
Nitrate	1.74	mg/L	IC	15-Jul-2016	0.13	50
Nitrite	<DL	mg/L	IC	15-Jul-2016	0.15	3
pH	8.5	pH units	Meter	11-Jul-2016	-	6.5 - 8.5
Sodium	8.80	mg/L	IC	15-Jul-2016	<2	200
Sulfate	3.24	mg/L	IC	15-Jul-2016	0.11	250
Temperature	28.10	° Celcius	Probe	11-Jul-2016	-	-
Total Suspended Solids	0	mg/L	Filtration	11-Jul-2016	-	-
Turbidity	4.72	NTU	Meter	11-Jul-2016	-	5

CDWQS = Cambodian Drinking Water Quality Standards (2004)

Exceeds Cambodian Drinking Water Quality Standard

DL = Detection Limit

Date: *20-Jul-2016*
Certified by
Communication Director

Resource Laboratory

Chanda Cheng

Address: #50A, Royal Brick Road, Preak Thum Village, Sangkat Kbal Koh, Khan Chbar Ampov, Phnom Penh, Cambodia
Lab Phone: 017 794 393, Office Phone: 017 778 533, Lab Email: lab@rdic.org, Website: www.rdic.org

(2) Water tank

Resource Laboratory Water Analytical Results

Client: **S.O.M Corporation**
Date Received: 8-Jul-16
Collection Date: 1-Jul-16
# of samples: 2
Preservation: Regular

Water Source: ***Water Tank***
Province: Battambang
District: NA
Commune: NA
Village: NA

Sample ID: B

Parameter	Results	Units	Method	Date Analyzed	DL	CDWQS
Ammonia	0.02	mg/L as NH3	Colorimetric	12-Jul-2016	-	1.50
Arsenic	<DL	ppb	AFS	12-Jul-2016	1.6	50
E.coli	0	cfu/100 mL	MF	8-Jul-2016	-	0
Total Coliforms	7	cfu/100 mL	MF	8-Jul-2016	-	0
Chloride	18.90	mg/L	IC	15-Jul-2016	0.18	250
Chlorine Combined	0.08	mg/L	Colorimetric	15-Jul-2016	-	-
Chlorine Free	0.27	mg/L	Colorimetric	15-Jul-2016	-	0.2 - 0.5
Chlorine Total	0.35	mg/L	Colorimetric	15-Jul-2016	-	-
Color	70	TCU	TCU	19-Jul-2016	-	5
Cyanide	0.014	mg/L	Colorimetric	19-Jul-2016	-	0.07
Fluoride	<DL	mg/L	IC	15-Jul-2016	0.35	1.5
Total Hardness	54	mg/L	Titration	15-Jul-2016	-	300
Iron	0.26	mg/L	Colorimetric	12-Jul-2016	-	0.30
Manganese	0.09	mg/L	AAS	12-Jul-2016	0.05	0.10
Mercury	0	mg/L	AFS	11-Jul-2016	-	0.001
Nitrate	4.88	mg/L	IC	15-Jul-2016	0.13	50
Nitrite	<DL	mg/L	IC	15-Jul-2016	0.15	3
pH	8.3	pH units	Meter	11-Jul-2016	-	6.5 - 8.5
Sodium	8.23	mg/L	IC	15-Jul-2016	<2	200
Sulfate	5.44	mg/L	IC	15-Jul-2016	0.11	250
Temperature	28.20	° Celcius	Probe	11-Jul-2016	-	-
Total Suspended Solids	17	mg/L	Filtration	11-Jul-2016	-	-
Turbidity	20.7	NTU	Meter	11-Jul-2016	-	5

CDWQS = Cambodian Drinking Water Quality Standards (2004)

Exceeds Cambodian Drinking Water Quality Standard

DL = Detection Limit

Date: *20-Jul-2016*
Certified by:
Communication Director

Resource Laboratory

Chanda Cheng

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