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1. 調査団員・氏名

1. 調査団員・氏名

(1) 現地調査（2014年8月23日～9月16日）

	名前	担当	所属
1.	瀧澤 郁雄	総括	国際協力機構 人間開発部 保健第一グループ 保健第一チーム 課長
2.	宮川 雅美	技術参与	国立国際医療研究センター 国際医療協力局
3.	琴浦 容子	計画管理	国際協力機構 人間開発部 保健第一グループ 保健第一チーム
4.	西山 謙太郎	業務主任／建築計画-1	システム科学コンサルタンツ株式会社
5.	渡辺 政彦	副業務主任／建築計画-2	システム科学コンサルタンツ株式会社
6.	浅沼 靖子	機材計画	ビンコーインターナショナル株式会社
7.	小林 恵子	保健人材開発	システム科学コンサルタンツ株式会社 (株式会社コーエイ総合研究所)
8.	河合 良夫	建築設計／自然条件調査	システム科学コンサルタンツ株式会社
9.	小倉 茂	設備設計	ビンコーインターナショナル株式会社 (株式会社福永設計)
10.	早原 章広	施工計画／積算	システム科学コンサルタンツ株式会社
11.	秦 敏晴	調達計画／積算	システム科学コンサルタンツ株式会社

(2) 概要説明調査（2015年2月13日～2月20日）

	名前	担当	所属
1.	瀧澤 郁雄	総括	国際協力機構 人間開発部 保健第一グループ 保健第一チーム 課長
2.	徳星 達仁	協力企画	国際協力機構 人間開発部 保健第一グループ 保健第一チーム
3.	上野 靖浩	調査企画	国際協力機構 財務部 財務第二課
4.	西山 謙太郎	業務主任／建築計画-1	システム科学コンサルタンツ株式会社
5.	浅沼 靖子	機材計画	ビンコーインターナショナル株式会社

2. 調査行程

2. 調査行程

(1) 現地調査時 (2014年8月23日～9月16日)

日数	月日	曜日	官側	業務主任/建築計画-1	保健人材開発	副業務主任/建築計画-2	機材計画	建築設計／自然条件調査	施工計画/積算	設備設計	調達計画/積算
			総括：瀧澤 郁雄 技術参与：宮川 雅美 計画管理：琴浦 容子	西山 謙太郎	小林 恵子	渡辺 政彦	浅沼 靖子	河合 良夫	早原 章広	小倉 茂	秦 敏晴
1	8月23日	土		成田発	←	←	←	←	←		
2	8月24日	日	成田発	ハルツーム着	←	←	←	ハルツーム着 現地アシスタント打合せ 関係者アホ調整	←		
3	8月25日	月	ハルツーム着 JICAスーダン事務所訪問	ハルツーム保健省協議（ICR説明・質問票依頼等） JICA事務所訪問	←	←	←	自然条件調査調整 （調査方法、手順等の調整）	現地施工会社調査準備 連絡アホ調整（現地施工会社、コンサルタント等）		
4	8月26日	火	ハルツーム州保健省担当部局協議 関係施設視察（オンドゥルマン母子病院） 調査対象サイト視察（ワンバダ総合病院）	←	←	←	←	自然条件調査調整 対象サイト調査	許認可関連必要事項調査 対象サイト調		
5	8月27日	水	関係施設視察（トルコ総合病院） 調査対象サイト視察（トレアアルビジャ保健センター） 調査対象サイト視察（アルバンジャデイド総合病院）	←	（医療従事者配置確認）	（先方負担事項確認）	（優先順位の協議）	← （施設配置検討）	← （施工留意点検討）		
6	8月28日	木	連邦保健省・ハルツーム保健省 ミニッツ協議	←	←	← 自然調査サイト作業許可受領 境界立ち合い者の確認	← （機材計画調査）	サイト建設予定地、既存施設調査	主要資材調達先・労務等の調査		
7	8月29日	金	資料整理・団内会議	← 計画素案検討	← 医療運営体制素案検討	← 計画素案検討	← 計画素案検討	← 計画素案検討	← 計画素案検討		
8	8月30日	土	関係施設視察・団内会議	← 関係施設視察・団内会議	← 同上	← 同上	← 同上	← 同上	← 同上		
9	8月31日	日	ミニッツ作業・団内会議	←	←	←	←	建築設計調査 （調査対象地調査/検討会）	施工計画・積算調査 （調査対象地調査/検討会）		
10	9月1日	月	ミニッツ調印（連邦保健省、州保健省、連邦財務省） JICA事務所報告、大使館報告 ハルツーム発	←	←	業務主任と同じ	計画素案作成	建築設計調査 （計画時の申請必要事項含む）	施工計画・積算調査 （施工時の申請必要事項含む）	成田発	調達計画／積算調査
11	9月2日	火	成田着	ハルツーム州保健省担当部局協議 現地体制、相手国負担、整備基準、維持管理の内容・主体・費用負担等	ハルツーム州保健省担当部局協議、 対象病院等調査 医療体制、保健制度等	環境関連法規・基準調査	同上	同上	同上	設備計画調査 （調査対象地調査）	同上
12	9月3日	水		同上	同上	同上	同上 （維持管理の優先度把握）	同上	同上	設備計画調査 （調査対象地調査）	同上
13	9月4日	木		施設・機材概略計画素案／ 運営維持管理体制素案の検討 団内会議	← 同上	← 各専門分野調査進捗確認	同上	建築設計調査 （自然条件調査進捗確認）	同上	設備計画調査 （計画時の申請必要事項含む）	同上
14	9月5日	金		資料整理・団内会議	←	← ハルツーム発	資料整理・団内会議	資料整理・団内会議	←	←	←
15	9月6日	土		同上	←	成田着	同上	建築設計素案作成	資料整理 補足調査	←	←
16	9月7日	日		ハルツーム州保健省担当部局協議 －計画素案の協議	←		ハルツーム州保健省担当部局協議 －機材計画素案の協議	ハルツーム州保健省担当部局協議 －施設計画素案の協議	施工計画・積算調査 （施工時の申請必要事項含む）	設備計画調査 （計画時の申請必要事項含む）	調達計画／積算調査
17	9月8日	月		ハルツーム州保健省担当部局協議 －EIA、建設許可手続き確認 －相手国負担事項（各段階） －予算面の確認等	← －想定される医療従事者の配置 －費用負担等		ハルツーム州保健省担当部局協議 －機材計画素案確認 －維持管理訓練の優先度確認	建築設計調査 （病院及び関連機関）	同上	同上	同上
18	9月9日	火		ハルツーム州保健省担当部局協議 －計画要件の確認 －優先順位の確認	←		業務主任と同じ	同上	同上	設備設計素案作成	同上
19	9月10日	水		計画素案の作成	← －各施設の医療従事者運営体制 素案の確認		同上	自然条件調査報告書受領 または作業調整	同上	設備計画調査 （計画時の申請必要事項含む）	依頼資料回収 （補足調査）
20	9月11日	木		ハルツーム州保健省担当部局協議 －現地調査結果の説明 －テクニカルノート内容協議	←		業務主任と同じ	←	←	設備計画調査 （病院及び関連機関）	同上 （団内会議）
21	9月12日	金		資料整理・団内会議	←		ハルツーム発	←	資料整理・団内会議	←	←
22	9月13日	土		同上	←		成田着	←	同上	←	←
23	9月14日	日		連邦保健省、ハルツーム州保健省協議 －今後のスケジュール確認、 －テクニカルノート署名	←				依頼資料回収 （補足調査）	設備計画調査 （病院及び関連機関）	業務主任と同じ
24	9月15日	月		JICA事務所および大使館報告 ハルツーム発	←				ハルツーム発	←	←
25	9月16日	火		成田着	←				成田着	←	←

(2) 概要説明調査時（2015年2月13日～2月20日）

日 数	月日	曜日	官側	業務主任/建築計画-1	機材計画
			総括：瀧澤 郁雄 協力企画：徳星 達仁 調査企画：上野 靖浩	西山 謙太郎	浅沼 靖子
1	2月13日	金		成田発	同左
2	2月14日	土	成田発	ハルツーム着 サイト状況確認	同左
3	2月15日	日	ハルツーム着 JICAスーダン事務所訪問	ハルツーム保健省協議（DFR説明） JICA事務所訪問	同左
4	2月16日	月	連邦財務省DFR説明、ミッツ案協議 ハルツーム州保健省DG DFR説明、ミッツ案協議 連邦保健省DFR説明、ミッツ案協議	同左	同左
5	2月17日	火	関係施設視察（オンドゥルマン母子病院） 計画対象サイト確認（ウンバダ総合病院）	ハルツーム州保健省協議（施設） 計画対象サイト確認（ウンバダ総合病院）	ハルツーム州保健省協議（機材） 中央薬品センター、機材代理店調査
6	2月18日	水	ミッツ署名 （ハルツーム州保健省・財務省、連邦保健省・財務省）	同左	同左
7	2月19日	木	JICA事務所報告、大使館報告 ハルツーム発	JICA事務所報告、大使館報告 ハルツーム発	機材関連調査、大使館報告 ハルツーム発
8	2月20日	金	成田着	成田着	成田着

3. 関係者(面会者)リスト

3. 関係者(面会者)リスト

(1) スーダン国連邦財務省

Mr. Omer Mohamed Ahmed Elhag	Director General, International Cooperation Directorate
Mr. Mkin Musa	Director, Bilateral Financing Department
Ms. Faiza Mirghani Mohammed Ali	Deputy Director, Bilateral Financing Department
Ms. Eglal Abdalla Alameed	Japan Desk officer, Bilateral Financing Department

(2) スーダン国連邦保健省

Dr. Mohamed Ali Yahia Elabassi	Director General, Planning & International Health Directorate
Dr. Imad El Din. A.M. Ismail	Director, International Health and External Relations Department, Global Health Initiatives Coordinator
Dr. Siham Elamin	PHC Expansion Director

(3) ハルツーム州保健省

Prof. Mamoun Homeida	Minister
Dr. Salah Eldin Abd Elrazig	Director General
Dr. Babiker Mohamed Ali	Director of Curative Medicine Directorate
Dr. Husaam Aldein Elhassein	Director of PHC Directorate
Eng. Elsheikh Fadul Almola Mohamed	Director of Development Directorate
Dr. Mahmoud Elgayem Abdulla	General Manager of Strategy and Planning Directorate
Dr. Nuha A.A. Salheen	MCH Director, PHC Directorate
Dr. Osama Elnour Abdallah	Health System Director, PHC Directorate
Dr. Sareen Mahgoub Alzayat	Health Centers Director
Eng. Aida Sidahmed Mohammed	Biomedical Engineering Director, Curative Medicine Directorate
Eng. Habib Youis	Technical Director of Biomedical Engineering Unit
Eng. Osama Mohamed Hassan	Biomedical Supervisor, Biomedical Engineering Unit
Eng. Asim Osman Mohamed	PHC Planning Unit, PHC Directorate
Dr. Mona Ali	Director, Department of Voluntary Agency
Dr. Yousif Tibin Mohd Nura	Director of Hospital Department
Mr. Osman Elbushra	Health Advisor
Dr. Mahamnad Al Mahdi Abd Alwahab	M&E Department, Curative Medicine Directorate
Mr. Jolyana Elhadi Babiker	Information Department
Mr. Nagwa Mohammed	Information Department
Dr. Zakia Faisal Abubakr Mahmoud	Director of Quality Control at Hospital Management Department
Mr. Elnazir Mohamed Elsayed	Director General of Lab. Administration
Dr. Montser Elameen Gasm Elsecd	Director of Standards & Assurance Department
Dr. Hasin Osama Oner	Director of QTY development

(4) 郡保健事務所

Dr. Sayed Mohahmed	Director of PHC, Jabal Awlia Locality
Dr. Boshra Atta Taha	Director of MCH, Jabal Awlia Locality
Dr. Taha Omer Alsheekh	Director of PHC, Jabal Awlia Locality
Dr. Mohamed Saeed Mohamed Hassanien	Director of PHC, Jabal Awlia Locality
Dr. Bushra Atif	Director of MCH, Jabal Awlia Locality

(5) アルバンジャジッド総合病院

Dr. Atif Ehhom	General Director
Dr. Nadir Elsir	Medical Director
Dr. Al Amin	Obstetrician
Dr. Nagura Abdalla	Obstetrician
Dr. Ossman	Pediatrician
Eng. Hind Mohammed	Biomedical Engineer in Civil Service
Eng. Safa	Biomedical Engineer, employed by KSMOH
Eng. Akkram	Biomedical Engineer , employed by the Hospital

(6) トレアールヴィジャ保健センター

Mr. Abo Kasawy	Director General
Dr. Ismail	Director of PHC, Locality Health Department

(7) オンデュルマン母子病院

Dr. Murawan Ibrahim Omer	Director General
Dr. Lubna Abd Elwahab	Assistant Director General
Dr. Mahasin Ali Elhaj	Pharmacist
Eng. Tarteel Khalid Tagaldin	Biomedical Engineer
Dr. Rifaat M. Abd Elwahab	Deputy General Manager
Mr. Amir	Public Relation officer
Dr. Awad	Medical Dr. for ANC
Dr. Abu Khalid	Gynecologist for ANC care (CTG)
Dr. Sarah	Ob/Gynecologist
Dr. Fath Atia	Master in Women Health (Family planning)
Dr. Hara Eldimyatti	Quality Control Dr.

(8) トルコ病院

Dr. Nawal Mustafa Osman	General Director
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Dr. Ibrahim Bedri General Director

Dr. Hazima Abbas General Director

Dr. Tarig Nasreldin Badawi	President
Dr. Shza	Community Physician (MB Public Health)

Ms. Zaura Jebreel Omar President

Dr.Hassan Abdallah Man Medical Assistant

Dr. Hussam Eld Mobel Ellfassan

Dr. Husam Abdalrth Man

Eng. Mortada Mahjoub Director, State of Khartoum Development

Eng. Osman Awad Elkanm	Engineer
Eng. Esam Mohammed Ahmed	Engineer, Umbaddah Water Emergency office

Mr. Nng. Wail

Dar Elsalam Blanch

Mr. Bashir Ali Daw El Bait

(20) WHO スーダン事務所

Mr. Amna Osman Mohamed Osman	Pharmacist, Procurement Assistant
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(21) トルコ国際協力調整機関スーダン事務所

Mr. Durakan Isci	Deputy Program Coordinator
------------------	----------------------------

(22) 現地販売代理店

Mr. Shakir Abdalla elmalih	Azza medical service	General Manager
Mr. Murtada Mohamed Abdalla	Golden Eagle	Product Support Manager
Mr. Liame Abubakr Osman	Hippocrates medical equipment	Deputy General Manager
Mr. Yassin Hassan Bashir	NASIF MEDICAL	Director General

(23) 建設関係業者

Mr. Lee Ja Hyeong	Lee Contractor	General Manager
Dr. Mohamed A. Osman	Engineering Services & Design	Chairman
Eng. Tag Eldin Yamani Sadig	Montag Trading & Engineering Co. Ltd	General Manager
Mr. Tring Khalil Badi	Bamho Contracting & Trading Company Ltd.	General Manager
Mr. Ashraf M. Zaki	Ashraf & Salah Consulting Engineers	General Manager
Mr. Urjwan Ibrahim Alkamil	SOLID Building System Development Co. Ltd	General Manager
Mr. Ahmed Mustafa Mohamed	Engineering, Planning and Architectural Consultants	Partner

(24) その他

Dr. Omer Haj Hassan Osman	Khartoum Health Insurance Corp.	General Manager
Mr. Gamaleldin Khalafalla Mohamed Ali	Drug Revolving Fund	Khartoum State RDF Manager
Mr. Tcuwiba EL Shersh Mohamed	Central Medical Supplies Public Corporation	Pharmacist
Ms. Youara Awad Elkarim Hanid	Canar Telecommunications Co. Ltd,	Account Manager
Mr. Osama Abkashower	Shipping Company	Director
Mr. Alsadig Ibrahim A. Alrizaigi	Alintbaha Newspaper	Journalist
Mr. Seham Mansour Abraham	Akhr Lahza Newspaper	Journalist
Mr. Malik Adbulla Hussien	National Parliament	Resident Secretary

(25) 在スーダン日本国大使館

伊藤 秀樹
中村 仁士
中田 美土理

全権特命大使
参事官
二等書記官 経済協力担当

(26) JICA スーダン事務所

小池 誠一
大竹 茂
赤尾 邦和
清水 栄一
Ms. Halima Abdeen Abdalla

所長
次長
企画調査員
連邦保健省アドバイザー
National Staff of Health & Education sector

4. 討議議事録 (M/D)

4-1 討議議事録 (現地調査時)

4-2 討議議事録 (概要説明調査時)

4-1 討議議事録（現地調査時）

**MINUTES OF DISCUSSIONS
ON
PREPARATORY SURVEY
ON THE PROJECT FOR IMPROVEMENT OF HEALTH CARE SERVICE IN
SUBURBAN AREA OF KHARTOUM STATE
IN THE REPUBLIC OF THE SUDAN**

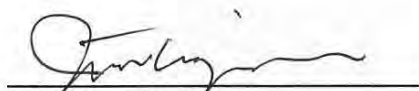
In response to a request from the Government of the Republic of the Sudan (hereinafter referred to as "Sudan"), the Government of Japan decided to conduct a Preparatory Survey on the Project for Improvement of Health Care Service in Suburban Area of Khartoum State (hereinafter referred to as "the Project") and entrusted the survey to the Japan International Cooperation Agency (hereinafter referred to as "JICA").

JICA sent to Sudan the Preparatory Survey Team (hereinafter referred to as "the Team") , which is headed by Mr. Ikuo Takizawa, Director, Health Team 1, Human Development Department., and is scheduled to stay in the country from August 24th to September 15th, 2014.

The Team held discussions with the officials concerned of the Government of Sudan and conducted a field survey at the survey area.

In the course of discussions and field survey, both parties confirmed the items described in the ATTACHMENT.

Khartoum, September 1st 2014



Mr. Ikuo Takizawa
Leader
Preparatory Survey Team
Japan International
Cooperation Agency



Dr. Mohamed Ali Yahia Elabassi
Director General
Planning and Inter National Health
Directorate
Federal Ministry of Health
Sudan



Dr. Salah Eldin Abd Elrazig
Mohamed
General Director
Khartoum State Ministry of Health
Sudan

Witnessed by:



Mr. Omer Mohamed Ahmed Elhag
Director General
International Cooperation
Directorate
Ministry of Finance and National
Economy

ATTACHMENT

1. Objective of the Project

The objective of the Project is to expand maternal and child health services to the underserved population in the State of Khartoum.

2. Project Site

The requested sites of the Project are located at Umbaddha locality and Sharag Elnil locality as shown in Annex 1. The priority for the Project was agreed by both parties as described in 7. below and Annex 3.

3. Responsible and Implementing Agency

3-1. The responsible agency is the Federal Ministry of Health (hereinafter referred to as "FMOH"). and its focal point is the Department of International Health and External Relations.

3-2. The implementing agency is the Khartoum State Ministry of Health (hereinafter referred to as "SMOH") and its focal point is the Curative Medicine Directorate.

4. Items Requested by the Government of Sudan

The list of requested items for each site and the priorities agreed upon among FMOH, SMOH and the Team is shown in Annex 3. JICA will assess the appropriateness of the request further with the following criteria and will recommend to the Government of Japan for its approval. A list of rooms for each facility with required numbers and priorities, as well as a list of equipment with priorities will be confirmed by the technical note among FMOH, SMOH and the consultants of the Team by September 15th 2014.

- Magnitude and urgency of the needs
- Technical feasibility
- Economic and financial viability and sustainability
- Managerial and administrative competency of the organizations concerned
- Possible amount of financial allocation by Japanese side
- No duplication of support by other Development Partners

5. Japan's Grant Aid Scheme

5-1. FMOH and SMOH understood the Japan's Grant Aid Scheme, as described in Annex 4.

5-2. Both sides will take the necessary measures described in Annex 5 faithfully for smooth implementation of the Project.

6. Schedule of the Survey

6-1. The consultants of the Team will proceed with further survey in Sudan until September 15th, 2014.

6-2. JICA will prepare the draft report in English which describes the basic design of the Project and will dispatch a mission in order to explain its contents in February, 2015.

6-3. In case the basic design is accepted in principle by the Government of Sudan, JICA will submit the draft report to the Government of Japan for the Project appraisal. Through the appraisal, the Japanese Cabinet will make a final decision for the implementation of the Project. Once the

Project is approved by the Japanese Cabinet, the final report (the Preparatory Survey Report) will be sent to the Government of Sudan

6-4. The above schedule is tentative and subject to change.

7. Other Relevant Issues

7-1. Maternal and Child Health Section in Umbaddah General Hospital

Both sides confirmed Maternal and Child Health Section in Umbaddah General Hospital to be top priority for the Project. Both sides agreed to modify the terminology of facility from “Maternal and Child Health Clinic” to “Maternal and Child Health Section” to better reflect planned functions. Maternal and Child Health Section will provide following services: antenatal/delivery/postnatal care, comprehensive emergency obstetric care, intensive care for mothers and newborns, family planning, immunization for infants, and related laboratory and other services, as is shown in Annex 3. The number of bed requested from the Sudanese side was 8 high dependency unit beds, 2 ICU beds and 70 normal beds. Appropriate bed capacity will be examined by consultants of the Team. The Maternal and Child Health Section will be designed as an extension of existing facility to support growing needs in the locality. Due to ongoing nature of the rehabilitation work of the existing facility, however, it will be designed with its own administrative and service function in order to secure smooth operation in the section. Both sides confirmed that the sections originally allocated for the similar services in the existing facility will be utilized for other function when on-going rehabilitation work completes.

7-2. Medical equipment for Alban Jadid General Hospital

SMOH requested that the provision of equipment to the maternity and child health section of Alban Jadid General Hospital to be the second priority. Target capacity of 7,000 deliveries per year was requested by SMOH. The Team understood the priority and agreed to further investigate the possibility of inclusion in the Project and appropriate bed capacity, based on the survey by the consultants. Both parties confirmed that the other requested components for Alban Jadid General Hospital are low priority for the Project.

7-3. Construction of Midwifery School

SMOH requested that the construction of Midwifery School attached to Umbaddah General Hospital to be the another second priority, based on the SMOH’s plan to deploy one community midwife per 2,000 population in underserved areas. Target capacity of 100 midwives per year was requested by SMOH. The Team understood the priority and agreed to further investigate the possibility of inclusion in the Project and appropriate training capacity, based on the survey by the consultants which will re-examine (1) the needs based on required number and existing number of community midwife and (2) the suitable place to be constructed. Both parties confirmed other request for midwifery school to be of low priority for the Project.

7-4. Budget Allocation

Both sides agreed that SMOH secures and allocates sufficient budget in order to operate and maintain the constructed facility.

7-5. Staff Assignment for the Constructed Facility

Both sides agreed that SMOH assigns the appropriate number of technical staff as well as administrative staff for operation and maintenance of the constructed facility by the end of 2016.

7-6. Undertakings to be taken by the Sudanese Side

- 1) FMOH and SMOH will confirm necessity of Environmental Impact Assessment for the Project. The result will be written in a technical note which will be signed among FMOH, SMOH and the consultants of the Team, by September 15th 2014.
- 2) SMOH will submit a copy of land permission to consultants of the Team, by September 15th 2014.
- 3) FMOH will confirm the procedures for exemption of custom duty and internal tax. FMOH and SMOH agreed to allocate sufficient budget for every Sudanese fiscal year from 2015 to 2017 by completing the necessary procedure by October of the previous year.
- 4) FMOH and SMOH agreed to take necessary measures for the infrastructure works as follows:
 - (i) authorization of construction permit for the Project prior to the commencement of the works, which would be by the end of 2015;
 - (ii) completion of site clearance prior to the commencement of the works, which would be by the end of 2015; and,
 - (iii) completion of installing water supply, as well as electric supply to the Project site by the end of 2016.

END

Annex 1: Site Map

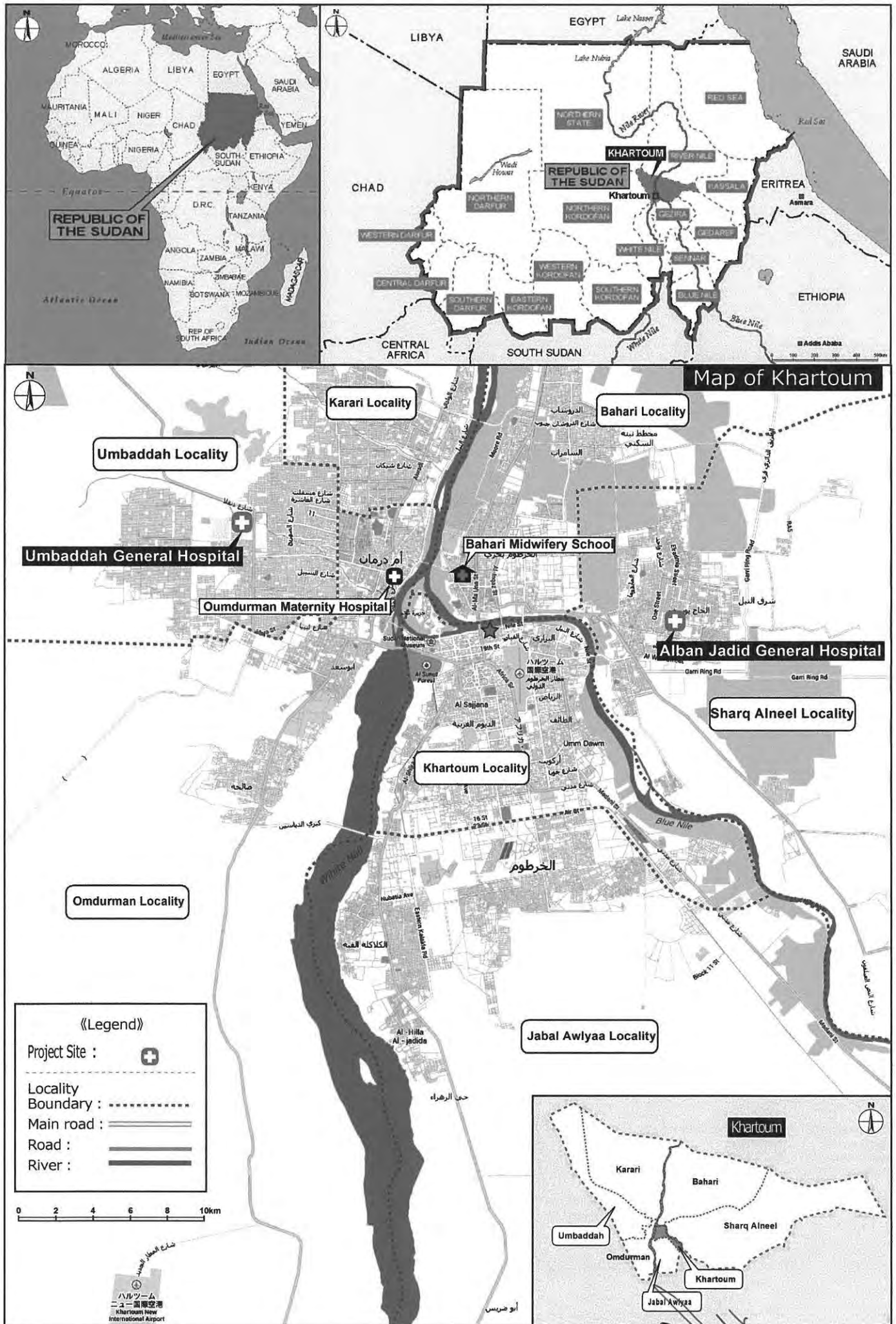
Annex 2: Organization Chart

Annex 3: Requested Facilities

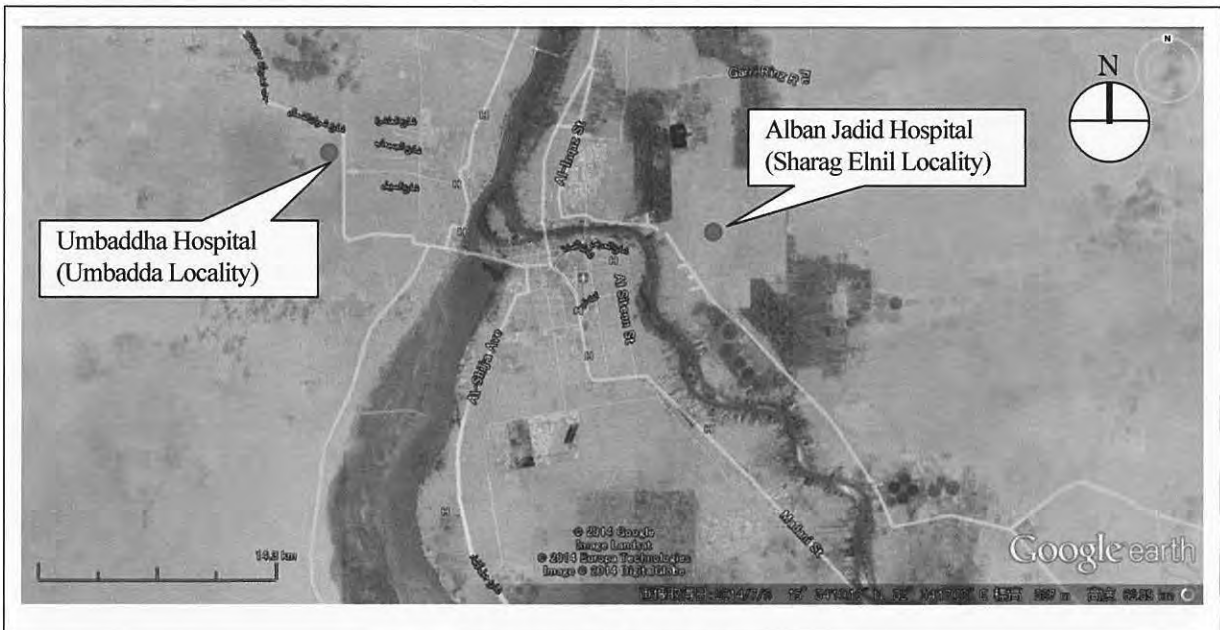
Annex 4: Japan's Grant Aid Scheme

Annex 5: Major Undertakings to be taken by Each Government

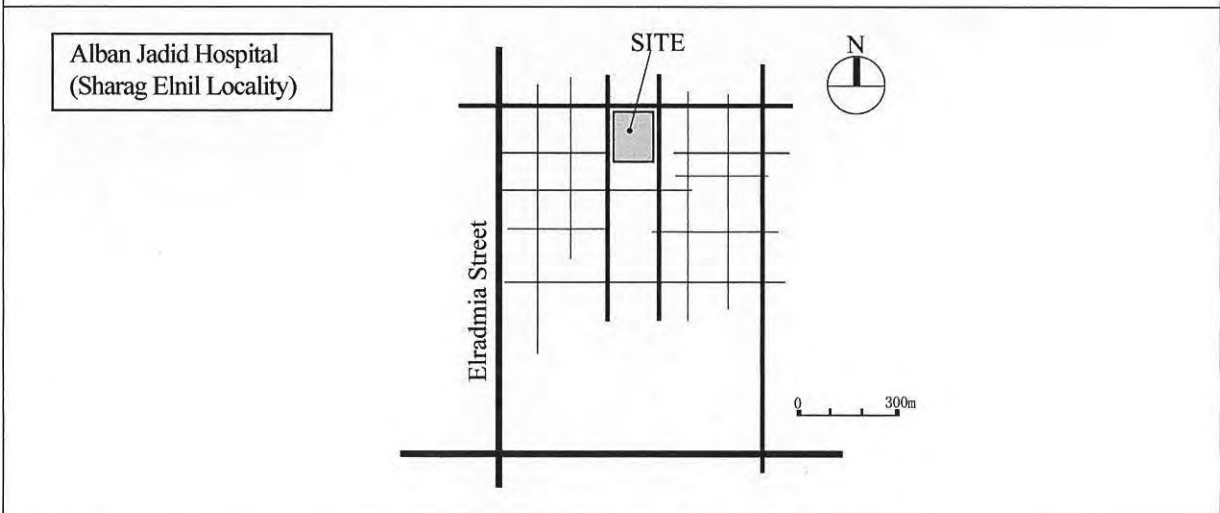
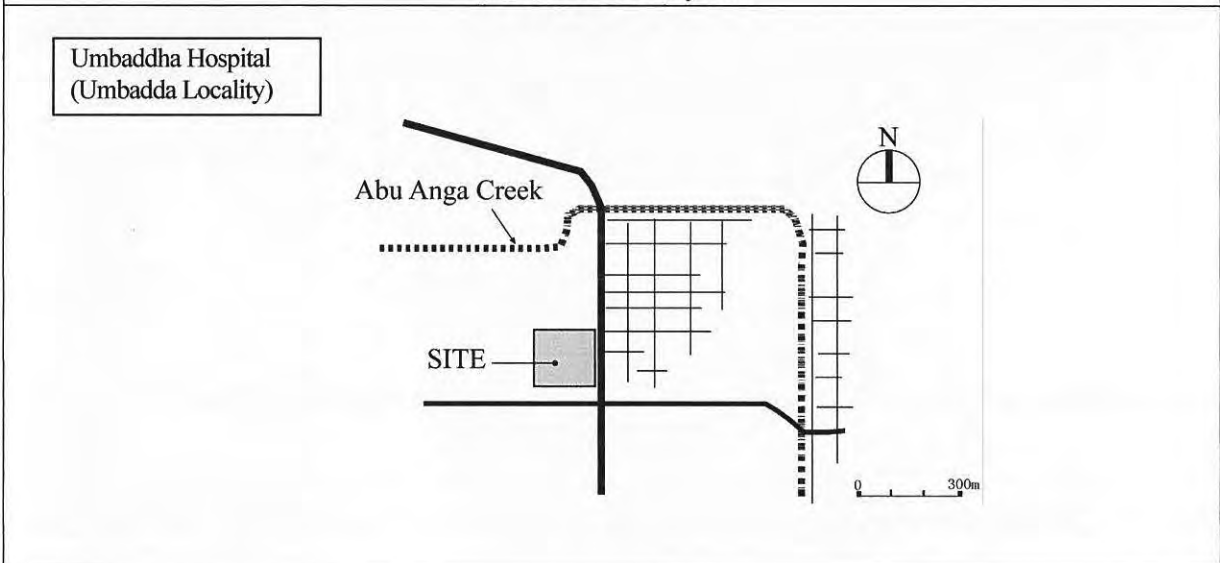
Annex 1. SITE MAP



Annex 1. SITE MAP

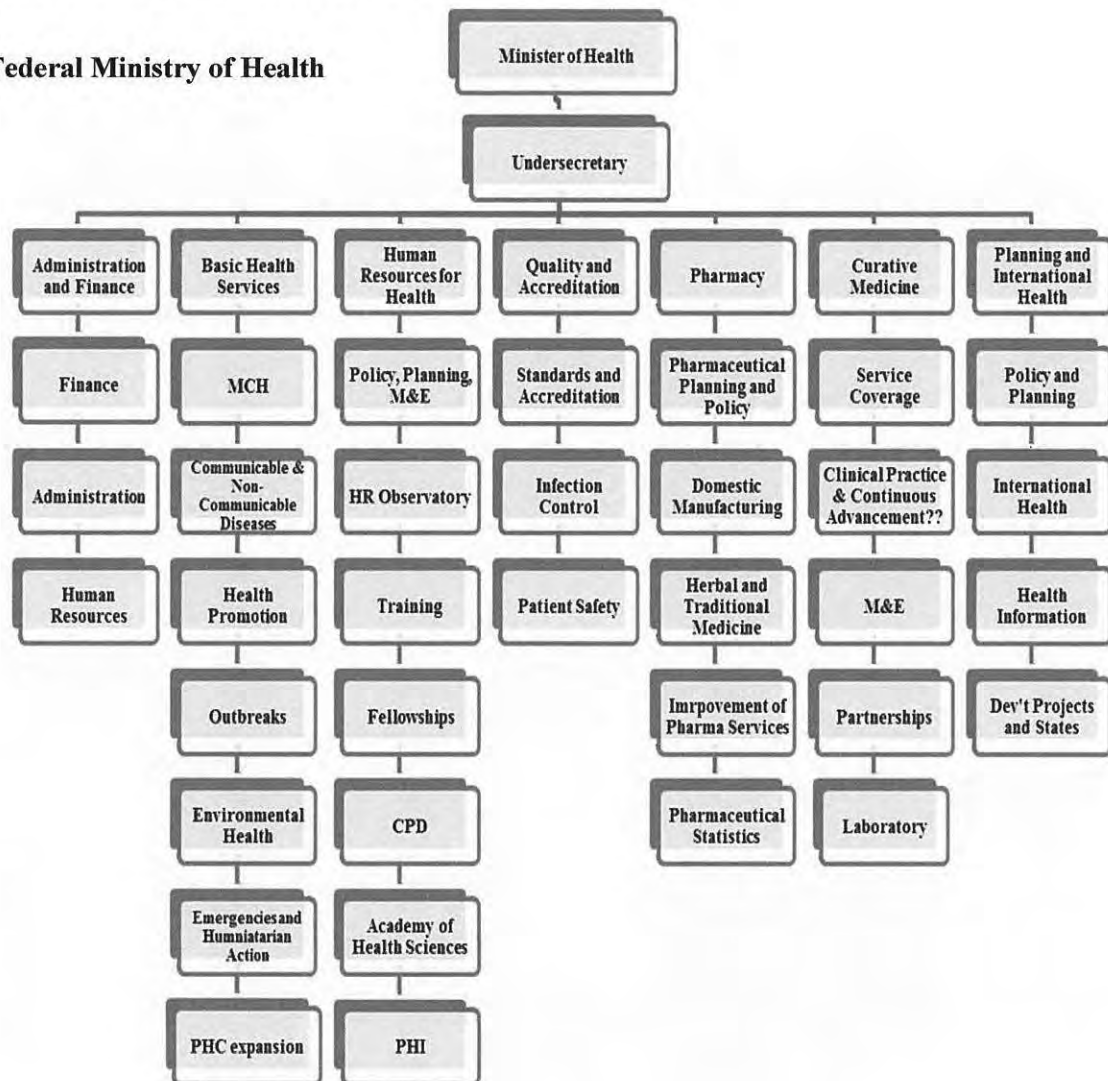


Location of Survey Site

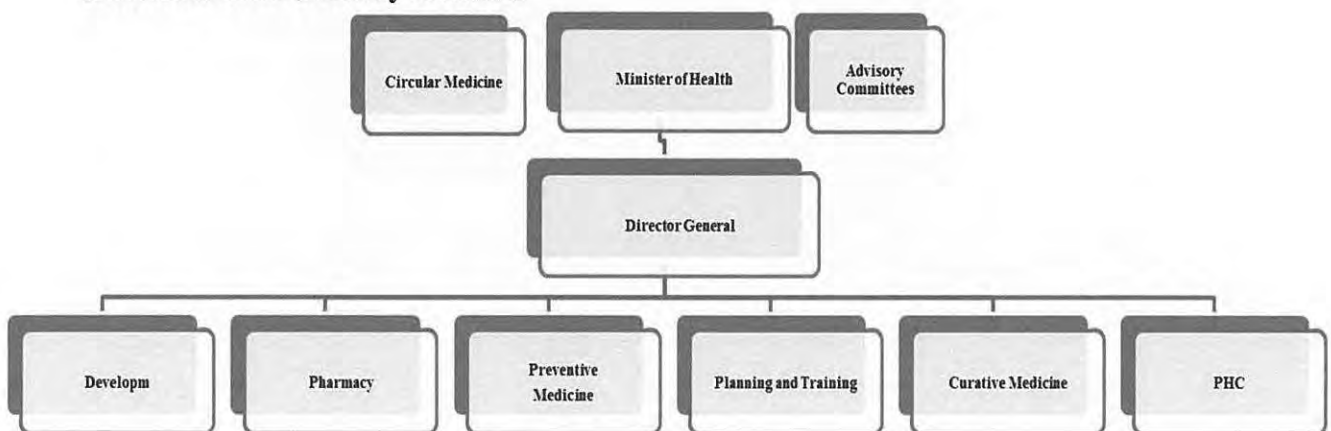


Annex 2. ORGANIZATION CHART

Federal Ministry of Health



Khartoum State Ministry of Health



Annex 3. REQUESTED FACILITIES

- Necessary number of each room and priorities will be examined and discussed between Sudanese side and consultants of the Team by September 15th, 2014.
- Construction site for midwifery school will be reexamined and will be chosen between Sudanese side and consultants of the Team by September 15th, 2014.

Priority	Component	Description
A	Maternal and Child Health Section at Umbaddah General Hospital	<u>Outpatient:</u> Reception, Waiting space, Health Education, Consultation(ANC, PNC, Family Planning, Immunization for Infants), Examination(Obstetrics), (Ultrasound/ECG), <u>Pharmacy</u> <u>Laboratory:</u> Laboratory, Blood and urine collection, Blood bank <u>Delivery:</u> Labor, Delivery, Post-delivery monitoring, NICU, Nurse station, Staff rest, Night duty room, Medical waste, Sterilization <u>Operation Theatre:</u> Pre-operation, Operation theatre, (Recovery), Changing room, Sterilization, Medical waste, Staff rest <u>Hospitalization:</u> Public ward (70 beds were requested from the Sudanese side), Private ward, High Dependency Unit (8 beds were requested from the Sudanese side), ICU (2 beds were requested from the Sudanese side), Nurse station <u>Administration:</u> DG's room, Medical Director's room, Doctor's room, Paramedical staff room, Other clerk's room, Meeting room, Locker, Chart room <u>Service:</u> Laundry, Kitchen and Canteen, Workshop, Service staff's room, Garbage collection
B	Maternal and Child Health Section at Alban Jadid General Hospital	Provision of medical equipment in delivery and labor rooms and operation theatres (target capacity of 7,000 deliveries per year was requested from the Sudanese side)
B	Midwifery School at Umbaddah General Hospital	Class room(capacity for 100 midwives per year were requested from the Sudanese side), Practice room, Locker, Storage, Manager room, Meeting room, Teacher's room, Dormitory, Canteen, Kitchen, Laundry

Annex 4. EXPLANATION OF JAPAN'S GRANT AID SCHEME

The Government of Japan is implementing the organizational reforms to improve the quality of ODA operations, and as a part of this realignment, a new JICA law was entered into effect on October 1, 2008. Based on this law and the decision of the Government of Japan, JICA has become the executing agency of the Grant Aid for General Projects, for Fisheries and for Cultural Cooperation, etc.

The Grant Aid 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 Aid is not supplied through the donation of materials as such.

1. Grant Aid Procedures

The Japanese Grant Aid is supplied through following procedures:

- Preparatory Survey
 - The Survey conducted by JICA
- Appraisal & Approval
 - Appraisal by the Government of Japan and JICA, and Approval by the Japanese Cabinet
- Authority for Determining Implementation
 - The Notes exchanged between the Government of Japan 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 Government of Japan 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 Project.
- Evaluation of the appropriateness of the Project to be implemented under the Grant Aid

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 Japanese Grant Aid, in principle, Japanese products and services including transport or those of the recipient country are to be purchased. When JICA and the Government of the recipient country or its designated authority deem it necessary, the Grant Aid may be used for the purchase of the products or services of a third country. However, the prime contractors, namely, constructing and procurement firms, and the prime consulting firm are limited to "Japanese nationals".

(4) Necessity of "Verification"

The Government of the recipient country or its designated authority will conclude contracts denominated in Japanese yen with Japanese nationals. 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 Aid Project, the recipient country is required to undertake such necessary measures as Annex.

(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 Aid, to assign staff necessary for this operation and maintenance and to bear all the expenses other than those covered by the Grant Aid.

(7) "Export and Re-export"

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

(8) Banking Arrangements (B/A)

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

b) The payments will be made when payment requests are presented by the Bank to JICA

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 Aid project. The Outline Design of the Project is confirmed based on the guidelines of the Japan's Grant Aid 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) registered 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 Government of Japan to appraise the implementation of the Project after confirming the appropriateness of the Project.

3. Japan's Grant Aid 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 signed between the Government of Japan 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 to implement the Project, such as payment conditions, responsibilities of the Government of the recipient country, and procurement conditions.

(2) Selection of Consultants

In order to maintain technical consistency, the consulting firm(s) which conducted the Survey

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)

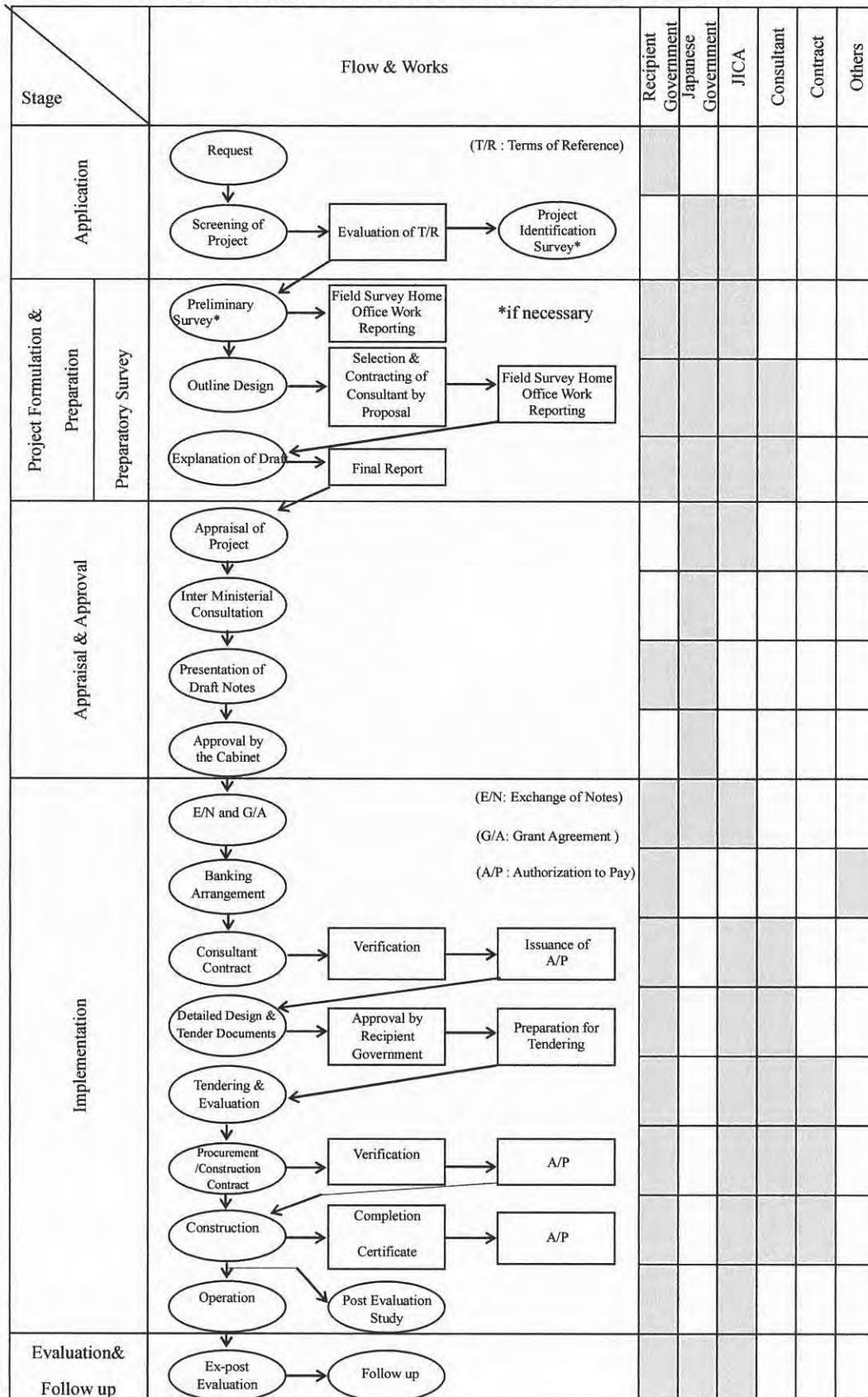
The Government of the recipient country should bear an advising commission of an Authorization to Pay and payment commissions paid to the Bank.

(10) Social and Environmental Considerations

A recipient country must carefully consider social and environmental impacts by the Project and must comply with the environmental regulations of the recipient country and JICA socio-environmental guidelines.



FLOW CHART OF JAPAN'S GRANT AID PROCEDURES



Annex. 5 MAJOR UNDERTAKINGS TO BE TAKEN BY EACH GOVERNMENT

No.	Items	To be covered by Grant Aid	To be covered by Recipient Side
1	to secure lots of land necessary for the implementation of the Project and to clear the sites;		●
2	To construct the following facilities		
	1) The building	●	
	2) The gates and fences in and around the site		●
	3) The parking lot	●	
	4) The road within the site	●	
	5) The road outside the site		●
3	To provide facilities for distribution of electricity, water supply and drainage and other incidental facilities necessary for the implementation of the Project outside the sites		
	1) Electricity		
	a. The distributing power line to the site		●
	b. The drop wiring and internal wiring within the site	●	
	c. The main circuit breaker and transformer	●	
	2) Water Supply		
	a. The city water distribution main to the site		●
	b. The supply system within the site (receiving and elevated tanks)	●	
	3) Drainage		
	a. The city drainage main (for storm sewer and others to the site)		●
	b. The drainage system (for toilet sewer, common waste, storm drainage and others) within the site	●	
	4) Gas Supply		
	a. The city gas main to the site		●
	b. The gas supply system within the site	●	
	5) Telephone System		
	a. The telephone trunk line to the main distribution frame/panel (MDF) of the building		●
	b. The MDF and the extension after the frame/panel	●	
	6) Furniture and Equipment		
	a. General furniture		●
	b. Project equipment	●	
4	To ensure prompt unloading and customs clearance of the products at ports of disembarkation in the recipient country and to assist internal transportation of the products.		
	1) Marine (Air) transportation of the Products from Japan to the recipient country	●	
	2) Internal transportation from the port of disembarkation to the project site	(●)	(●)
5	To ensure that customs duties, internal taxes and other fiscal levies which may be imposed in the recipient country with respect to the purchase of the products and the services be exempted.		●
6	To accord Japanese physical persons and / or physical persons of third countries whose services may be required in connection with the supply of the products and the services such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work		●
7	To ensure that the Facilities and the products be maintained and used properly and effectively for the implementation of the Project		●
8	To bear all the expenses, other than those covered by the Grant, necessary for the implementation of the Project		●
9	To bear the following commissions paid to the Japanese bank for banking services based upon the B/A		
	1) Advising commission of A/P		●
	2) Payment commission		●
10	To give due environmental and social consideration in the implementation of the Project.		●

(B/A : Banking Arrangement, A/P : Authorization to pay)

4-2 討議議事録（概要説明調査時）

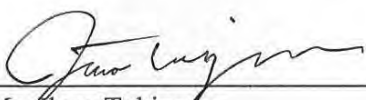
MINUTES OF DISCUSSIONS ON THE PREPARATORY SURVEY ON THE PROJECT FOR IMPROVEMENT OF HEALTH CARE SERVICE IN SUBURBAN AREA OF KHARTOUM STATE IN THE REPUBLIC OF THE SUDAN (EXPLANATION OF THE DRAFT REPORT)

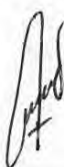
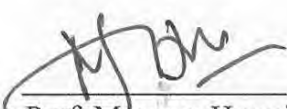
In February 2015, the Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched a Draft Report Explanation Team on the Project for Improvement of Health Care Service in Suburban Area of Khartoum State (hereinafter referred to as "the Project") to the Republic of the Sudan (hereinafter referred to as "Sudan"), and through discussions, surveys and analysis of the results in Japan, JICA prepared the draft report of the preparatory survey (hereinafter referred to as "the draft report").

In order to explain and to consult on the contents of the draft report with the officials concerned of the Government of Sudan, JICA sent to Sudan the Draft Report Explanation Team (hereinafter referred to as "the Team"), headed by Mr. Ikuo Takizawa, Director, Health Team 1, Human Development Department, from February 15th to 19th 2015.

As a result of discussions, the Sudanese side and the Team (hereinafter referred to as "both sides") confirmed the main items described in the attached sheets.

Khartoum, February 18th, 2015

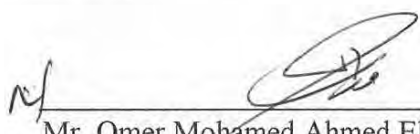
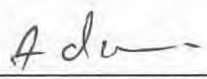

Mr. Ikuo Takizawa
Leader
Draft Report Explanation Team

Japan International Cooperation
Agency
Japan
Dr. Imad El Din A M Ismail
Director General
Planning and International Health
Directorate
Federal Ministry of Health
Sudan
Prof. Mamoun Homeida
Minister

Khartoum State Ministry of Health
Sudan

Witnessed by:

Witnessed by:


Mr. Omer Mohamed Ahmed Elhag
Director General
International Cooperation Directorate
Ministry of Finance and National
Economy
Sudan
Mr. Adam Awadallah Adam
Director General
Khartoum State Ministry of Finance
Sudan

ATTACHMENT

1. Components of the draft report

The Sudanese side agreed and accepted the contents of the draft report as explained by the Team. The outline of the Project is as described in Annex 1, 2 and 3.

2. Japan's Grant Aid Scheme

The Sudanese side understood the Japan's Grant Aid Scheme and the necessary measures to be taken by the Government of Sudan as explained by the Team and described in Annex 4 and 5, as confirmed by both parties in the Minutes of Discussions signed on September 1st, 2014.

3. Schedule of the Survey

After this survey, JICA will submit the draft report to the Government of Japan for the project appraisal. Through the appraisal, the Japanese Cabinet will make a final decision for the implementation of the Project. If the Project is approved by the Japanese Cabinet, the final report (the Preparatory Survey Report) will be sent to the Government of Sudan by the end of May 2015.

4. Confidentiality of the Project Design

Both sides confirmed that all information related to the Project including cost estimation of the Project described in Annex 6, detailed specifications of the facilities, the equipment and other technical information shall not be released to any outside party before the signing of all the Contract(s) for the Project. The Sudanese side understood that the Project Cost Estimation is not final and is subject to change.

5. Measures to be taken by the Sudanese side

5-1. Aside from the items described in Annex 5, the Sudanese side agreed to take necessary measures described in Annex 7 in a timely manner for smooth implementation of the Project.

5-2. Khartoum State Ministry of Health (hereinafter referred to as "SMOH") agreed to allocate necessary budget and manpower by the time of handover as shown in Annex 8 for proper operation and maintenance of the project outcome.

5-3. The Sudanese side agreed to take all necessary measures so that signing of Exchange of Notes (hereinafter referred to as "E/N") and Grant Agreement (hereinafter referred to as "G/A") of the Project will take place without delay, once the approval of the Project is given by the cabinet of Japan.



6. Tentative Project Schedule

The Team explained the tentative schedule of the Project as described in Annex 9.

E N D

Annex 1: Outline of the Project

Annex 2: Facility Plan

Annex 3: Equipment List

Annex 4: Japan's Grant Aid Scheme

Annex 5: Major Undertakings to be taken by Each Government

Annex 6: Cost Estimation of the Project

Annex 7: Necessary Measures to be taken by the Sudanese Side

Annex 8: Necessary Budget and Manpower for Operation and Maintenance of the Project

Annex 9: Tentative Schedule of the Project

Outline of the Project

1) Outline of the Facility

Outline of New Maternal and Child Health Section at Umbaddah General Hospital

Component	Floor	Function / Rooms
Common Zone	GF/1F	Entrance, Waiting Area, Reception, Cashier, Medical Record, Toilet (Male/Female), Slope, Cafeteria, Kitchen, Electrical Panel Room
Outpatient/ Laboratory/Pharmacy Zone	GF	General Outpatient Triage, Consultation Room (ANC/PNC, Immunization/ Growth Monitoring, Family Planning), Ultra Sound / ECG Room, Laboratory, Urinal Collection, Blood Collection, Blood Bank, Pharmacy, Medicine store
Delivery Zone	GF	Nurse Station, Labour Room, Delivery Room, Post-Delivery Room, Nursery (un-septic), Nursery (septic), Medical Waste Stock, Storage, Linen Room, Inpatient Toilet, Night Reception, Waiting Space
Operation Theater Zone	GF	Operation Theatre, Preparation Area, Changing Room (Male/ Female), Shower Room (Male/ Female), Equipment Storage, Recovery Room, Scrub/ Washing Room, Sterilization Room, Service Corridor, Changing Room for Staff
Ward Zone	1F	Nurse Station, Bed Room (5 beds), Private Room (with Shower & Toilet), HDU, Storage, Linen Room, Medical Waste Stock, Pantry, Nursing Room, Inpatient Shower, Inpatient Toilet
Health Education Zone	1F	Health Education/ Seminar Room, Health Educator/ Staff Office, Storage
Administration Zone	1F	Director General's Room, Secretary Room, MCH Director's Room, Accountant Room, Storage, Meeting Room, Statistics Room, Resting Room, Office, Doctor & Paramedical Room(Male/ Female)
Service zone	GF	Laundry, Machine Room, Staff Office, Staff Room (Male/Female), Night Duty Room (Male/ Female), Workshop, Toilet (Male/ Female)
External Zone		Parking, Car Entrance Area, Slope
Annex Building		Electrical Room (with Emergency Generator), Water Reservoir, Pump Room, Septic Tank, Treatment Tank, Elevated Water Tank
Ground Floor Area		2,720 m ²
First Floor Area		1,867 m ²
Roof Floor Area		66 m ²
Total Floor Area		4,653 m ²

2) Outline of the Equipment for New Maternal and Child Health Section at Umbaddah General Hospital

Department/Zone		Equipment
Common Area		Consultation chair, Consultation desk, Reception chair, Waiting chair(for 3 persons)
Outpatient / Laboratory/	Outpatient	Cardiotocogram(CTG), Ultrasound scanner type A, Gynecology examination table, ECG machine

Pharmacy Zone	Pharmacy	Chair (for laboratory), Desk(for laboratory), Medicine cabinet, Refrigerator
	Laboratory	Coagulometer, Electrolyte analyzer, Hematology analyzer(automated) , Hot air oven, Platelets incubator with agitator, Spectrophotometer
Delivery Zone		CTG, Continuous Positive Airway Pressure (CPAP), Infant incubator, Neonatal monitor, Ultrasound scanner type B, Mobile Operation Theater (OT) lamp with battery
Operation Theater Zone		Anesthesia machine with ventilator, Defibrillator, Electrosurgical unit, Hand scrub station for 3 persons, High pressure steam sterilizer(approx.150L), Infant incubator, Infant warmer, OT Lamp (ceiling type), OT table (hydraulic), Patient monitor
Ward Zone		High Dependency Unit (HDU) bed, Hospital bed with mattress, Infusion pump, Patient monitor, Suction unit, Syringe pump
Health Education Zone		TV monitor, Projector, Projector screen, Stacking chair
Administration Zone		Locker(for 4 persons), Locker(for 9 persons), Meeting table(M), Meeting table(L), Rack for storage
Service Zone		Drying machine, Press machine, Washing machine

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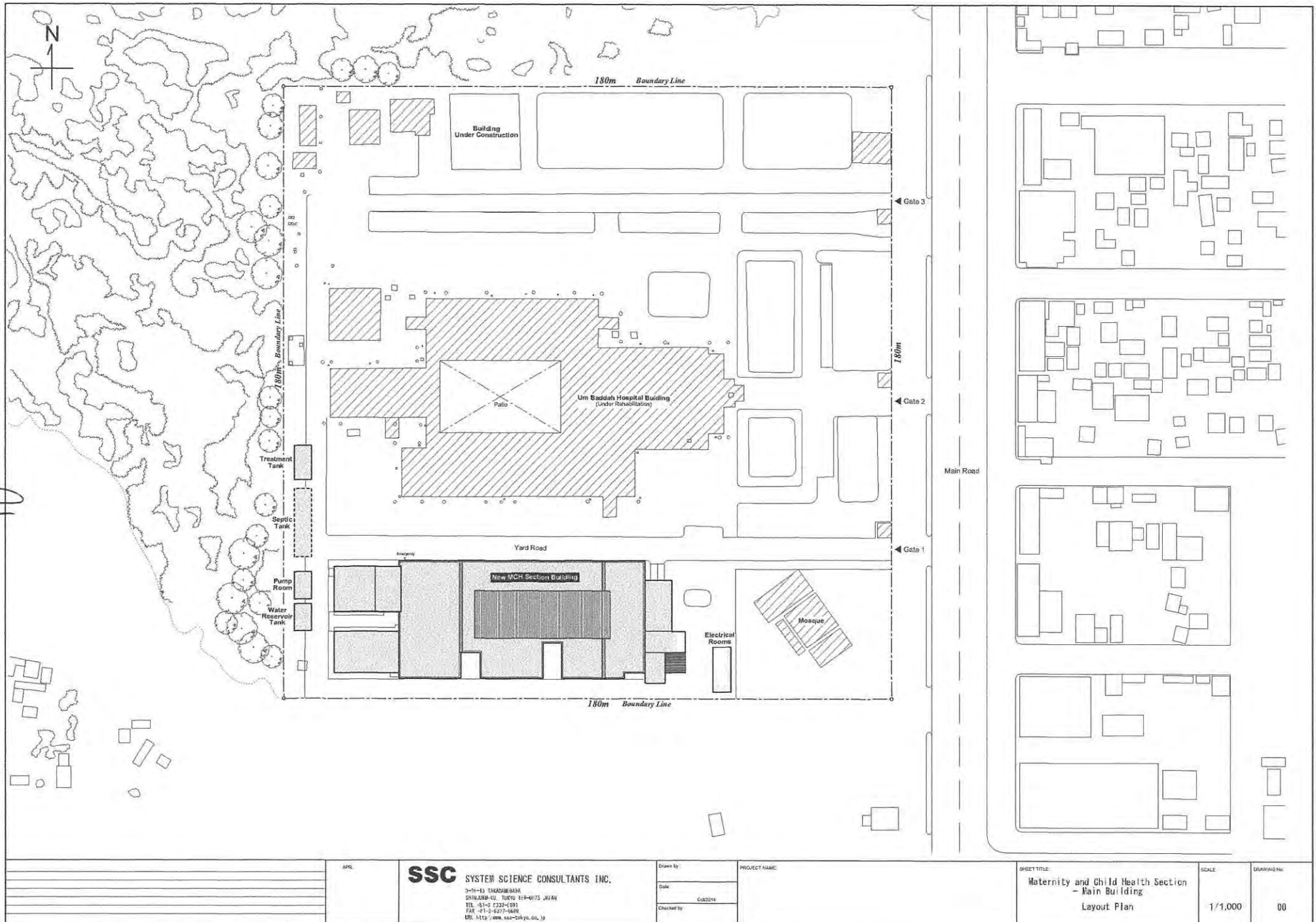


Facility Plan



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APR

SSC SYSTEM SCIENCE CONSULTANTS INC.
 3-15-13 TAKAMURA
 SHINJUKU-KU, TOKYO 163-0075 JAPAN
 TEL: 81-3-2321-4001
 FAX: 81-3-2327-1606
 URL: <http://www.ssc-tokyo.co.jp>

Drawn by:

Date:

08/2016

Checked by:

PROJECT NAME:

SHEET TITLE:

Maternity and Child Health Section
 - Main Building
 Layout Plan

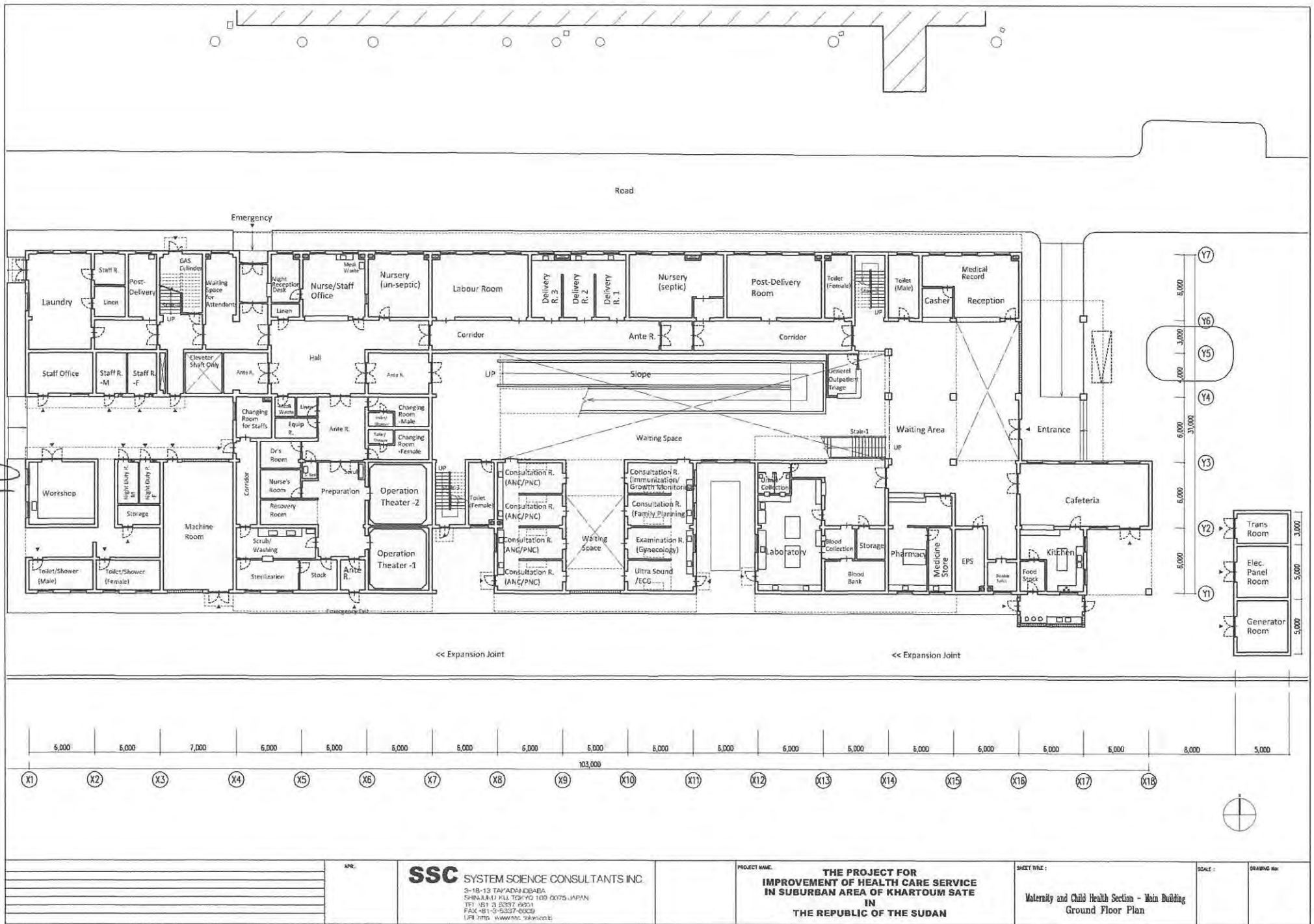
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SSC SYSTEM SCIENCE CONSULTANTS INC.
3-18-13 TAIYADANJOHADA
SHINJUKU-KU, TOKYO 100-0075, JAPAN
TEL: 03-3337-8801
FAX: 03-3337-8802
URL: <http://www.ssc.co.jp>

PROJECT NAME:
**THE PROJECT FOR
IMPROVEMENT OF HEALTH CARE SERVICE
IN SUBURBAN AREA OF KHARTOUM SATE
IN
THE REPUBLIC OF THE SUDAN**

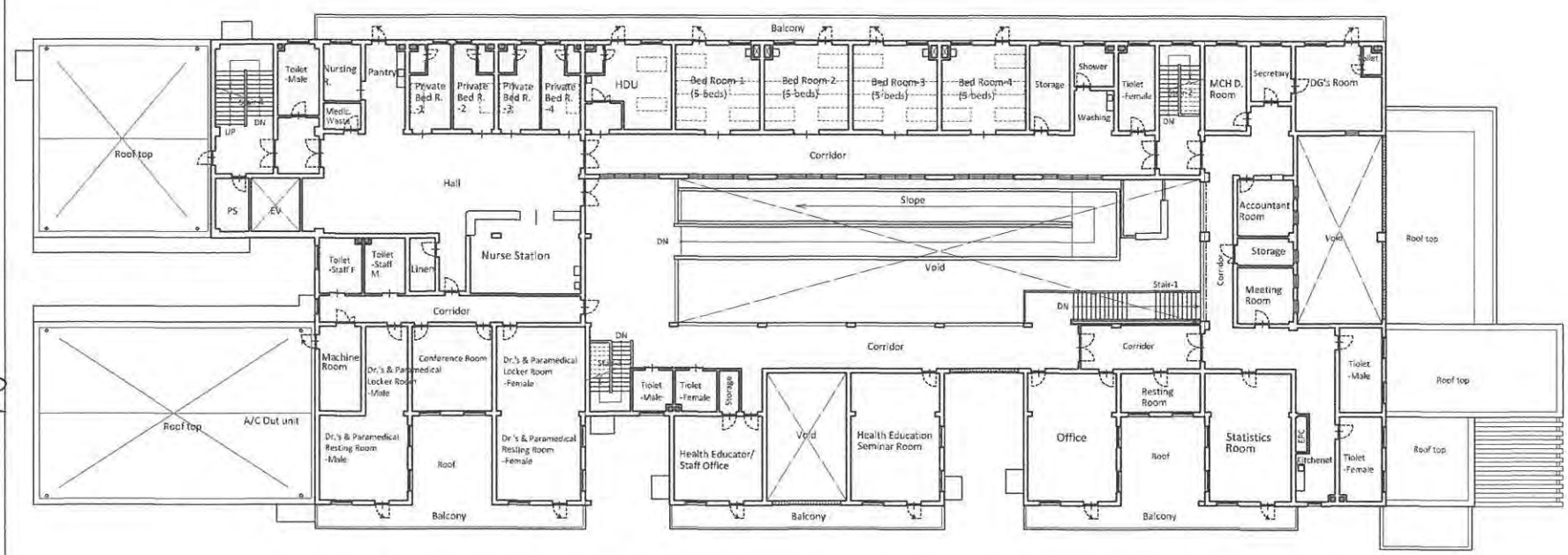
SHEET TITLE:
**Maternity and Child Health Section - Main Building
Ground Floor Plan**

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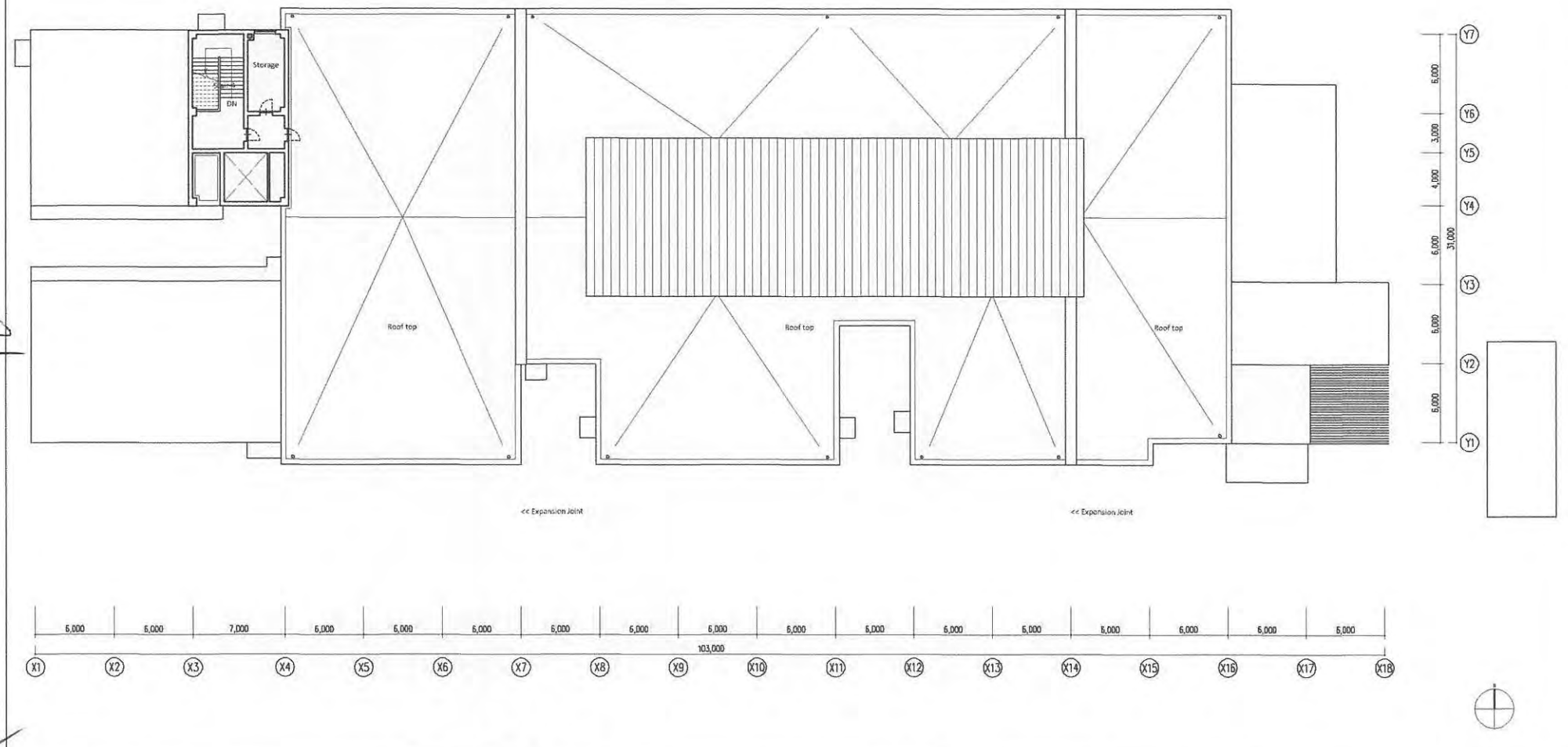


APR.	SSC SYSTEM SCIENCE CONSULTANTS INC. 3-18-13 TAIYADUJIBABA SHIBUJUKU-KU TOKYO 100-0076 JAPAN TEL: 03-5337-1991 FAX: 03-5337-8939 URL: http://www.ssc-consultants.com	PROJECT NAME: THE PROJECT FOR IMPROVEMENT OF HEALTH CARE SERVICE IN SUBURBAN AREA OF KHARTOUM SATE IN THE REPUBLIC OF THE SUDAN	SHEET TITLE: Maternity and Child Health Section - Main Building First Floor Plan	SCALE:	DRAWING No:
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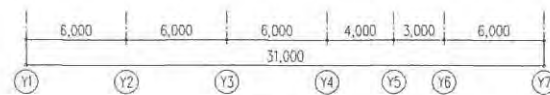
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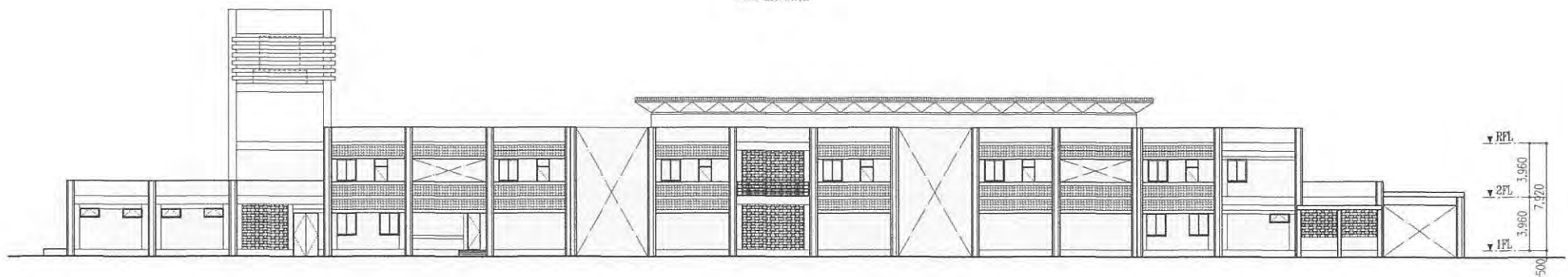


	APR.	SSC SYSTEM SCIENCE CONSULTANTS INC. 3-18-13 TAYADAJIYOBABA 594-834-111 KUL TOKYO 118 0075 JAPAN TEL: 81-3-5337-6001 FAX: 81-3-5337-6009 URL: http://www.ssc.co.jp	PROJECT NAME: THE PROJECT FOR IMPROVEMENT OF HEALTH CARE SERVICE IN SUBURBAN AREA OF KHARTOUM SATE IN THE REPUBLIC OF THE SUDAN	SHEET TITLE: Maternity and Child Health Section - Main Building Roof Floor Plan	SCALE:	DRAWING No.
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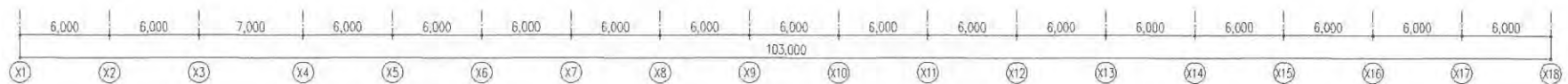


East Elevation



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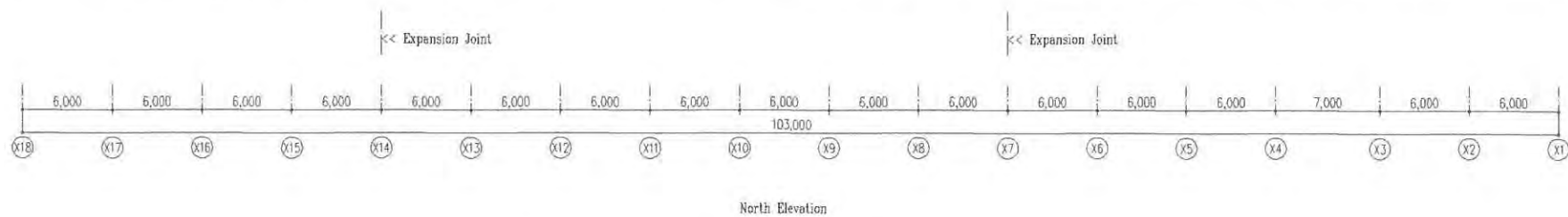
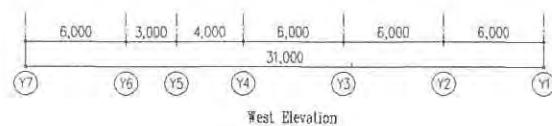
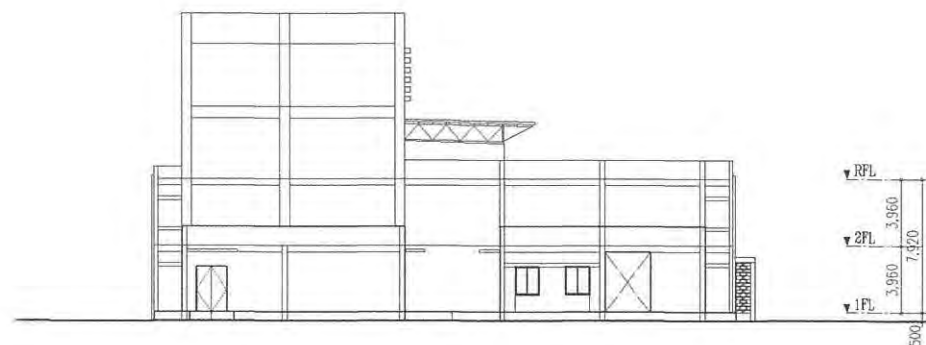
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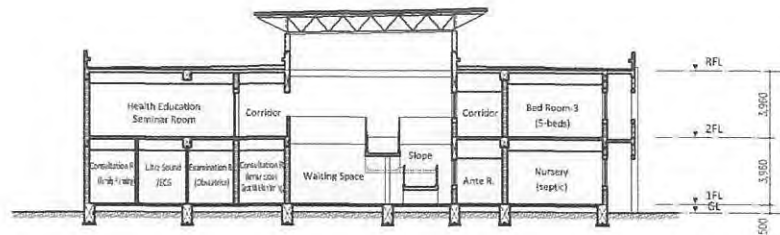
South Elevation

A-33

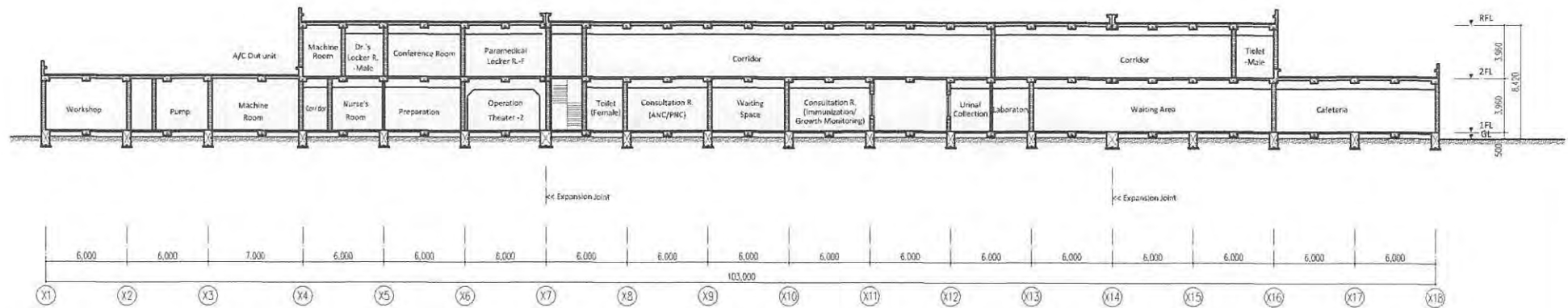
	APC	SSC SYSTEM SCIENCE CONSULTANTS INC. 3-18-12, TAKAKURAJOCHO CHINJIKUJO, TOKYO-108 0075 JAPAN TEL +81-3-6337-0001 FAX +81-3-6337-0003 URL: http://www.ssc.or.jp/eng/	PROJECT NAME: THE PROJECT FOR IMPROVEMENT OF HEALTH CARE SERVICE IN SUBURBAN AREA OF KHARTOUM STATE IN THE REPUBLIC OF THE SUDAN	SHEET TITLE: Maternity and Child Health Section - Main Building Elevation-1	SCALE:	DRAWING No.
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	APP.	SSC SYSTEM SCIENCE CONSULTANTS INC. 3-18-12 TAKAKADENBENBA CHINJUNO KU TOKYO 106-0075 JAPAN TEL +81-3-6337-0601 FAX +81-3-6337-6000 URL: www.ssc-khartsa.co	PROJECT NAME: THE PROJECT FOR IMPROVEMENT OF HEALTH CARE SERVICE IN SUBURBAN AREA OF KHARTOUM STATE IN THE REPUBLIC OF THE SUDAN	SHEET TITLE : Maternity and Child Health Section - Main Building Elevation -2	SCALE :	DRAWING No.
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B-B (X10-X11)



A-A (Y2-Y3)

	APR.	SSC SYSTEM SCIENCE CONSULTANTS INC. 3-18-13 YAKUJIKESHA CHINUKU KU TOKYO 100-0075 JAPAN TEL +81-3-5337-6001 FAX +81-3-5337-6009 URL: www.ssc-japan.co.jp		PROJECT NAME: THE PROJECT FOR IMPROVEMENT OF HEALTH CARE SERVICE IN SUBURBAN AREA OF KHARTOUM SATE IN THE REPUBLIC OF THE SUDAN	SHEET TITLE: Maternity and Child Health Section - Main Building Section	SCALE:	DRAWING No.
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Equipment List

Code No.	Description	Qty
1	Reception chair	6
2	Waiting chair(for 3 persons)	34
3	TV monitor	1
4	Consultation desk	26
5	Consultation chair	40
6	Projector	1
7	Projector screen	1
8	Diagnostic set	10
9	Fetal doppler	7
10	Adult weighing scale	2
11	Adult height scale	2
12	Neonatal height & weight scale	4
13	Vaccine refrigerator	2
14	Examination table	4
15	Gynecology examination table	5
16	Examination instrument set	5
17	Examination light	5
18	CTG	3
19	Partition	4
20	Ultrasound scanner type A	1
21	ECG machine	1
22	Examination table with foot step	1
23	Ultrasound scanner type B	1
24	Labor bed	8
25	IV stand	48
26	Refrigerator	3
27	Delivery table	3
28	Delivery instrument set	6
29	Mobile OT lamp with battery	3
30	Instrument trolley	8
31	Instrument cabinet	6
32	Stretcher	4
33	Wheel chair	2

Code No.	Description	Q'ty
34	Infant warmer	7
35	Baby cot	18
36	Resuscitation set for neonate	7
37	Forceps delivery set	3
38	Vacuum extractor	1
39	Suction unit	15
40	Recovery bed	10
41	Hot air oven	4
42	Chair (for laboratory)	10
43	Desk (for laboratory)	2
44	Duty bed (double decker)	2
45	Bedside cabinet	26
46	Infant incubator	12
47	O2 regulator, humidifier and flowmeter	16
48	Phototherapy unit	7
49	Neonatal monitor	10
50	Portable suction unit	10
51	Bilirubin meter with centrifuge	2
52	Syringe pump	9
53	Infusion pump	5
54	Pulse oximeter	3
55	CPAP	2
56	Oxygen concentrator	2
57	Diagnostic set for neonate	2
58	Medicine cabinet	6
59	Rack for storage	25
60	Hematology analyzer (automated)	1
61	Coagulometer	1
62	Spectrophotometer	1
63	Centrifuge	1
64	Table top autoclave	1
65	Electrolyte analyzer	1
66	Microscope	3
67	Micro pipette set	2

Code No.	Description	Q'ty
68	Sample shaker	1
69	Water bath	1
70	Water distiller	1
71	Blood donor beds	1
72	Bag shaker	1
73	Sphygmomanometer	2
74	Platelets incubator with agitator	1
75	Blood bank refrigerator	2
76	Freezer	1
77	Thawing water bath	1
78	Washing machine	2
79	Drying machine	2
80	Press machine	1
81	Laundry cart	6
82	Cooking equipment as a set	1
83	Dining table	5
84	Dining chair	25
85	Garbage box	6
86	Locker (for 9 persons)	12
87	Hand scrub station for 3 persons	1
88	OT table (hydraulic)	2
89	Anesthesia machine with ventilator	2
90	Electrosurgical unit	2
91	D&C set (abortion)	4
92	Caesarian instrument set	8
93	Defibrillator	1
94	N2O regulator, humidifier and flowmeter	2
95	High pressure steam sterilizer (approx. 150L)	1
96	Dressing drum set (L,M,S)	8
97	Hospital bed with mattress	25
98	Overbed table	24
99	White board	3
100	HDU bed	2
101	File rack for medical records	3

Code No.	Description	Q'ty
102	Meeting table(L)	10
103	Meeting chairs	90
104	Patient monitor	5
105	Refrigerator & freezer	1
106	Locker (for 4 persons)	10
107	Sofa	4
108	Stacking chair	40
109	Hand truck	1
110	Book shelf	17
111	Cylinder cart	4
112	Couch	3
113	OT Lamp(ceiling type)	2
114	Meeting table(S)	2
115	Meeting table(M)	6

Japan's Grant Aid Scheme

The Government of Japan (hereinafter referred to as “the GOJ”) is implementing the organizational reforms to improve the quality of ODA operations, and as a part of this realignment, a new JICA law was entered into effect on October 1, 2008. Based on this law and the decision of the GOJ, JICA has become the executing agency of the Grant Aid for General Projects, for Fisheries and for Cultural Cooperation, etc.

The Grant Aid 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 Aid is not supplied through the donation of materials as such.

1. Grant Aid Procedures

The Japanese Grant Aid 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 Project.
- Evaluation of the appropriateness of the Project to be implemented under the Grant Aid 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 Aid project. The Outline Design of the Project is confirmed based on the guidelines of the Japan's Grant Aid 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) registered 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. Japan's Grant Aid 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 signed 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 to implement the Project, such as payment conditions, responsibilities of the Government of the recipient 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 Japanese Grant Aid, in principle, Japanese products and services including transport or those of the recipient country are to be purchased. When JICA and the Government of the recipient country or its designated authority deem it necessary, the Grant Aid may be used for the purchase of the products or services of a third country. However, the prime contractors, namely, constructing and procurement firms, and the prime consulting firm are limited to "Japanese nationals".

(4) Necessity of "Verification"

The Government of the recipient country or its designated authority will conclude contracts denominated in Japanese yen with Japanese nationals. 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 Aid Project, the recipient country is required to undertake such necessary measures as Annex.

(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 Aid, to assign staff necessary for this operation and maintenance and to bear all the expenses other than those covered by the Grant Aid.

(7) "Export and Re-export"

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

(8) Banking Arrangements (B/A)

- a) The Government of the recipient country or its designated authority should open an account under the name of the Government of the recipient country in a bank in Japan (hereinafter referred to as "the Bank"). JICA will execute the Grant Aid by making payments in Japanese yen to cover the obligations incurred by the Government of the recipient country or its designated authority under the Verified Contracts.
- b) The payments will be made when payment requests are presented by the Bank to JICA under an Authorization to Pay (A/P) issued by the Government of the recipient country or its designated authority.

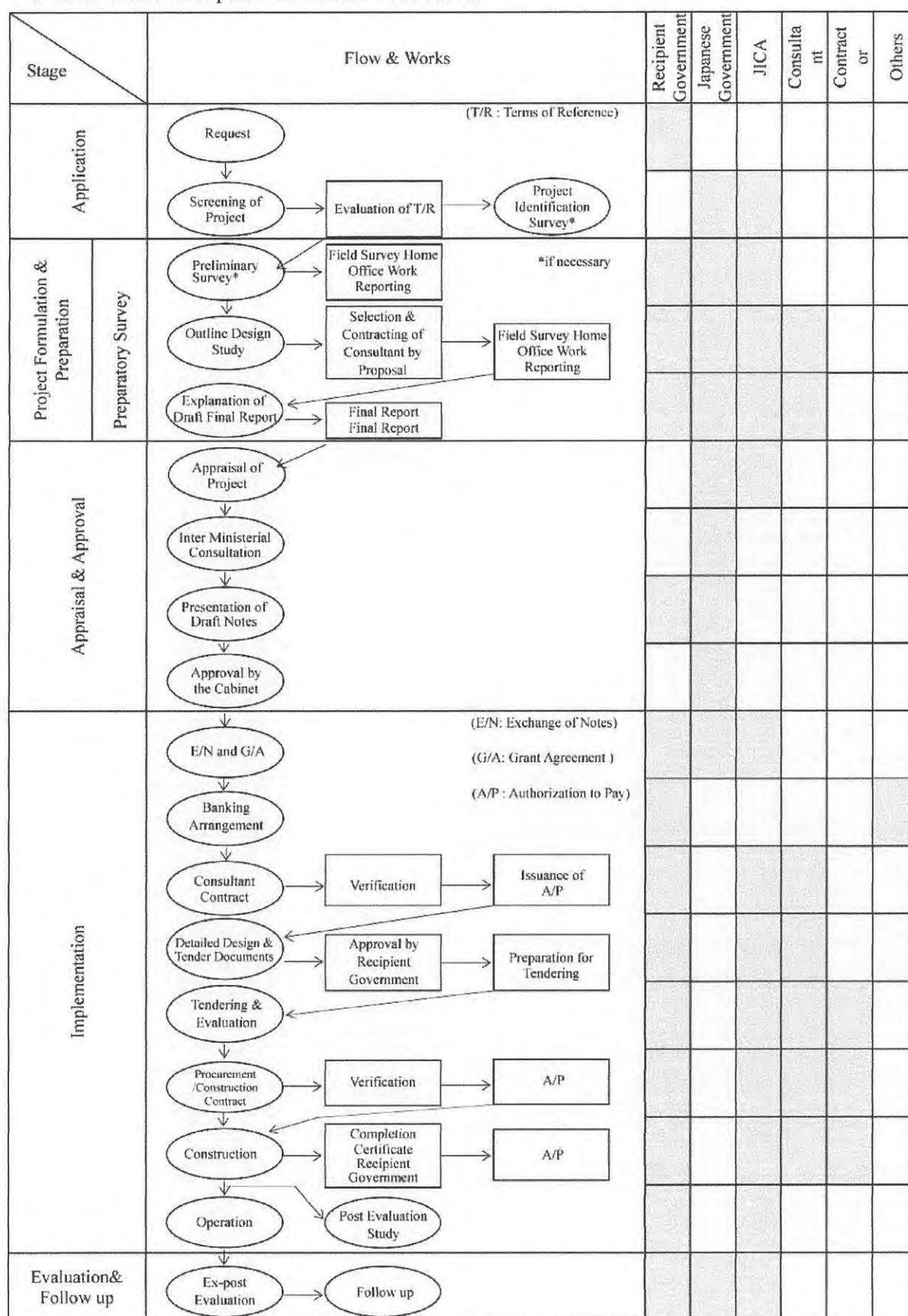
(9) Authorization to Pay (A/P)

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

(10) Social and Environmental Considerations

A recipient country must carefully consider social and environmental impacts by the Project and must comply with the environmental regulations of the recipient country and JICA socio-environmental guidelines.

4. Flow Chart of Japan's Grant Aid Procedures



Major Undertakings to be taken by Each Government

No.	Items	To be covered by Grant Aid	To be covered by Recipient Side
1	To secure a lot of land necessary for the implementation of the Project and to clear the sites		●
2	To construct the following facilities		
	1) The building	●	
	2) The gates and fences in and around the site		●
	3) The parking lot (for Project building only)	●	
	4) The road within the site	●	
	5) The road outside the site		●
3	To provide facilities for distribution of electricity, water supply and drainage and other incidental facilities necessary for the implementation of the Project outside the sites		
	1) Electricity		
	a. The distributing power line to the site		●
	b. The drop wiring and internal wiring within the site	●	
	c. The main circuit breaker and transformer	●	
	2) Water Supply		
	a. The city water distribution main to the site		●
	b. The supply system within the site (receiving and elevated tanks)	●	
	3) Drainage		
	a. The city drainage main (for storm sewer and others to the site)		●
	b. The drainage system (for toilet sewer, common waste, storm drainage and others) within the site	●	
	4) Gas Supply		
	a. The city gas main to the site		●
	b. The gas supply system within the site	●	
	5) Telephone System		
	a. The telephone trunk line to the main distribution frame/panel (MDF) of the building		●
	b. The MDF and the extension after the frame/panel	●	
	6) Furniture and Equipment		
	a. General furniture	●	●
	b. Project equipment	●	
4	To ensure prompt customs clearance of the products and to assist internal transportation of the products in the recipient country.		
	1) Marine (Air) transportation of the Products from Japan to the recipient country	●	
	2) Tax exemption and custom clearance of the Products at the port of disembarkation		●
	3) Internal transportation from the port of disembarkation to the project site	(●)	(●)
5	To ensure that customs duties, internal taxes and other fiscal levies which may be imposed in the recipient country with respect to the purchase of the products and the services be exempted.(According to the approval of the concerned authorities)		●
6	To accord Japanese nationals whose services may be required in connection with the supply of the products and the services such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work		●
7	To ensure that the facilities and the products be maintained and used properly and effectively for the implementation of the Project		●
8	To bear all the expenses, other than those covered by the Grant, necessary for the implementation of the Project		●
9	To bear the following commissions paid to the Japanese bank for banking services based upon the B/A		
	1) Advising commission of A/P		●

	2) Payment commission		●
10	To give due social and environmental consideration in the implementation of the Project		●

(B/A : Banking Arrangement, A/P : Authorization to pay)

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This page is closed due to the confidentiality.

Necessary Measures to be taken by the Sudanese Side

Necessary measures to be taken by the Sudanese side aside from the items described in Annex 5 are described below:

Necessary Measures to be taken by the Sudanese Side	
01	Issuance of Banking Arrangement (B/A) and Authorization to Pay (A/P) and payment of accompanying charges
02	To accord Japanese physical persons and / or physical persons of third countries whose services may be required in connection with the supply of the products and the services such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work
03	Securing of the temporary land/space for the construction works near the site Enough space besides of the project site for the temporary storage of materials and machines, and setting temporary office and accommodations are provided by the Sudanese side.
04	Distribution the power line and installation of the transformer to the site Japanese side is responsible for procurement of the additional new transformer and inland connecting cable and wiring, and Sudanese side is responsible for the installation work of the transformer and its connecting cables from the main line at outside of the site.
05	Distribution the city water to the site City water pipe from main line is to be connected to the site.
06	Distribution of telephone line to the site Three telephone trunk lines (1 for emergency, 1 for general, 1 for internet) to the main distribution frame/panel (MDF) are to be distributed to the building.
07	Planting around the new building
08	Acquisition of permission and authorization required for the construction work
09	Demolition the existing facilities located in the proposed construction area Existing cafeteria, an office building, an old toilet, pavement, trees and obstacles are to be demolished and removed from the site.
10	Procedures, contract, payment related to the electricity, telephones, and water for this project
11	To secure necessary manpower and budget for proper operation and maintenance of the MCH Section as described Annex 8
12	To secure proper operation and maintenance of medical equipment

Necessary Budget and Manpower for Operation and Maintenance of the Project

(3) Necessary staffs placement

	Doctor	No.	Paramedical /Med. Engineer /Technician	No.	Management	No.
1	Obstetric & Gynecological doctor	6	Nurse technicians	38	Medical director of MCH	1
2	Pediatrician	3	Certified nurses	6	Secretary	1
3	Medical doctors	10	Midwife	10	Data input	3
4	Family medicine consultant	2	Lab technicians	6	Human resource	1
5	Pharmacists	4	Lab assistant	8	Internal auditor	1
6	Anesthetist	2	Public Health officer	1	Accountant	2
7			Health educator	4	Cashier	4
8			Medical assistant pharmacist	3	Biomedical engineer	1
9			Anesthesia technician	8	Store keeper	1
10			Theater attendant	8	Electrical technician	1
11			Immunization technicians	2	AC and Mechanical engineer	1
12			Statistic technician	3	Plumber	1
13			Data clerk	6	Worker	2
14					Driver	3
15					Cleaner	15
16					Security	6
	Total	27	Total	103	Total	44
Grand Total 174						

(4) Necessary additional budget for operation and maintenance of the Project (Unit: SDG)

Additional expense necessary for the Project (operation, maintenance and management expenses)	Amount (SDG)
① Human Resources	1,908,900
② Office Supplies	147,813
③ Medical consumables / Parts	109,144
④ Electricity	
Electricity Supply	490,899
Fuel for generator	95,352
⑤ Water	13,516

Additional expense necessary for the Project (operation, maintenance and management expenses)	Amount (SDG)
⑥Gas	30,718
⑦Telephone	12,000
⑧Facility maintenance	304,719
⑨Medical equipment maintenance (Table-A below)	8,958
⑩Medical gas (only O ²)	157,680
⑪Medical waste treatment	152,851
Total	3,423,550

1) Maintenance Management Fee for Major Equipment

Table-A: Maintenance Management Fee for Major Equipment

Table A: Maintenance Management Fee for Major Equipment				
Dept.	Description	Contents	Contract	Contract price In SDG
Image diagnostics	Ultrasound scanner	Annual maintenance	Annual maintenance contract	4,868.55
Clinical laboratory	Coagulometer	Annual maintenance and calibration		2,629.02
	Hematology analyzer(automated)	Annual maintenance and calibration		1,460.56
Total				8,958.13

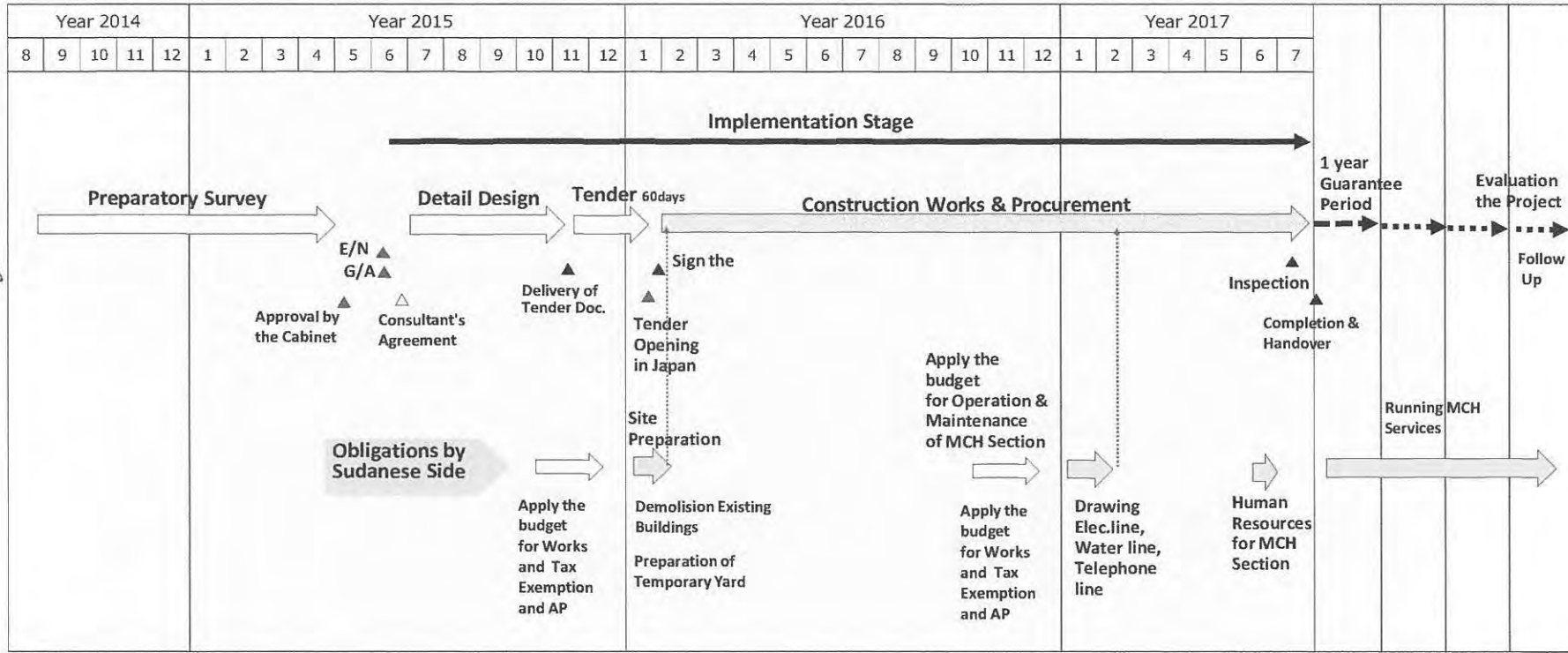
*Annual maintenance contract consists of periodical check-up and calibration.

2) On-call Maintenance Management Fee

Table-B: On-call Maintenance Management Fee

Description	Contents	Category	Service cost in SDG
Infant incubator	Periodical Check	On-call	485～970
Infusion pump	Periodical Check		242～485
Syringe pump	Periodical Check		242～485
ECG machine	Repair		242～388
Anesthesia machine with ventilator	Repair		485～970
High pressure steam sterilizer(approx.150L)	Repair		485～970
Washing machine	Repair		1,457～2,428
Total			3,638～6,696

Tentative Schedule of the Project



5. テクニカルノート

5. テクニカルノート

TECHNICAL NOTE ON PREPARATORY SURVEY ON THE PROJECT FOR IMPROVEMENT OF HEALTH CARE SERVICE IN SUBURBAN AREA OF KHARTOUM STATE IN THE REPUBLIC OF THE SUDAN

The Federal Ministry of Health (hereinafter referred to as “FMOH”) and Khartoum State Ministry of Health (hereinafter referred to as “SMOH”) of the Government of Sudan and The Consultant Team held discussions with conducted a field survey after signing of the Minutes of Discussions on September 1st, 2014. In the course of discussions and field survey, both parties confirmed the items described in the ATTACHMENT.

Khartoum, September 14th 2014

Dr. Mohamed Ali Yahia Elabassi
Director General
Planning and Inter National Health
Directorate
Federal Ministry of Health
Sudan



Dr. Babiker Mohamed Ali
General Director
Curative Medicine Directorate
Khartoum State Ministry of Health
Sudan



Mr. Kentaro Nishiyama
Project Manager of Consultant Team
JICA Preparatory Survey Team

西山謙太郎

ATTACHMENT

1. Components of Facilities

Both sides confirmed major rooms and priorities to be located at Maternal and Child Health Section (priority A) and Midwifery School (priority B) in Umbaddah General Hospital are shown in Annex-2.

2. Equipment List

Both sides confirmed equipment and priorities for Maternal and Child Health Section (priority A) in Umbaddah General Hospital, Alaban Jadid General Hospital (priority B) and Midwifery School (priority B) in Umbaddah General Hospital and are shown in Annex-3.

3. Obligations at the site by Sudan side

Both parties confirmed the works on the site to be taken by Sudan side has mentioned in the Minutes of Discussions signed on 1st September 2014.

- Land acquisition
Proposed land area (See Annex-4) are secure to be utilized for the new facilities of the project.
- Site clearance
Proposed lands for the project are to be cleared.
- Demolition the existing facilities located in the proposed construction area
Existing cafeteria, an office building, an old toilet, pavement, trees and obstacles are to be demolished and removed from the site.
- Distribution the power line and transformer to the site
Japanese side is responsible for procurement of the additional new transformer and inland connecting cable and wiring, and Sudanese side is responsible for the installation work of the transformer and its connecting cables from the main line at outside of the site.
- Distribution the city water to the site
City water pipe from main line is to be connected to the site.
- Distribution of telephone line to the site
Tree telephone trunk lines (1 for emergency, 1 for general, 1 for internet) to the main distribution frame/panel (MDF) are to be distributed to the building.
- Arrangement of the temporary land/space for the construction works near the site
Enough space besides of the project site for the temporary storage of materials and machines, and setting temporary office and accommodations is provided by Sudanese side.

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Se

4. Organization structure and staffing for the Maternal and Child Health Section

SMOH confirmed the organization structure shown below figure and the staffs shown in Annex-5 to be assigned in the New Maternal and Child Health Section at Umbaddah General Hospital. And former staffs who worked for Umbaddah General Hospital until 2011 are re-assigned for the same hospital after its rehabilitation.

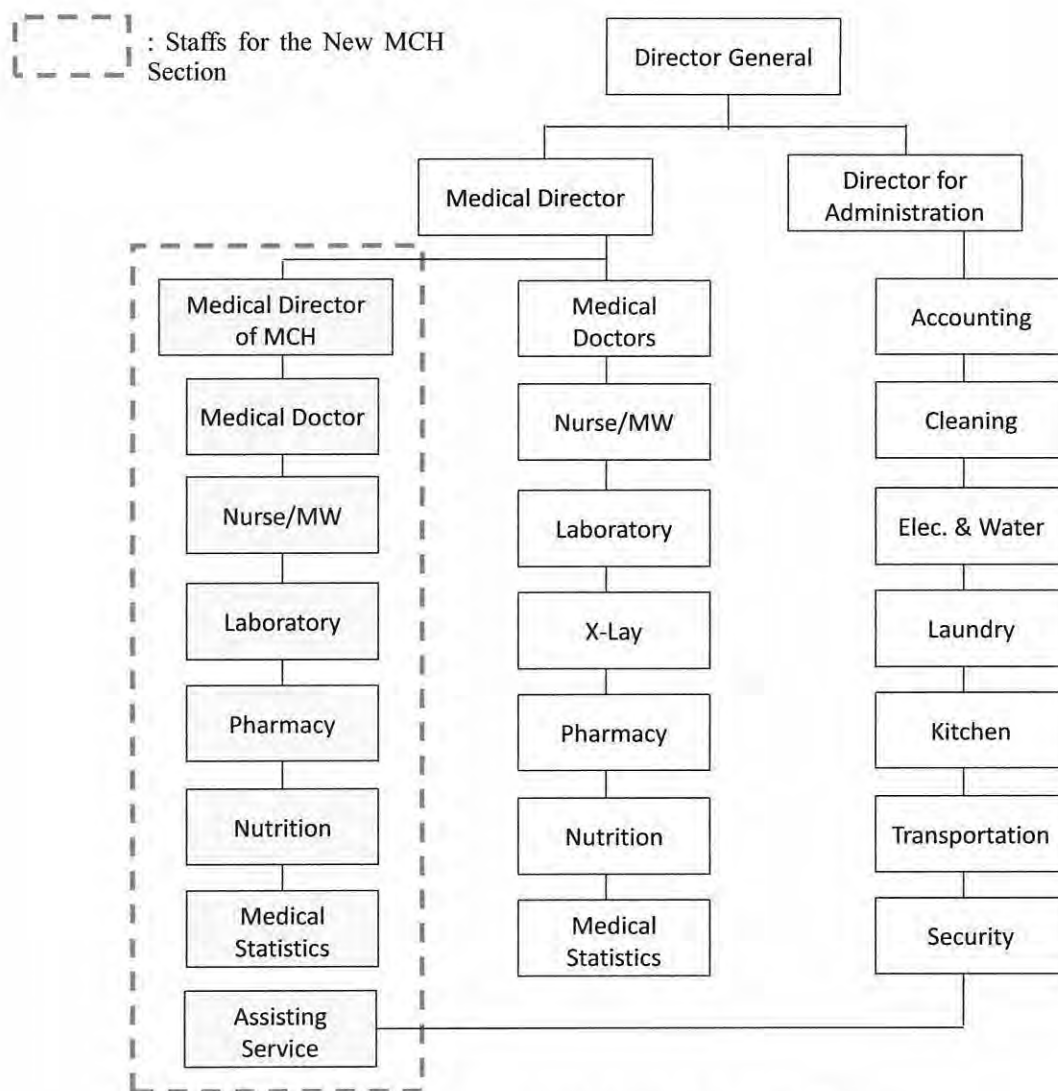


Fig. Organization Structure of Umbaddah General Hospital

5. EIA

FMOH and SMOH confirmed that EIA is not required on the project, because the new Maternal and Child Health Section will be established as an extension of existing Umbaddah General Hospital in the same land which is surrounded permanent fence and gates.

6. Soft component for Improvement of Maintenance of Medical Equipment

Both parties confirmed that a requested training by SMOH for improvement of maintenance capability of biomedical engineers working at hospital level is not considered as the soft component in this project, because the manufacturer allows only their certified engineers to perform corrective maintenance. The training in this project could do is only for the improvement of the medical equipment management such as daily maintenance check, trouble shooting, and periodical check based on user manual which is covered by the Supplier as initial operational training.

Beliker

7. Utilization of similar services in the existing hospital facility

Both parties confirmed SMOH proposed the maternal and child health section originally allocated in the existing facility is to be utilized for expansion the service of general surgery and gynecologic surgery.

END

[Signature]

[Signature]

Annex-1: Site Map

Annex-2: Major rooms and priorities to be located at Maternal and Child Health Section and Midwifery School in Umbaddah General Hospital

Annex-3: Equipment and priorities for Maternal and Child Health Section in Umbaddah General Hospital, Alaban Jadid General Hospital and Midwifery School in Umbaddah General Hospital

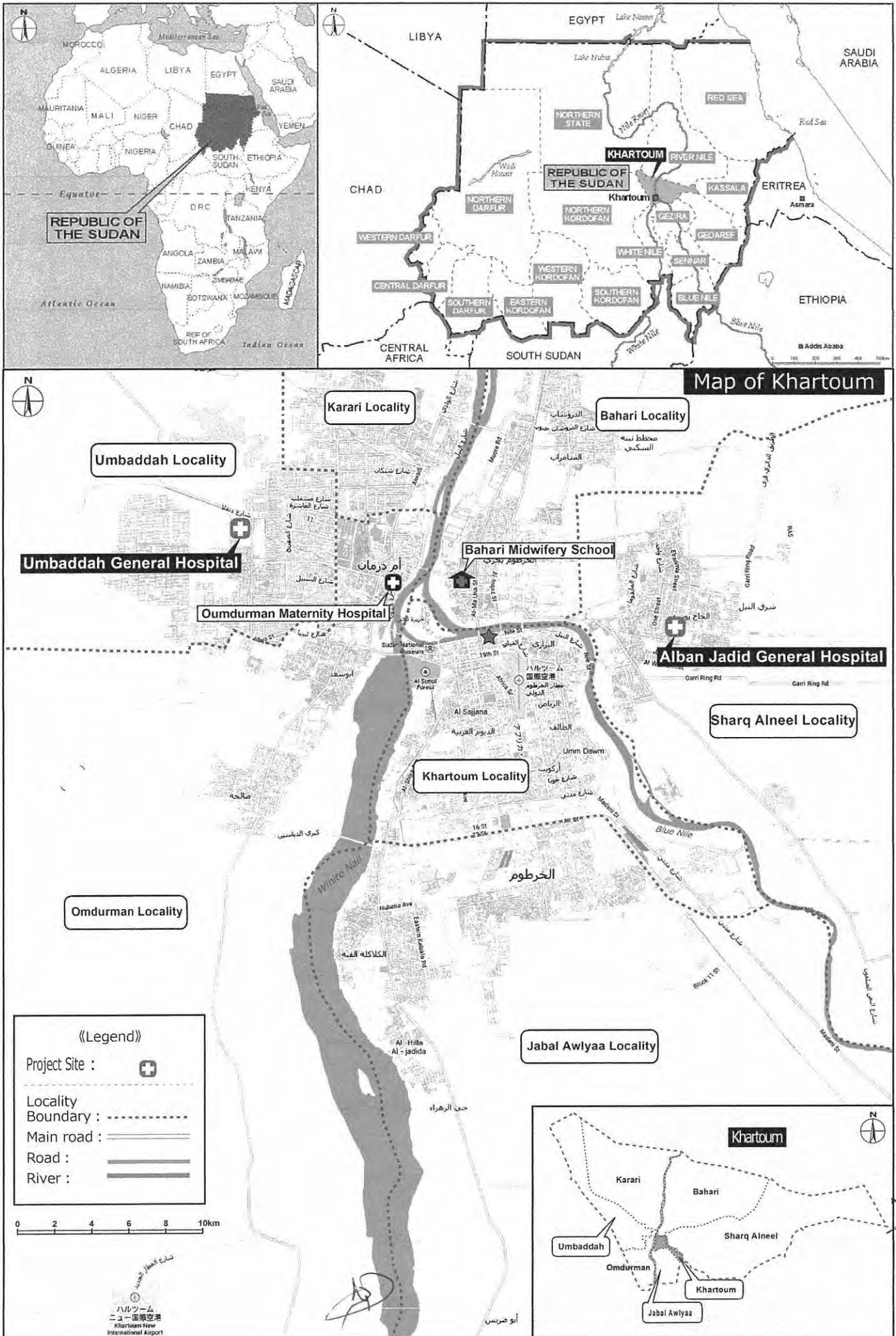
Annex-4: Proposed Area for Construction at Umbaddah General Hospital

Annex-5: Proposed Staff List of the Maternal and Child Health Section in Umbaddah General Hospital by SMOH

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Annex 1: Site Map



Annex-2: Major rooms and priorities to be located at Maternal and Child Health Section and Midwifery School in Umbaddah General Hospital

Maternity and Child Health Section at Umbaddah General Hospital (Priority A)

No.	Blocks	Major Functions	Qty	Priority
I.	Outpatient (OPD)			
		Reception	1	A
		Waiting space	1	A
		Consultation room (for Antenatal care / Postnatal care)	4	A
		Consultation room (family planning)	1	A
		Consultation room (Immunization / growth monitoring)	1	A
		Health education room	1	A
		Examination room (Obstetrics)	1	A
		Ultrasound / ECG	1	A
II.	Delivery			
		Labour (Waiting) room	1	A
		Delivery room	2	A
		Post-delivery monitoring (Recovery) room	1	A
		Nursery(NICU) -Septic	1	A
		Nursery(NICU) - for nside delivery		
		Nurse station	1	A
		Staff rest	2	A
		Night duty room	1	A
		Medical waste	1	A
		Sterilization	1	A
III.	Pharmacy			
		Pharmacy	1	A
		Store	1	A
VI.	Laboratory			
		Laboratory	1	A
		Blood and urine collection	1	A
		Blood bank (only deposit)	1	A
VII.	Operation Theater (OT)			
		Pre-operation	1	A
		Changing room (Male & Female)	2	A
		Scrub	1	A
		Operation Theater	2	A
		Sterilization	1	A
		Medical waste	1	A
		Staff rest	2	A
		Storage	1	A
VIII.	Hospitalization (ward)			
		Public ward (Ob & Gy)	1	A
		Private ward (Ob & Gy)	1	A
		HDU	1	A
		ICU	1	C
		Nurse station	1	A
		Linen	1	A
IX.	Administration			
		Director general's room	1	C
		Medical director of MCH room	1	A
		Doctor's room	1	A
		Paramedical's room	1	A
		Other clark's room	1	A

		Meeting room	1	A
		Locker room	1	A
X.	Service			
		Laundry	1	B
		Kitchen and Canteen	1	B
		Workshop for maintenance	1	A
		Service staff's room	1	A
		Garbage collection	1	B
		Machine room	1	A
XI.	Others			
		Parking lot , pedestrian passage, etc.		B

A : High priority

B : Put moderate priority and final decision will be made at the analysis in Japan

C : Not to be considered under this project

- Quantity of rooms to be changed at the analysis in Japan
- Result of analysis will report to Sudan side at explanation of draft report planning on Feb., 2015.

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Midwifery School at Umbaddah General Hospital (Priority B)

	Department.	Major Rooms	Qty	Priority
I .	Theoretical Training			
		Classroom	2	B
		Storage	1	B
		Toilet	1	B
II .	Practical Training			
		Practice room (Skill lab)	2	B
		Locker	1	B
		Storage	1	B
III .	Administration			
		Manager Room	1	B
		Meeting Room	1	B
		Teacher's Room	1	B
		Locker Room	1	B
		Storage	1	B
		Staff Toilet (male & female)	1	B
IV .	Dormitory & Other Service Facilities			
		Dormitory of Trainees	1	B
		Canteen	1	B
		Kitchen	1	B
		Laundry	1	B
		Toilet/ Shower	1	B
		Storage	1	B
		Residence for Staffs	2	B

A : High priority

B : Put moderate priority and final decision will be made at the analysis in Japan

C : Not to be considered under this project

- Quantity of rooms to be changed at the analysis in Japan
- Result of analysis will report to Sudan side at explanation of draft report planning on Feb., 2015.

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Annex-3 : Equipment and priorities for Maternal and Child Health Section in Umbaddah General Hospital,
Alaban Jadid General Hospital and Midwifery School in Umbaddah General Hospital

Equipment List for Umbaddah G.H

Dept.	Item No.	Room	Description	Priority	Qty
OPD	OPD-1	Reception	Reception chair	A	2
OPD	OPD-2	Waiting space	Waiting Chair (3x10)	A	10
OPD	OPD-3	Waiting space	LCD Monitor	B	1
OPD	OPD-4	Health Education room	Consultation Desk	A	1
OPD	OPD-5	Health Education room	Consultation Chair	A	1
OPD	OPD-6	Health Education room	Waiting Chair (3x10)	A	10
OPD	OPD-7	Health Education room	Projector	B	1
OPD	OPD-8	Health Education room	Projector screen	B	1
OPD	OPD-8	Consultation room (for ANC&PNC)	Consultation Desk	A	2
OPD	OPD-9	Consultation room (for ANC&PNC)	Consultation Chair	A	4
OPD	OPD-10	Consultation room (for ANC&PNC)	Diagnostic set	A	2
OPD	OPD-11	Consultation room (for ANC&PNC)	Ambu bag set for adult	C	2
OPD	OPD-12	Consultation room (for ANC&PNC)	Portable suction unit	C	2
OPD	OPD-13	Consultation room (for ANC&PNC)	Fetal Doppler	A	2
OPD	OPD-14	Consultation room (for ANC&PNC)	Adult weighing scale	A	2
OPD	OPD-15	Consultation room (for ANC&PNC)	Adult height scale	A	2
OPD	OPD-16	Consultation room (for ANC&PNC)	IV stand	C	2
OPD	OPD-17	Consultation room (Family Planning)	Consultation Desk	A	1
OPD	OPD-18	Consultation room (Family Planning)	Consultation Chair	A	1
OPD	OPD-19	Consultation room (Family Planning)	Diagnostic set	A	1
OPD	OPD-20	Consultation room (Family Planning)	Ambu bag set for adult	C	1
OPD	OPD-21	Consultation room (Family Planning)	Portable suction unit	C	1
OPD	OPD-22	Consultation room (Family Planning)	IV stand	C	1
OPD	OPD-23	Consultation room (Common)	Hospital Sluice Sink	B	1
OPD	OPD-24	Consultation room (Immunization/Growth Monitoring)	Consultation Desk	A	1
OPD	OPD-25	Consultation room (Immunization/Growth Monitoring)	Consultation Chair	A	1
OPD	OPD-26	Consultation room (Immunization/Growth Monitoring)	Diagnostic set	A	1
OPD	OPD-27	Consultation room (Immunization/Growth Monitoring)	Ambu bag set for infant	B	1
OPD	OPD-28	Consultation room (Immunization/Growth Monitoring)	Portable suction unit	B	1
OPD	OPD-29	Consultation room (Immunization/Growth Monitoring)	Infant height & weight scale	A	1
OPD	OPD-30	Consultation room (Immunization/Growth Monitoring)	Vaccine refrigerator	A	1
OPD	OPD-31	Ob.Examination room	Examination table	A	2
OPD	OPD-32	Ob.Examination room	Gynecology examination table with foot step	A	2
OPD	OPD-33	Ob.Examination room	Examination instrument set	A	4
OPD	OPD-34	Ob.Examination room	Examination light (LED)	A	2
OPD	OPD-35	Ob.Examination room	CTG	A	1
OPD	OPD-36	Ultrasound/ECG room	Consultation Desk	A	1
OPD	OPD-37	Ultrasound/ECG room	Consultation Chair	A	2
OPD	OPD-38	Ultrasound/ECG room	Partition	A	1
OPD	OPD-39	Ultrasound/ECG room	Ultrasound scanner	A	1
OPD	OPD-40	Ultrasound/ECG room	ECG machine	A	1
OPD	OPD-41	Ultrasound/ECG room	Examination table with foot step	A	1
Delivery	D-1	Labour room (Waiting)	CTG	A	1
Delivery	D-2	Labour room (Waiting)	Fetal Doppler	A	1
Delivery	D-3	Labour room (Waiting)	Ultrasound scanner	A	1
Delivery	D-4	Labour room (Waiting)	Labour bed with foot step	A	8
Delivery	D-5	Labour room (Waiting)	IV stand	A	8
Delivery	D-6	Labour room (Waiting)	Refrigerator 10 feet	A	1
Delivery	D-7	Delivery room	Delivery table	A	3
Delivery	D-8	Delivery room	IV stand	A	3
Delivery	D-9	Delivery room	Delivery instrument set	A	6
Delivery	D-10	Delivery room	Mobile OT Lamp (LED) with battery	A	4
Delivery	D-11	Delivery room	Instrument trolley	A	4
Delivery	D-12	Delivery room	Instrument Cabinet	A	4
Delivery	D-13	Delivery room	Stretcher	A	2
Delivery	D-14	Delivery room	Wheel Chair	A	2
Delivery	D-15	Delivery room	Infant Warmer	A	4
Delivery	D-16	Delivery room	Baby Cot	A	4
Delivery	D-17	Delivery room	Resuscitation set for neonate	A	4

Equipment List for Umbaddah G.H

Dept.	Item No.	Room	Description	Priority	Qty
Delivery	D-18	Delivery room	Forcept delivery set	A	2
Delivery	D-19	Delivery room	Vacuum extractor	A	2
Delivery	D-20	Delivery room	Suction unit	A	2
Delivery	D-21	Post-delivery monitoring room	Recovery bed	A	4
Delivery	D-22	Post-delivery monitoring room	IV stand	A	4
Delivery	D-23	Post-delivery monitoring room	Instrument trolley	A	1
Delivery	D-24	Medical Waste	Hospital Sluice Sink	C	1
Delivery	D-25	Sterilization room	Hot air oven	A	1
Delivery	D-26	Sterilization room	Table top autoclave	B	1
Delivery	D-27	Staff rest room	Chair	A	5
Delivery	D-28	Staff rest room	Desk	A	1
Delivery	D-29	Night Duty room	Duty bed	A	1
Delivery	D-30	Night Duty room	Bedside Cabinet	A	1
Delivery	D-31	Nurse station	Consultation Desk	A	1
Delivery	D-32	Nurse station	Consultation Chair	A	1
Delivery	D-33	Nurse station	Diagnostic set	A	3
Delivery	D-34	Nursery (delivered inside & outside)	Infan Incubator	A	5
Delivery	D-34	Nursery (delivered inside & outside)	Infan Warmer	A	1
Delivery	D-32	Nursery (delivered inside & outside)	Baby Cot	A	8
Delivery	D-33	Nursery (delivered inside & outside)	Ambu Bag set for neonate	A	3
Delivery	D-34	Nursery (delivered inside & outside)	Oxygen regulator, humidifier and flowmeter	A	4
Delivery	D-34	Nursery (delivered inside & outside)	Phototherapy unit (LED)	A	5
Delivery	D-32	Nursery (delivered inside & outside)	Neonatal Monitor	A	5
Delivery	D-33	Nursery (delivered inside & outside)	Portable suction unit	A	5
Delivery	D-34	Nursery (delivered inside & outside)	Bilirubin meter with centrifuge	A	1
Delivery	D-34	Nursery (delivered inside & outside)	Syringe pump	A	5
Delivery	D-32	Nursery (delivered inside & outside)	Infusion pump	A	2
Delivery	D-33	Nursery (delivered inside & outside)	Pulse Oxymeter	A	2
Delivery	D-34	Nursery (delivered inside & outside)	Infant height & weight scale	A	2
Delivery	D-34	Nursery (delivered inside & outside)	CPAP	B	2
Delivery	D-32	Nursery (delivered inside & outside)	Oxygen concentrator	B	2
Delivery	D-33	Nursery (delivered inside & outside)	IV stand	A	4
Delivery	D-34	Nursery (delivered inside & outside)	Diagnostic set for neonate	A	2
Pharmacy	P-1	Pharmacy	Medicine cabinet	A	3
Pharmacy	P-2	Pharmacy	Refrigerator 10 feet	A	1
Pharmacy	P-3	Pharmacy	Desk	A	1
Pharmacy	P-4	Pharmacy	Chair	A	1
Pharmacy	P-5	Pharmacy store	Rack for storage	A	2
Laboratory	L-1	Blood & Urine collection	Consultation Desk	A	1
Laboratory	L-2	Blood & Urine collection	Consultation Chair	A	1
Laboratory	L-3	Laboratory	Hematology Analyer	A	1
Laboratory	L-4	Laboratory	Coagulometer	B	1
Laboratory	L-5	Laboratory	Hot Air Oven	A	1
Laboratory	L-6	Laboratory	Counter WBC	C	1
Laboratory	L-7	Laboratory	Spectrophotometer	A	1
Laboratory	L-8	Laboratory	Centrifuge	A	1
Laboratory	L-9	Laboratory	Table top autoclave	A	1
Laboratory	L-10	Laboratory	Sensitive balance for callibration	B	1
Laboratory	L-11	Laboratory	Electrolyte (ISE) analyzer	B	1
Laboratory	L-12	Laboratory	Refrigerator 10 feet	A	1
Laboratory	L-13	Laboratory	Microscope	A	2
Laboratory	L-14	Laboratory	Micro Pipette Set	A	1
Laboratory	L-15	Laboratory	Staining set	A	1
Laboratory	L-16	Laboratory	Sample Shaker	A	1
Laboratory	L-17	Laboratory	Water bath	A	1
Laboratory	L-18	Laboratory	Water distiller	B	1
Laboratory	L-19	Blood Bank (only deposit)	Blood Donor Beds	B	2
Laboratory	L-20	Blood Bank (only deposit)	Bag Shaker	B	2
Laboratory	L-21	Blood Bank (only deposit)	Sphygmonanometer	B	1
Laboratory	L-22	Blood Bank (only deposit)	Hemobrobin meter	C	1
Laboratory	L-23	Blood Bank (only deposit)	Micro Pipette Set	A	1

Equipment List for Umbaddah G.H

Dept.	Item No.	Room	Description	Priority	Q'ty
Laboratory	L-24	Blood Bank (only deposit)	Microscope	A	1
Laboratory	L-25	Blood Bank (only deposit)	Refrigerated Centrifuge for Blood Bags(Cryofuge)	C	1
Laboratory	L-26	Blood Bank (only deposit)	Platelets Incubator with Agitator	A	1
Laboratory	L-27	Blood Bank (only deposit)	Manual Plasma Extractor	C	1
Laboratory	L-28	Blood Bank (only deposit)	Tube Sealer for Blood Bag	C	1
Laboratory	L-29	Blood Bank (only deposit)	Blood Bank Refrigerator (L)	A	2
Laboratory	L-30	Blood Bank (only deposit)	Blood Bank Refrigerator (S)	B	1
Laboratory	L-31	Blood Bank (only deposit)	Freezer	A	1
Laboratory	L-32	Blood Bank (only deposit)	Thawing Water Bath	A	1
Laboratory	L-33	Blood Bank (only deposit)	Hematocrit Centrifuge	C	1
Service	S-1	Laundry	Washing Machine	A	1
Service	S-2	Laundry	Drying Machine	A	1
Service	S-3	Laundry	Press Machine	A	1
Service	S-4	Laundry	Laundry Cart	A	1
Service	S-5	Canteen & Kitchen	Cooking equipment as a set	B	1
Service	S-6	Canteen & Kitchen	Freezer	A	1
Service	S-7	Canteen & Kitchen	Refrigerator 10 feet	A	1
Service	S-8	Canteen & Kitchen	Dining table	A	3
Service	S-9	Canteen & Kitchen	Dining chair	A	15
Service	S-10	Garbage collectionom	Garbage box	B	2
OT	OT-1	Pre-operation room	Stretcher	A	2
OT	OT-2	Changing room (Male & Female)	Locker (for 3 persons)	A	1
OT	OT-3	Scrub station	Hand Scrub station for 3 persons	A	1
OT	OT-4	Operation Theater	OT table (Hydraulic)	A	2
OT	OT-5	Operation Theater	OT Ceiling Light (LED)	A	2
OT	OT-6	Operation Theater	Mobile OT Light (LED) with bateery	A	2
OT	OT-7	Operation Theater	IV stand	A	2
OT	OT-8	Operation Theater	Anesthesia machine with ventilator	A	2
OT	OT-9	Operation Theater	Electrosurgical unit	A	2
OT	OT-10	Operation Theater	Suction unit	A	4
OT	OT-11	Operation Theater	D&C set (abortion)	A	4
OT	OT-12	Operation Theater	Caesarian Insument set	A	8
OT	OT-13	Operation Theater	Defibrillator	A	1
OT	OT-14	Operation Theater	Instrument trolley	A	4
OT	OT-15	Operation Theater	Instrument Cabinet	A	2
OT	OT-16	Operation Theater	Oxygen regulator, humidifier and flowmeter	A	4
OT	OT-17	Operation Theater	N2O regulator, humidifier and flowmeter	B	4
OT	OT-18	Operation Theater	Infant Warmer	A	2
OT	OT-19	Operation Theater	Baby Cot	A	1
OT	OT-20	Operation Theater	Infant Incubator	A	1
OT	OT-21	Operation Theater	Resuscitation set for neonate	A	2
OT	OT-22	Operation Theater	Portable suction unit	B	2
OT	OT-18	Sterilization room	Hot air oven(50-60L)	A	1
OT	OT-19	Sterilization room	High pressure steam sterilizer (Approx.250L)	A	1
OT	OT-20	Sterilization room	Dressing drum set (L,M,S)	A	8
OT	OT-21	Sterilization room	Linen cart	A	1
OT	OT-22	Sterilization room	Rack for storage	A	1
OT	OT-23	Medical Waste	Hospital Sluice Sink	C	1
OT	OT-24	Staff rest room	Desk	A	1
OT	OT-25	Staff rest room	Chair	A	5
Ward	W-1	Ob/Gy	Hospital bed with mattress	A	20
Ward	W-2	Ob/Gy	IV stand	A	20
Ward	W-3	Ob/Gy	Overbed table	A	20
Ward	W-4	Ob/Gy	Bedside Cabinet	A	20
Ward	W-5	Ob/Gy	Suction unit	A	5
Ward	W-6	Ob/Gy	Hospital Sluice Sink	B	1
Ward	W-7	Nurse station	Consultation Desk	A	1
Ward	W-8	Nurse station	Consultation Chair	A	1
Ward	W-9	Nurse station	Instrument Cabinet	A	1
Ward	W-10	Nurse station	Instrmnt trolley	A	1
Ward	W-11	Nurse station	Medicine cabinet	A	1

Equipment List for Umbaddah G.H

Dept.	Item No.	Room	Description	Priority	Qty
Ward	W-12	Nurse station	Diagnostic set	A	1
Ward	W-13	Nurse station	White board	B	1
Ward	W-14	HDU	HDU bed (3 crank gatch by manual)	A	2
Ward	W-15	HDU	Oxygen regulator, humidifier and flowmeter	A	2
Ward	W-16	HDU	Infusion pump	A	2
Ward	W-17	HDU	Syringe pump	A	2
Ward	W-18	HDU	Ventilator	C	2
Ward	W-19	HDU	Instrument cabinet	A	1
Ward	W-20	HDU	Bedside Monitor	A	2
Ward	W-21	HDU	Defibrillator	B	1
Ward	W-22	Linen	Rack for storage	A	2
Ward	W-23	Linen	Laundry Cart	A	1
Administratiom	A-1	Dr's room	Desk	A	5
Administratiom	A-2	Dr's room	Chair	A	5
Administratiom	A-3	Dr's room	Book shelf	B	1
Administratiom	A-4	Paramedical staff room	Desk	A	1
Administratiom	A-5	Paramedical staff room	Chair	A	1
Administratiom	A-6	Changing room for Male	Locker (for 3 persons)	A	1
Administratiom	A-7	Changing room for Female	Locker (for 3 persons)	A	2
Administratiom	A-8	DG	Desk	A	1
Administratiom	A-9	DG	Chair	A	1
Administratiom	A-10	DG	Book shelf	B	1
Administratiom	A-11	MD/Management room	Desk	A	1
Administratiom	A-12	MD/Management room	Chair	A	1
Administratiom	A-13	MD/Management room	Book shelf	B	1
Administratiom	A-16	Carte room	File rack for medical records	A	3
Administratiom	A-17	Worker's room	Desk	A	1
Administratiom	A-18	Worker's room	Chair	A	5
Administratiom	A-19	Worker's room	Storage rack	A	1
Administratiom	A-20	Meeting room	Meeting table	A	1
Administratiom	A-21	Meeting room	Meeting chairs	A	10
Administratiom	A-22	Meeting room	White board	A	1
Administratiom	A-23	Meeting room	Projector	B	1
Administratiom	A-24	Meeting room	Projector screen	B	1
Outside	O-1	Parking lot	Ambulance	C	1

A : High priority

B : Put moderate priority and final decision will be made at the analysis in Japan

C : Not to be considered under this project

● Quantity of equipment subject to be changed at the analysis in Japan

● Result of analysis will report to Sudan side at explanation of draft report planning on Feb., 2015.

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Annex-3 : Equipment and priorities for Maternal and Child Health Section in Umbaddah General Hospital
Alaban Jadid General Hospital and Midwifery School in Umbaddah General Hospital

Equipment List for Midwifery School at Umbaddah

Dept.	Item No.	Curriculum/Room	Description	Priority	Q'ty
Theoretical Training	C-1	Class Room and Storae	Desk	B	50
	C-2		White Board	B	2
	C-3		Platform	B	2
	C-4		Chair	B	50
	C-5		Projector	B	2
	C-6		Screen for Projector	B	2
	C-7		Cabinet	B	2
Practice Training (Skill Labo.)	L-1	Nursery /Midwifery Technique	I.V. Injection Arm	B	2
	L-2		Delux Dual-Sex Torso, 20 parts	B	2
	L-3	Neonatal Care	Resuscitation Baby	B	2
	L-4		Neonatal resuscitation set	B	2
	L-5	Antenatal Care	Pregnancy series	B	2
	L-6		Diagnostic set	B	2
	L-7		Examination table	B	2
	L-8	Delivery	Birth Process, 5 stages	B	2
	L-9		Delivery Model	B	2
	L-10		Pelvis model	B	2
	L-11		Delivery table	B	2
	L-12		Delibery instrument set	B	2
			Examination set	B	2
	L-13		Forceps delivery set	B	2
	L-14		Vacuum extractor	B	2
	L-15		Hot air oven	B	2
	L-16	Post-natal care	Gynecological simulator	B	2
	L-17	Storage	Cabinet	B	6
Changing room	C-1	n/a	Locker	B	5
Administration	A-1	Manager room	Desk	B	1
	A-2		Chair	B	1
	A-3		Book shelf	B	1
	A-4	Meeting room	Meeting Table	B	1
	A-5		Meeting Chair	B	10
	A-6		Projector	B	1
	A-7		Projector screen	B	1
	A-8	Teacher's room	Desk	B	1
	A-9		Chair	B	3
	A-10		Book shelf	B	1
	A-11	Locker room	Locker	B	1
	A-12	Storage	Cabinet	B	1
Domitory	D-1	Canteen	Dining Table Set	B	10
	D-2		Dining Chair set	B	50
	D-3	Kitchen	Kitchen instrument set	B	1
	D-4	Laundry	Washing and Drying machine	B	1
	D-5	Storage	Cabinet	B	1

A : High priority

B : Put moderate priority and final decision will be made at the analysis in Japan

C : Not to be considered under this project

- Quantity of equipment subject to be changed at the analysis in Japan
- Result of analysis will report to Sudan side at explanation of draft report planning on F

Annex-3 : Equipment and priorities for Maternal and Child Health Section in Umbaddah General Hospital,
Alaban Jadid General Hospital and Midwifery School in Umbaddah General Hospital

Equiment List for Alban Jadid G.H

Dept.	Item No.	Room	Description	Priority	Qty
OPD	OPD-1	Emergency, Obstetric	Diagnostic set	B	2
OPD	OPD-2	Emergency, Obstetric	CTG	B	1
OPD	OPD-3	Emergency, Obstetric	Adult weighing scale	B	2
OPD	OPD-4	Emergency, Obstetric	Adult height scale	B	2
OPD	OPD-5	Pediatric	Diagnostic set for infant	B	1
OPD	OPD-6	Pediatric	Infant height & weight scale	B	1
OPD	OPD-7	Emergency, Obstetric	Gynecology examination table with foot step	B	2
OPD	OPD-8	Emergency, Obstetric	Examination light (LED)	B	2
OPD	OPD-9	Emergency, Obstetric	Partition	B	2
OPD	OPD-10	Ultrasound scanning room	Ultrasound scanner	B	1
Delivery	D-1	Labour room	CTG	B	1
Delivery	D-2	Labour room	Fetal Doppler	B	1
Delivery	D-3	Labour room	Ultrasound scanner	B	1
Delivery	D-4	Labour room	Labour bed with foot step	B	6
Delivery	D-5	Labour room	IV stand	B	6
Delivery	D-6	Delivery room	Delivery table	B	2
Delivery	D-7	Delivery room	Delivery instrument set	B	4
Delivery	D-8	Delivery room	Forceps delivery set	B	2
Delivery	D-9	Delivery room	Vacuum extractor	B	1
Delivery	D-10	Delivery room	Infant warmer	B	1
Delivery	D-11	Delivery room	Baby cot	B	1
Delivery	D-12	Delivery room	Resuscitation set for neonate	B	1
Delivery	D-13	Sterilization room	Hot air oven	B	1
Delivery	D-14	Nursery	Infant Incubator	B	4
Delivery	D-15	Nursery	Infant Warmer	B	1
Delivery	D-16	Nursery	IV stand	B	4
Delivery	D-17	Nursery	Phototherapy unit (LED)	B	4
Delivery	D-18	Nursery	Portable suction unit	B	4
Delivery	D-19	Nursery	Syringe pump	B	4
Delivery	D-20	Nursery	Infusion pump	B	2
Delivery	D-21	Nursery	Pulse Oxymeter	B	4
Delivery	D-22	Nursery	CPAP	B	1
Delivery	D-23	Nursery	Oxygen concentrator	B	2
Delivery	D-24	Nursery	Diagnostic set for neonate	B	2
Laboratory	L-1	Laboratory	Spectrophotometer	B	1
Laboratory	L-2	Laboratory	Microscope	B	3
Laboratory	L-3	Laboratory	Micro Pipette Set	B	1
Laboratory	L-4	Blood transfusion unit	Blood Bank Refrigerator (L)	B	1
Laboratory	L-5	Blood transfusion unit	Freezer	B	1
OT	OT-1	OT 1/OT2	OT Ceiling Light (LED)	B	2
OT	OT-2	OT 1/OT2	Mobile OT Light (LED) with battery	B	3
OT	OT-3	OT 1/OT2	Anesthesia machine with ventilator	B	2
OT	OT-4	OT 1/OT2	Suction unit	B	6
OT	OT-5	OT 1/OT2	Infant warmer	B	2
OT	OT-6	OT 1/OT2	Infant Incubator	B	1
OT	OT-7	OT 1/OT2	Baby cot	B	1
OT	OT-8	OT 1/OT2	Resuscitation set for neonate	B	2
OT	OT-9	OT 1/OT2	Portable suction unit	B	2
OT	OT-10	OT 1/OT2	High pressure steam sterilizer (Approx.250L)	B	1

A : High priority

B : Put moderate priority and final decision will be made at the analysis in Japan

C : Not to be considered under this project

- Quantity of equipment subject to be changed at the analysis in Japan
- Result of analysis will report to Sudan side at explanation of draft report planning on Feb., 2015.

Annex-4: Proposed Area for Construction at Umbaddah General Hospital



 : Existing building to be demolished by Sudanese side

- ① : Existing Office to be demolished by Sudan side
- ② : Existing Cafeteria to be demolished by Sudan
- ③ : Existing Toilet to be demolished by Sudan side

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Annex-5

Proposed Staff List of the Maternal and Child Health Section in Umbaddah
General Hospital by SMOH

Staff Title	Number
Doctors :	
Obstetric & Gynecological doctor	6
Pediatrician	3
Medical doctors	10
Family medicine consultant	2
Pharmacists	4
Anesthetist	2
Technicians and Assistants:	
Nurse technicians	38
Lab technicians	6
Public Health officer	1
Health educator	4
Medical assistant pharmacist	3
Theater attendant	8
Anesthesia technician	8
Lab assistant	4
Certified nurses	6
Immunization technicians	2
Data clerk	6
Statistic technician	3
Management	
Medical director of MCH	1
Secretary	1
Data input	3
Human resource	1
Internal auditor	1
Accountant	2
Cashier	4
Store keeper	1
Electrical technician	1
AC and Mechanical engineer	1
Plumber	1
Biomedical engineer	1
Drivers	3
Cleaner	15
Worker	2
Security	6

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7/10/20

6. 要請機材の検討表

6. 要請機材の検討表

部門	機材番号	機材名	要 請 数 量	① 使 用 目 的	② 必 要 性	③ 技 術 水 準	④ 運 営 体 制	⑤ 維 持 管 理 体 制	⑥ 運 営 費	⑦ 総 合 評 価	数 量
外来診療部門	OPD-1	待合室用椅子(3人掛け)	10	○	○	○	○	○	○	○	32
外来診療部門	OPD-2	診断セット	1	○	○	○	○	○	○	○	7
外来診療部門	OPD-3	胎児ドップラー	1	○	○	○	○	○	○	○	4
外来診療部門	OPD-4	診察台	1	○	○	○	○	○	○	○	4
外来診療部門	OPD-5	産科検診台	1	○	○	○	○	○	○	○	5
外来診療部門	OPD-6	検診器具セット	1	○	○	○	○	○	○	○	5
外来診療部門	OPD-7	検診ライト	1	○	○	○	○	○	○	○	5
外来診療部門	OPD-8	受付用椅子	1	○	○	○	○	○	○	○	3
外来診療部門	OPD-9	胎児心拍陣痛計	1	○	○	○	○	○	○	○	2
外来診療部門	OPD-10	病院用汚物流し	1	○	X	○	○	○	○	X	0
外来診療部門	OPD-11	成人用体重計	1	○	○	○	○	○	○	○	2
外来診療部門	OPD-12	成人用身長計	1	○	○	○	○	○	○	○	2
外来診療部門	OPD-13	診察机	1	○	○	○	○	○	○	○	10
外来診療部門	OPD-14	診療椅子	2	○	○	○	○	○	○	○	19
外来診療部門	OPD-15	成人用蘇生バッグセット	2	○	X	○	○	○	○	X	0
外来診療部門	OPD-16	移動式吸引器	2	○	X	○	○	○	○	X	0
外来診療部門	OPD-17	新生児用身長／体重計	1	○	○	○	○	○	○	○	1
外来診療部門	OPD-18	ワクチン冷蔵庫	1	○	○	○	○	○	○	○	1
外来診療部門	OPD-19	収納ラック	2	○	○	○	○	○	○	○	2
外来診療部門	OPD-20	小児用蘇生バッグセット	1	○	X	○	○	○	○	X	0
外来診療部門	OPD-21	乾熱滅菌器	1	○	○	○	○	○	○	○	1
外来診療部門	OPD-22	衝立	1	○	○	○	○	○	○	○	2
外来診療部門	OPD-23	超音波診断装置タイプA	1	○	○	○	○	○	○	○	1
外来診療部門	OPD-24	心電計	1	○	○	○	○	○	○	○	1
外来診療部門	OPD-25	検診台	1	○	○	○	○	○	○	○	1
分娩部門	D-1	診断セット	3	○	○	○	○	○	○	○	3
分娩部門	D-2	点滴台	1	○	○	○	○	○	○	○	16
分娩部門	D-3	分娩台	1	○	○	○	○	○	○	○	3
分娩部門	D-4	分娩器具セット	2	○	○	○	○	○	○	○	6
分娩部門	D-5	移動式手術灯(バッテリー付)	1	○	○	○	○	○	○	○	3
分娩部門	D-6	開放式保育器	1	○	○	○	○	○	○	○	3
分娩部門	D-7	ベビーコット	1	○	○	○	○	○	○	○	3
分娩部門	D-8	新生児蘇生セット	1	○	○	○	○	○	○	○	3
分娩部門	D-9	鉗子分娩器具セット	1	○	○	○	○	○	○	○	3
分娩部門	D-10	吸引器	1	○	○	○	○	○	○	○	3
分娩部門	D-11	ワクチン冷蔵庫	1	○	○	○	○	○	○	○	1
分娩部門	D-12	娩出吸引器	1	○	○	○	○	○	○	○	1
分娩部門	D-13	乾熱滅菌器	1	○	○	○	○	○	○	○	1
分娩部門	D-14	新生児用身長／体重計	1	○	○	○	○	○	○	○	1
分娩部門	D-15	器械台車	1	○	○	○	○	○	○	○	3
分娩部門	D-16	病院用汚物流し	1	○	X	○	○	○	○	X	0
分娩部門	D-17	医療器具保管庫	1	○	○	○	○	○	○	○	2
分娩部門	D-18	胎児ドップラー	3	○	○	○	○	○	○	○	3
分娩部門	D-19	胎児心拍陣痛計	1	○	○	○	○	○	○	○	1
分娩部門	D-20	超音波診断装置タイプB	1	○	○	○	○	○	○	○	1
分娩部門	D-21	陣痛ベッド	8	○	○	○	○	○	○	○	8
分娩部門	D-22	冷蔵庫	1	○	○	○	○	○	○	○	1
分娩部門	D-23	回復ベッド	8	○	○	○	○	○	○	○	10
分娩部門	D-24	ベビーコット	4	○	○	○	○	○	○	○	8
分娩部門	D-25	医薬品保管庫	1	○	○	○	○	○	○	○	2
分娩部門	D-26	ストレッチャー	1	○	○	○	○	○	○	○	1
分娩部門	D-27	車椅子	1	○	○	○	○	○	○	○	1
分娩部門	D-28	ゴミ箱(ポリバケツ)	2	○	○	○	○	○	○	○	2
分娩部門	D-29	受付用椅子	1	○	○	○	○	○	○	○	1
分娩部門	D-30	診察机	1	○	○	○	○	○	○	○	1
分娩部門	D-31	待合室用椅子(3人掛け)	2	○	○	○	○	○	○	○	2
分娩部門	D-32	シリンダーカート	3	○	○	○	○	○	○	○	3

部門	機材番号	機材名	要 請 数 量	① 使 用 目 的	② 必 要 性	③ 技 術 水 準	④ 運 営 体 制	⑤ 維 持 管 理 体 制	⑥ 運 営 費	⑦ 総 合 評 価	数 量
分娩部門	D-33	ホワイトボード	1	○	○	○	○	○	○	○	1
分娩部門	D-34	会議机(大)	1	○	○	○	○	○	○	○	1
分娩部門	D-35	会議椅子	6	○	○	○	○	○	○	○	6
分娩部門	D-36	書棚	1	○	○	○	○	○	○	○	1
新生児部門	N-1	新生児用身長／体重計	1	○	○	○	○	○	○	○	2
新生児部門	N-2	移動式吸引器	4	○	○	○	○	○	○	○	10
新生児部門	N-3	黄疸計(遠心分離機付)	1	○	○	○	○	○	○	○	2
新生児部門	N-4	シリンジポンプ	3	○	○	○	○	○	○	○	7
新生児部門	N-5	輸液ポンプ	1	○	○	○	○	○	○	○	3
新生児部門	N-6	酸素飽和度計	1	○	○	○	○	○	○	○	3
新生児部門	N-7	CPAP装置	1	○	○	○	○	○	○	○	2
新生児部門	N-8	酸素濃縮機	1	○	○	○	○	○	○	○	2
新生児部門	N-9	新生児診断セット	1	○	○	○	○	○	○	○	2
新生児部門	N-10	収納ラック	1	○	○	○	○	○	○	○	1
新生児部門	N-11	洗濯カート	1	○	○	○	○	○	○	○	1
新生児部門	N-12	点滴台	2	○	○	○	○	○	○	○	5
新生児部門	N-13	開放式保育器	1	○	○	○	○	○	○	○	2
新生児部門	N-14	ベビーコット	1	○	○	○	○	○	○	○	5
新生児部門	N-15	新生児蘇生セット	1	○	○	○	○	○	○	○	2
新生児部門	N-16	閉鎖型保育器	4	○	○	○	○	○	○	○	10
新生児部門	N-17	酸素調整器・加湿器・流量計	4	○	○	○	○	○	○	○	10
新生児部門	N-18	光線治療器	3	○	○	○	○	○	○	○	7
新生児部門	N-19	新生児用患者モニター	4	○	○	○	○	○	○	○	10
薬局部門	P-1	受付用椅子	1	○	○	○	○	○	○	○	1
薬局部門	P-2	冷蔵庫	1	○	○	○	○	○	○	○	1
薬局部門	P-3	医薬品保管庫	3	○	○	○	○	○	○	○	3
薬局部門	P-4	デスク(ラボ用)	1	○	○	○	○	○	○	○	1
薬局部門	P-5	椅子(ラボ用)	4	○	○	○	○	○	○	○	4
薬局部門	P-6	収納ラック	2	○	○	○	○	○	○	○	2
検査部門	L-1	受付用椅子	1	○	○	○	○	○	○	○	1
検査部門	L-2	卓上オートクレーブ	1	○	○	○	○	○	○	○	1
検査部門	L-3	電解質分析装置	1	○	○	○	○	○	○	○	1
検査部門	L-4	顕微鏡	2	○	○	○	○	○	○	○	3
検査部門	L-5	マイクロビペットセット	1	○	○	○	○	○	○	○	2
検査部門	L-6	サンプルシェーカー	1	○	○	○	○	○	○	○	1
検査部門	L-7	ウォーターバス	1	○	○	○	○	○	○	○	1
検査部門	L-8	蒸留水製造装置	1	○	○	○	○	○	○	○	1
検査部門	L-9	手動式赤血球カウンター	1	○	X	○	○	○	○	X	0
検査部門	L-10	校正用秤	1	○	X	○	○	○	○	X	0
検査部門	L-11	染色セット	1	○	X	○	○	○	○	X	0
検査部門	L-12	冷蔵庫	1	○	○	○	○	○	○	○	1
検査部門	L-13	診察机	1	○	○	○	○	○	○	○	1
検査部門	L-14	診療椅子	1	○	○	○	○	○	○	○	2
検査部門	L-15	血圧計	1	○	○	○	○	○	○	○	2
検査部門	L-16	衝立	1	○	○	○	○	○	○	○	1
検査部門	L-17	献血ベッド	1	○	○	○	○	○	○	○	1
検査部門	L-18	バッグシェーカー	1	○	○	○	○	○	○	○	1
検査部門	L-19	血小板恒温槽及び攪拌機	1	○	○	○	○	○	○	○	1
検査部門	L-20	乾熱滅菌器	1	○	○	○	○	○	○	○	1
検査部門	L-21	血液バンク用冷蔵庫	1	○	○	○	○	○	○	○	2
検査部門	L-22	冷凍庫	1	○	○	○	○	○	○	○	1
検査部門	L-23	血漿解凍用恒温槽	1	○	○	○	○	○	○	○	1
検査部門	L-24	ヘモグロビンメーター	1	○	X	○	○	○	○	X	0
検査部門	L-25	血液バッグ用冷凍遠心機	1	○	X	○	○	○	○	X	0
検査部門	L-26	手動血小板抽出機	1	○	X	○	○	○	○	X	0
検査部門	L-27	血液バッグシーラー	1	○	X	○	○	○	○	X	0
検査部門	L-28	血液バンク用冷蔵庫S	1	○	X	○	○	○	○	X	0
検査部門	L-29	ヘマトクリット遠心機	1	○	X	○	○	○	○	X	0
検査部門	L-30	椅子(ラボ用)	4	○	○	○	○	○	○	○	6

部門	機材番号	機材名	要 請 数 量	① 使 用 目 的	② 必 要 性	③ 技 術 水 準	④ 運 営 体 制	⑤ 維 持 管 理 体 制	⑥ 運 営 費	⑦ 総 合 評 価	数 量
検査部門	L-31	デスク(ラボ用)	1	○	○	○	○	○	○	○	1
検査部門	L-32	全自動血球カウンター	1	○	○	○	○	○	○	○	1
検査部門	L-33	血液凝固計	1	○	○	○	○	○	○	○	1
検査部門	L-34	分光光度計	1	○	○	○	○	○	○	○	1
検査部門	L-35	遠心機	1	○	○	○	○	○	○	○	1
サービス部門	S-1	食事用テーブル	5	○	○	○	○	○	○	○	5
サービス部門	S-2	会議椅子	6	○	○	○	○	○	○	○	14
サービス部門	S-3	会議机(大)	1	○	○	○	○	○	○	○	2
サービス部門	S-4	収納ラック	1	○	○	○	○	○	○	○	4
サービス部門	S-5	診察机	1	○	○	○	○	○	○	○	3
サービス部門	S-6	診療椅子	2	○	○	○	○	○	○	○	4
サービス部門	S-7	食事用椅子	20	○	○	○	○	○	○	○	25
サービス部門	S-8	簡易ベッド(2段ベット)	1	○	○	○	○	○	○	○	2
サービス部門	S-9	厨房セット	1	○	○	○	○	○	○	○	1
サービス部門	S-10	冷凍冷蔵庫	1	○	○	○	○	○	○	○	1
サービス部門	S-11	業務用洗濯機	1	○	○	○	○	○	○	○	2
サービス部門	S-12	業務用乾燥機	1	○	○	○	○	○	○	○	2
サービス部門	S-13	プレス装置	1	○	○	○	○	○	○	○	1
サービス部門	S-14	洗濯カート	2	○	○	○	○	○	○	○	2
手術部門	OT-1	ベビーコット	1	○	○	○	○	○	○	○	2
手術部門	OT-2	新生児蘇生セット	1	○	○	○	○	○	○	○	2
手術部門	OT-3	吸引器	2	○	○	○	○	○	○	○	4
手術部門	OT-4	閉鎖型保育器	1	○	○	○	○	○	○	○	2
手術部門	OT-5	酸素調整器・加湿器・流量計	2	○	○	○	○	○	○	○	4
手術部門	OT-6	手術台	1	○	○	○	○	○	○	○	2
手術部門	OT-7	麻酔器(人工呼吸器付)	1	○	○	○	○	○	○	○	2
手術部門	OT-8	電気メス	1	○	○	○	○	○	○	○	2
手術部門	OT-9	人工中絶用器具セット	2	○	○	○	○	○	○	○	4
手術部門	OT-10	帝王切開用器具セット	4	○	○	○	○	○	○	○	8
手術部門	OT-11	ロッカー3列3段9人用	1	○	○	○	○	○	○	○	3
手術部門	OT-12	除細動装置	1	○	○	○	○	○	○	○	1
手術部門	OT-13	亜酸化窒素調整器・加湿器・流量計	1	○	○	○	○	○	○	○	2
手術部門	OT-14	手術灯(天吊り型)	1	○	○	○	○	○	○	○	2
手術部門	OT-15	洗濯カート	1	○	○	○	○	○	○	○	2
手術部門	OT-16	収納ラック	3	○	○	○	○	○	○	○	5
手術部門	OT-17	点滴台	1	○	○	○	○	○	○	○	3
手術部門	OT-18	患者用ベッド(マットレス付き)	1	○	○	○	○	○	○	○	1
手術部門	OT-19	患者モニター	1	○	○	○	○	○	○	○	3
手術部門	OT-20	衝立	1	○	○	○	○	○	○	○	1
手術部門	OT-21	会議机(小)	1	○	○	○	○	○	○	○	2
手術部門	OT-22	会議椅子	6	○	○	○	○	○	○	○	8
手術部門	OT-23	病院用汚物流し	1	○	X	○	○	○	○	X	0
手術部門	OT-24	手洗装置(3人用)	1	○	○	○	○	○	○	○	1
手術部門	OT-25	ストレッチャー	1	○	○	○	○	○	○	○	2
手術部門	OT-26	高圧蒸気滅菌器(150L程度)	1	○	○	○	○	○	○	○	1
手術部門	OT-27	丸型カストセット(L、M、S)	8	○	○	○	○	○	○	○	8
手術部門	OT-28	乾熱滅菌器	1	○	X	○	○	○	○	X	1
手術部門	OT-29	ゴミ箱(ポリバケツ)	2	○	○	○	○	○	○	○	2
手術部門	OT-30	器械台車	2	○	○	○	○	○	○	○	4
手術部門	OT-31	医療器具保管庫	1	○	○	○	○	○	○	○	2
手術部門	OT-32	開放式保育器	1	○	○	○	○	○	○	○	2
病室部門	W-1	ストレッチャー	1	○	○	○	○	○	○	○	1
病室部門	W-2	会議机(大)	1	○	○	○	○	○	○	○	1
病室部門	W-3	会議椅子	8	○	○	○	○	○	○	○	8
病室部門	W-4	書棚	1	○	○	○	○	○	○	○	1
病室部門	W-5	収納ラック	1	○	○	○	○	○	○	○	6
病室部門	W-6	洗濯カート	1	○	○	○	○	○	○	○	1
病室部門	W-7	診療椅子	2	○	○	○	○	○	○	○	2
病室部門	W-8	点滴台	20	○	○	○	○	○	○	○	24

部門	機材番号	機材名	要 請 数 量	① 使 用 目 的	② 必 要 性	③ 技 術 水 準	④ 運 営 体 制	⑤ 維 持 管 理 体 制	⑥ 運 営 費	⑦ 総 合 評 価	数 量
病室部門	W-9	吸引器	4	○	○	○	○	○	○	○	8
病室部門	W-10	ベッドサイドキャビネット	20	○	○	○	○	○	○	○	26
病室部門	W-11	患者用ベッド(マットレス付き)	20	○	○	○	○	○	○	○	24
病室部門	W-12	車椅子	1	○	○	○	○	○	○	○	1
病室部門	W-13	食事用テーブル	20	○	○	○	○	○	○	○	24
病室部門	W-14	ソファ(病室用)	4	○	○	○	○	○	○	○	4
病室部門	W-15	医療器具保管庫	1	○	○	○	○	○	○	○	2
病室部門	W-16	酸素調整器・加湿器・流量計	2	○	○	○	○	○	○	○	2
病室部門	W-17	シリンジポンプ	2	○	○	○	○	○	○	○	2
病室部門	W-18	輸液ポンプ	2	○	○	○	○	○	○	○	2
病室部門	W-19	HDUベッド	2	○	○	○	○	○	○	○	2
病室部門	W-20	患者モニター	2	○	○	○	○	○	○	○	2
病室部門	W-21	ゴミ箱(ポリバケツ)	2	○	○	○	○	○	○	○	2
病室部門	W-22	シリンダーカート	1	○	○	○	○	○	○	○	1
病室部門	W-23	器械台車	1	○	○	○	○	○	○	○	1
病室部門	W-24	医薬品保管庫	1	○	○	○	○	○	○	○	1
病室部門	W-25	ホワイトボード	1	○	○	○	○	○	○	○	1
病室部門	W-26	人工呼吸器	2	○	X	X	○	○	○	X	0
病室部門	W-27	病院用汚物流し	1	○	X	○	○	○	○	X	0
健康教育部門	H-1	診察机	4	○	○	○	○	○	○	○	4
健康教育部門	H-2	診療椅子	6	○	○	○	○	○	○	○	6
健康教育部門	H-3	TVモニター	1	○	○	○	○	○	○	○	1
健康教育部門	H-4	プロジェクター	1	○	○	○	○	○	○	○	1
健康教育部門	H-5	スクリーン	1	○	○	○	○	○	○	○	1
健康教育部門	H-6	ホワイトボード	1	○	○	○	○	○	○	○	1
健康教育部門	H-7	スタッキングチェアー	30	○	○	○	○	○	○	○	40
管理部門	A-1	医療記録保管庫	3	○	○	○	○	○	○	○	3
管理部門	A-2	書棚	1	○	○	○	○	○	○	○	15
管理部門	A-3	診察机	2	○	○	○	○	○	○	○	7
管理部門	A-4	診療椅子	2	○	○	○	○	○	○	○	7
管理部門	A-5	収納ラック	3	○	○	○	○	○	○	○	5
管理部門	A-6	プロジェクター	1	○	○	○	○	○	○	○	0
管理部門	A-7	ホワイトボード	1	○	○	○	○	○	○	○	0
管理部門	A-8	会議机(大)	1	○	○	○	○	○	○	○	6
管理部門	A-9	会議椅子	10	○	○	○	○	○	○	○	54
管理部門	A-10	スクリーン	1	○	○	○	○	○	○	○	0
管理部門	A-11	スタッキングチェアー	30	○	○	○	○	○	○	○	0
管理部門	A-12	台車	1	○	○	○	○	○	○	○	1
管理部門	A-13	救急車	1	○	X	○	X	○	○	X	0
管理部門	A-14	ロッカー4人用	5	○	○	○	○	○	○	○	10
管理部門	A-15	ロッカー3列3段9人用	4	○	○	○	○	○	○	○	9
管理部門	A-16	長椅子	1	○	○	○	○	○	○	○	3
管理部門	A-17	会議机(中)	1	○	○	○	○	○	○	○	6

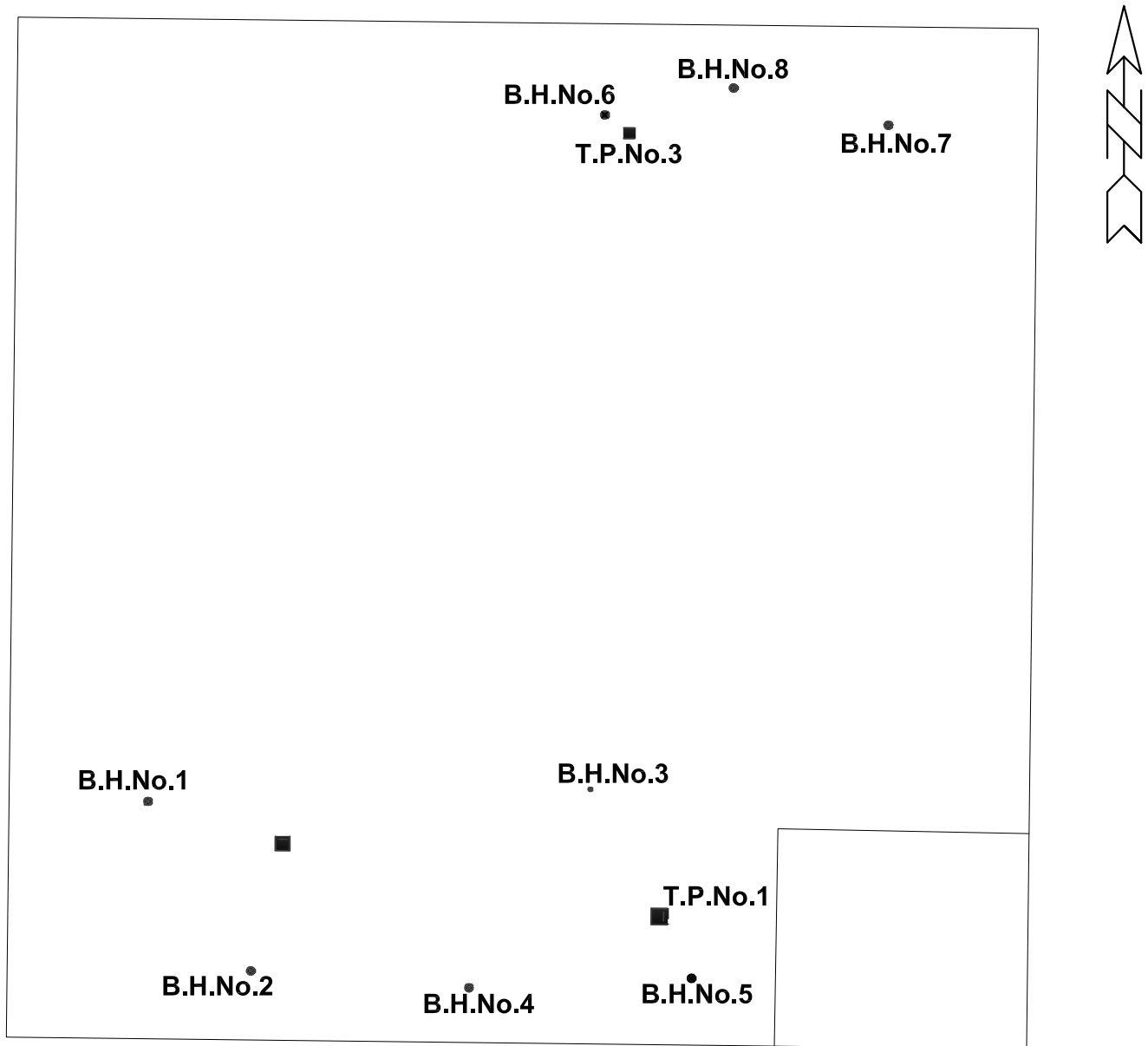
7. その他の資料

7-1 地盤調査結果(抜粋)

7.1 地盤調查結果

FIGURES (1) ***LOCATION OF BOREHOLES***

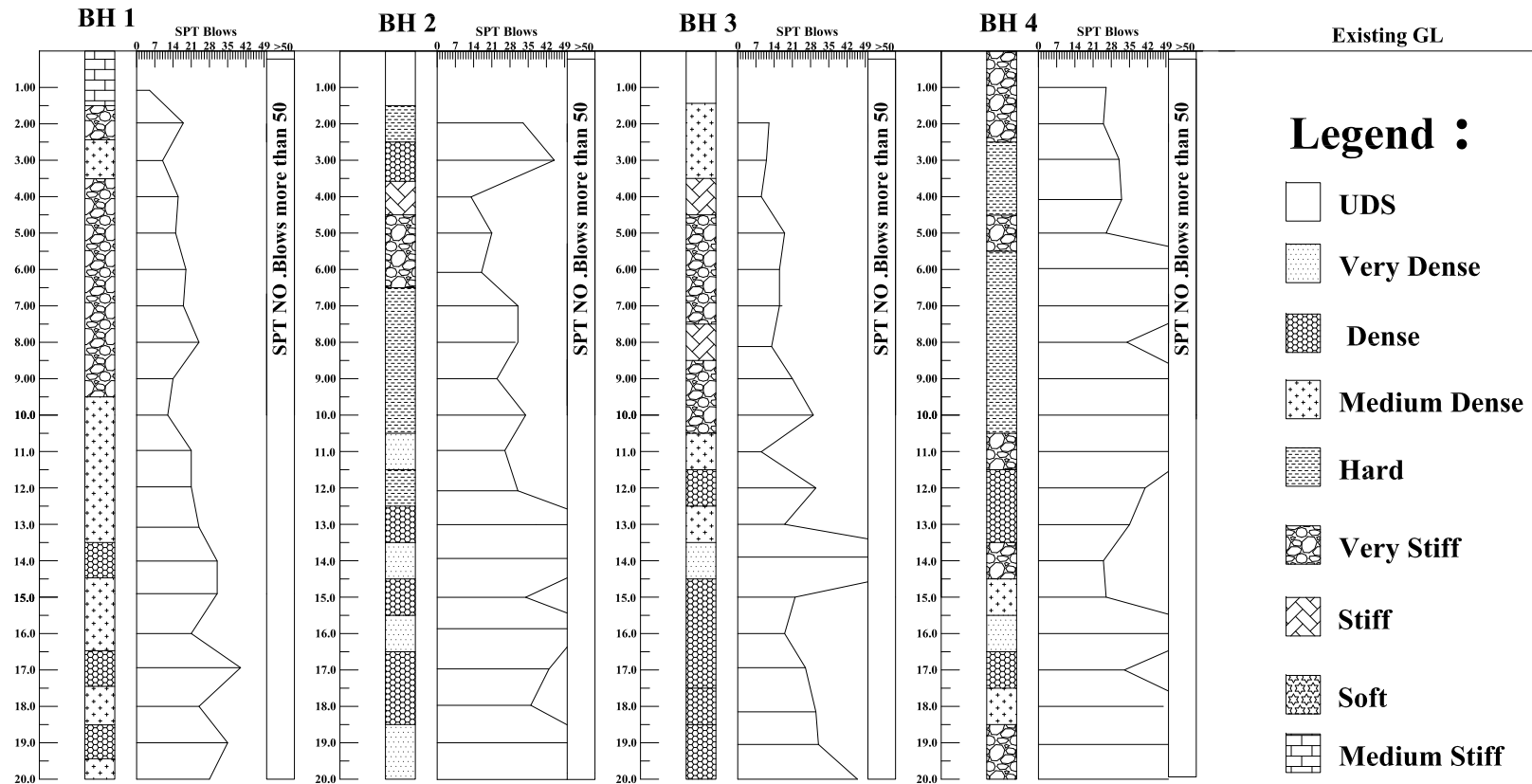
Fig.(1) Locations of Boreholes
Umbaddah General Hospital



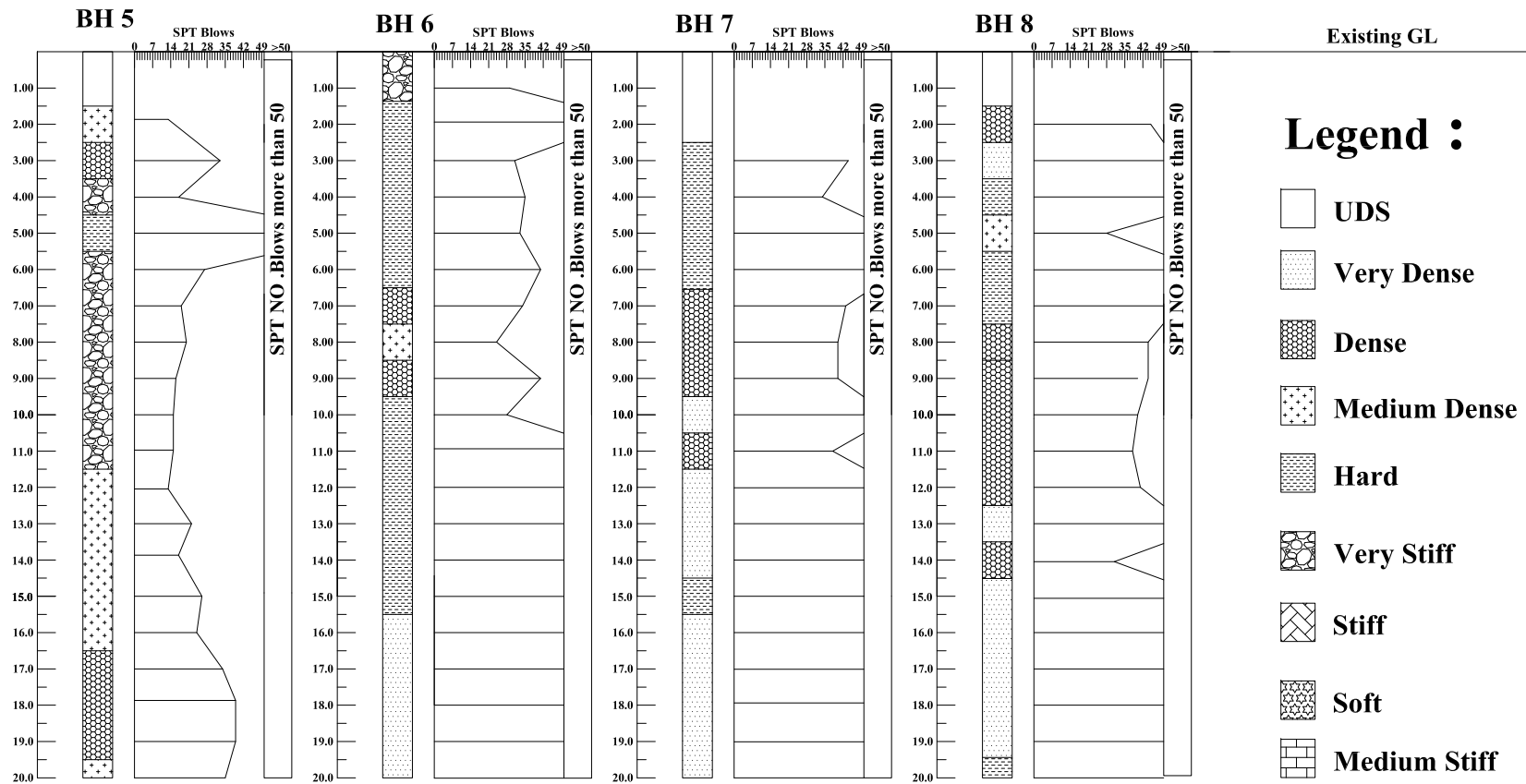
ALL UNITS ARE IN METER

FIGURES (2)
SECTIONS OF BOREHOLES

**Fig.(2): SPT Vs Depth and Soil Properties
Umbaddah General Hospital**



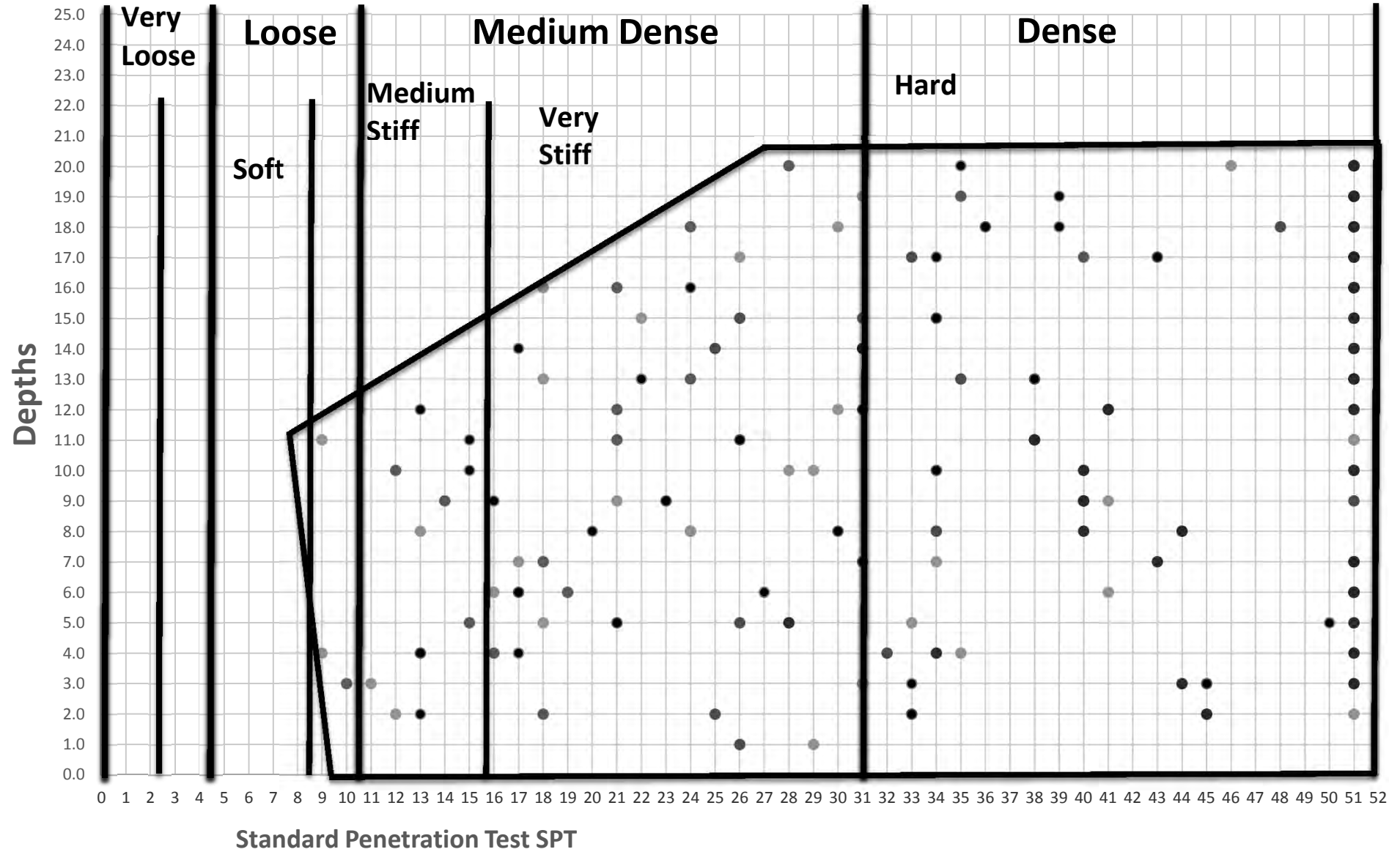
**Fig.(2) Continued: SPT Vs Depth and Soil Properties
Umbaddah General Hospital**



Very Soft

Fig.(3) Soil Properties

Very Dense





APPENDIX (A)
BOREHOLE LOGS AND SUMMARY OF
LABORATORY TEST RESULTS

E.S.D
Soil Profile
THE IMPROVEMENT OF HEALTH FACILITIES AND EQUIPMENTS PROJECT
UMBADDAH GENERAL HOSPITAL

B.H.1

Elevation : From the existing ground level

Coordinates: E: 0437590 N:1731892

Ground Water Level : Not Observed

Starting date: 04/09/2014

Finishing date: 07/09/2014

Elevation: 7' from the existing ground level		Ground Water Level Not Observed		Finishing date: 9/25/2017															
Depth (m)	Sample Type	Layer Symbol	Description	Group Symbol	Atterberg Limits			%pass sieve #200	N.M.C %	Shear Strength		SPT Result							Remarks
					L.L %	P.L %	P.I %			Ø (deg)	C kn/m²	Blows for inch					N Value	Pen. inch	
												6	3	3	3	3			
1.0			Medium stiff reddish brown clayey silt of low plasticity	ML	40	27	13	94.03	11.40	27	58								
2.0																			
3.0			Very stiff yellowish grey silty clay of low plasticity	CL	19	12	7	52.82				4	5	5	4	4	18		
4.0																			
5.0			Medium dense yellowish grey clayey sand	SC	33	17	16	38.54				2	2	2	3	3	10		
6.0																			
7.0			Very stiff yellowish brown silty clay of low plasticity	CL	39	19	20	73.80				5	4	3	4	5	16		
8.0																			
9.0			same but possibly completely weathered claystone		33	22	11	82.25				6	5	2	3	5	15		
10.0																			
					33	18	15	91.76				5	3	5	5	5	19		
					29	18	11	74.65				3	3	4	5	6	18		
			Very stiff whitish to yellowish brown clayey silt of low plasticity possibly completely weathered siltstone	ML	43	29	14	94.81				7	6	6	6	6	24		
			same but stiff	CL-ML	25	19	6	53.48				4	2	3	4	5	14		
			Medium dense whitish yellowish clayey silty sand possibly completely weathered sandstone	SM-SC	22	17	5	28.91				4	3	2	4	3	12		

 Undisturbed Sample
 Disturbed Soil Sample of SPT

Legend

	silty sand		silty clay
	clayey sand		clayey silt

E.S.D
Soil Profile
THE IMPROVEMENT OF HEALTH FACILITIES AND EQUIPMENTS PROJECT
UMBADDAH GENERAL HOSPITAL

B.H.1 (Continued)

Depth (m)	Sample Type	Layer Symbol	Description	Group Symbol	Atterberg Limits			%pass sieve #200	N.M.C %	Shear Strength		SPT Result							Remarks
					L.L %	P.L %	P.I %			Ø (deg)	C KN/m²	Blows for inch					N Value	Pen. inch	
												6	3	3	3	3			
11.0	✓		Medium dense whitish yellowish silty sand possibly completely weathered sandstone	SM		NP	NP	21.01				5	5	5	5	6	21		
12.0	✓		Medium dense whitish yellowish clayey sand possibly completely weathered sandstone	SM-SC	19	14	5	31.35				6	4	5	6	6	21		
13.0	✓		Medium dense whitish yellowish silty sand possibly completely weathered sandstone	SM		NP	NP	26.19				8	6	5	7	6	24		
14.0	✓		Dense whitish yellowish clayey sand possibly completely weathered sandstone	SM-SC	19	25	4	27.60				7	6	8	7	10	31		
15.0	✓		Medium dense whitish yellowish silty sand possibly completely weathered sandstone	SM		NP	NP	31.28				14	7	7	9	8	31		
16.0	✓		Medium dense whitish yellowish clayey sand possibly completely weathered sandstone	SM-SC	19	16	6	34.53				8	7	4	5	5	21		
17.0	✓		Dense whitish yellowish silty sand possibly completely weathered sandstone	SM		NP	NP	20.36				22	11	8	10	11	40		
18.0	✓		same but medium dense			NP	NP	32.80				12	5	7	7	6	24		
19.0	✓		same but dense					20.13				12	9	9	8	9	35		
20.0	✓		same but medium dense			NP	NP	19.04				6	6	6	8	8	28		
Bottom of borehole @ 20.0m																			

Bottom of borehole @ 20.0m

- ☒ Undisturbed Sample
- ☒ Disturbed Soil Sample of SPT

Legend

- ☐ silty sand
- ☐ clay sand
- ☐ silty clay
- ☐ clayey silt

E.S.D
Soil Profile
THE IMPROVEMENT OF HEALTH FACILITIES AND EQUIPMENTS PROJECT
UMBADDAH GENERAL HOSPITAL

B.H.2

Elevation : From the existing ground level

Coordinates: E: 0437610 N:1731859

Ground Water Level : Not Observed

Starting date: 04/09/2014

Finishing date: 07/09/2014

Depth (m)	Sample Type	Layer Symbol	Description	Group Symbol	Atterberg Limits			%pass sieve #200	N.M.C %	Shear Strength		SPT Result							Remarks
					L.L %	P.L %	P.I %			Ø (deg)	C KN/m²	Blows for inch					N Value	Pen. inch	
												6	3	3	3	3			
1.0	⊗		Brownish grey silty clay of low plasticity	CL	27	16	11	56.46	8.64	30	99.74								
2.0			same but hard		33	17	16	53.70				6	5	8	11	9	33		
3.0	⊗		Dense yellowish brown clayey sand	SC	25	16	9	28.80				15	10	9	14	12	45		
4.0	⊗		Stiff yellowish brown silty clay of low plasticity	CL	32	17	15	63.52				5	3	3	4	3	13		
5.0	⊗		same but possibly completely weathered claystone		36	23	13	75.84				5	4	6	5	6	21		
6.0	⊗				35	24	11	89.17				6	3	3	6	5	17		
7.0	⊗		same but hard dark brown		31	20	11	95.73				8	5	7	9	10	31		
8.0	⊗		same but reddish brown		36	21	15	96.04				8	7	7	7	9	30		
9.0	⊗		same but very stiff		34	20	14	89.60				4	5	5	6	7	23		
10.0			same but dark brown		41	30	11	93.70				7	5	6	10	13	34		

⊗ Undisturbed Sample

⊗ Disturbed Soil Sample of SPT

Legend

 silty sand
 clayey sand

 silty clay
 clayey silt

E.S.D
Soil Profile
THE IMPROVEMENT OF HEALTH FACILITIES AND EQUIPMENTS PROJECT
UMBADDAH GENERAL HOSPITAL

B.H.2 (Continued)

Depth (m)	Sample Type	Layer Symbol	Description	Group Symbol	Atterberg Limits			%pass sieve #200	N.M.C %	Shear Strength		SPT Result							Remarks	
					L.L %	P.L %	P.I %			Ø (deg)	C KN/m²	Blows for inch					N Value	Pen. inch		
												6	3	3	3	3				
11.0	✓	■	Very stiff reddish to whitish brown silty clay of low plasticity possibly completely weathered claystone same but hard weathered siltstone	CL	28	20	8	63.91				6	6	6	6	8	26			
12.0	✓	■		CL-ML	26	20	6	53.36				8	7	8	8	8	31			
13.0	✓	■	Dense whitish brownish to yellowish silty sand possibly completely weathered sandstone same but very dense whitish yellowish	SM		NP	NP	24.41				9	9	7	11	11	38			
14.0	✓					NP	NP	26.07				16	10	14	17	10	>51	2		
15.0	✓							21.99				14	7	10	8	9	34			
16.0	✓																			
16.0	✓					NP	NP	22.05				11	9	16	15	11	>51	1		
17.0	✓																			
17.0	✓							23.52				9	8	8	14	13	43			
18.0	✓							25.26				7	3	7	13	13	36			
19.0	✓							27.99				13	12	16	16	7	>51	2		
20.0	✓																			
20.0	✓						NP	NP	22.48					21	15	28	8			>51

Bottom of borehole @ 20.0m

- ☒ Undisturbed Sample
☒ Disturbed Soil Sample of SPT

Legend

 silty sand	 silty clay
 clay sand	 clayey silt

E.S.D
Soil Profile
THE IMPROVEMENT OF HEALTH FACILITIES AND EQUIPMENTS PROJECT
UMBADDAH GENERAL HOSPITAL

B.H.3

Elevation : From the existing ground level

Coordinates: E: 0437673 N:1731891

Ground Water Level : Not Observed

Starting date: 21/09/2014

Finishing date: 23/09/2014

Depth (m)	Sample Type	Layer Symbol	Description	Group Symbol	Atterberg Limits			%pass sieve #200	N.M.C %	Shear Strength		SPT Result							Remarks
					L.L %	P.L %	P.I %			Ø (deg)	C KN/m²	Blows for inch					N Value	Pen. inch	
												6	3	3	3	3			
1.0			Light brown silty clay of low plasticity	CL	28	15	13	52.15	11.98	10	70.28								
2.0																			
3.0			same but medium dense	SM-SC	21	15	6	31.49	2.65			4	3	3	3	2	11		
4.0																			
5.0			same but very stiff	CL	41	24	17	76.60	14.98			8	4	5	5	4	18		
6.0																			
7.0			same but of high plasticity possibly completely weathered claystone	CH	54	25	29	92.82	16.65			6	5	5	3	3	16		
8.0																			
9.0			same but whitish pinkish & low plasticity	CL	35	24	11	90.41	20.18			6	6	4	4	3	17		
10.0																			
			same but stiff		39	23	16	86.46	15.97			6	4	3	3	3	13		
			same but very stiff		33	20	13	89.28	20.74			7	7	5	5	4	21		
			same but yellowish brownish		31	23	8	80.73	18.52			9	8	8	6	7	29		

 Undisturbed Sample

 Disturbed Soil Sample of SPT

Legend

 silty sand
 clayey sand

 silty clay
 clayey silt

E.S.D
Soil Profile
THE IMPROVEMENT OF HEALTH FACILITIES AND EQUIPMENTS PROJECT
UMBADDAH GENERAL HOSPITAL

B.H.3 (Continued)

Depth (m)	Sample Type	Layer Symbol	Description	Group Symbol	Atterberg Limits				N.M.C %	Shear Strength		SPT Result							Remarks
					L.L %	P.L %	P.I %	%pass sieve #200		Ø (deg)	C KN/m²	Blows for inch					N Value	Pen. inch	
												6	3	3	3	3			
11.0			Medium dense whitish brownish clayey silty sand possibly completely weathered sandstone	SM-SC	27	20	7	45.26				4	2	2	2	3	9		
12.0			Dense whitish pinkish silty sand possibly completely weathered sandstone	SM		NP	NP	22.93				9	5	6	8	11	30		
13.0			same but medium dense whitish pinkish			NP	NP	27.16				5	4	4	4	6	18		
14.0			Very dense whitish pinkish clayey silty sand possibly completely weathered sandstone	SM-SC	23	19	4	46.18				10	10	14	16	11	>51	1	
15.0			Dense whitish pinkish silty sand possibly completely weathered sandstone	SM		NP	NP	37.12				8	6	6	5	5	22		
16.0						NP	NP	32.90				9	6	4	4	4	18		
17.0						NP	NP	18.10				9	5	8	7	6	26		
18.0			same but dense			NP	NP	29.93				10	7	6	9	8	30		
19.0						NP	NP	38.20				11	6	7	8	10	31		
20.0						NP	NP	34.92				15	11	10	13	12	46		
Bottom of borehole @ 20.0m																			
Undisturbed Sample Disturbed Soil Sample of SPT Legend silty sand clayey sand silty clay clayey silt																			

E.S.D
Soil Profile
THE IMPROVEMENT OF HEALTH FACILITIES AND EQUIPMENTS PROJECT
UMBADDAH GENERAL HOSPITAL

B.H.4
Elevation : From the existing ground level

Coordinates: E:0437649 N:1731858
Ground Water Level : Not Observed

Starting date: 10/09/2014
Finishing date: 12/09/2014

Depth (m)	Sample Type	Layer Symbol	Description	Group Symbol	Atterberg Limits			%pass sieve #200	N.M.C %	Shear Strength		SPT Result						Remarks	
					L.L %	P.L %	P.I %			Ø (deg)	C KN/m²	Blows for inch					N Value		Pen. inch
												6	3	3	3	3			
1.0			Very stiff light brown silty clay of low plasticity	CL	33	15	18	56.18				6	4	5	9	8	26		
2.0																			
3.0			same hard yellowish brown clayey	CL	33	16	19	64.56				9	8	9	7	8	31		
4.0																			
5.0			same but very stiff & possibly completely weathered claystone	CL	30	16	14	63.18				17	7	9	8	9	32		
6.0																			
7.0			same but hard	CL	44	23	21	96.50				21	22	21	8		>51	2	
8.0																			
9.0			same but reddish brown	CL	33	20	13	98.03				15	20	22	9		>51	2	
10.0																			
			Hard yellowish brown clayey silt of low plasticity possibly completely weathered siltstone	ML		NP	NP	96.08				6	9	8	8	9	34		
			Hard yellowish brown silty clay of low plasticity possibly completely weathered claystone	CL	32	15	17	93.42				25	22	25	6		>51		
			Hard whitish brown clayey silt of low plasticity possibly completely weathered siltstone	ML	39	28	11	95.91				15	18	20	13		>51	1	

 Undisturbed Sample

 Disturbed Soil Sample of SPT

Legend

 silty sand

 clayey sand

 silty clay

 clayey silt

E.S.D
Soil Profile
THE IMPROVEMENT OF HEALTH FACILITIES AND EQUIPMENTS PROJECT
UMBADDAH GENERAL HOSPITAL

B.H.4 (Continued)

Depth (m)	Sample Type	Layer Symbol	Description	Group Symbol	Atterberg Limits			%pass sieve #200	N.M.C %	Shear Strength		SPT Result							Remarks
					L.L %	P.L %	P.I %			Ø (deg)	C KN/m²	Blows for inch					N Value	Pen. inch	
												6	3	3	3	3			
11.0	✓	■	Very stiff whitish yellowish silty clay of low plasticity possibly completely weathered siltstone	CL	30	21	9	62.31				19	15	17	17	2	>51	3	
12.0	✓	■	Dense whitish yellowish clayey silty sand possibly completely weathered sandstone	SM-SC	22	17	5	29.28				13	10	10	11	10	41		
13.0	✓	■	Dense whitish yellowish silty sand possibly completely weathered sandstone	SM		NP	NP	21.96				13	9	8	9	9	35		
14.0	✓	■	Very stiff whitish yellowish clayey silt of low plasticity possibly completely weathered siltstone	CL-ML	27	21	6	51.79				9	7	6	6	6	25		
15.0	✓	■	Medium dense whitish yellowish silty sand possibly completely weathered sandstone	SM		NP	NP	25.59				10	5	7	6	7	26		
16.0	✓	■	same but very dense			NP	NP	24.82				21	13	12	13	13	51		
17.0	✓	■	Dense whitish yellowish clayey silty sand possibly completely weathered sandstone	SM-SC	21	17	4	25.90				20	9	8	9	7	33		
18.0	✓	■	Medium dense whitish yellowish silty sand possibly completely weathered sandstone	SM		NP	NP	33.01				19	11	12	12	13	48		
19.0	✓	■	same but very dense			NP	NP	18.63				21	13	12	14	12	51		
20.0	✓	■	Very dense whitish yellowish clayey sand possibly completely weathered sandstone	SM-SC	21	16	5	32.67				18	14	11	12	14	51		

Bottom of borehole @ 20.0m

☒ Undisturbed Sample
☐ Disturbed Soil Sample of SPT

Legend

 silty sand	 silty clay
 clayey sand	 clayey silt

E.S.D
Soil Profile
THE IMPROVEMENT OF HEALTH FACILITIES AND EQUIPMENTS PROJECT
UMBADDAH GENERAL HOSPITAL

B.H.5

Coordinates: E:0437689 N:1731855

Starting date: 16/09/2014

Elevation : From the existing ground level

Ground Water Level : Not Observed

Finishing date: 19/09/2014

Depth (m)	Sample Type	Layer Symbol	Description	Group Symbol	Atterberg Limits			%pass sieve #200	N.M.C %	Shear Strength		SPT Result							Remarks
					L.L %	P.L %	P.I %			Ø (deg)	C KN/m²	Blows for inch					N Value	Pen. inch	
												6	3	3	3	3			
1.0			Light brown silty clay of low plasticity	CL	32	16	16	57.50	12.08	9	118.63								
2.0																			
3.0																			
3.0			same but dense dark brown	SC	29	17	12	27.73	6.50			6	3	3	4	3	13		
4.0																			
5.0																			
4.0			Very stiff yellowish brown silty clay of low plasticity	CL	29	16	13	65.19	16.32			5	5	4	4	4	17		
6.0																			
7.0																			
5.0			same but hard		34	21	13	96.70	15.26			15	13	13	12	12	50		
8.0																			
9.0																			
6.0			same but pinkish brown possibly completely weathered claystone		38	21	17	99.34	14.93			10	8	8	6	5	27		
7.0																			
8.0																			
7.0			Very stiff whitish yellowish clayey silt of low plasticity possibly completely weathered siltstone	ML	48	29	19	96.63	7.61			10	3	4	4	7	18		
9.0																			
10.0																			
8.0			Very stiff yellowish brown silty clay of low plasticity possibly completely weathered claystone	CL	44	19	25	96.87	4.78			8	5	5	4	6	20		
9.0																			
10.0																			
9.0					38	25	13	94.55	7.64			7	5	5	3	3	16		
10.0																			
10.0					26	18	8	61.37	3.50			6	3	3	4	5	15		

 Undisturbed Sample

 Disturbed Soil Sample of SPT

Legend

 silty sand
 clayey sand

 silty clay
 clayey silt

E.S.D
Soil Profile
THE IMPROVEMENT OF HEALTH FACILITIES AND EQUIPMENTS PROJECT
UMBADDAH GENERAL HOSPITAL

B.H.5 (Continued)

Depth (m)	Sample Type	Layer Symbol	Description	Group Symbol	Atterberg Limits			%pass sieve #200	N.M.C %	Shear Strength		SPT Result							Remarks
					L.L %	P.L %	P.I %			Ø (deg)	C KN/m²	Blows for inch					N Value	Pen. inch	
												6	3	3	3	3			
11.0	✓	■	Very stiff yellowish brown silty clay of low plasticity possibly completely weathered claystone	CL	30	17	13	71.37				5	5	4	3	3	15		
12.0	✓	■	Medium dense whitish yellowish silty sand possibly completely weathered sandstone	SM		NP	NP	37.82				5	4	3	3	3	13		
13.0	✓					NP	NP	24.15				8	8	6	4	4	22		
14.0	✓					NP	NP	38.79				6	6	4	4	3	17		
15.0	✓				■	Medium dense whitish yellowish clayey silt of low plasticity possibly completely weathered sandstone	CL-ML	22	16	6	50.37				5	5	8	8	5
16.0	✓	■	Medium dense whitish yellowish silty sand possibly completely weathered sandstone same but dense	SM		NP	NP	23.87				8	7	6	6	5	24		
17.0	✓					NP	NP	29.30				11	7	10	8	9	34		
18.0	✓					NP	NP	36.84				12	10	10	9	10	39		
19.0	✓					NP	NP	27.84				19	12	8	10	9	39		
20.0	✓	■	Medium dense whitish yellowish clayey silty sand possibly completely weathered sandstone	SM-SC	20	15	5	30.27				20	8	9	10	8	35		

Bottom of borehole @ 20.0m

 Undisturbed Sample
 Disturbed Soil Sample of SPT

Legend

	silty sand
	clayey sand

	silty clay
	clayey silt

E.S.D
Soil Profile
THE IMPROVEMENT OF HEALTH FACILITIES AND EQUIPMENTS PROJECT
UMBADDAH GENERAL HOSPITAL

B.H.6

Coordinates: E: 0437674 N:1732007

Starting date: 17/09/2014

Elevation : From the existing ground level

Ground Water Level : Not Observed

Finishing date: 21/09/2014

Depth (m)	Sample Type	Layer Symbol	Description	Group Symbol	Atterberg Limits			%pass sieve #200	N.M.C %	Shear Strength		SPT Result							Remarks
					L.L %	P.L %	P.I %			Ø (deg)	C KN/m²	Blows for inch					N Value	Pen. inch	
												6	3	3	3	3			
1.0	S	CL	Very stiff light brown silty clay of low plasticity	CL	31	14	17	60.49	7.01			12	8	7	7	7	29		
2.0																			
3.0	S	CL	same but hard	CL	33	15	18	56.95	6.68			15	12	25	14		>51	1	
4.0																			
5.0	S	CL	same but yellowish brownish	CL	28	14	14	61.30	8.54			10	9	8	7	7	31		
6.0																			
7.0	S	CL		CL	22	13	9	51.75	5.16			10	10	9	8	8	35		
8.0																			
9.0	S	ML-CL		ML-CL	22	16	6	51.93	4.09			7	8	10	7	8	33		
10.0																			
	S	CL		ML-CL	25	18	5	54.62	5.70			9	9	13	10	9	41		
	S	SM	Dense whitish yellowish silty sand possibly completely weathered sandstone	SM		NP	NP	31.96	3.22			11	8	9	10	7	34		
	S	SM	same but medium dense	SM		NP	NP	23.27	2.50			7	6	7	6	5	24		
	S	SM-SC	Dense whitish yellowish clayey silty sand possibly completely weathered sandstone	SM-SC	22	15	7	37.03	4.78			9	9	13	10	9	41		
	S	SC		SC	30	13	17	49.73				10	6	7	7	8	28		

☒ Undisturbed Sample

☐ Disturbed Soil Sample of SPT

Legend

 silty sand
 clayey sand

 silty clay
 clayey silt

E.S.D
Soil Profile
THE IMPROVEMENT OF HEALTH FACILITIES AND EQUIPMENTS PROJECT
UMBADDAH GENERAL HOSPITAL

B.H.6 (Continued)

Depth (m)	Sample Type	Layer Symbol	Description	Group Symbol	Atterberg Limits			%pass sieve #200	N.M.C %	Shear Strength		SPT Result							Remarks
					L.L %	P.L %	P.I %			Ø (deg)	C KN/m²	Blows for inch					N Value	Pen. inch	
												6	3	3	3	3			
11.0	✓	■	Hard yellowish whitish silty clay of low plasticity possibly completely weathered claystone same but pinkish brownish	CL	35	23	12	78.08				28	20	20	12		>51	1	
12.0	✓	■			ML-CL	37	23	14	79.66				38	26	25			>51	
13.0	✓	■		24		21	3	54.77				35	28	23			>51		
14.0	✓	■		CL		25	16	9	61.39				24	25	24	2		>51	
15.0	✓	■			ML		NP	NP	59.90				31	25	26			>51	
16.0	✓	■	SM			NP	NP	31.70				18	13	30	8		>51	2	
17.0	✓	■		SM-SC	17	14	3	40.97				17	15	9	10	17	>51		
18.0	✓	■	SM			NP	NP	29.05				31	26	25			>51		
19.0	✓	■				NP	NP	23.59				32	25	27			>51		
20.0	✓	■				NP	NP	27.77				28	23	28			>51		

Bottom of borehole @ 20.0m

- ☒ Undisturbed Sample
☐ Disturbed Soil Sample of SPT

Legend

 silty sand	 clayey sand	 silty clay	 clayey silt
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E.S.D
Soil Profile
THE IMPROVEMENT OF HEALTH FACILITIES AND EQUIPMENTS PROJECT
UMBADDAH GENERAL HOSPITAL

B.H.7

Coordinates: E: 0437722 N:1732008

Starting date: 13/09/2014

Elevation : From the existing ground level

Ground Water Level : Not Observed

Finishing date: 15/09/2014

Depth (m)	Sample Type	Layer Symbol	Description	Group Symbol	Atterberg Limits			%pass sieve #200	N.M.C %	Shear Strength		SPT Result							Remarks
					L.L %	P.L %	P.I %			Ø (deg)	C KN/m²	Blows for inch					N Value	Pen. inch	
												6	3	3	3	3			
1.0	Z	A	Light brown silty clay of low plasticity	CL	32	14	18	55.82											
2.0																			
3.0	Z	A	Hard yellowish whitish clayey silt of low plasticity	ML	41	33	8	84.05				18	16	9	9	10	44		
4.0																			
5.0	Z	A	Hard whitish brownish silty clay of low plasticity	CL	33	14	19	82.95				18	14	8	6	6	34		
6.0																			
7.0	Z	A	Hard whitish brownish clayey silt of low plasticity	ML	41	31	10	83.28				16	16	13	13	10	>51		
8.0																			
9.0	Z	A	same but whitish yellowish possibly completely weathered siltstone		40	26	14	74.80									>51	5	
10.0																			
	Z	A	Dense whitish yellowish silty sand possibly completely weathered sandstone	SM		NP	NP	33.28				25	15	9	10	9	43		
	Z	A	Dense yellowish brown clayey silty sand of low plasticity possibly completely weathered sandstone	SM-SC	21	17	4	41.22				5	9	10	11	10	40		
	Z	A	Dense whitish yellowish silty sand possibly completely weathered sandstone	SM		NP	NP	27.67				15	9	11	9	10	40		
	Z	A	same but very dense			NP	NP	16.27				8	12	19	19	4	>51	2	

☒ Undisturbed Sample

☐ Disturbed Soil Sample of SPT

Legend

 silty sand
 clayey sand

 silty clay
 clayey silt

E.S.D
Soil Profile
THE IMPROVEMENT OF HEALTH FACILITIES AND EQUIPMENTS PROJECT
UMBADDAH GENERAL HOSPITAL

B.H.7 (Continued)

Depth (m)	Sample Type	Layer Symbol	Description	Group Symbol	Atterberg Limits			%pass sieve #200	N.M.C %	Shear Strength		SPT Result							Remarks	
					L.L %	P.L %	P.I %			Ø (deg)	C KN/m²	Blows for inch					N Value	Pen. inch		
												6	3	3	3	3				
11.0	✓		Dense whitish yellowish silty sand possibly completely weathered sandstone	SM																
							NP	NP	28.98					13	10	10	9	9	38	
12.0	✓		same but very dense																	
							NP	NP	20.87					51					>51	6
13.0	✓																			
							NP	NP	35.54					18	16	16	15	5	>51	2
14.0	✓		Very dense whitish yellowish clayey silty sand possibly completely weathered sandstone	SM-SC	20	15	5	42.85					8	13	15	16	7	>51	2	
15.0	✓		Hard yellowish brownish silty clay of low plasticity possibly completely weathered sandstone	ML-CL	21	16	5	50.42					51					>51	6	
16.0	✓		Very dense whitish brown clayey silty sand possibly completely weathered sandstone	SM-SC	18	14	4	48.71					7	5	5	25	16	51	2	
17.0	✓		Very dense whitish brown clayey silty sand possibly completely weathered sandstone	SM	18	15	3	43.96					21	13	19	19		>51		
18.0	✓					18	14	4	39.41					11	16	19	16		>51	1
19.0	✓																			
							NP	NP	26.02					13	15	16	15	5	>51	
20.0	✓																			
							NP	NP	30.94					18	14	12	15	10	>51	1
Bottom of borehole @ 20.0m																				

 Undisturbed Sample
 Disturbed Soil Sample of SPT

Legend
 silty sand
 clayey sand
 silty clay
 clayey silt

E.S.D
Soil Profile
THE IMPROVEMENT OF HEALTH FACILITIES AND EQUIPMENTS PROJECT
UMBADDAH GENERAL HOSPITAL

B.H.8

Coordinates: E: 0437696 N:1732013

Starting date: 14/09/2014

Elevation : From the existing ground level

Ground Water Level : Not Observed

Finishing date: 16/09/2014

Depth (m)	Sample Type	Layer Symbol	Description	Group Symbol	Atterberg Limits			%pass sieve #200	N.M.C %	Shear Strength		SPT Result							Remarks
					L.L %	P.L %	P.I %			Ø (deg)	C KN/m²	Blows for inch					N Value	Pen. inch	
												6	3	3	3	3			
1.0			Light brown silty clay of low plasticity	CL	34	13	21	57.65	16.44	8	22.75								
2.0																			
3.0			Dense yellowish brownish clayey gravelly sand same but very dense	SC SM-SC	29	21	8	35.54				10	7	10	15	13	45		
4.0																			
5.0			Hard yellowish brownish clayey silt of low plasticity	ML	32	26	6	95.40				11	16	15	16	4	>51		
6.0																			
7.0			Medium dense whitish yellowish silty Hard brownish whitish clayey silt of low plasticity siltstone	SM ML		NP	NP	34.72				8	6	8	7	7	28		
8.0																			
9.0			same but non plastic whitish yellowish possibly completely weathered siltstone	ML	33	27	6	59.94				45	30	22			>51	1	
10.0																			
			Dense yellowish brown whitish sand possibly completely weathered sandstone	SM		NP	NP	51.45				13	21	30			>51		
												10	13	11	10	10	44		
						NP	NP	27.49				14	10	9	10	9	40		
												12	9	10	11	10	40		

 Undisturbed Sample

 Disturbed Soil Sample of SPT

Legend

 silty sand
 clayey sand

 silty clay
 clayey silt

E.S.D
Soil Profile
THE IMPROVEMENT OF HEALTH FACILITIES AND EQUIPMENTS PROJECT
UMBADDAH GENERAL HOSPITAL

B.H.8 (Continued)

Depth (m)	Sample Type	Layer Symbol	Description	Group Symbol	Atterberg Limits			%pass sieve #200	N.M.C %	Shear Strength		SPT Result						Remarks				
					L.L %	P.L %	P.I %			Ø (deg)	C KN/m²	Blows for inch					N Value		Pen. inch			
												6	3	3	3	3						
11.0			Dense yellowishwhitish silty sand possibly completely weathered sandstone	SM		NP	NP	20.95				11	9	11	8	9	38					
12.0						NP	NP	19.28				17	11	11	9	10	41					
13.0						NP	NP	27.85				19	15	14	16	6	>51	2				
14.0						NP	NP	23.77				14	7	7	9	8	31					
15.0						NP	NP	30.32				20	22	25	4		>51	3				
16.0							Very dense whitish brown clayey silt of low plasticity possibly completely weathered siltstone	CL-ML	22	16	6	57.05				51					>51	2
17.0									NP	NP	48.32				31	20	23	8		>51	3	
18.0										Very dense yellowish whitish silty sandy gravel possibly completely weathered conglomerate	GM		NP	NP	34.56				18	14	14	13
19.0						NP	NP	38.67							35	25	26		>51			
20.0			Hard brownish reddish silty clay of low plasticity possibly completely weathered mudstone	CL-ML	22	18	4	51.84				30	24	26	1		>51	1				
Bottom of borehole @ 20.0m																						

☒ Undisturbed Sample

☒ Disturbed Soil Sample of SPT

Legend

☐ silty sand
☐ clayey sand

☐ silty clay
☐ clayey silt

☐ silty gravel

E.S.D
Soil Profile
THE IMPROVEMENT OF HEALTH FACILITIES AND EQUIPMENTS PROJECT
UMBADDAH GENERAL HOSPITAL

T.P. 1

Elevation : From the existing ground level

Coordinates: E: 0437621 N:1731885

Ground Water Level : Not Observed

Starting date: 16/09/2014

Finishing date: 17/09/2014

Depth (m)	Sample Type	Layer Symbol	Description	Group Symbol	Atterberg Limits			%pass sieve #200	N.M.C %	γ_b KN/m ³	γ_d KN/m ³	Shear Strength		SPT Result						Remarks
					L.L %	P.L %	P.I %					ϕ (deg)	C kN/m ²	Blows for inch					N Value	
														6	3	3	3	3		
1.0			Light brown silty clay of low plasticity	CL																
					29	15	14	54.81	12.15											
2.0																				
	35	16			19	56.65	12.25													
3.0																				
						27	13	14	15.76											
Bottom of borehole @ 3.0m																				
 Undisturbed Soil Sample UDS  Disturbed Soil Sample of SPT Legend  Clay - high plasticity  Sand  Clay - low plasticity  Silt - low plasticity																				

E.S.D
Soil Profile
THE IMPROVEMENT OF HEALTH FACILITIES AND EQUIPMENTS PROJECT
UMBADDAH GENERAL HOSPITAL

T.P. 2

Coordinates: E: 0437680 N:1731867

Starting date: 17/09/2014

Elevation : From the existing ground level

Ground Water Level : Not Observed

Finishing date: 18/09/2014

Depth (m)	Sample Type	Layer Symbol	Description	Group Symbol	Atterberg Limits			%pass sieve #200	N.M.C %	γ_b KN/m ³	γ_d KN/m ³	Shear Strength		SPT Result						Remarks
					L.L %	P.L %	P.I %					ϕ (deg)	C kN/m ²	Blows for inch					N Value	
														6	3	3	3	3		
1.0			Light brown clayey sandy silt non plastic	ML																
2.0					NP	NP	70.21													
			Light brown silty clay of low plasticity	CL	29	15	14	57.40	9.79											
3.0			Light brown clayey sand	SC	31	16	15	23.24	16.30											
Bottom of borehole @ 3.0m																				
 Undisturbed Soil Sample UDS  Disturbed Soil Sample of SPT Legend  Clay - high plasticity  Sand  Clay - low plasticity  Silt - low plasticity																				

E.S.D
Soil Profile
THE IMPROVEMENT OF HEALTH FACILITIES AND EQUIPMENTS PROJECT
UMBADDAH GENERAL HOSPITAL

T.P. 3

Elevation : From the existing ground level

Coordinates: E: 0437679 N:1732006

Ground Water Level : Not Observed

Starting date: 20/09/2014

Finishing date: 21/09/2014

Depth (m)	Sample Type	Layer Symbol	Description	Group Symbol	Atterberg Limits			%pass sieve #200	N.M.C %	γ_b KN/m³	γ_d KN/m³	Shear Strength		SPT Result						Remarks	
					L.L %	P.L %	P.I %					ϕ (deg)	C kN/m²	Blows for inch					N Value		
														6	3	3	3	3			
1.0			Light brown silty clay of low plasticity	CL																	
2.0					30	17	13	50.72	7.30												
	35	17			18	39.29	4.97														
3.0					30	16	14	24.23	4.59												
Bottom of borehole @ 3.0m																					
 Undisturbed Soil Sample UDS  Disturbed Soil Sample of SPT Legend  Clay - high plasticity  Sand  Clay - low plasticity  Silt - low plasticity																					