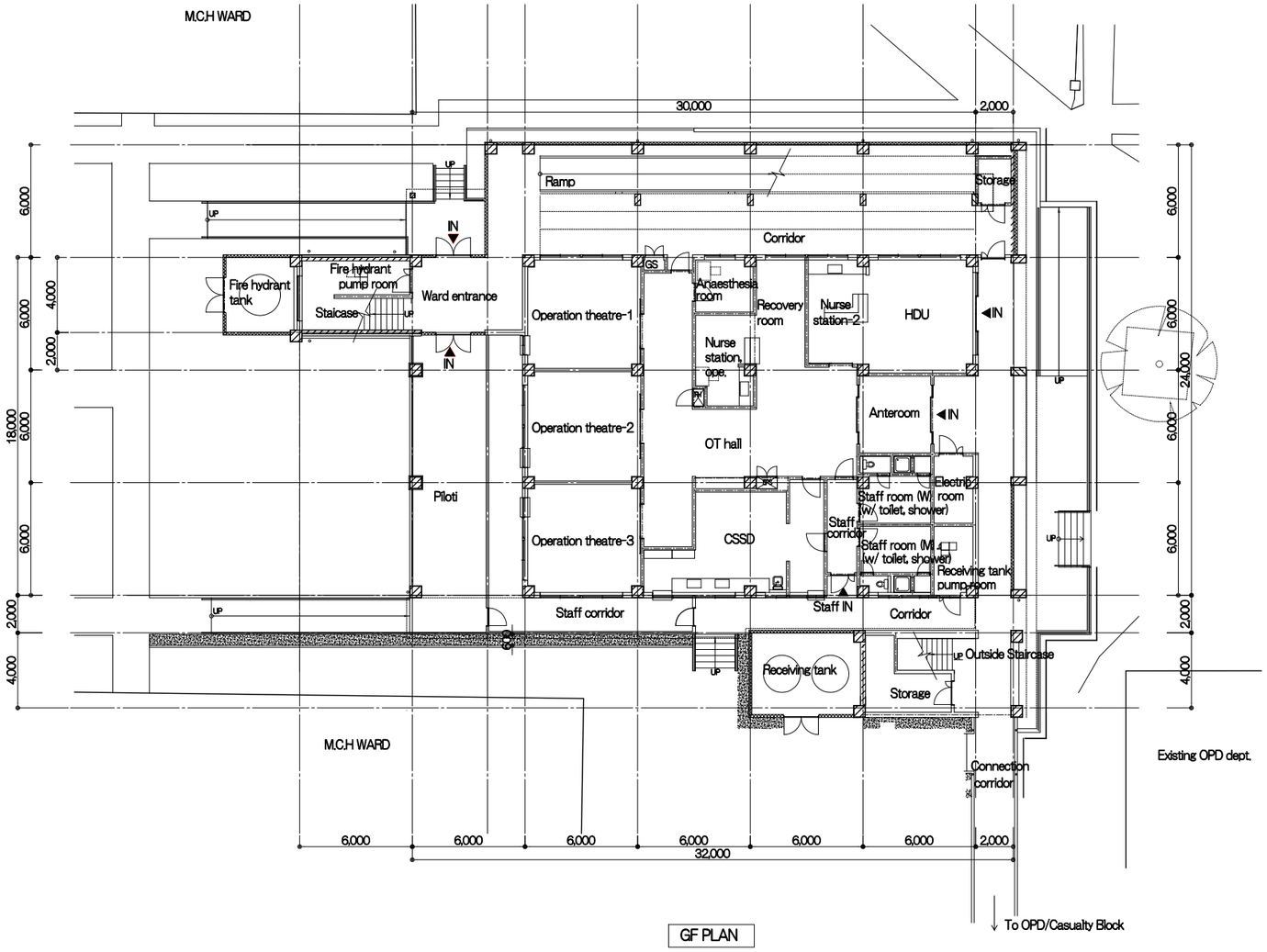
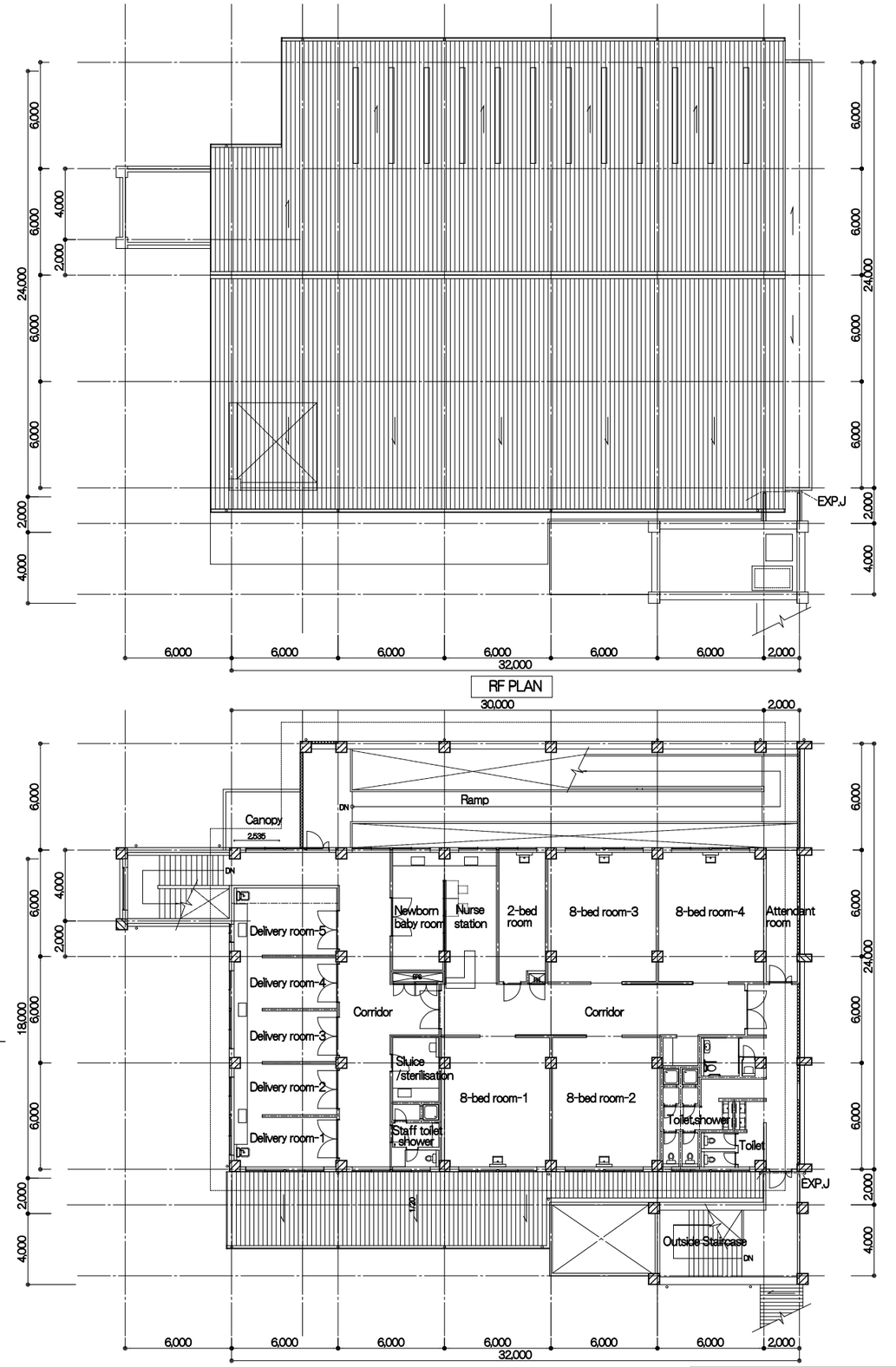


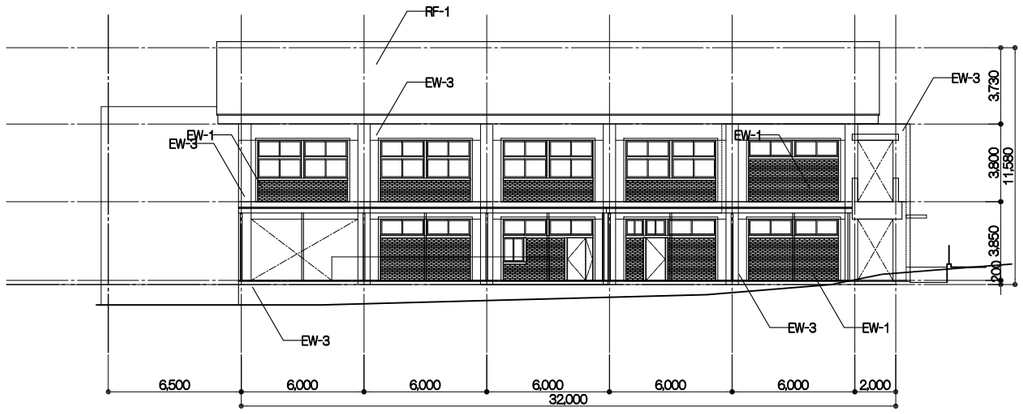
GF PLAN



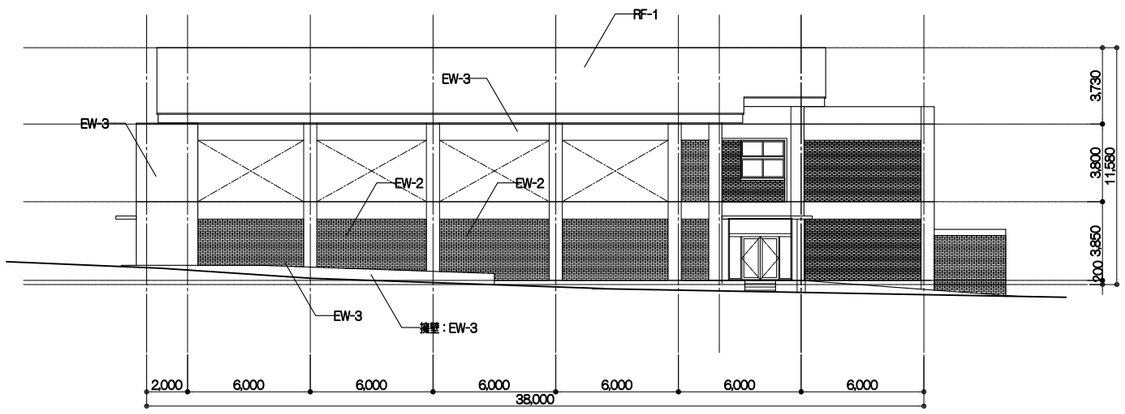
1F PLAN

OT/Maternity Ward

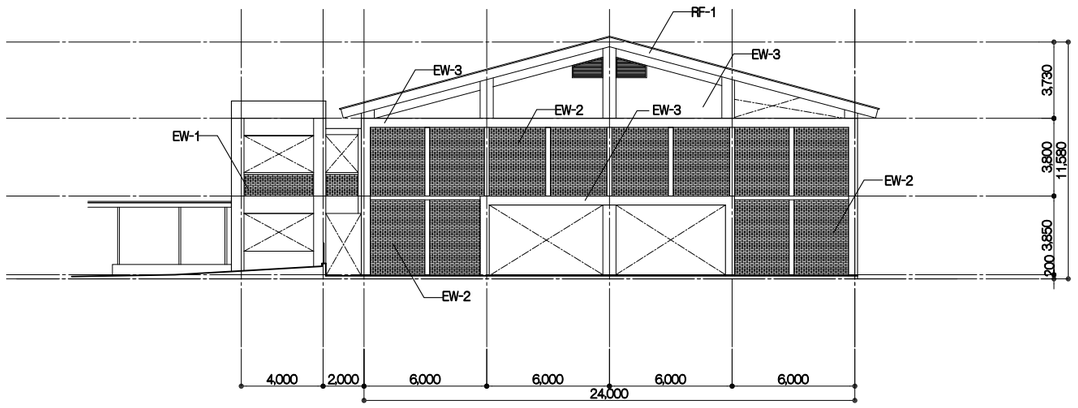
PREPARATORY SURVEY ON THE PROJECT FOR THE REHABILITATION OF HOSPITALS AND SUPPLY OF MEDICAL EQUIPMENT IN THE WESTERN REGION IN UGANDA	KABALE REGIONAL REFERRAL HOSPITAL	Name of Drawing: OT/Maternity Ward PLAN Scale of Drawing: 1:300	Number of Drawing: K-04



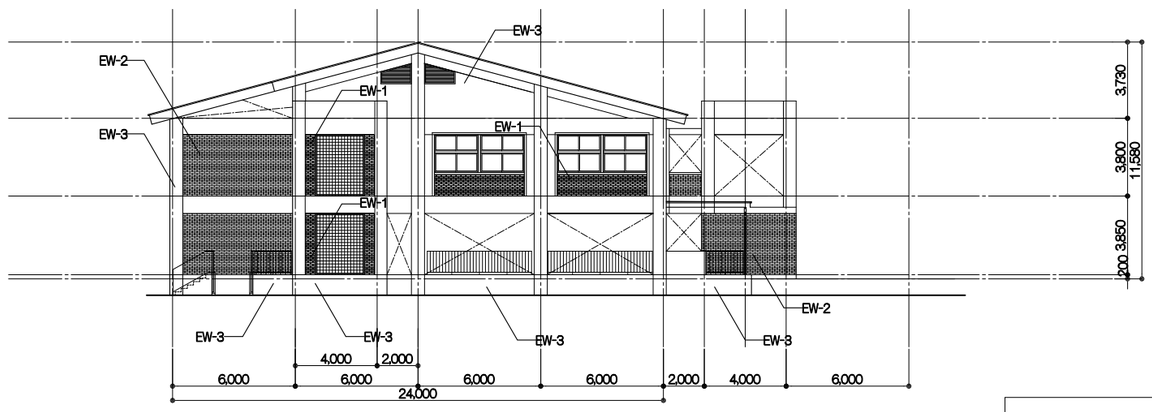
Elevation a-a



Elevation c-c



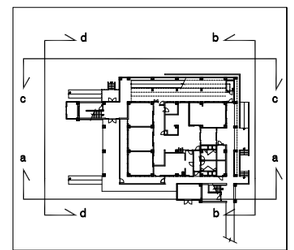
Elevation b-b



Elevation d-d

Legend

RF-1	CORRUGATED CALVANIZED STEEL SHEETROOFING t=0.5
RF-2	CONCRETE FLAT ROOF W/ TROWELING , ASPHALT WATER PROOFING ,CONCRETE W/TROWEL FINISH
EW-1	FAIR FACE BRICK
EW-2	FAIR FACE PORUS BRICK
EW-3	MORTAR W/ ELASTIC PAINTING FINISH
EW-4	CARRUGATED GALVANIZED STEEL SHEET ROOFING t=0.5



OT/Maternity Ward

PREPARATORY SURVEY ON THE PROJECT FOR THE REHABILITATION OF HOSPITALS AND SUPPLY OF MEDICAL EQUIPMENT IN THE WESTERN REGION IN UGANDA

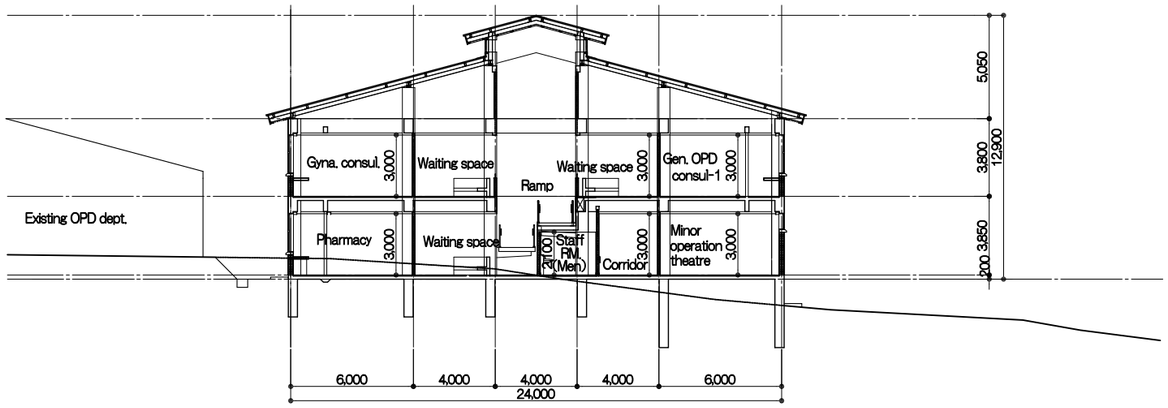
KABALE

REGIONAL REFERRAL HOSPITAL

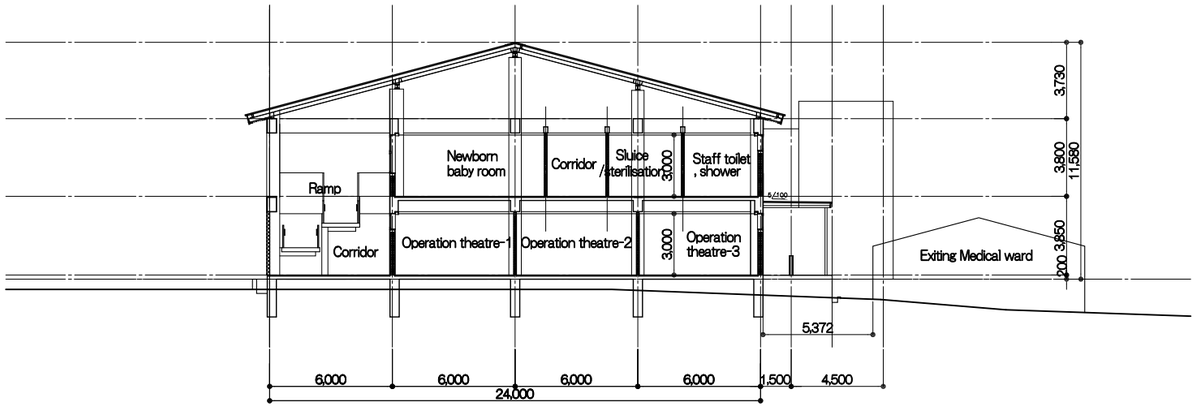
Name of Drawing: OT/Maternity Ward Elevation

Scale of Drawing: 1:300

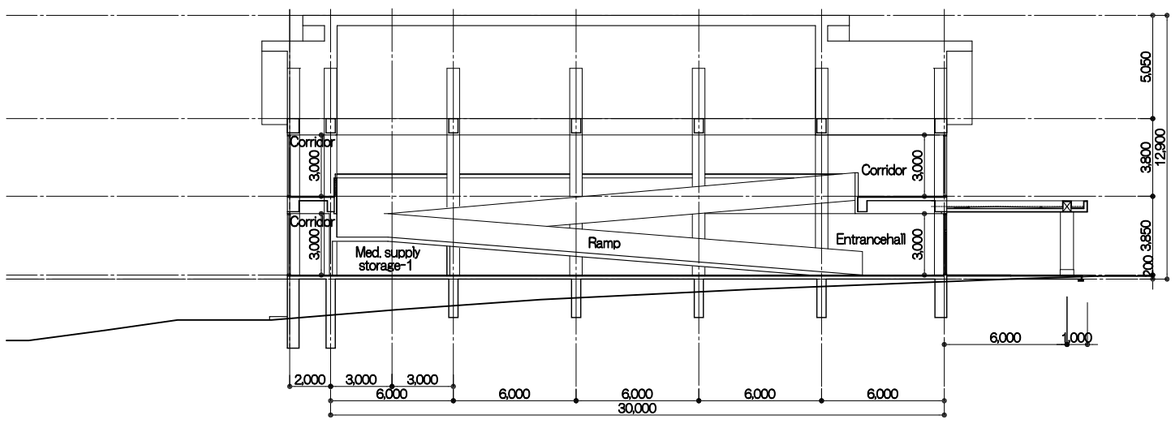
Number of Drawing: K-05



Section A-A



Section A'-A'



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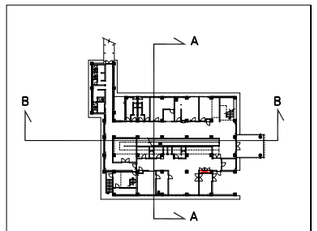
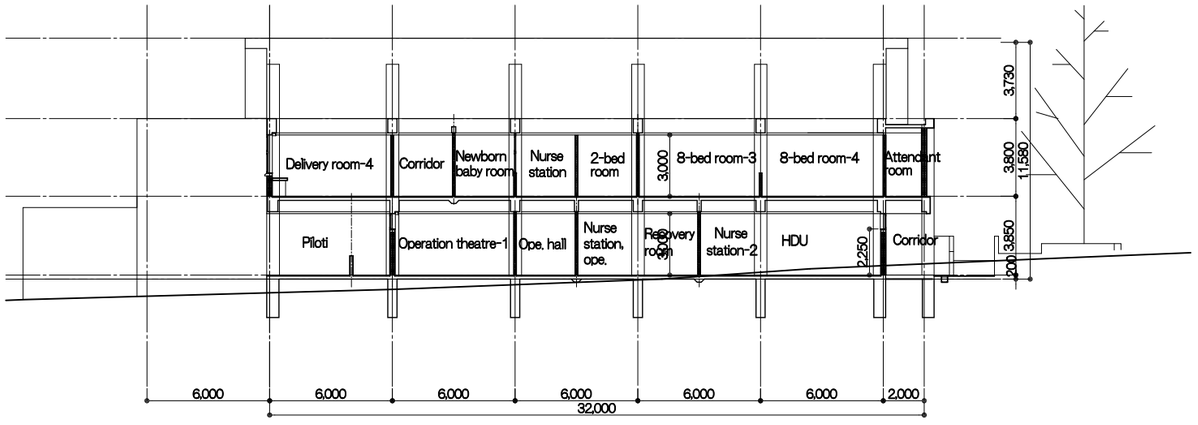
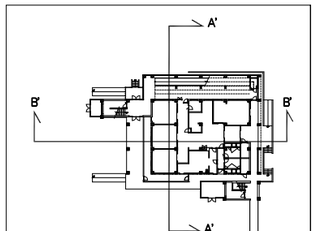


OPD block



Section B'-B'



OT/Maternity Ward

PREPARATORY SURVEY ON THE PROJECT FOR THE REHABILITATION OF HOSPITALS AND SUPPLY OF MEDICAL EQUIPMENT IN THE WESTERN REGION IN UGANDA

KABALE

REGIONAL REFERRAL HOSPITAL

Name of Drawing: Section

Scale of Drawing: 1:300

Number of Drawing: K-06

2-2-4 Implementation Plan

2-2-4-1 Implementation Policy

(1) Organisation for Project Implementation

The project consists of the construction of OPD Block, OT/Maternity Ward including the casualty department at Hoima RRH, construction of OPD/Casualty Block and OT/Maternity Ward at Kabale RRH, as well as supply and installation of medical equipment for Hoima RRH, Kabale RRH and Fort Portal RRH. The work for which the Japanese side is responsible will be implemented in compliance with the Japanese Grant Aid scheme.

Preparation works of the sites such as grading, demolition and/or removal of existing buildings and structures will the responsibility of the Ugandan side. Prompt execution of these preparatory works will be necessary once the implementation of the Project is officially approved.

Once the Project is approved at the Cabinet meeting in Japan, the Exchange of Notes (hereinafter referred to as "E/N") is signed and the Grant Agreement (hereinafter referred to as "G/A") is signed regarding the implementation, the Project will be officially implemented. After the signing of E/N and G/A, the implementation organization of the Ugandan side and the Japanese consultant will conclude the consultant agreement, and the Project will enter the detailed design stage. Following completion of the detailed design, tenders will be called to the Japanese contractors for the construction work and to the Japanese equipment suppliers for the supply and installation of the equipment. The successful contractor and successful equipment supplier will carry out their respective works.

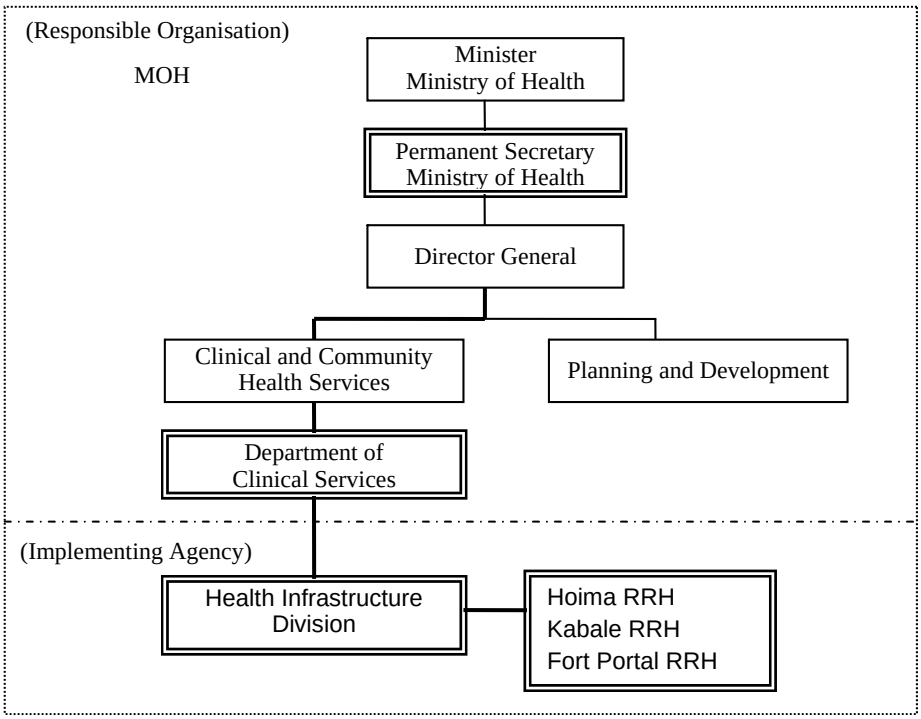


Figure-17 Relation among the Project Executing Organisations

The responsible organisation is MOH and the implementing agency for the Project is the Health Infrastructure Division, Department of Clinical Services of MOH. Hoima RRH, Kabale RRH and Fort Portal RRH will be also involved in the implementation of the Project. The responsible organisation and the implementing agency will share the responsibilities to be undertaken by the Government of Uganda as indicated in "2-3 Obligations of the Recipient Country" in this report.

(2) Consultant

After the E/N between the Government of Japan and the Government of Uganda and G/A between JICA and the Government of Uganda are concluded the Japanese consultant will, conforming to the Japanese Grant Aid scheme, enter into an agreement on consulting services with the implementing agency of Uganda. Then the consultant will be responsible for the following services under this agreement:

① Detailed design & tender

Finalisation of the component plan, preparation of the detailed design documents (drawings, specifications and other technical documents concerning the facilities and medical equipment to be included in the Project), and assistance in tender and contract procedures to select the construction contractor and the equipment supplier (tender documents, tendering, tender evaluation and contract conclusion).

② Supervision of the construction and equipment work

Supervising the contractor in construction work as well as supervising the supplier in procurement, supply, installation, orientation for operation, and instruction for maintenance of the medical equipment.

The detailed design involves determining the details of the architectural and equipment plans according to the Preparatory Survey Report, to compile the tender documents that will include the specifications, tender conditions, draft conditions of contracts for construction as well as supply and installation of medical equipment, and to estimate construction costs and equipment costs. The tender and contract assistance includes attendance to the tendering for the selection of the construction contractor and the medical equipment supplier, assistance in the procedures for concluding each contract, and reporting to JICA, etc.

The supervision of the construction and equipment work involves ensuring that the contractor/supplier has effectively carried out the construction or medical equipment supply and installation work in accordance with the contractual terms, and to confirm that they have properly met their contractual obligations. For the successful completion of the Project, the consultant will, from a true and fair perspective, extend advice and instructions, and coordinate the persons concerned. Specifically, the supervisory services of the consultant include the followings:

i) Review and approval of the work program, shop drawings, equipment specifications and other documents prepared and submitted by the construction contractor and the medical equipment supplier.
ii) Inspection and approval of the construction machinery and materials, and pre-shipment inspection and approval of the quality, quantity and performance of medical equipment.
iii) Confirmation of the delivery and installation of equipment for the facilities and medical equipment, and their operation manuals.
iv) Supervision of the work progress and reporting.
v) Final inspections of the facilities and medical equipment, and attendance during the handover.

In addition to the aforementioned services, the consultant will report to the Japanese authorities concerned regarding the progress of the Project, payment procedures, completion of the Project and handing-over, etc.

(3) Order for Construction Work and Equipment Procurement

The work orders pertaining to the Project will be limited to Japanese companies satisfying the eligibility requirements. Contractors will be selected by public tender with restricted eligibility.

Based on the contract, the selected construction contractor will construct the facilities, and the equipment supplier will procure, supply and install medical equipment. They will also give technical instructions to the Ugandan side concerning the operation and maintenance of the supplied equipment. Once the equipment is handed over, the equipment supplier will, in cooperation with the agency of the equipment manufacturers, support the continuous supply of spare parts and consumables for major equipment during the guarantee period, either free of charge or on a chargeable basis.

(4) Japan International Cooperation Agency

The Financing Facilitation and Procurement Supervision Department of JICA will supervise the progress of the Project to ensure that it will be properly implemented in compliance with the Grant Aid scheme.

(5) Implementation Plan

During the detailed design period, the Ugandan implementing agency and the Japanese consultant will examine the project implementation plan. This examination includes identification of the scope of works of each party, confirmation of the commencement date and method of work, and work-related discussions by each individual party so that the work can be conducted efficiently based on the schedule specified in the Preparatory Survey Report. In special, the site preparation work by the Ugandan side, including the demolition and removal of obstacles in the site grounds, should be carried out before the construction work of

the Project by the Japanese side.

2-2-4-2 Implementation Conditions

(1) Observations for Construction

The following matters should be observed during the project construction, and the work execution program should be planned to take these observations into consideration.

1) Temporary facilities

Both of the project sites at Hoima RRH and Kabale RRH are located within the hospital premises where the existing single-story buildings spread. The lot of Hoima RRH premises is mostly flat, while that of Kabale RRH premises is a sloped land. The OPD Block site at Hoima RRH faces a 14-meter wide public road and the OT/Maternity Ward site faces a 4-meter wide public road. Construction gates will be constructed along these roads so that construction materials and equipment can be transported without passing the hospital roads. The OPD/Casualty Block site at Kabale RRH is situated at the centre of the hospital premises, surrounded by many existing buildings. Construction materials and equipment will have to be transported through the main gate of the hospital, and a part of the existing parking area will be utilised for temporary material yard. The construction site, therefore, will be enclosed with temporary fences and a gate. The OPD/Casualty Block site faces a 4m-wide public road, and a temporary gate will be installed along this road. A temporary office and temporary storage shed will be installed within the construction sites at Hoima RRH and Kabale RRH.

2) Management of work schedule

There are ready-mixed concrete plants only in Kampala. Concrete will be mixed on the construction sites by rotary mixer and poured. Due to the limited area of the construction sites, mixed concrete cannot be poured by buckets lifted by cranes; instead, by carts or by hand buckets relayed by persons standing in lines, etc. The amount of concrete that can be poured a day is limited. Accordingly, the construction schedules should have sufficient allowances.

3) Safety management

The planned construction sites at both Hoima and Kabale RRHs are situated in the hospital premises. Therefore, cautions must be secured in terms of the safety of the patients, family attendants, visitors and hospital staffs who come in and out. The hoardings of the construction sites will be constructed of corrugated galvanised steel sheets to separate the construction site from the existing hospital premises for the purpose of protecting third persons from accidents and for guarding and security reasons.

(2) Observations for Equipment Procurement

1) Management of work schedule

For Fort Portal RRH where equipment procurement is only planned, sufficient consideration on the work schedule would be necessary, because the procured equipment will be installed in the existing facilities and careful adjustment will be necessary to avoid affecting the hospital services.

For Hoima RRH and Kabale RRH, the procured equipment is planned to be installed in the new facilities to be built under the Project and the installation schedule of the equipment like OT equipment should be adjusted to the progress of construction works. Therefore, equipment procurement planning will require information shared with the construction contractor and ensure the consistency with the facility construction planning.

2) Dispatch of the equipment engineers for installation

It is extremely important to impart knowledge and skills regarding appropriate operation and maintenance of the equipment so as to contribute to health care services through continuous proper operation of the procured equipment after implementation of the Project. That being the case, engineers with thoroughly familiar with the operation of the equipment should be selected for the equipment installation and adequate time should be allotted for instruction thereof (skills for operation, simple repair, inspection, etc.) and to make sure that those concerned on the receiving side acquire sufficient understanding concerning its operation and maintenance.

2-2-4-3 Scope of Works

To implement this cooperation project, works of Ugandan side and Japanese side should be defined clearly. The following tables show the works at Hoima, Kabale and Fort Portal RRHs to be undertaken by each government.

(1) Hoima RRH

Table17 Works of Ugandan Side and Japanese Side (Hoima RRH)

Japanese Side Work	**Ugandan Side Work**
Construction Site	
	1. Securing of a plot for construction site 2. Site preparation, removal of the existing facilities, etc. 1) Demolition and removal of remaining existing facilities (OT, kitchen, container office, warehouse) 2) Cutting of trees in the site and removal of topsoil 3) Removal of the existing power cable, telephone cable, water supply pipe and wastewater pipe passing the site, and rerouting
External Work	
1. Road within the site	1. Roads outside the site 2. Planting in the site
Building Construction	
1. Construction of OPD Block, OT/Maternity Ward and Power Receiving Block	
Infrastructure Improvement	
1. Electric system 1) Installation of trunk cables from the renewed pole transformer to the Power Receiving Block 2) Installation of a 50 kVA generator for emergency backup at OPD Block and OT/Maternity Ward	1. Electric system 1) Renewal of the pole transformer from the existing 100kVA type to a 315kVA type (including electric pole, transformer frame, meter)*
2. Water supply Drawing a branch pipe from the existing water supply pipe after the existing meter to OPD Block and OT/Maternity Block	2. Water supply Connection to the main water supply pipe in the hospital premises
3. Wastewater 1) Installation of septic tank for OPD Block and OT/Maternity Block 2) Installation of a percolation sewerage pipe beyond the above septic tank	3. Wastewater
4. Telephone Installation of cable and handhole to OPD Block	4. Telephone Telephone wiring up to the MDF in OPD Block
Equipment, Furniture and Fixtures	
1. Provision and installation of medical equipment	1. Purchase of bed side tables and mosquito nets and transfer of existing equipment
2. Curtain rail	2. Curtain, venetian blind
3. Installation of built-in furniture such as reception counters, bench seats in the waiting space	3. Purchase of general furniture and transfer of existing furniture

* To be shifted to the scope of Japanese side work.

(2) Kabale RRH

Table-18 Works of Ugandan Side and Japanese Side (Kabale RRH)

Japanese Side Work	Ugandan Side Work
Construction Site	
	1. Securing of a plot for construction site 2. Site preparation, removal of the existing facilities, etc. 1) Demolition and removal of remaining existing facilities (OT, canteen, outpatient toilet, part of OPD) 2) Cutting of trees in the site and removal of topsoil 3) Removal of the existing power cable, telephone cable, water supply pipe and wastewater pipe passing the site, and rerouting
External Work	
1. Road within the site	1. Roads outside the site 2. Planting in the site
Building Construction	
1. Construction of OPD/Casualty Block and OT/Maternity Ward (Architectural work, electrical work, plumbing work, AC/ventilation work)	
Infrastructure Improvement	
1. Electric system 1) Installation of trunk cables from the renewed pole transformer to the electrical room in OT/Maternity Ward 2) Piping and wiring between the existing generator (200kVA) the electrical room	1. Electric system Renewal of the pole transformer from the existing 100kVA type to a 315kVA type (including electric pole, transformer frame, meter)*
2. Water supply Drawing a branch pipe from the existing water supply pipe after the existing meter to water receiving tank adjacent to OPD/Casualty Block and OT/Maternity Ward	2. Water supply Connection to the main water supply pipe in the hospital premises
3. Wastewater Connection from the final pit outside OPD/Casualty Block and OT/Maternity Ward the existing sewerage pit	3. Wastewater
4. Telephone Installation of cable and handhole to OPD/Casualty Block	4. Telephone Telephone wiring up to the MDF in OPD/Casualty Block
Equipment, Furniture and Fixtures	
1. Provision and installation of medical equipment	1. Purchase of bed side tables and mosquito nets and transfer of existing equipment
2. Curtain rail	2. Curtain, venetian blind
3. Installation of built-in furniture such as reception counters, bench seats in the waiting space	3. Purchase of general furniture and transfer of existing furniture

* To be shifted to the scope of Japanese side work.

(3) Fort Portal RRH

Only the supply and installation of medical equipment is considered in the Project, and in principle, no significant works are assumed under the responsibility of Ugandan side.

2-2-4-4 Consultant Supervision

(1) Facility Construction Supervisory Plan

1) Supervisory principles

For the prompt and proper accomplishment of the services, the Consultant will organize a project team to pursue the detailed design and supervisory work based on the outline design, in compliance with the Grant Aid scheme. The supervisory principles of the Project are as follows:

a) The Consultant will maintain close communication with the authorities concerned in both countries in order to avoid delays in the progress and completion of the construction work as well as the equipment supply/installation work.

b) The Consultant will maintain a fair standpoint, and will promptly extend appropriate instructions and assistance to the contractors during construction and equipment work.

c) The Consultant will extend appropriate instructions and advice regarding the operation and maintenance of the medical equipment after the installation and handing-over.

d) After confirming that the construction and equipment supply/installation work is completed in compliance with the contractual terms, the Consultant will witness the handing over of the facilities and equipment. The services of the Consultant will be completed when the work is accepted and approved by the Kenyan side.

2) Supervision of construction works

A Japanese resident representative of the consultant (an architect) will be posted at Hoima and Kabale site respectively in order to supervise the construction works. In addition, the following engineers will be sent to the site as necessary during the work period.

- Supervision or works (Supervisory manager: presence at the commencement of construction work, entire management, schedule coordination, final inspection before completion)
- Supervision of works (architecture: construction methods, materials and specifications)
- Supervision of works (structural engineering: supporting ground, foundation work, framing work)
- Supervision of works (electrical work: incoming power and transformer, electric apparatus, final inspection before completion)
- Supervision of works (mechanical work: intake system, plumbing systems, final inspection before completion)

(2) Equipment Supervisory Plan

1) Equipment supervisory principles

The equipment is planned to be procured in Japan or the third countries. The inspection of equipment will be performed at the loading port, prior to the shipment, by an entrusted and

neutral inspection agency. The consultant should check the certificate of shipment inspection provided by the inspection agency and issue the inspection report to the implementing agency of Uganda after confirming the completion of inspection.

All the equipment procured in the Project will be inspected and provisionally handed over at each site. Final handing over should be conducted in the presence of the buyer, supplier and the consultant in Kampala. The names of models, origin of product, names of manufacturers, stickers printing the name of Japanese grant-aid attached or not and appearance will be inspected following the items in the contract documents.

2) Procurement supervision plan

Regarding procurement supervision, the following consultants will be assigned.

- Procurement supervision engineer :1 person
  Provisional Inspection/Handing over at Hoima RRH and Kabale RRH, and Final confirmation of Inspection/Handing over to MOH in Kampala
- Resident procurement supervision engineer: 1 person
  Procurement supervision at Fort Portal RRH and Hoima RRH, and Provisional Inspection/Handing over at Fort Portal RRH
- Local Procurement supervision engineer (Ugandan): 1 person
  Procurement supervision in Kabale RRH
- Inspection engineer: 1 person
  Confirmation for procurement schedule, preparation for third party inspection prior to the shipment, checking the certification of the inspection

(3) Project Implementation Diagram

The consultant will form a project team to conduct the above-mentioned services in Japan and Uganda.

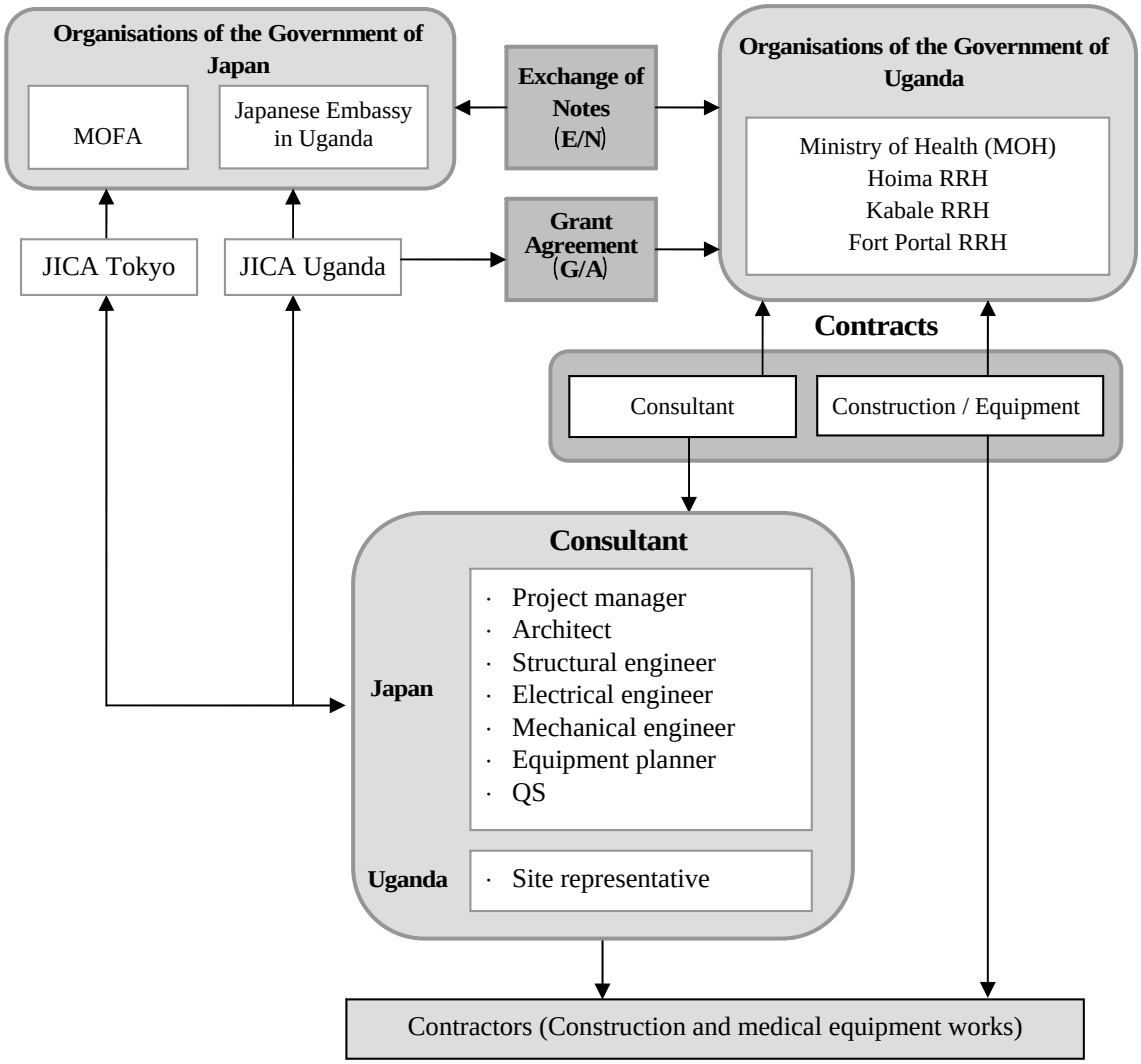


Figure-18 Project Implementation System Diagram

2-2-4-5 Quality Control Plan

The site representative of the consultant will inspect the quality of construction materials when they are delivered to the site. The required test items for quality control will be clarified in the particular specifications.

- The bearing strength of the soil will be tested at site in the presence of the structural engineer.
- To avoid alkali-aggregate reactions, aggregates to be used at the Hoima and Kabale sites will be taken to the Uganda National Bureau of Standards in Kampala for the alkali-silica reaction testing.
- Tests of concrete mixing samples will be commissioned to a laboratory under the Ministry of Transport and Works in Kampala in order to check the mixing strength of concrete.
- During the construction work period, concrete mixing samples will be taken every day on which casting work is done and once every 50m^3 of concrete cast for tests on slump, chloride

content in fresh concrete and concrete strength. Compressive tests will be conducted by third testing laboratories in Kampala and Mbarara.

- The quality of reinforcement bars will be inspected at each delivery lot with the product test report of the fabricator (mill sheets). In addition, random sampling tests for tensile strength will be commissioned to a third testing laboratory.

2-2-4-6 Procurement Plan

(1) Construction Materials

Construction equipment and materials will be procured based on the following policies:

a) Equipment and materials whose cleanliness is easy to maintain, that are and easily cleaned, and that are robust and durable will be procured, since the Project is a construction project of hospital buildings in which cleanliness is the most important factor. Ease of maintenance and repairs after the completion of the Project will also be taken into consideration.

b) Equipment and materials standards will comply with the locally common British Standards and the Uganda National Standards. Those for which there is no applicable standard will be selected in accordance with the Japanese Industrial Standards.

c) Equipment and materials that are regarded to be hardly available in the local market, or not to satisfy the quality requirements, or whose supply is judged to be unstable, will be procured by importing from Japan or a third country. However, import goods that are widely prevalent in the Uganda market and easily available are regarded as the locally procured ones.

Table-19 Procurement of Products and Materials

Materials and Equipment	Market in Uganda		Procurement Countries		
	Situation	Import	Uganda	Third countries	Japan
(Construction materials)					
1. Aggregate (sand, crushed stone)	○		○		
2. Cement	○		○		
3. Reinforcement bar	○		○		
4. Structural steel	○		○		
5. Brick	○		○		
6. Plywood, lumber	○		○		
7. Floor / wall tile	○		○		
8. Wooden door and window sash	○		○		
9. Steel door and window sash	○		○		○
10. Aluminium door and window sash	○		○		
11. Finishing hardware	○		○		
12.Glass	○		○		
13.Paint	○		○		
14. Folded plate for roofing	○		○		
15. Construction machinery / equipment	○		○		
(Utility appliances and materials)					
1. Wire, cable	○		○		○
2. PVC conduit, hardware	○		○		
3. Steel pipe	○		○		
4. Light	○		○		
5. Switch panel, distribution panel, control panel					○
6. Generator	○		○		
7. Cable / wire supports	○		○		
8. Telephone system	○		○		○
9. Automatic fire alarm	○		○		
10. PVC pipe (plumbing)	○		○		
11. SGP pipe (water supply)					○
12. Pump					○
13. Sanitary ware	○		○		
14. Elevated water tank	○		○		
15. Fire hydrant	○		○		
16. Air conditioner					○
17. Fan	○		○		
18. Spiral duct					○

(2) Equipment

The procured equipment should be the product of Japan or the third countries for which after-sales service is available by the agents in Uganda or neighbour countries. For the equipment procured from the third countries, manufacturers shall be secured the quality of the equipment by the way to limit to ones which have their headquarters in DAC or OECD

countries or else.

(3) Transport and Delivery Route of Construction Materials and Equipment

It will take about five weeks for shipping of the materials and equipment from Japan to Mombasa Port in Kenya. After the unloading at the port, the inland transportation to each site via Nairobi is expected to take about two weeks, including the customs clearance at the country border Malaba (Mombasa – Nairobi: approx. 500 km, Nairobi – Kampala: approx. 650 km, Kampala – Hoima: approx. 210 km, Kampala – Kabale: approx. 430 km, Kampala – Fort Portal: approx. 320 km). Roads from Kampala to each site are paved and mostly in good conditions, some areas being under construction.

The last 80 km to Kabale, however, continues steep climbing slope and large vehicles like trailer trucks have to keep low-speed running. The transportation schedule should be planned to have sufficient time allowance taking into these conditions.

2-2-4-7 Operation Guidance Plan

Special consideration will be necessary for operating and maintaining the equipment to be procured in the Project, because it is mostly used for medical purpose and it can cause the fatal cases. Therefore, it is essential to provide adequate instruction and training of operation and maintenance of the equipment by a skilful engineer with sufficient experience and knowledge at the time of delivery. The consultant will check if the guidance is properly performed. The consultant shall also confirm if the persons in charge at each hospital well understand by conducting interviews with the responsible persons in the hospital.

2-2-4-8 Soft Component (Technical Assistance) Plan

In the Project, some higher level of equipment is planned for certain departments where the adequate personnel with usage experience and skill have been confirmed. However, there is the case that the equipment is not used at the department at this moment or the case that some personnel among the medical and paramedical staff do not have sufficient skill on the equipment.

Also there were the cases that the procured equipment in the past project was not utilized adequately, which were caused by such reasons as that the instruction and information was not provided sufficiently as described above.

Therefore it will be affective to provide the technical assistance on the equipment approved to be needed for improving the operating skill with clinical knowledge. This assistance will lead the effective and long term usage of equipment.

The objectives and plans of Soft Component is as below.

(1) Objective of Soft Component

Technical training will be provided to regional workshop technicians and health professionals

(medical doctors, nurses, user trainers etc.) assigned to Hoima RRH, Kabale RRH and Fort Portal RRH, in the presence of the person in charge of the central workshop. If the effect of the assistance of the Project continues, the achievement of the following three objectives can be expected.

I Maintenance and management techniques for the procured equipment will be improved and the equipment will be properly managed and operated over a long period of time.
II Operational and clinical techniques for the effective use of procured equipment will be improved and hospital service will also be improved.
III At each hospital, roles and functions of CSSD will be clarified, the operation system will be improved, and prevention of nosocomial infections will be strengthened.

(2) Activities of Soft Component

Activities to achieve each output are as follows.

Output		Plan of Operation	
		Lecturer	Outline of Training
I Maintenance technique	① Confirmation of basic knowledge of procured equipment	Equipment maintenance technique consultant	Confirmation of operation principles, purpose of use etc., and reorganization and review of basic knowledge
	② Acquisition of methods of daily and periodic maintenance of procured equipment		Acquisition of methods of daily and periodic maintenance of procured equipment Development of a maintenance and management plan
	③ Improvement of failure diagnosis and handling techniques		Acquisition of troubleshooting techniques including identification of fault locations and handling techniques
II Clinical technique	① Confirmation of functions and roles of procured equipment	Clinical technique consultant	Acquisition of knowledge such as operation principles of procured equipment
	② Acquisition of appropriate handling techniques with the use of target equipment that are tailored to the situation of the patient		Acquisition of patient handling and management methods suited to the condition of the patient
III CSSD	① Improvement of the system of CSSD	Equipment maintenance technique consultant	Organization and improvement of a suitable operation system of CSSD of each hospital
	② Improvement of operation and management techniques for procured equipment		Acquisition of operation techniques with the use of procured equipment

(3) Input Plan

Lecturers

Equipment maintenance technique consultant : Japanese, 1 person

Clinical technique consultant : Ugandan medical doctor, 1 person

Technical training planning consultant : Japanese, 1 person

In order to implement seminars efficiently, elaborate preparations are required, such as development of a technical training plan, meetings with MOH, targeted hospitals, other related organizations etc., arrangement of venues, arrangement of transportation and scheduling, etc. For this purpose “Technical Training Planning” personnel should be assigned to conduct such operations.

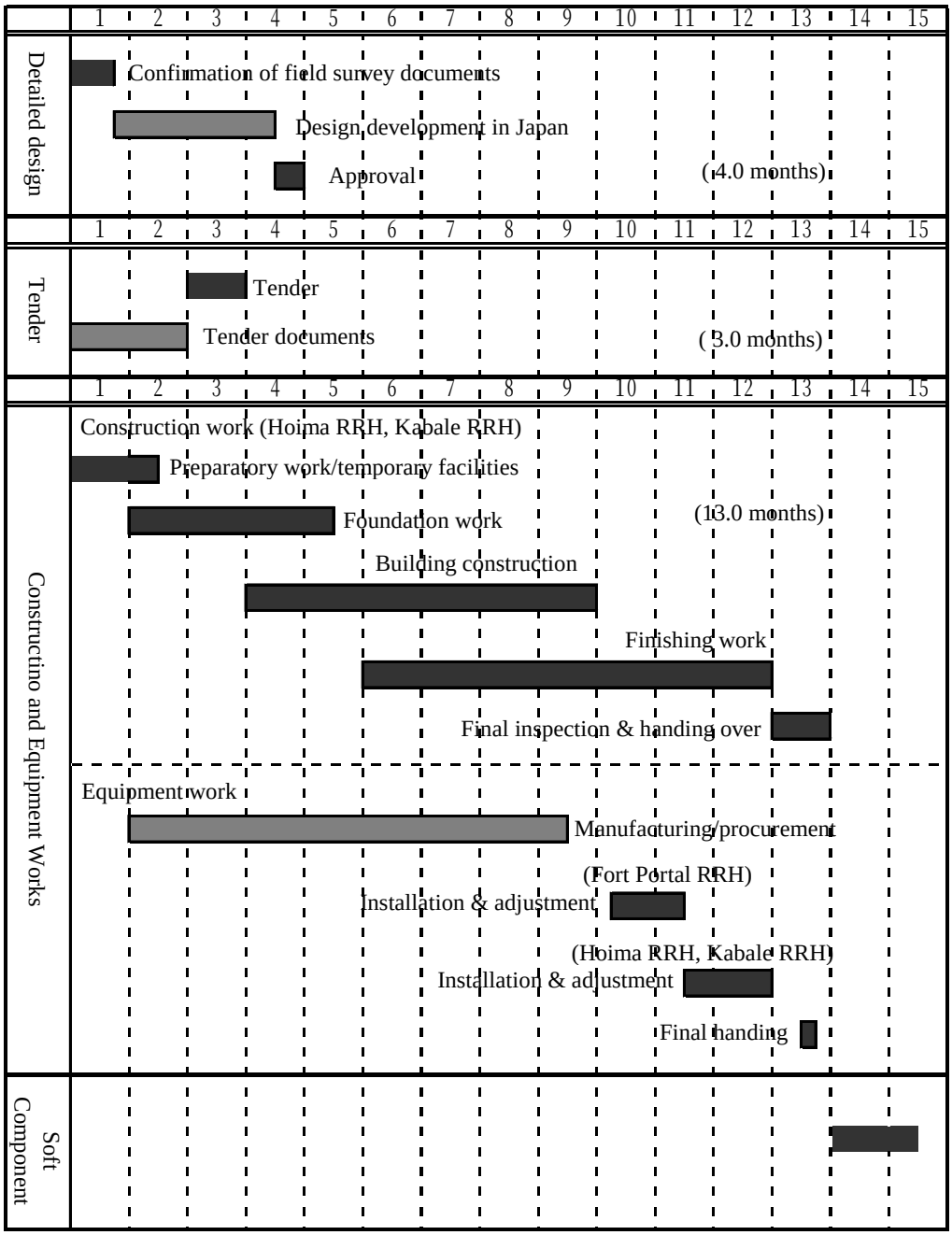
Meanwhile, a Ugandan medical doctor is planned as a clinical technique consultant, with the view that the content of the assistance to be more suitable for Ugandan situation and the effect of this assistance to be sustainable after implementation.

2-2-4-9 Implementation Schedule

The detailed design will take about 4.0 months, the tender procedure will take about 3.0 months, the construction works including procurement and installation of the equipment will take approximately 13.0 months, and the technical assistance on the operation and management of equipment (soft component) will take about 1.5 months. The following chronogram shows a rough project implementation schedule.

Note: The following chronogram indicates the expected period for each work stage. It does not mean the detailed design and construction / equipment supply and installation works will start at the same time (i.e. the field surveys and preparatory work will not start simultaneously).

Table-20 Project Implementation Schedule



2-3 Obligations of the Recipient Country

(1) Formalities

1) Application for and acquisition of building permits regarding the Project
2) Procedures for the B/A and issuance of A/P, and bearing of commission fees associated with them
3) Prompt landing of imported materials and equipment cargos at the port or point of entry, procedures for exemption of duties, Customs clearance, and assurance thereof, and securing of prompt domestic transportation
4) Provision of convenience necessary for entry to and stay in Uganda to the Japanese nationals who are employed to execute provision of facilities and equipment, and execution of other works according to the verified contract
5) Exemption of all duties and taxes in Uganda to the Japanese nationals who are employed to execute provision of facilities and equipment, and execution of other works according to the verified contract
6) Securing of the budget required for effective use and maintenance of the facilities and equipment constructed and procured in the Project
7) Procedures, contracts and installation fees for power supply, telephone services, gas supply, water supply and sewage for the project facilities.
8) Provision of land necessary for construction work (temporary material yard)

(2) Exemption of Duties and Taxes

The imported construction materials and equipment for the Project are exempted from any customs duties and taxes by a letter of the Implementing Agency of Uganda. In case of procurement by sub-contractors, the Value Added Tax (hereinafter referred to as "VAT") should be paid in advance, but it will be reimbursed through procedures prescribed by the Ugandan side. The same process should be undertaken for reimbursement of VAT for the amount paid in advance by the Japanese contractor or supplier.

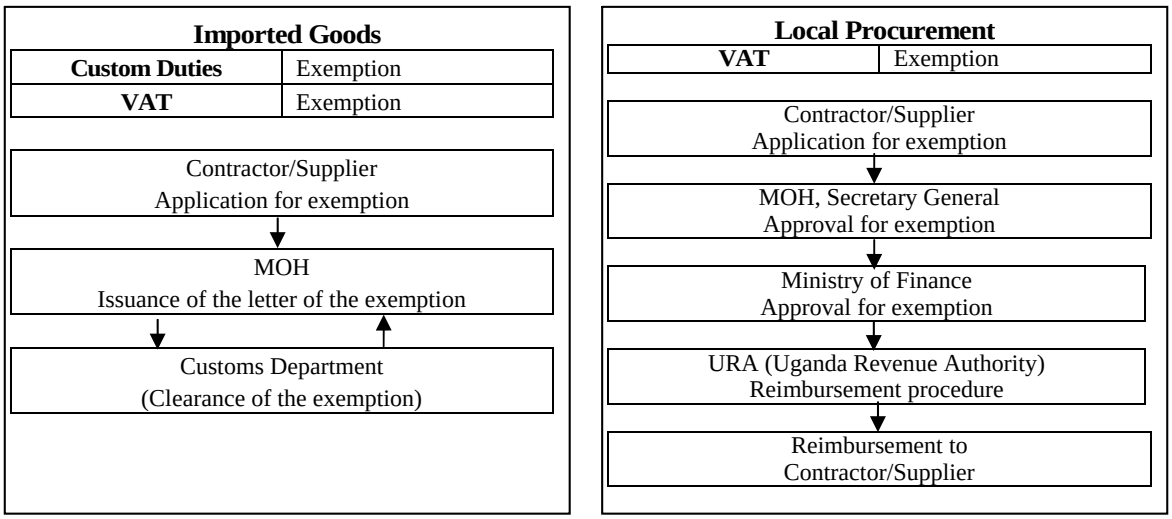


Figure-19 Tax Exemption Procedure

(3) Related Construction Work

1) Hoima RRH

① Before the commencement of the works by the Japanese side

a) Transfer of functions from the existing Operation Theatre.

Transfer of operational functions from the existing Operation Theatre to Maternity Ward and ophthalmology clinic.

b) Demolition and removal of the existing facilities in the site (existing Operation Theatre, kitchen and container office)

c) Cutting of trees in the site and removal of topsoil

d) Removal of the existing power cable, telephone cable, water supply pipe and wastewater pipe passing the site, and their rerouting

② During the works by the Japanese side

e) Improvement of infrastructure for the Project

Renewal of the pole transformer from the existing 100kVA type to a 315kVA type.*

③ After the completion of the works by the Japanese side

f) Construction of a fence and a gate

Construction of a fence to separate the outpatient area and inpatient area, and transfer of the gate.

g) Construction of a hospital road as the access to the OT/Maternity Ward

Construction of a hospital road connecting the sub entrance of hospital premises and the entrance of the casualty unit in the OT/Maternity Ward.

h) Procurement of general furniture and fixtures

- Purchase of general furniture and fixtures
- Transfer of existing equipment

i) Functional transfer from the existing facilities to the new facilities

i) Functional transfer from the existing OPD Block to the new OPD Block

ii) Functional transfer from the temporary OT block to the new OT block

iii) Functional transfer from the existing Maternity Ward to the new Maternity Ward, and renovation of the existing newborn baby room and storage into the obstetric patient rooms

2) Kabale RRH

① Before the commencement of the works by the Japanese side

a) Transfer of functions from the existing Operation Theatre

---

* To be shifted to the scope of Japanese side work.

Transfer of operational functions from the existing Operation Theatre to OT in the private ward.

b) Demolition of and removal of the existing facilities in the site (existing Operation Theatre, part of OPD and outpatient toilet)

c) Cutting of trees in the site and removal of topsoil

d) Removal of the existing power cable, telephone cable, water supply pipe and wastewater pipe passing the site, and their rerouting

② During the works by the Japanese side

e) Improvement of infrastructure

Renewal of the pole transformer from the existing 100kVA type to a 315kVA type.*

③ After the completion of the works by the Japanese side

f) Construction of fences and gates

- Construction of fences on the east and south sides of the OPD/Casualty Block, a gate for the access of ambulances and a security house.
- Construction of a fence on the east side of the OT/Maternity Ward to separate the outpatient area and inpatient area, and a gate.

g) Construction of a road outside the site

- Paving of a hospital road on the east of the OPD/Casualty Block.
- Construction of an access road to the kitchen on the south of the OPD/Casualty Block.

h) Procurement of general furniture and fixtures

- Purchase of general furniture and fixtures
- Transfer of existing equipment

i) Functional transfer from the existing facilities to the new facilities

i) Functional transfer from the existing OPD Block to the new OPD Block

ii) Functional transfer from the temporary OT block to the new OT block

iii) Functional transfer from the existing Maternity Ward to the new Maternity Ward, and renovation of the delivery rooms into the obstetric patient rooms in the existing Maternity Ward

3) Fort Portal RRH

Securing locations for mounting the equipment to be procured in the Project, transfer of the existing equipment and ensuring necessary power source, etc.

* To be shifted to the scope of Japanese side work.

2-4 Project Operation Plan

(1) Staff Allocation Plan

In Uganda, the shortage of health professionals is an urgent issue. To respond to this issue, MOH established securing and developing human resources as one of the measures for achieving the goal of HSSP I, II, and have led the measures. As a result, in HSSP I, the total rate of trained health professionals to be placed in medical facilities has risen from 33% to 68%. However, problems have now arisen, such as the number of healthcare workers has increased in urban areas while the workers do not tend to remain in remote areas. In the target three hospitals that are located relatively far from Kampala, their role as the regional referral hospital is not fulfilled sufficiently due to the absence of doctors.

These issues have been carried forward to the present HSSIP: 2010/2011-2014/2015 in more specific measures such as the salary increase and provision of staff quarters. Currently, staff accommodation and nurse dormitory are being constructed in the target three hospitals. It can be regarded as a part of this effort. Donor agencies like WHO, WB, USAID, Italian Cooperation, etc. have contributed to human resource development projects respectively.

Along with HSSP I, II and HSSIP: 2010/2011-2014/2015, 42 persons at Hoima RRH (including 5 doctors), 43 persons at Kabale RRH (including 4 doctors) and 48 persons at Fort Portal RRH (including 5 doctors) were additionally appointed in July 2011, at the beginning of the fiscal year 2011/2012, in order to respond to the preparatory survey for the Project.

At the same time, the target three hospitals endeavour to upgrade the capability of hospital staff through the in-hospital trainings and seminars as well as those at the national referral hospitals, and with the support of visiting doctors on the regular basis from the national referral hospitals to provide specialised medical services.

1) Hoima RRH

① Staff increase plan

Current staff allocation and plans for increasing the number of staff after the completion of the Project is shown in the following table:

Hospital Staff	No. of staff in 2010/2011	No. of newly employed staff	No. of staff in 2014/2015
Medical Officers	15	15	30
Clinical Officers	25	4	29
Medical technicians	15	13	28
Nurses	116	14	130
Finance & admin. staff	9	6	15
Support staff	73	12	85
Total	253	64	317

Source: Answer to the Questionnaire to Hoima RRH

Seeing that 42 personnel (including 5 doctors) have been increased in July 2011 as the staff allocation for the fiscal year 2011/2012, 64 increase in the number of hospital staff is

considered reasonable in three years between the fiscal year 2010/2011 and 2014/2015 when the Project is completed and the hospital starts operation. However, in terms of the number of doctors, 30 are hardly sufficient. For example in 2010/2011, Hoima RRH asked Mulago NRH and other hospitals for the visiting doctors of plastic surgery, obstetrics and gynaecology and orthopaedics to compensate for the shortage of specialists. Hoima RRH plans to ask Mulago NRH for the dispatch of specialists continuously after the year 2014/15, and MOH is expected to support the dispatch of visiting doctors.

② Staff training plan

Hoima RRH plans the following staff training programmes:

Training Programme	Activities
Training of several doctors at Mulago NRH and Butabika NRH every year	- At the time of August 2011, four doctors took master's-degree training in surgery, obstetrics/ gynaecology and epidemiology. - One psychiatric staff took training in Butabika NRH.
Acquisition of bachelor's degree by several nurses every year	At the time of August 2011, four nurses were working to obtain a bachelor's degree.
Acquisition of bachelor's degree in medicine and surgery by clinical officers	At the time of Augusts 2011, three clinical officers were working to obtain a bachelor's degree.
Continuous Professional Development (CPD)	With the support from Mulago NRH and other medical educational institutions, in-hospital training is held on a regular basis.

2) Kabale RRH

① Staff increase plan

Current staff allocation and plans for increasing the number of staff after the completion of the Project is shown in the following table:

Hospital Staff	No. of staff in 2010/2011	No. of newly employed staff	No. of staff in 2014/2015
Medical Officers	7	12	19
Clinical Officers	17	10	27
Medical technicians	30	9	39
Nurses	109	15	124
Finance & admin. staff	12	6	18
Support staff	55	3	58
Total	230	55	285

Source: Answer to the Questionnaire to Kabale RRH

Seeing that 43 personnel (including 4 doctors) have been increased in July 2011 as the staff allocation for the fiscal year 2011/2012, 55 increase in the number of hospital staff is considered reasonable in three years between the fiscal year 2010/2011 and 2014/2015 when the Project is completed and the hospital starts operation. However, in terms of the number of doctors, 19 are hardly sufficient. For example in 2010/2011, Kabale RRH asked

Mbarara NRH for the visiting doctors of surgery and obstetrics to compensate for the shortage of specialists. Kabale RRH plans to ask Mbarara NRH for the dispatch of specialists continuously after the year 2014/2015, and MOH is expected to support the dispatch of visiting doctors.

② Staff training plan

Kabale RRH plans the following staff training programmes:

Training Programme	Activities
Acquisition of bachelor's degree by several nurses every year	At the time of August 2011, five nurses were working to obtain a bachelor's degree.
Acquisition of bachelor's degree in medicine and surgery by clinical officers	At the time of Augusts 2011, one clinical officer was working to obtain a bachelor's degree.
Continuous Professional Development (CPD)	With the support from Mulago NRH and other medical educational institutions, in-hospital training is held on a regular basis.

3) Fort Portal RRH

① Staff increase plan

Current staff allocation and plans for increasing the number of staff after the completion of the Project is shown in the following table:

Hospital Staff	No. of staff in 2010/2011	No. of newly employed staff	No. of staff in 2014/2015
Medical Officers	19	12	31
Clinical Officers	35	11	46
Medical technicians	19	11	30
Nurses	128	22	150
Finance & admin. staff	14	6	20
Support staff	113	3	116
Total	328	65	393

Source: Answer to the Questionnaire to Fort Portal RRH

Seeing that 48 personnel (including 5 doctors) have been increased in July 2011 the staff allocation for the fiscal year 2011/2012, 65 increase in the number of hospital staff is considered reasonable in three years between the fiscal year 2010/2011 and 2014/2015 when the Project is completed and the hospital starts operation. However, in terms of the number of doctors, 31 are hardly sufficient. For example in 2010/2011, Fort Portal RRH asked Mulago NRH and other hospitals for the visiting doctors of plastic surgery, obstetrics, gynaecology and surgery to compensate for the shortage of specialists. Fort Portal RRH plans to ask Mulago NRH for the dispatch of specialists continuously after the year 2014/2015, and MOH is expected to support the dispatch of visiting doctors.

② Staff training plan

Fort Portal RRH plans the following staff training programmes:

Training Programme	Activities
Acquisition of bachelor's degree by several nurses every year	At the time of August 2011, four nurses were working to obtain a bachelor's degree.
Acquisition of bachelor's degree in medicine and surgery by clinical officers	At the time of Augusts 2011, two clinical officers were working to obtain a bachelor's degree.
Continuous Professional Development (CPD)	With the support from Mulago NRH and other medical educational institutions, in-hospital training is held on a regular basis.

(2) Maintenance Plan

1) Health Infrastructure Workshop

Health Infrastructure Division, Department of Clinical Services of MOH is in charge of healthcare infrastructure such as facilities and medical equipment and manages the Workshop for rehabilitation of facilities and repairs of equipment. The country is divided into 8 areas and a workshop is located in each area; the central workshop being in Kampala (under MOH) and the other 7 workshops in the regional areas (under the regional referral hospitals).

Outline of Maintenance and Management System is as below.

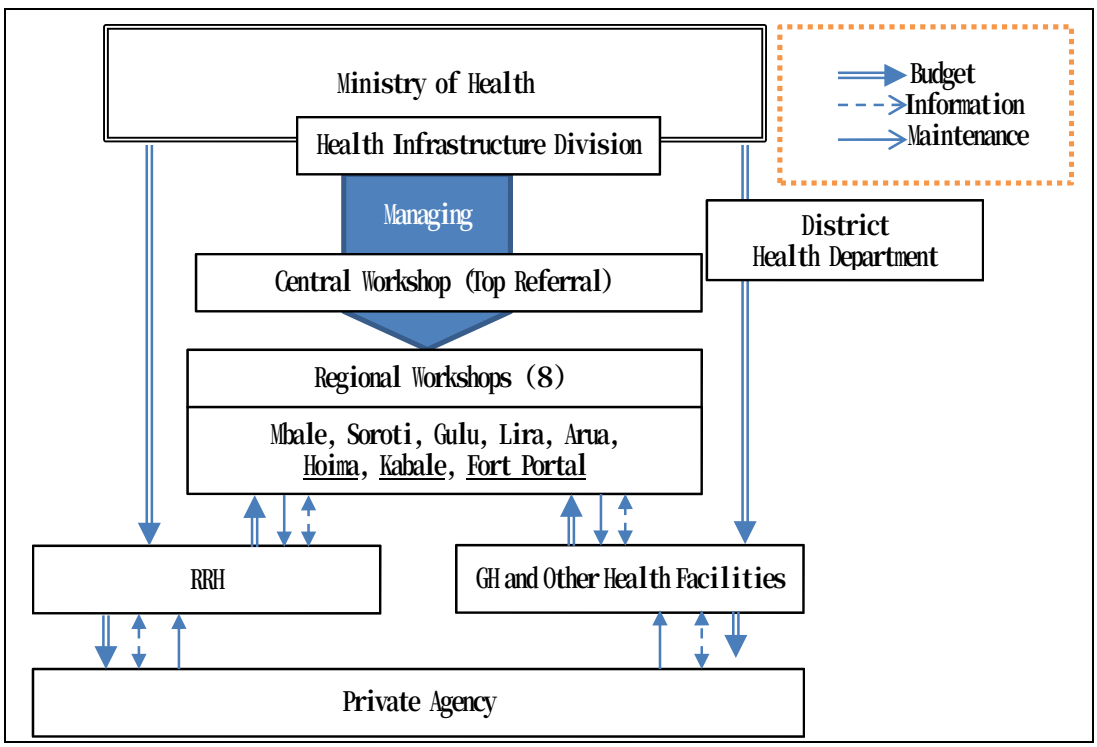


Figure-20 Outline of Maintenance and Management System

Ref: Journal of International Development and Cooperation Vol. 23 "A study on the sustainable management of medical equipment in developing countries"

2) Budget for Maintenance and Management at the Target Hospitals

Maintenance and management of health infrastructure became managed by government budget in the central workshop system since the free medical care service in public health facilities was adopted in 2001. In this system, the maintenance budget which once allocated to each health facility is collected by the regional workshops, and the workshops implement maintenance and repairing works by themselves or commission to local agencies when necessary.

In addition, CDF allows the regional referral hospitals to procure at their own discretion costly equipment which the workshops have put off to purchase.

3) Facility Maintenance Plan

The target three hospitals have regional workshops that cover the nearby areas in which several electrical, electronic and mechanical technicians are regularly appointed. However, there is only one facility maintenance technician who has technician-grade expertise at each hospital.

The existing electrical and mechanical installations in the three target hospitals are composed of ordinary equipment, except for the emergency generator system and air conditioners in the operation theatres. When troubles are found in the facilities, the facility maintenance technician commissions external professional for repairs in consultation with the hospital director.

Facilities to be constructed in Hoima RRH and Kabale RRH in the Project will not be provided with such building equipment that requires higher expertise than that installed in the existing facilities. However, in accordance with the expansion of the hospital facilities through the implementation of the Project, there is a need for a system that grasps the situation of the entire hospital facilities and can respond quickly when a trouble has occurred. To that end, it will be preferable that two maintenance technicians will be appointed to take care of facility maintenance. It is also important that these two technicians can understand the components of the facilities during the construction work, to fully understand the contents of facility maintenance manual by the time of completion. Being well aware of this issue, the Ugandan side plans to increase the facility maintenance personnel.

4) Equipment Maintenance Plan

The cases were found that the equipment procured in the past projects were not operated or maintained adequately in the target hospitals through the hearing at the target hospitals of the Project, the target hospitals in the Project or the JOCV members who are engineers specialised in medical equipment maintenance.

The issues regarding maintenance and management of medical equipment are as below:

- Deficiency of instruction of equipment operation and maintenance at the time of equipment delivery and hand-over.
- Insufficient skill of workshop staff due to the immature systems of qualification and training in Uganda.
- Sufficient maintenance services cannot be received from the agencies or manufacturers due to the limitation of budget.
- Information to find where to procure consumables or spare parts is insufficient.

It is essential to encourage the improvement of the maintenance and management system in consideration of the issues mentioned above and tying up with the JICA Technical Cooperation "Project on Improving of Health Service through Health Infrastructure Management" for the implementation of the Project. In Uganda, the maintenance service contract has not bee concluded with local agencies or manufacturers, however, the costly equipment, the precision equipment, lifesaving equipment or the one that is considered indispensable should be taken care by the local agencies or manufacture under the maintenance service contract for around five years after the manufacturer's warranty period, in order to secure adequate operation and maintenance as the responsibility of the Ugandan side.

The equipment for which the maintenance service contract with local agents is recommended is the following seven items. About 40 ~ 50 million UShs for each hospital is expected to be necessary per year. The Japanese survey team and MOH agreed during the draft report explanation mission that MOH would prepare the maintenance service contracts with supplier's local agent for management by Hoima, Kabale and Fort Portal RRHs.

Table-21 Approximate Cost Estimates of the Maintenance Service Contract (Per Year)

(In 1,000UShs)

Equipment	Unit Cost of Annual Contact	Hoima RRH		Kabale RRH		Fort Portal RRH	
		Q'ty	Annual Cost	Q'ty	Annual Cost	Q'ty	Annual Cost
Anaesthesia Machine	3,676	2	7,352	3	11,028	3	11,028
Autoclave (Large)	9,559	1	9,559	1	9,559	1	9,559
C-arm X-ray Unit	14,706	1	14,706	1	14,706	1	14,706
Defibrillator	1,471	1	1,471	2	2,942	2	2,942
Patient Monitor	1,471	4	5,884	4	5,884	3	4,413
Ultrasound Scanner (Portable)	2,206	0	0	0	0	1	2,206
Ventilators (Adult)	5,882	1	5,882	1	5,882	1	5,882
		Total	44,854	Total	50,001	Total	50,736

2-5 Project Cost Estimation

2-5-1 Initial Cost Estimation

The detailed initial costs to be borne by the Ugandan side according to the split of works are estimated based on the calculation conditions as specified in (2), when the Project is implemented through the Japanese Grant Aid. This cost estimate is provisional and would be further examination by the Government of Japan for the approval of the Grant.

(1) Costs to be borne by the Ugandan side

1) Hoima RRH

Costs to be borne by the Ugandan side for Hoima RRH (In 1,000UShs)

Item	Cost
a. Transfer of functions from the existing Operation Theatre	4,830
b. Demolition and removal of the existing facilities in the site (existing Operation Theatre, kitchen and container office)	15,408
c. Cutting of trees in the site and removal of topsoil	7,245
d. Removal of the existing infrastructure systems and their rerouting	4,830
e. Improvement of infrastructure for the Project (Renewal of the pole transformer from the existing 100kVA type to a 315kVA type*)	72,450
f. Construction of a fence to separate the outpatient area and inpatient area, and transfer of the gate	3,600
g. Construction of a hospital road connecting the sub entrance of hospital premises and the OT/Maternity Ward	24,150
h. Procurement of general furniture and fixtures as well as transfer of existing equipment	48,000
i. Functional transfer from the existing facilities to the new facilities (OPD Block, OT/Maternity Ward)	4,830
Total	185,343

* To be shifted to the scope of Japanese side work. (Equivalent to approx. 6.3 million yen)

2) Kabale RRH

Costs to be borne by the Ugandan side for Kabale RRH (In 1,000UShs)

Item	Cost
a. Transfer of functions from the existing Operation Theatre	4,830
b. Demolition of and removal of the existing facilities in the site (existing Operation Theatre, part of OPD and outpatient toilet)	18,000
c. Cutting of trees in the site and removal of topsoil	9,660
d. Removal of the existing infrastructure systems and their rerouting	12,000
e. Improvement of infrastructure for the Project (Renewal of the pole transformer from the existing 100kVA type to a 315kVA type*)	72,450
f. Construction of fences and gates	12,000
g. Construction of a road outside the site	36,000
h. Procurement of general furniture and fixtures and transfer of existing equipment	48,000
i. Functional transfer from the existing facilities to the new facilities	4,830
Total	217,770

* To be shifted to the scope of Japanese side work. (Equivalent to approx. 7.4 million yen)

3) Fort Portal RRH

There are no construction works and only the supply and installation of medical equipment is considered in the Project. Accordingly, no construction works are assumed under the responsibility of Ugandan side.

4) Costs for B/A and A/P

Charges related to procedural matters will be the issuing of B/A and A/P, and necessary charges. Costs relevant to the issuing of B/A and A/P for the consulting agreement, construction contract and equipment supply/installation contract is estimated to be approximately 3.2 million yen in total.

(2) Calculation Conditions

1) Time of Estimation : as of Augusts 2011
2) Conversion Rate : 1.00 US$ = 82.49 yen
: 1.00 US$ = 2,415.77 UShs
: 1 UShs = 0.034 yen
3) Construction Period : 13 months
4) Other Conditions:

Project implementation intended to be in compliance with the Grant Aid scheme of the Government of Japan.

2-5-2 Operation and Maintenance Cost

(1) Hoima RRH and Kabale RRH

Costs for utility charges after the completion of the Project are assumed to increase at Hoima RRH and Kabale RRH due to the construction of new buildings. Tables below show operation and maintenance costs for the initial year and from the second year onward at each hospital.

1) Operation and maintenance costs of Hoima RRH

(In UShs)

Item	Initial fiscal year	Following fiscal years
① Electricity charge	77,929,843	77,929,843
② Telephone charge	4,082,600	4,082,600
③ Fuel cost of generator	17,841,600	17,841,600
④ Water charge	15,607,668	15,607,668
⑤ Oxygen charge	169,920	169,920
⑥ Building maintenance cost	0	9,251,250
Sub-total ① – ⑥ (facility maintenance cost)	115,631,631	124,882,881
⑦ Equipment maintenance cost	6,131,250	6,131,250
Total ① – ⑦	121,762,881	131,014,131

① Electricity charge --- 77,929,843UShs/year

The contract demand of electric power of the planned facilities is presumed as shown below based on the capacities and other details of the facilities. The pole transformer will be renewed from the existing 100kVA type to a 315kVA type. For calculation purpose, the increased 215 kVA capacity is for the consumption assumed in the new OPD Block and the new OT/Maternity Ward. The actual consumption is estimated to be about 60% of the capacity, with 50% demand factor and 80% power factor (factor for conversion of kVA into kW).

Presumed Electric Power Consumption

	Capacity of Transformer (kVA)	Actual Consumption (kW)
Newly built facility	215	42

- Price structure

Electric power basic rate 20,000UShs/month

Electric power metered charge 376.1UShs/kWh (peak time)

276.7UShs/kWh (off-peak)

- Electricity charge

	Charge (UShs)	Consumption (kW)	Hour (h)	Day	Month	Load factor	Total (UShs)
Newly built facility							
Basic rate	20,000.0		-	-	12	1.0	240,000
Metered charge (daytime)	376.1	42	8	25	12	1.0	37,910,880
Metered charge (night)	276.7	42	16	25	12	0.5	27,891,360
VAT（18%）							11,887,603
Total							77,929,843

② Telephone charge --- 4,082,600UShs/year

The telephone charge varies depending on how many times the services are used. The frequency of uses combined for each facility is estimated and the charge is calculated from the assumptions.

- Price structure

Basic rate	10,000UShs/month
Domestic telephone call	180UShs/min. (Within Uganda telecom)
	360UShs/min. (With other companies)
International telephone call	450UShs/min.

- Telephone charge

	Charge (UShs)	Duration of call (min/each)	Frequency (times/day)	Day	Month	Total (UShs)
Basic rate	10,000	--	--	--	12	120,000
Domestic call	180	1	20	25	12	1,080,000
	360	1	20	25	12	2,150,000
International call	450	3	1	25	12	405,000
VAT（18%）						327,600
Total						4,082,600

③ Fuel cost of generator --- 17,841,600UShs/year

Out of the hearing at the site during the field surveys, power failures occur 6 times a month, each lasting about 5 hours on average. Fuel cost is estimated based on this assumption. A 50 kVA power generator is planned for the Project.

- Price structure

Fuel consumption of a generator	12 litres/h
Unit price of fuel	4,130UShs/litres

- Fuel cost of generator

	Charge (UShs)	Consumption (litres)	Operation hours (h)	Operation times	Month	Annual consumption (litres)	Total (UShs)
Fuel consumption	4,130	12	5	6	12	4,320	17,841,600
Total							17,841,600

④ Water charge --- 15,607,668UShs/year

The consumption of city water in the facilities to be constructed in the Project is presumed as follows:

Presumed Water Consumption

	Water supply per day (m^3/day)
Newly built facility	22
Total	22

- Price structure

Basic rate 8,000UShs/month

Metered charge (average) 1,951UShs/m^3

- Water charge

	Charge (UShs)	Water supply	Day	Month	City water consumption rate	Total (UShs)
Newly built facility						
Basic rate	8,000			12	1	96,000
Metered charge (water supply)	1,951	22	25	12	1	12,876,000
VAT（18%）						2,335,068
Total						15,607,668

⑤ Oxygen charge --- 169,920UShs/year

In general, oxygen concentrators are used for oxygen supply to the patients and oxygen cylinders are used for respirators anaesthetic apparatus in the operation theatres. Oxygen consumption in the newly built facilities is presumed as follows:

Presumed Oxygen Consumption

	Usage	Consumption per month (cylinders/month)
O_2 charge	OT, etc.	1

- Oxygen charge

	Charge (UShs)	Consumption (cylinders)	Month	Annual consumption (cylinder)	Load factor	Total (UShs)
O_2 charge	15,000	1	12	12	0.8	144,000
VAT (18%)						25,920
Total						169,920

⑥ Building maintenance cost --- 9,251,250UShs/year

The buildings of the Project adopt exterior and interior finishing materials that are relatively easy to maintain. For this reason, the building maintenance cost required for exterior and interior finishing, electric facilities, water supply and drainage, purchase of replacement parts and spare parts for air conditioning facilities is presumed to be around 1/3 or 1/2 of Japan's similar cases. The building maintenance cost will be necessary from the second year and onward.

- Building maintenance cost --- 3,000UShs/year

	Cost(UShs)	Area (m^2)	Day	Month	Load factor	Total (UShs)
Building maintenance cost	3,000	3083.75	-	-	1.0	9,251,250
Total						9,251,250

⑦ Equipment maintenance cost --- 6,131,250 UShs/year

The maintenance cost including consumables and spare parts of the equipment to be procured in the Project is assumed to increase by approximately 6 million UShs annually after the completion of the Project. The expense of oxygen gas needed for Anaesthesia Machine and Ventilators (Adult) is separately considered in ⑤ above.

Equipment	Consumable and Spare parts	Amount needed per year	Unit price (UShs)	Q'ty of equipment	Sub total (UShs)
Anaesthesia Machine	Oxygen	Stated ⑤ above		2	
	Anaesthesia gas	1	50,000		100,000
	Soda lime	6	20,000		240,000
Autoclave (Large)	Filter	1	294,000	2	588,000
	Recording paper	1	30,000		60,000
C-arm X-ray Unit	X-ray film	1	100,000	1	100,000
	Developing solution	6	145,000		870,000
	Fixing solution	6	145,000		870,000
Centrifuge (Table Top Type)	Test tube	12	10,000	1	120,000
Defibrillator	Recording paper	1	30,000	1	30,000
Diagnostic Set	Battery	1	3,000	3	9,000
	Spare lamp	1	30,000		90,000
ECG (12 lead)	Cream	12	8,000	1	96,000
	Recording paper	12	30,000		360,000
	Electrode	12	45,000		540,000
Electric Surgical Unit	Knife	1	170,000	1	170,000
	Spare handle	1	51,250		51,250
Endoscope Set	Spare lamp	1	30,000	1	30,000
Infant Incubator	Sleeve for treatment window	1	45,000	2	90,000
Infusion Pump	Infusion set	12	2,250	2	54,000
Microscope (Binocular)	Slide glass	12	5,000	1	60,000
	Emulsion oil	1	8,000		8,000
Nebulizer	Cup for medicinal solution	12	10,000	3	360,000
Patient Monitor	Recording paper	6	30,000	4	720,000
Syringe Pump	Syringe	24	3,000	3	216,000
Ventilators (Adult)	Oxygen	Stated ⑤ above		1	
	Aspiration Circuit	1	59,000		59,000
X-ray Film Viewer	Spare lamp	3	10,000	8	240,000
			Total		6,131,250

2) Operation and maintenance costs of Kabale RRH

(In UShs)

Item	Initial fiscal year	Following fiscal years
① Electricity charge	77,929,843	77,929,843
② Telephone charge	4,082,600	4,082,600
③ Fuel cost of generator	17,841,600	17,841,600
④ Water charge	13,926,360	13,926,360
⑤ Oxygen charge	169,920	169,920
⑥ Building maintenance cost	0	9,398,850
Sub-total ① – ⑥ (facility maintenance cost)	113,950,323	123,349,173
⑦ Equipment maintenance cost	7,197,250	7,197,250
Total ① – ⑦	121,147,573	130,546,423

① Electricity charge --- 77,929,843UShs/year

The contract demand of electric power of the planned facilities is presumed as shown below based on the capacities and other details of the facilities. The pole transformer will be renewed from the existing 100kVA type to a 315kVA type. For calculation purpose, the increased 215 kVA capacity is for the consumption assumed in the new OPD/Casualty Block and the new OT/Maternity Ward. The actual consumption is estimated to be about 60% of the capacity, with 50% demand factor and 80% power factor (factor for conversion of kVA into kW).

Presumed Electric Power Consumption

	Capacity of Transformer (kVA)	Actual Consumption (kW)
Newly built facility	215	42

- Price structure

Electric power basic rate 20,000UShs/month

Electric power metered charge 376.1UShs/kWh (peak time)

276.7UShs/kWh (off-peak)

- Electricity charge

	Charge (UShs)	Consumption (kW)	Hour (h)	Day	Month	Load factor	Total (UShs)
Newly built facility							
Basic rate	20,000.0		-	-	12	1.0	240,000
Metered charge (daytime)	376.1	42	8	25	12	1.0	37,910,880
Metered charge (night)	276.7	42	16	25	12	0.5	27,891,360
VAT（18%）							11,887,603
Total							77,929,843

② Telephone charge --- 4,082,600UShs/year

The telephone charge varies depending on how many times the services are used. The frequency of uses combined for each facility is estimated and the charge is calculated from the assumptions.

- Price structure

Basic rate	10,000UShs/month
Domestic telephone call	180UShs/min. (Within Uganda telecom)
	360UShs/min. (With other companies)
International telephone call	450UShs/min.

- Telephone charge

	Charge (UShs)	Duration of call (min/each)	Frequency (times/day)	Day	Month	Total (UShs)
Basic rate	10,000	--	--	--	12	120,000
Domestic call	180	1	20	25	12	1,080,000
	360	1	20	25	12	2,150,000
International call	450	3	1	25	12	405,000
VAT（18%）						327,600
Total						4,082,600

③ Fuel cost of generator --- 17,841,600UShs/year

Out of the hearing at the site during the field surveys, power failures occur 10 times a month, each lasting about 3 hours on average. Fuel cost is estimated based on this assumption. The existing 200 kVA power generator will serve for the newly built OPD/Casualty Block and the OT/Maternity Ward in the Project, with an assumption of 50 kVA power capacity for these facilities.

- Price structure

Fuel consumption of a generator	12 litres/h
Unit price of fuel	4,130UShs/litres

- Fuel cost of generator

	Charge (UShs)	Consumption (litres)	Operation hours (h)	Operation times	Month	Annual consumption (litres)	Total (UShs)
Fuel consumption	4,130	12	3	10	12	4,320	17,841,600
Total							17,841,600

④ Water charge --- 13,926,360UShs/year

The consumption of city water in the facilities to be constructed in the Project is presumed as follows:

Presumed Water Consumption

	Water supply per day (m^3/day)
Newly built facility	20
Total	20

- Price structure

Basic rate	8,000UShs/month

Metered charge (average) 1,951UShs/m^3

- Water charge

	Charge (UShs)	Water supply	Day	Month	City water consumption rate	Total (UShs)
Newly built facility						
Basic rate	8,000			12	1	96,000
Metered charge (water supply)	1,951	22	25	12	1	11,706,000
VAT（18%）						2,124,360
Total						13,926,360

⑤ Oxygen charge --- 169,920UShs/year

In general, oxygen concentrators are used for oxygen supply to the patients and oxygen cylinders are used for respirators anaesthetic apparatus in the operation theatres. Oxygen consumption in the newly built facilities is presumed as follows:

Presumed Oxygen Consumption

	Usage	Consumption per month (cylinders/month)
O_2 charge	OT, etc.	1

- Oxygen charge

	Charge (UShs)	Consumption (cylinders)	Month	Annual consumption (cylinder)	Load factor	Total (UShs)
O_2 charge	15,000	1	12	12	0.8	144,000
VAT (18%)						25,920
Total						169,920

⑥ Building maintenance cost --- 9,398,850 UShs/year

The buildings of the Project adopt exterior and interior finishing materials that are relatively easy to maintain. For this reason, the building maintenance cost required for exterior and interior finishing, electric facilities, water supply and drainage, purchase of replacement parts and spare parts for air conditioning facilities is presumed to be around 1/3 or 1/2 of Japan's similar cases. The building maintenance cost will be necessary from the second year and onward.

- Building maintenance cost --- 3,000UShs/year

	Cost(UShs)	Area (m^2)	Day	Month	Load factor	Total (UShs)
Building maintenance cost	3,000	3,132.95	-	-	1.0	9,398,850
Total						9,398,850

⑦ Equipment maintenance cost --- 7,197,250UShs/year

The maintenance cost including consumables and spare parts of the equipment to be procured in the Project is assumed to increase by approximately 7.2 million UShs annually after the completion of the Project. The expense of oxygen gas needed for Anaesthesia Machine and Ventilators (Adult) is separately considered in ⑤ above.

Equipment	Consumable and Spare parts	Amount needed per year	Unit price (UShs)	Q'ty of equipment	Sub total (UShs)
Anaesthesia Machine	Oxygen	Referred to ⑤ above		2	
	Anaesthesia gas	1	50,000		100,000
	Soda lime	6	20,000		240,000
Autoclave (Large)	Filter	1	294,000	2	588,000
	Recording paper	1	30,000		60,000
C-arm X-ray Unit	X-ray film	1	100,000	1	100,000
	Developing solution	6	145,000		870,000
	Fixing solution	6	145,000		870,000
Centrifuge (Table Top Type)	Test tube	12	10,000	1	120,000
Defibrillator	Recording paper	1	30,000	1	30,000
Diagnostic Set	Battery	1	3,000	3	9,000
	Spare lamp	1	30,000		90,000
Doppler	Gel for Doppler	1	70,000	1	70,000
ECG (12 lead)	Cream	12	8,000	2	192,000
	Recording paper	12	30,000		720,000
	Electrode	12	45,000		1,080,000
Electric Surgical Unit	Knife	1	170,000	1	170,000
	Spare handle	1	51,250		51,250
Endoscope Set	Spare lamp	1	30,000	1	30,000
Infant Incubator	Sleeve for treatment window	1	45,000	2	90,000
Infusion Pump	Infusion set	12	2,250	2	54,000
Microscope (Binocular)	Slide glass	12	5,000	1	60,000
	Emulsion oil	1	8,000		8,000
Nebulizer	Cup for medicinal solution	12	10,000	3	360,000
Patient Monitor	Recording paper	6	30,000	4	720,000
Syringe Pump	Syringe	24	3,000	3	216,000
Ventilators (Adult)	Oxygen	Referred to ⑤ above		1	
	Aspiration Circuit	1	59,000		59,000
X-ray Film Viewer	Spare lamp	3	10,000	8	240,000
			合計		7,197,250

(2) Fort Portal RRH

This project will cover the procurement and installation of medical equipment for Fort Portal RRH. Accordingly, only the equipment maintenance cost including spare parts and replacement parts will increase after the completion of the Project, which is estimated to be approximately 7.3 million UShs annually.

Equipment	Consumable and spare parts	Needed amount per year	Unit price (UShs)	Q'ty of equipment	Sub total (UShs)
Anaesthesia Machine	Oxygen	12	15,000	2	360,000
	Anaesthesia gas	1	50,000		100,000
	Soda lime	6	20,000		240,000
Autoclave (Large)	Filter	1	294,000	2	588,000
	Recording paper	1	30,000		60,000
C-arm X-ray Unit	X-ray film	1	100,000	1	100,000
	Developing solution	6	145,000		870,000
	Fixing solution	6	145,000		870,000
Centrifuge (Table Top Type)	Test tube	12	10,000	1	120,000
Defibrillator	Recording paper	1	30,000	1	30,000
Diagnostic Set	Battery	1	3,000	3	9,000
	Spare lamp	1	30,000		90,000
Doppler	Gel for Doppler	1	70,000	1	70,000
ECG (12 lead)	Cream	12	8,000	1	96,000
	Recording paper	12	30,000		360,000
	Electrode	12	45,000		540,000
Electric Surgical Unit	Knife	1	170,000	1	170,000
	Spare handle	1	51,250		51,250
Endoscope Set	Spare lamp	1	30,000	1	30,000
Infant Incubator	Sleeve for treatment window	1	45,000	2	90,000
Infusion Pump	Infusion set	12	2,250	2	54,000
Microscope (Binocular)	Slide glass	12	5,000	1	60,000
	Emulsion oil	1	8,000		8,000
Nebulizer	Cup for medicinal solution	12	10,000	3	360,000
Patient Monitor	Recording paper	6	30,000	3	540,000
Syringe Pump	Syringe	24	3,000	3	216,000
Ultrasound Scanner (Portable)	Gel	6	70,000	1	420,000
	Recording paper	12	30,000		360,000
Ventilators (Adult)	Oxygen	12	15,000	1	180,000
	Aspiration Circuit	1	59,000		59,000
X-ray Film Viewer	Spare lamp	3	10,000	8	240,000
			Total		7,341,250

(3) Financial Conditions

1) Budget Allocation to Health Sector

The following table shows health budgets of Uganda during the past five years since the fiscal year 2005/06. The health budgets from international donor agencies differ significantly by fiscal year. On the other hand, the allocation to health budget from the national budget has

been stable around 9%.

(In billion UShs)

Year	Health budget from the national budget	Health budget from the donor agencies	Total	Allocation to health budget (%)
2005/06	229.86	268.38	498.24	8.9
2006/07	242.63	139.23	381.86	9.3
2007/08	277.36	141.12	418.48	9.0
2008/09	375.46	253.00	628.46	8.3
2009/10	435.80	301.80	737.60	9.6

Source: Annual Health Sector Performance Report 2009/2010

2) Budget Allocation to Each Hospital

In all the public hospitals, patients receive clinical services for free in principle, except for some charged services. Regional referral hospitals belong to MOH; however, being the semi autonomous institutions, their management costs are directly allocated to each regional referral hospital by the Ministry of Finance Planning and Economic Development (MOFPED).

Labour costs doctors and hospital staff have been determined based on the qualifications, education, experience, etc. The salaries of hospital staff have been allocated out of the state budget.

In the year 2008/2009, CDF was established for the improvement of facilities and procurement of equipment at the regional referral hospitals, which will be continued for 15 years. Owing to the CDF, the budget of each regional referral hospital has been increased considerably. The amount of CDF at each regional referral hospital stay in the range from about 1,000 to 1,800 million UShs, and the works at each target hospital in the Project under the responsibility of the Government of Uganda are expected to be financed by this CDF.

Amount of the cost to be borne by the Ugandan side equalling to 185 million UShs is approximately 15% of 1,265 million UShs from CDF for Hoima RRH in the fiscal year 2010/2011. Similarly, amount of the cost to be borne by the Ugandan side equalling to 218 million UShs is approximately 14% of 1,603 million UShs from CDF for Kabale RRH in the fiscal year 2010/2011.

The following tables indicate budgets and expenditures at Hoima, Kabale and Fort Portal RRH during the past five years.

① Hoima RRH

(In million UShs)

Year		2006/07	2007/08	2008/09	2009/10	2010/11
Budget		1,706	2,162	3,599	3,920	4,543
	Recurrent budget	1,706	2,162	2,456	2,777	3,278
	CDF	---	---	1,143	1,143	1,265
Expenditure		1,706	2,162	3,519	3,920	
	Current expenditure	1,706	2,162	2,456	2,777	
	Capital expenditure	---	---	1,143	1,143	

Source: Reply to the Questionnaire

An increase of approximate 131 million UShs of the maintenance costs in the second year and after estimated in the previous section shares about 4% of the recurrent budget for fiscal year 2010/2011, which remains in the range of reasonable increase compared to the past tendencies of budget increase.

② Kabale RRH

(In million UShs)

Year		2006/07	2007/08	2008/09	2009/10	2010/11
Budget		1,400	1,805	3,918	3,914	3,734
	Recurrent budget	1,400	1,805	2,032	2,114	2,131
	CDF	---	---	1,886	1,800	1,603
Expenditure		1,400	1,805	3,872	4,063	
	Recurrent expenditure	1,400	1,805	1,986	2,263	
	Capital expenditure	---	---	1,886	1,800	

Source: Reply to the Questionnaire

An increase of approximate 131 million UShs of the maintenance costs in the second year and after estimated in the previous section shares about 6% of the recurrent budget for fiscal year 2010/2011, which remains in the range of reasonable increase compared to the past tendencies of budget increase.

③ Fort Portal RRH

(In million UShs)

Year		2006/07	2007/08	2008/09	2009/10	2010/11
Budget		2,048	2,031	3,383	4,269	4,603
	Recurrent budget	2,048	2,031	2,467	2,519	2,988
	CDF	---	---	916	1,750	1,615
Expenditure		2,048	2,031	3,383	4,269	
	Recurrent expenditure	2,048	2,031	2,460	2,375	
	Capital expenditure	---	---	923	1,894	

Source: Reply to the Questionnaire

An assumed increase of approximate 7.3 million UShs of the maintenance costs after the completion of the Project shares about 0.45% of the recurrent budget for fiscal year 2010/2011, which remains in the range of reasonable increase compared to the past tendencies of budget increase.

CHAPTER 3 PROJECT EVALUATION

Chapter 3 Project Evaluation

3-1 Preconditions

The Government of Uganda needs to consider the issues mentioned below to achieve satisfactory implementation of the Project.

The matters the Ugandan side is responsible for will be carried out in cooperation among MOH, Division of Health Infrastructure and Hoima, Kabale and Fort Portal RRHs according to each scope of responsibility. There will be no construction works to be undertaken by Fort Portal RRH because only supply and installation of medical equipment in the existing facilities is considered in the Project.

The construction sites of the new facilities in Hoima RRH and Kabale RRH are located within the present hospital premises. Thus, there will be no need for the acquisition of new land for the construction sites. Also, there will be no need for the environmental assessment, because they will be renovation works in the existing hospitals.

MOH	- Procedures for exemption of duties and prompt customs clearance - Procedures for exemption of VAT
Hoima RRH Kabale RRH	- Acquisition of the permission for construction (Each RRH will apply and acquire the permission to the district office with support of the Health Infrastructure Division, Department of Clinical Services of MOH) - Demolition and removal of the existing facilities (Hoima RRH: existing Operation Theatre, kitchen and container office, Kabale RRH: existing Operation Theatre, canteen and outpatient toilet) - Cutting of trees in the site and removal of topsoil - Removal of existing power cable, telephone cable, water supply pipe and wastewater pipe passing the site, and their rerouting

3-2 Necessary Inputs by the Recipient Country

Issues the Ugandan side should tackle for the emergence and continuation of effects of the Project are listed below.

(1) Issues the Government of Uganda needs to tackle

1) Securing operational and maintenance budgets for target projects required at each hospital

Increased amount of maintenance and operation cost necessary from the second year after the implementation of the Project are estimated at approx. 131 million UShs in Hoima RRH

(approx. 4% of recurrent budget in the fiscal year 2010/11), approx. 131 million UShs in Kabale RRH (approx. 6% of recurrent budget in the fiscal year 2010/11), approx. 7.3 million UShs in Fort Portal RRH (0.45% of recurrent budget in the fiscal year 2010/11). In consideration of the past sum of recurrent budgets and increasing tendency, there should be no problem in securing the increased budget. Therefore, in order to maintain the effect of the Project, each hospital will be required to continuously secure the current recurrent budget, and also to appropriately allocate the budget to rightly operate and maintain the facilities and equipment relevant to the projects.

2) Implementation of appropriate operation and maintenance

In order for each hospital to continuously implement appropriate operation and maintenance, the system of management of maintenance management should be reinforced, and skills of workshop staffs and healthcare professionals of each hospital on the operation and maintenance of healthcare infrastructure needs to be improved. Currently, under NHP II, an action for improvement is in progress with the improvement of healthcare services as the focus area. In addition, JICA technical cooperation "Project on Improvement of Health Service through Health Infrastructure Management" and technical assistance (soft component) regarding the Project is planned to improve operation and maintenance skills in the hospitals. Each hospital will be required to make efforts to sustain the effect of the Project by utilising skills learned through these actions and technical aids in implementing appropriate operation and maintenance, as well as by aiming to transfer the skills to other staffs through in-house training.

3) Securing CDF and budget for contract cost of medical equipment maintenance service

Issues of failure and breakage of infrastructure such as facilities and equipment can be infallibly reduced by appropriate operation and maintenance at the hospital. However, it should be assumed that after a certain period, unexpected refurbishment or repair of the facilities or maintenance and repair of sensitive instruments may not be handled by the hospitals with their maintenance budget or skills. Each hospital will be required to secure the budget for equipment maintenance and spare parts procurement by utilising CDF if they are too expensive to be covered within the ordinary operation and maintenance budget.

Regarding high-cost equipment, sensitive equipment, life-saving equipment procured by the Project, a maintenance contract regarding equipment maintenance must be closed, paid by Uganda, with the local agency for about five years after the warranty period. The Japanese survey team and MOH agreed during the explanatory mission of draft report that maintenance service contracts would be concluded between each target hospital and supplier's local agent under the auspices of MOH.

4) Acquisition of appropriate staffs for operation and maintenance of planed facilities and equipment and securing training personnel

Shortage of healthcare professionals in rural hospitals is a common issue in the target hospitals, and each hospital is putting in much effort in securing and training staffs through various measures including in-house training and recruitment of interns.

In order to preserve the effect of the Project, it is essential to secure and train personnel required for operation and maintenance in each hospital, for which continuous effort will be required.

(2) Issues that will be Supplemented and Reinforced by other Schemes

In the JICA Technical Cooperation "Project on Improvement of Health Service through Health Infrastructure Management" currently in progress, actions to improve the delivery of healthcare services by the effective and efficient utilization of healthcare infrastructure is underway. This technical cooperation project is working on actions for the improvement of operation and maintenance of medical equipment at the hospitals and medical equipment maintenance workshops, including Hoima RRH and Kabale RRH, which are the targeted hospitals by the grant aid project. Collaboration with this technical cooperation project is very important for the emergence and sustainability of the effect of the Project.

Dispatching JOCV members who specialise in healthcare such as 5S and clinical engineers has been promoted, and these volunteers are expected to play a role in supporting the establishment of the system prepared by the technical cooperation project, as well as equipment operation and maintenance skills instructed in the Project.

Collaboration and supplementation with these schemes are expected.

3-3 Important Assumptions

Important assumptions for the realization and sustainability of the Project effects are as follows:

(1) National policies for health service should be continued.

The NHP (1999/2000-2009/10) and HSSP I, and II formulated thereof, as well as the succeeding NHP II (2010/11-2019/20) and HSSIP (2010/11-2014/15), have worked on free medical care, improved access rate by the proliferation of healthcare facilities, and reinforcement of the delivery of healthcare services.

In order for the achievement of the Project to be realized and sustained, the direction of such healthcare policies should not be largely changed. Shortage of healthcare professionals in Uganda is a pressing issue in particular, and MOH has been leading measures to secure and train staff in order to achieve the HSSIP objectives.

It is an important criterion for these policies to be sustained and staff to be secured for the target hospitals.

(2) Stable national finances should be sustained so that proper budget will be allocated to the healthcare sector.

As stated above, healthcare services to patients at public hospitals have been provided free of charge in principle, excluding some clinical examination fees, based on the national health policy. Therefore, in order for the hospitals to continue appropriate operation, it is critical for them to secure budget allocation from the government.

Budget allocated from the national budget to the healthcare sector has been stable at around 9% for the past five years (fiscal year 2005/06-2009/10). For the achievement of the Project to be sustained, budget necessary for hospital operation must be secured continuously, and actions for stable and appropriate national finance should be taken.

3-4 Project Evaluation

3-4-1 Relevance

(1) Project Beneficiaries

The direct beneficiaries will be inpatients and outpatients of the three target hospitals. In addition, by accepting the referral of patients from general hospitals and health centres in the District of each hospital, the three target hospitals will serve as key hospitals in the regional referral system. From this viewpoint, the Project will be indirectly beneficial to all the coverage population of the three hospitals; 1,884,000 persons of Hoima RRH, 1,777,600 persons of Kabale RRH and 2,307,700 persons of Fort Portal RRH, as many as 5,969,300 persons in total.

(2) Human Security and Urgency

This project aims to contribute to upgrading medical services of the target hospitals, which serve as the leading hospitals among RRHs in the Western Region, through the construction of hospital buildings as well as the supply and installation of medical equipment.

As an extension of that, the Project sets the superior goal that the health conditions of local residents will be improved. It is expected to contribute to the improvement of the basic human needs (BHN) of the local residents, and to contribute to the stability of their livelihood.

(3) Contribution to Middle and Long-term Goals of the Development Projects

NHPII and HSSIP have set the midterm target as “to attain a good standard of health for all people in Uganda in order to promote a healthy and productive life” and have set up “to improve the levels, equity in access and demand to defined services needed for health” as one of the policies to achieve this target. This project will contribute to the achievement of this target and policy.

(4) Feasibility as a Grant Aid Project

This project is to contribute to human security by improving the health and medical services, to contribute to the reduction of infant mortality, under-five mortality and maternal mortality that has been established as the Millennium Development Goals. In this regard, the Project is

consistent with cooperation policies and principles of Japan.

3-4-2 Effectiveness

The following (1) Quantitative Effects and (2) Qualitative Effects are expected by the implementation of the grant aid project.

(1) Quantitative Effects

Quantitative Effects expected by the Project are as follows.

Post-implementation project effects shall be confirmed for each hospital based on the current situation in the fiscal year 2010/11 and evaluated quantitatively with the planned value set for 3 years after the completion of the Project (fiscal year 2018/19)

① Hoima RRH (targeted building components: OPD, operation theatre, casualty[*1])

- By improving OPD, the number of outpatients per year will increase from 94,955[*2] to 122,492
- By improving the operation theatre, the number of operations per year[*3] will increase from 1,870 to 2,412.
- By improving the casualty, the number of emergency patients per year will increase from 2,615 to 3,373.

*1 Maternity ward is included in the target building components but the delivery room is not included, therefore the area will not be incorporated as one of the target sections.

*2 Outpatients: general outpatient, paediatric, surgery, orthopaedic, ophthalmology, ENT, dental, Obs/Gyn, psychiatry department

*3 Dental operation is not included.

② Kabale RRH (targeted building components: OPD, operation theatre, casualty, maternity ward)

- By improving the OPD, the number of outpatients per year will increase from 92,947[*4] to 119,902
- By improving the operation theatre, the number of operations[*5] per year will increase from 3,114 to 4,017.
- By improving the casualty, the number of emergency patients per year will increase from 448 to 578.
- By improving the maternity ward, the number of deliveries per year will increase from 5,754 to 7,423.

*4 Outpatients: paediatrics, internal medicine, surgery, orthopaedics, ophthalmology, ENT, dental, Obs/Gyn, psychiatry department

*5 Dental operation is not included.

③ Fort Portal RRH

Equipment procurement for the OPD, operation theatre, casualty and Obs/Gyn. Department is planned. However, the construction of facilities are not planned for this hospital so, it would be difficult to set a specified increasing number for the each department. Therefore, only the number of OPD shall be set as the indicator.

- By improving the OPD, the number of outpatients per year will increase from 138,437*6 to 178,584.

*6 Outpatients: general outpatients, paediatric, internal medicine, surgery, orthopaedics, ophthalmology, ENT, dental, Obs/Gyn, psychiatry department

(2) Qualitative Effects

Qualitative effects expected by the Project are as follows.

① By improving access and quality of healthcare services in rural areas, the targeted hospitals will become more accessible for the local residents so that hospitals become possible to accept the patients that used to be difficult.

② By improving the targeted hospitals, they will function effectively as the top referral hospitals in the regions.

3-4-3 Conclusion

In conclusion, the validity of the Project to be implemented by grant aid of our country carried as well as the anticipated effectiveness of the Project will be high.

APPENDICES

Appendix 1 Member List of the Survey Team

1-1 Field Survey I (May 15 – June 10, 2011)

Name		Organization
Ms. Sonoko TAKAHASHI	Leader	Deputy Director, Health Division 1, Health Group 1, Human Development Department, JICA
Dr. Tomomi MIZUNO	Technical Advisor	2nd Expert Service Division, Department of International Medical Cooperation, National Center for Global Health and Medicine
Mr. Naoki MATSUMOTO	Cooperation Planner	Africa Division 2, Africa Department, JICA
Mr. Keiichi IDE	Project Manager / Architectural Planning	Yokogawa Architects & Engineers, Inc.
Mr. Hideaki KANAYAMA	Architectural Design I/ Utility Planning	H. Kanayama A & E Co., Ltd.
Mr. Yasumichi DOI	Equipment Planning I/ Health and Medical Planning	INTEM Consulting, Inc.

1-2 Field Survey II (July 30 – August 28, 2011)

Name		Organization
Mr. Ikuo TAKIZAWA	Leader	Director, Health Division 1, Health Group 1, Human Development Department, JICA
Dr. Tomomi MIZUNO	Technical Advisor	2nd Expert Service Division, Department of International Medical Cooperation, National Center for Global Health and Medicine
Ms. Sonoko TAKAHASHI	Project Coordinator	Deputy Director, Health Division 1, Health Group 1, Human Development Department, JICA
Mr. Keiichi IDE	Project Manager / Architectural Planning	Yokogawa Architects & Engineers, Inc.
Mr. Hideaki KANAYAMA	Architectural Design I/ Utility Planning	H. Kanayama A & E Co., Ltd.
Mr. Kisen MISAWA	Construction Planning / QS	Yokogawa Architects & Engineers, Inc.

Mr. Shoichi TASHIRO	Architectural Design II	Yokogawa Architects & Engineers, Inc.
Mr. Yasumichi DOI	Equipment Planning I/ Health and Medical Planning	INTEM Consulting, Inc.
Ms. Tomoko KORI	Equipment Planning II / QS	INTEM Consulting, Inc.
Mr. Osamu KONO	Architectural Planning / QS (Voluntary Assistant)	Yokogawa Architects & Engineers, Inc.

1-3 Outline Design Study Explanatory Mission (June 3 – June 14, 2012)

Name		Organization
Ms. Sonoko TAKAHASHI	Leader	Deputy Director, Health Division 1, Health Group 1, Human Development Department, JICA
Mr. Keiichi IDE	Project Manager / Architectural Planning	Yokogawa Architects & Engineers, Inc.
Mr. Yasumichi DOI	Equipment Planning I/ Health and Medical Planning	INTEM Consulting, Inc.

Appendix 2 Survey Schedule

2-1 Field Survey I (May 15 – June 10, 2011)

No.	Date	Day	Official Members			Consultant Members		
			Leader	Cooperation Planner	Technical Advisor	PM/Architectural Planning	Architectural Design I / Utility Planning	Equipment Planning I/ Health and Medical Planning
			Ms. Sonoko Takahashi	Mr. Naoki Matsumoto	Dr. Tomomi Mizuno	Mr. Keiichi Ide	Mr. Hideaki Kanayama	Mr. Yasumichi Doi
Survey days			15	17	20	27	27	27
1	5/15	Sun			Narita -->			
2	5/16	Mon			(Dubai) --> Entebbe, Meeting at JICA Office			
3	5/17	Tue			Courtesy call to Ministry of Health (MOH) and discussion			
4	5/18	Wed			Courtesy call to JICA Office and discussion, Discussion with MOH, Survey of cooperation from World Bank			
5	5/19	Thr			Discussion with Health Infrastructure Division			
6	5/20	Fri			Discussion with Masindi District Health Office, Survey of Masindi GH			
7	5/21	Sat			Team meeting, Data filing			
8	5/22	Sun			Kampala --> Kabale			
9	5/23	Mon			Discussion with Kabale District Health Office, Survey of Kabale RRH			
10	5/24	Tue			Survey of Kabale RRH			
11	5/25	Wed	Haneda -->		AM: Survey of Kabale RRH --> Fort Portal			
12	5/26	Thr	Dubai --> Entebbe Meeting at JICA Office		Discussion with Kabarole District Health Office, Survey of Fort Portal RRH			
13	5/27	Fri	Kampala --> Survey of Fort Portal RRH		Survey of Fort Portal RRH			
14	5/28	Sat	Fort Portal --> Survey of Mubende RRH (Central Uganda Rehab. Project under Japanese Grant Aid) (3Hrs) --> Kampala					
15	5/29	Sun	Kampala --> Hoima					
16	5/30	Mon	Survey of Hoima RRH					
17	5/31	Tue	Survey of Hoima RRH, Discussion with Hoima District Health Office --> Kampala					
18	6/1	Wed	Discussions with MOH (Reporting survey results of the sites, discussion on the draft MD)					
19	6/2	Thr	Collecting data at MOH, Discussion w/ Director of Hoima RRH		Entebbe -->	Collecting data at MOH, Discussion w/ Director of Hoima RRH		
20	6/3	Fri	Martyrs of Uganda Kampala --> Survey of Mbale RRH (East Uganda Medical Rehab. Project) --> Kampala		(Dubai) --> Narita	Martyrs of Uganda Kampala --> Survey of Mbale RRH (East Uganda Medical Rehab. Project) --> Kampala		
21	6/4	Sat	Team meeting			Team meeting		
22	6/5	Sun	Data filing			Data filing		
23	6/6	Mon	Courtesy call to Japanese Embassy			Courtesy call to Japanese Embassy	Discussions with Health Infrastructure Division	
			Discussions with MOH on draft MD			Discussions with MOH on the draft minutes		
24	6/7	Tue	Signing of MD Entebbe -->	Signing of MD, Supplementary survey		Signing of MD, Supplementary survey		
25	6/8	Wed	(Dubai)-->Haneda	Entebbe -->		Entebbe -->		
26	6/9	Thr		(Dubai)-->		(Dubai) -->		
27	6/10	Fri		--> Haneda		--> Narita		

2-2 Field Survey II (July 30 – August 28, 2011)

No.	Date	Day	Official Members			Consultant Members						
			(a) Leader	(b) Project Coordinator	(c) Technical Advisor	(a) PM/Architectural Planning	(b) Architectural Design I / Utility Planning	(c) Construction Planning / QS	(d) Architectural Design II	(e) Equipment Planning I/ Health and Medical Planning	(f) Equipment Planning II / QS	(f) Voluntary (Architectural Planning / Construction Planning/QS Assistant)
			Mr. Ikuo Takizawa	Ms. Sonoko Takahashi	Dr. Tomomi Mizuno	Mr. Keiichi Ide	Mr. Hideaki Kanayama	Mr. Kisen Misawa	Mr. Shoichi Tashiro	Mr. Yasumichi Doi	Ms. Tomoko Kori	Mr. Osamu Kono
Survey days			6	15	21	30	23	21	21	28	30	30
1	7/30	Sat			Narita -->					Narita -->		
2	7/31	Sun			(Dubai) --> Entebbe					(Dubai) --> Entebbe		
3	8/1	Mon			Courtesy call to JICA Office and Japanese Embassy, Courtesy call to Ministry of Health (MOH) / Discussions		Commissioning the survey of natural conditions, calling for cost estimation	Narita -->		Accompanying (a)		Accompanying (b)
4	8/2	Tue			Discussions with MOH		Survey of local contractors / construction situation	(Dubai) --> Entebbe		Accompanying (a)		Accompanying (b)
5	8/3	Wed			AM Kamala --> Hoima							
					PM Survey of Hoima RRH							
6	8/4	Thr			Survey of Hoima RRH							
7	8/5	Fri		Narita -->	Survey of Hoima RRH							
8	8/6	Sat		(Dubai) --> Entebbe	AM Survey of Hoima RRH							
					PM Hoima --> Kampala							
9	8/7	Sun		Kamala --> Kabale								
10	8/8	Mon		Survey of Kabale RRH								
11	8/9	Tue		Survey of Kabale RRH								
12	8/10	Wed		Survey of Kabale RRH								
13	8/11	Thr		Kabale --> Fort Portal			Kabale --> Kampala			Kabale --> Fort Portal		
				Survey of Fort Portal RRH			Survey of Masaka RRH on the way			Survey of Fort Portal RRH		
14	8/12	Fri		Survey of Fort Portal RRH			Survey of local contractors / construction situation			Survey of Fort Portal RRH		
15	8/13	Sat	Narita -->	Survey of Fort Portal RRH			Survey of local contractors / construction situation			Survey of Fort Portal RRH		
16	8/14	Sun	--> Entebbe	Fort Portal --> Kabale			Data filing			Fort Portal --> Kabale		
17	8/15	Mon	Discussions with MOH / report of the site surveys, discussion on the draft MD									
18	8/16	Tue	Discussions with MOH on the draft MD (final)				Survey of construction situation / Market research relevant to construction materials/products			Accompanying (a)		Accompanying (b)
19	8/17	Wed	Signing of Minutes of Discussions				Survey of construction situation / Market research relevant to construction materials/products			Market research relevant to equipment supply		Accompanying (b)
20	8/18	Thr	Report to JICA and Japanese Embassy				Survey of construction situation / Market research relevant to construction materials/products			Market research relevant to equipment supply		Accompanying (b)
			Entebbe -->									
21	8/19	Fri		(Dubai) --> Narita			Survey of construction situation / Market research relevant to construction materials/products			Market research relevant to equipment supply		Accompanying (b)
22	8/20	Sat				Survey of construction situation	Entebbe -->			Market research relevant to equipment supply		Accompanying (a)
23	8/21	Sun				Data filing	(Dubai) --> Narita			Data filing		
24	8/22	Mon				Discussion with MOH, Survey of Mulago NRH				Accompanying (a)	Accompanying (a)	Accompanying (a)
25	8/23	Tue				Survey of Hoima RRH				Accompanying (a)	Accompanying (a)	Accompanying (a)
26	8/24	Wed				Discussion with MOH, Signing of technical note				Accompanying (a)	Accompanying (a)	Accompanying (a)
27	8/25	Thr				Discussion with MOH				Entebbe -->	Survey of equipment suppliers	Accompanying (a)
28	8/26	Fri				Discussion with MOH				(Dubai) --> Narita	Accompanying (a)	Accompanying (a)
29	8/27	Sat				Entebbe -->					Entebbe -->	
30	8/28	Sun				(Dubai) --> Narita					(Dubai) --> Narita	

2-3 Outline Design Study Explanatory Mission (June 3 – June 14, 2012)

No.	Date	Day	JICA	Consultant Members	
			Leader	PM/Architectural Planning	Equipment Planning I/ Health Planning
			Ms. Sonoko Takahashi	Mr. Keiichi Ide	Mr. Yasumichi Doi
Survey days			12	12	12
1	6/3	Sun	Narita →Dubai		
2	6/4	Mon	Dubai → Entebbe Meeting with JICA Staff (Schedule)		
3	6/5	Tue	Courtesry call and discussion with JICA Uganda Office Courtesy call and discussions with MOH Courtesy call to Japanese Embassy		
4	6/6	Wed	Discussions with MOH and Fort Portal RRH		
5	6/7	Thr	Discussions with MOH and Kabale RRH		
5	6/8	Fri	Discussions with MOH		
7	6/9	Sat	Discussions with MOH and Hoima RRH		
8	6/10	Sun	Team meeting, Preparation of minutes		
9	6/11	Mon	Discussions with MOH on the draft MD		
10	6/12	Tue	Signing of Minutes of Discussions, Report to JICA		
11	6/13	Wed	Entebbe → Dubai		
12	6/14	Thr	Dubai → Narita		

Appendix 3 List of Parties Concerned in the Recipient Country

Name	Title, Position
Ministry of Health	
・Dr. Lukwago Asuman	Acting Permanent Secretary
・Mr. Enyaku Rogers	Acting Assistant Commissioner Health Services Budget & Finance
・Dr. Aseng Jane Ruth	Director General Health Services
・Dr. Amandua Jacinto	Commissioner, Clinical Services
・Dr. Jackson Amone	Assistant Commissioner, Integrated Curative Services
・Eng. S.S.B. Wanda	Assistant Commissioner, Health Infrastructure
・Dr. Opar Bernard Toliva	Principal Medical Officer
・Eng. Kannyana Stephan	Principal Engineer, Health Infrastructure
・Eng. Paul Kaliba	Civil Engineer
・Eng. Samuel Tusutoira	Civil Engineer
・Eng. Francis Wakabi	Civil Engineer
・Eng. Mulepo Sitra	Equipment Engineer
The World Bank	
・Mr. Peter Okwero	Senior Health Specialist
Mulago National Referral Hospital	
・Dr. Bilabwa Male Doreen	Consultant Paediatric Surgeon
Hoima Regional Referral Hospital	
・Dr. Francis W. Mulwanyi	Hospital Director
・Dr. Mulwanyi. Francis W.	Acting Hospital Director
・Dr. Byaruhanga Simon	Deputy Director
・Mr. Kivejinya Salim	Principal Hospital Administrator
・Mr. Kakuba Brian	Hospital Administrator
・Ms. Abigaba Margaret	Senior Pharmacist
・Mr. Sekayita S. B.	Assistant Engineering Officer
・Ms. Acheng Florence	Senior Principal Nursing Officer
・Ms. Aseru Constance	Acting Senior Principal Nursing Officer
・Dr. Tibenda Kabyanga	Chairperson, Hoima RRH Board
Hoima Local Authorities	
・Hon. Tinkamanyire Bagonza	Chairperson, Hoima District Local Government
・Mr. Mboneraho Sofatia	Chairperson, District Land Board
Kabale Regional Referral Hospital	
・Dr. Mihayo Placid	Hospital Director
・Dr. Waynyama John	Acting Hospital Director
・Dr. Robert Mayeku	Consultant Ophthalmology / Deputy Hospital Director
・Mr. Tibemanya David	Senior Hospital Administrator
・Mr. Tumwesigye Richard	Hospital Administrator
・Mr. Nkwasiibwe Moses	Internal Auditor
・Mr. Kamara W. Basil	Accountant
・Dr. Waynyama John	Consultant Obstetrics / Gynaecology

・Dr. Alima Hillary	Head HIV Clinic
・Mr. Bekunda Michael K.	Senior Nursing Officer / In-Charge Surgical Ward
・Mr. Abaruhanga Amos	Principal Orthopaedic Officer
・Mr. Turyatunga Denis	Senior Dental Officer / In Charge Dental Unit
・Mr. Twinamatsiko Jovia	Principal Physiotherapist
・Ms. Turyabasa Lydia	Nursing Officer / In Charge Gynaecology Ward
・Ms. Kabagambe Jane	Nursing Officer / In Charge Maternal Child Health
・Mr. Tumukunde Jakson	Mortuary Attendant / In Charge Mortuary
・Mr. Ntegyereize John Walker	Senior Nursing Officer / Ward 2
・Mr. Tushabomwe Joram	Nursing Officer / In Charge OPD
・Mr. Rwaheru George	Principal Laboratory Technologist
・Ms. Akurut Susan Christine	Principal Nursing Officer
・Ms. Kagwa Jacqueline	Senior Nursing Officer
・Ms. Ndyababawe Idah	Senior Nursing Officer
・Ms. Tushabomwe Joram	Nursing Officer (OPD)
・Ms. Mugisha Benon	Nursing Officer
・Ms. Tushemereirwe Anne	Nursing Officer
・Mr. Mbabazi Katem	Enrolled Nurse Grade A
・Ms. Bashooba Naris	Enrolled Nurse
・Mr. Byaruganga Julius	Procurement Officer
・Mr. Claver Maniragabe O.B.	Assistant Engineering Officer (Civil)
・Mr. Kalule Zephenia	Assistant Engineering Officer (Regional Workshop)

Fort Portal Regional Referral Hospital

・Dr. Olaro Charles	Hospital Director
・Mr. Kamugendera Samson	Accountant
・Mr. Nabaasa Penninah Mugizi	Senior Hospital Administrator
・Dr. Kaliiisa Kyebambe	Senior Dental Surgeon
・Ms. Kunihira Mary	Principal Nursing Officer
・Ms. Asid Luch Bettty	Senior Nursing Officer
・Ms. Katehangwa Deborah	Senior Nursing Officer
・Mr. Mupati H. David	Engineering Technician
・Mr. Mulungi Simon	Hospital Plumber

Masindi General Hospital

・Dr. Turyagaruka John	District Health Officer
・Mr. Kagwa Adam	Hospital Administrator
・Ms. Caningom Frances	Senior Nursing Officer / In Charge Maternity
・Ms. Lakot Christine	Nursing Officer / In Charge Main Theatre
・Ms. Namatovu Lydia	Acting Principal Nursing Officer
・Mr. Bagambe Daniel	Lab In Charge
・Mr. Turyeimuka James	District Vector Control Officer

Embassy of Japan

・Mr. Kazuo Minagawa	Ambassador Extraordinary and Plenipotentiary
・Mr. Junji Yamazaki	Counselor
・Ms. Eri Ogawa	Third Secretary

JICA Uganda Office

・Mr. Tetsuo Seki	Chief Representative
・Mr. Hirofumi Hoshi	Senior Representative
・Mr. Shitaro Takano	Officer (Health)
・Ms. Asiimwe Clare	Officer (Health)

Appendix 4 Minutes of Discussions

MINUTES OF DISCUSSIONS
ON PREPARATORY SURVEY (FIELD SURVEY I)
ON THE PROJECT FOR THE REHABILITAION OF HOSPITALS AND SUPPLY OF MEDICAL EQUIPMENT IN THE WESTERN REGION IN UGANDA
IN THE REPUBLIC OF UGANDA

In response to a request from the Government of the Republic of Uganda (hereinafter referred to as "Uganda"), the Government of Japan decided to conduct a Preparatory Survey on the Project for the Rehabilitation of Hospitals and Supply of Medical Equipment in the Western Region in Uganda (hereinafter referred to as "the Project") and entrusted the study to the Japan International Cooperation Agency (hereinafter referred to as "JICA").

JICA sent to Uganda a Preparatory Survey Team (hereinafter referred to as "the Team"), which is headed by Ms. Sonoko Takahashi, Deputy Director, Health Division 1, Human Development Department, JICA, and is scheduled to stay in the country from 16th May to 8th June, 2011.

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

In the course of discussions and field survey, both parties confirmed the main items described on the attached sheets. The Team will proceed to do further analytical works, conduct the Field Survey II and prepare the Preparatory Survey Report.

Kampala, 7th June, 2011

Ms. Sonoko Takahashi
Leader
Preparatory Survey Team
Japan International Cooperation Agency

Dr. Lukwago Asuman
Ag. Permanent Secretary
Ministry of Health
The Republic of Uganda

ATTACHMENT

1. Objective of the Project

The objective of the Project is to upgrade and improve health infrastructure and quality of health care services in the western region of the Republic of Uganda by refurbishing/expanding necessary facilities and the supplying/installing necessary equipment in the selected Regional Referral Hospitals and/or General Hospital.

2. Project Sites

The sites of the Project will be selected from Hoima Regional Referral Hospital (hereinafter referred to as "RRH") (Hoima District), Fort Portal RRH (Kabarole District), Kabale RRH (Kabale District), and Masindi General Hospital (hereinafter referred to as "GH") (Masindi District).

Based on the findings of the Field Survey I, the Team recommended that Hoima RRH and Kabale RRH would receive facilities and equipment under the Project. Considering that the conditions of the facilities of Fort Portal RRH were better compared with other RRHs requested for assistance, Fort Portal RRH would receive equipment. Given the rehabilitation of Masindi GH will be done under the World Bank project, the Team recommended that Masindi GH would be excluded from Japan's support. The Ugandan side noted such recommendation, and both sides agreed to further discuss the issue during the Field Survey II taking into account the result of further analytical works in Japan by the Team before a final decision on the scope of works.

The location map of the Project sites is shown in Annex-1.

3. Responsible and Implementing Agency

3-1. The Responsible Agency is the Ministry of Health (hereinafter referred to as "MOH").

3-2. The Implementing Agency is the Health Infrastructure Division, Department of Clinical Services, Directorate of Clinical and Community Health, MOH, and RRHs to be covered by the Project.

Current organization chart of MOH and the Health Infrastructure Division are shown in Annex-2-1 and Annex-2-2.

4. Items Recommended by the Government of Uganda

After discussions with the Team, the items described in Annex-3 (facilities) were recommended by the Ugandan side. Regarding the equipment list, the Ugandan side explained that it was still under preparation and it would be submitted to JICA Uganda Office by the end of June, 2011. JICA will assess the appropriateness of the request and will recommend to the Government of Japan for approval.

5. Japan's Grant Aid Scheme

5-1. The Ugandan side understands the Japan's Grant Aid Scheme explained by the Team, as described in Annex-4.

5-2. The Ugandan side will take the necessary measures, as described in Annex-5-1 and Annex-5-2, for smooth implementation of the Project, as a condition for the Japanese Grant Aid to be implemented.

6. Schedule of the Study

6-1. JICA will prepare the Interim Report and dispatch a mission as the Field Survey II in order to further discuss the details of the scope of the Project in August, 2011.

6-2. JICA will prepare the draft report in English and dispatch a mission in order to explain its contents in December, 2011.

6-3. In case that the contents of the report is accepted in principle by the Government of Uganda, JICA will complete the final report and send it to the Government of Uganda by March, 2012.

7. Other Relevant Issues

7-1. The Ugandan side agreed to allocate budget (operational and maintenance costs) and manpower (health service providers and any other personnel) necessary for the proper and sustainable operation and maintenance of the facilities and the equipment to be provided under the Project.

7-2. The Team recognized that the serious shortage of medical staff (especially medical doctors) was crucial at each targeted RRH, and it should be addressed before improving infrastructure by the Project. The Ugandan side replied that it would take necessary measures to secure medical staffs through coordination between MOH and Health Service Commission.

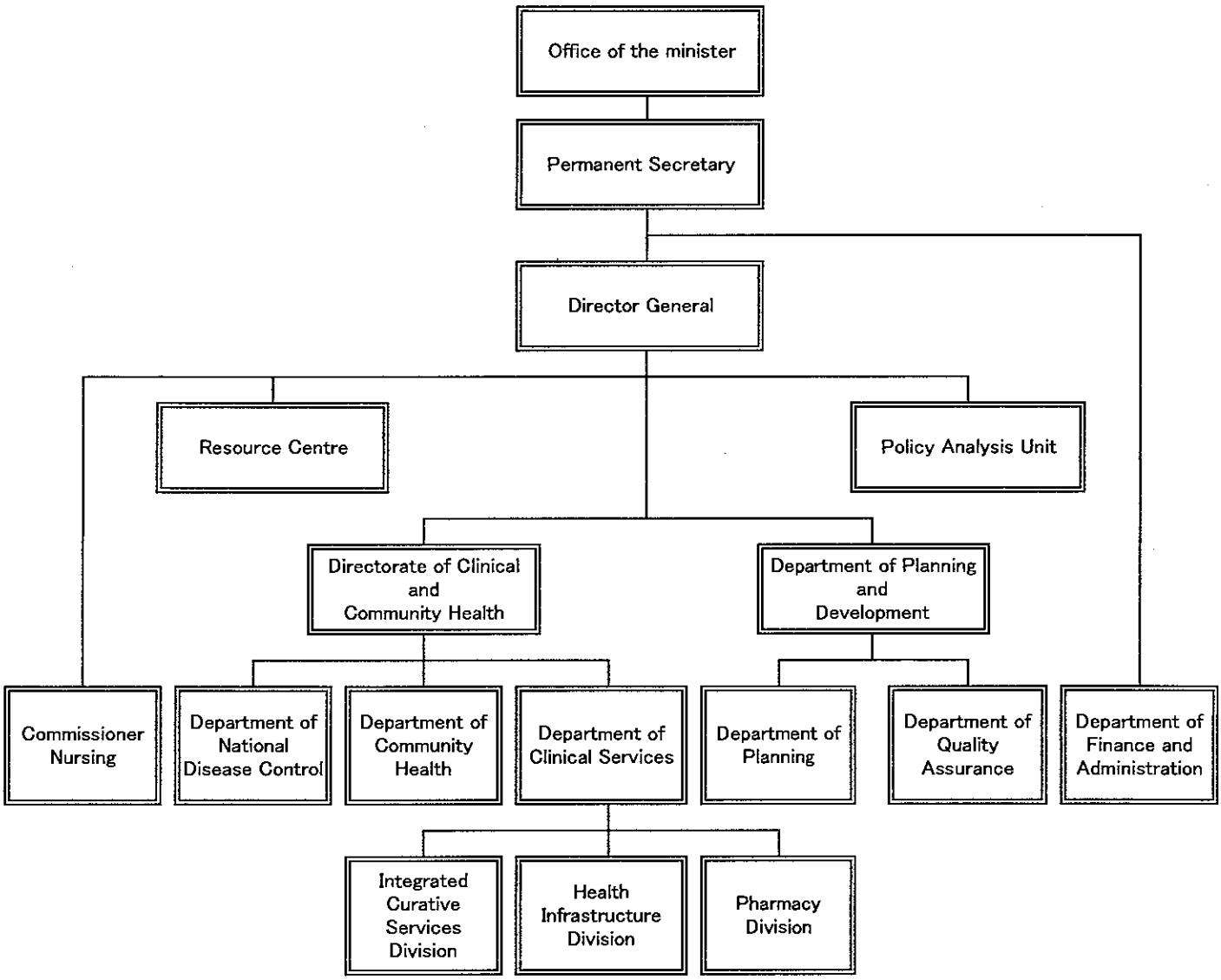
7-3. Regarding Hoima RRH, the Ugandan side explained that the new OPD building would be constructed at the newly acquired land, and the process of receiving title deed for such land would be completed by August, 2011. The Team replied that securing land before construction would be crucial and a copy of certificate for title deed should be submitted to JICA Uganda Office before the commencement of the Field Survey II.

Annex-1	Location Map
Annex-2-1	Current Organization Chart of MOH
Annex-2-2	Current Organization Chart of Health Infrastructure Division
Annex-3	Facilities List
Annex-4	Japan's Grant Aid
Annex-5-1	Major Undertakings to be Taken by Each Government (Facilities)
Annex-5-2	Major Undertakings to be Taken by Each Government (Equipment)

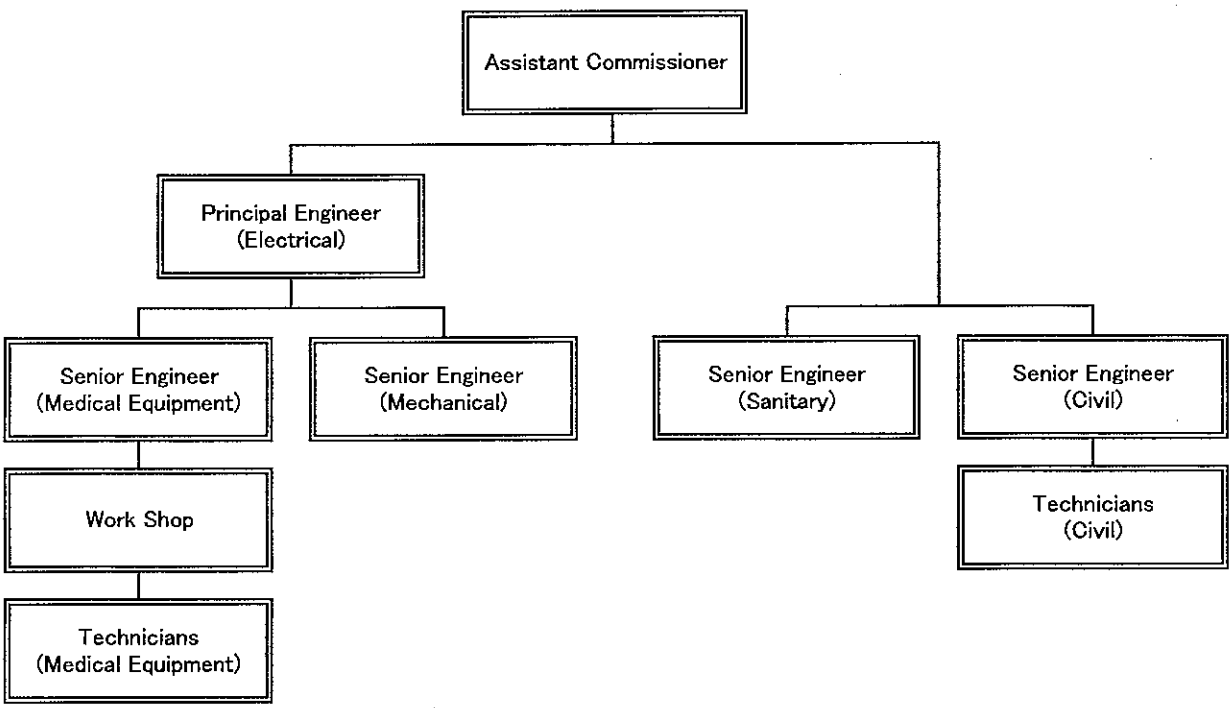
Annex-1

Location Map

Current Organization Chart of MOH



Current Organization Chart of Health Infrastructure Division



Facilities List

HOSPITAL	ORIGINAL REQUEST	RECOMMENDED	REMARKS
HOIMA RRH	1. Reconstruction of the operating theatre. 2. Reconstruction of OPD with casualty unit 3. Construction of a new Female and Male ward (50 beds). 4. Incinerator 5. Mortuary/Pathology Department 6. Construction of an interns' hostel for 30 people complete with an education centre. 7. Re-equipping the hospital including an ambulance and multipurpose vehicle.	1. Construction of OPD with casualty unit. 2. Construction of an operating theatre (3 operational rooms) complete with a central sterilizing unit 3. Construction of a new maternity ward (50 beds). 4. Re-equipping the hospital including an ambulance and multipurpose vehicle.	3. Maternity ward bed occupancy rate is higher than that of female and male ward. 4. Standard design for incinerator is not established yet. 5. Existing mortuary can be utilized. 6. Interns can be accommodated in the staff housing under construction.
MASINDI GH	1. Construction of a new operating theatre. 2. Construction of OPD with casualty unit. 3. Reconstruction of the Male Medical wards (25 beds). 4. Construction of Delivery suites extension to the maternity ward. 5. Construction of an Incinerator 6. Re-equipping the hospital including an ambulance and multipurpose vehicle.	Nil To be rehabilitated under World Bank Project.	—
FORT PORTAL RRH	1. Construction of main laboratory 2. Construction of a casualty unit extension to the OPD 3. Construction of an interns' hostel for 30 people complete with an education centre. 4. Re-equipping the hospital including an ambulance and multipurpose vehicle.	1. Re-equipping the hospital including an ambulance and multipurpose vehicle.	1. It will be constructed under USAID funding. 2. It will be constructed by the government of Uganda. 3. It is under construction by the government of Uganda.
KABALE RRH	1. Construction of OPD with casualty unit. 2. Construction of an operating theatre (3 operational rooms) complete with a central sterilizing unit. 3. Construction of a new maternity ward (50 beds) with an obstetrics theatre. 4. Incinerator 5. Mortuary/Pathology Department 6. Construction of an interns' hostel for 30 people complete with an education centre. 7. Re-equipping the hospital including an ambulance and multipurpose vehicle.	1. Construction of OPD with casualty unit. 2. Construction of an operating theatre (3 operational rooms) complete with a central sterilizing unit and ICU services 3. Construction of a new maternity ward (80 beds) with an obstetrics theatre. 4. Re-equipping the hospital including an ambulance and multipurpose vehicle.	3. Maternity ward bed occupancy rate is high. 4. Standard design for incinerator is not established yet. 5. Mortuary is newly constructed. 6. Interns can be accommodated in the staff housing under construction.

Annex-3

JAPAN'S GRANT AID

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 a 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.

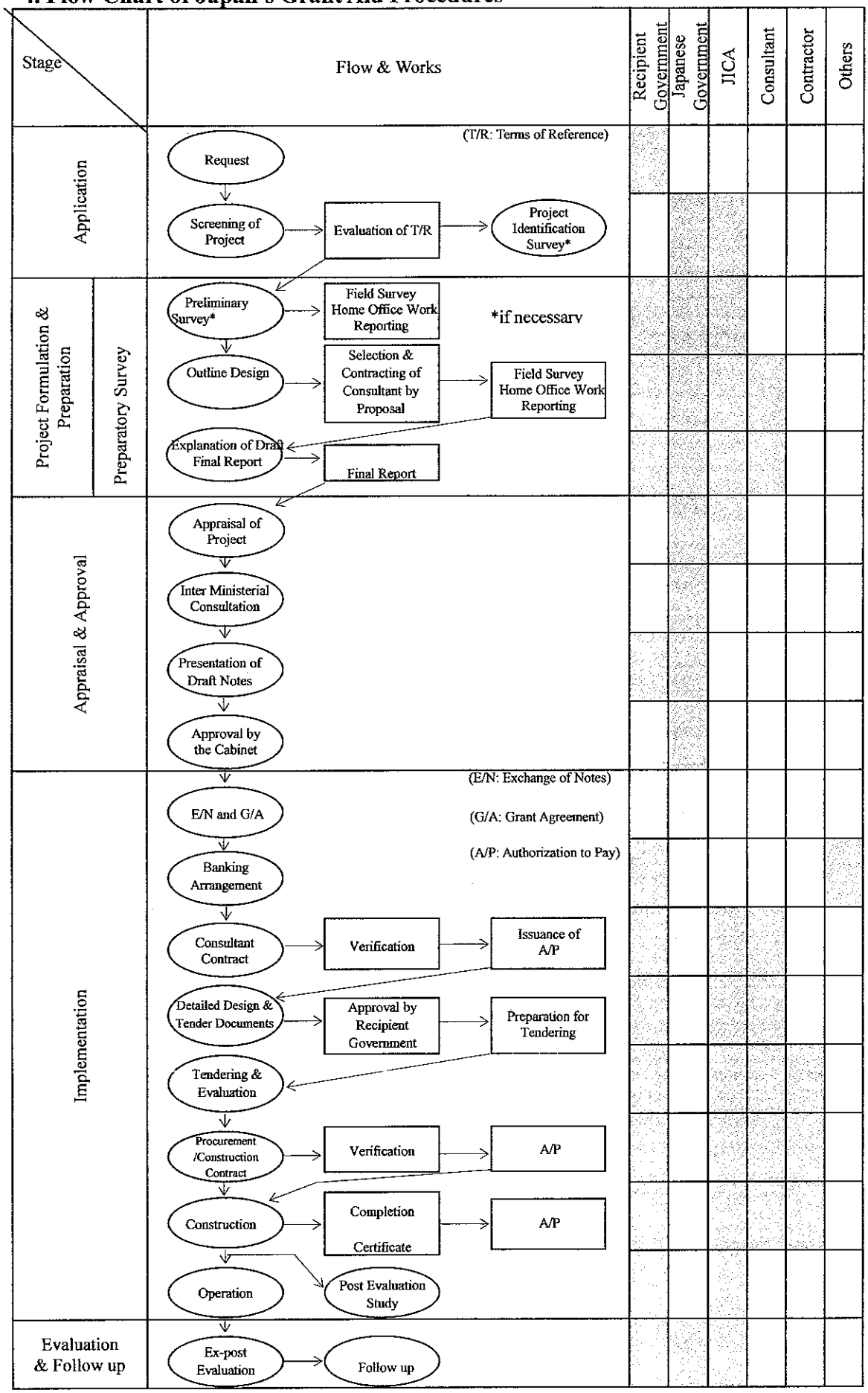
(9) Authorization to Pay (A/P)

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



Annex-5-1

Major Undertakings to be Taken by Each Government (Facilities)

No.	Items	To be covered by Grant Aid	To be covered by Recipient Side
1	To secure 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 if necessary (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 if available		
	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		●
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 environmental and social consideration in the implementation of the Project.		●

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

Major Undertakings to be Taken by Each Government (Equipment)

No.	Items	To be covered by Grant Aid	To be covered by Recipient Side
1	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	●	
2	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		●
3	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		●
4	To ensure that the products be maintained and used properly and effectively for the implementation of the Project		●
5	To bear all the expenses, other than those covered by the Grant, necessary for the implementation of the Project		●
6	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		●
7	To give due environmental and social consideration in the implementation of the Project.		●

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

MINUTES OF DISCUSSIONS
ON PREPARATORY SURVEY (FIELD SURVEY II)
ON THE PROJECT FOR THE REHABILITAION OF HOSPITALS AND SUPPLY OF MEDICAL EQUIPMENT IN THE WESTERN REGION IN UGANDA
IN THE REPUBLIC OF UGANDA

In response to a request from the Government of the Republic of Uganda (hereinafter referred to as "Uganda"), the Government of Japan decided to conduct a Preparatory Survey on the Project for the Rehabilitation of Hospitals and Supply of Medical Equipment in the Western Region in Uganda (hereinafter referred to as "the Project") and entrusted the study to the Japan International Cooperation Agency (hereinafter referred to as "JICA").

JICA conducted the Field Survey I from 16th May to 8th June, 2011, and JICA and the Ugandan side signed the Minutes of Discussions on Preparatory Survey (Field Survey I) on the Project on 7th June, 2011. Based on the result of the Field Survey I, JICA prepared the Interim Report and sent to Uganda a Preparatory Survey Team (Field Survey II) (hereinafter referred to as "the Team"), which is headed by Mr. Ikuo Takizawa, Director, Health Division 1, Human Development Department, JICA, and is scheduled to stay in the country from 31st July to 25th August, 2011.

The Team held discussions with the officials concerned from the Government of Uganda based on the Interim Report and conducted field surveys.

In the course of discussions and field surveys, both parties confirmed the items described in the attached documents. The Team will proceed to do further analytical works, and prepare the Preparatory Survey Report.

Kampala, 17th August, 2011

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

Dr. Lukwago Asuman
Ag. Permanent Secretary
Ministry of Health
The Republic of Uganda

ATTACHMENT

1. Objective of the Project

The objective of the Project is to upgrade and improve health infrastructure and quality of health care services in the western region of the Republic of Uganda by refurbishing/expanding necessary facilities and the supplying/installing necessary equipment in the selected Regional Referral Hospitals.

2. Project Sites

The sites of the Project are Hoima Regional Referral Hospital (hereinafter referred to as "RRH") (Hoima District), Kabale RRH (Kabale District), and Fort Portal RRH (Kabarole District).

The location map of the Project sites is shown in Annex-1.

3. Responsible and Implementing Agency

3-1. The Responsible Agency is the Ministry of Health (hereinafter referred to as "MOH").

3-2. The Implementing Agencies are the Health Infrastructure Division, Department of Clinical Services, Directorate of Clinical and Community Health, MOH, Hoima RRH, Kabale RRH, and Fort Portal RRH.

Current organization chart of MOH, the Health Infrastructure Division, and RRH are shown in Annex-2-1, Annex-2-2, and Annex-2-3, respectively.

4. Items Requested by the Government of Uganda

After discussions with the Team, the items described in Annex-3 (facility) and Annex-4 (equipment) were finally requested by the Ugandan side, while the priorities of equipment are still under consideration. JICA will assess the appropriateness of the request and will recommend to the Government of Japan for approval.

5. Japan's Grant Aid Scheme

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

5-2. The Ugandan side will take the necessary measures, as described in Annex-6 and Annex-7, for smooth implementation of the Project, as a condition for the Japanese Grant Aid to be implemented.

6. Schedule of the Study

6-1. The consultants will proceed further studies in Uganda until 25th August, 2011.

6-2. JICA will prepare the draft report in English and dispatch a mission in order to explain its contents around January, 2012.

6-3. In case that the contents of the report is accepted in principle by the Government of Uganda, JICA will complete the final report and send it to the Government of Uganda by March, 2012.

7. Other Relevant Issues

7-1. Hoima RRH

(1) The Ugandan side explained that the plot earlier planned for Outpatient Department (OPD) had issues which require considerable time to solve, and proposed new site next to the Medical Ward within hospital land. The Team agreed on the proposed alternative site, and both sides confirmed the revised layout plan as shown in Annex-8, which was changed from the one attached to the Minutes of Meeting between Hospital Management and Japanese Survey Team at Hoima RRH (Annex-9-1).

(2) The Ugandan side reported that plans to reinforce the staffing levels were under way between Hoima RRH and MOH which is responsible for recruitment through the Health Service Commission. The Ugandan side explained that in July 2011, MOH assigned 42 staff to Hoima RRH including 5 doctors (medical officers), and it is expected that most of the necessary positions especially for doctors will be filled by 2014.

(3) Regarding the number of consultation rooms of OPD, 11 consultation rooms were agreed based on the calculation prescribed in the Interim Report. In addition, 2 additional consultation rooms for antenatal and gynaecological/postnatal clinics were agreed based on the request from the Ugandan side considering the limited space for current antenatal unit, with totaling 13 consultation rooms. The Ugandan side also explained that they would plan to utilize current OPD building for administration block after completion of the new OPD under the Project.

(4) Both sides agreed that the Casualty Unit be attached to the Operation Theatre not to the new OPD, to ensure easier access to the Operation Theatre.

(5) Both sides agreed that new Maternity Ward need 50 beds based on the calculation prescribed in the Interim report, with filling the gap between necessary number of beds and the number of beds in existing Maternity Ward and Postnatal Ward.

(6) Both sides agreed that the new Operation Theatre would have 2 operation rooms based on the calculation prescribed in the Interim Report. The Ugandan side agreed that it would demolish the existing Main Theatre before the construction of new Operation Theatre, and it would temporarily utilize the theatres in the Obstetrics Ward and Eye Clinic during construction of new Operation Theatre.

(7) Both sides agreed that two double storey blocks would be constructed; one block for OPD and the other block for Operation Theatre, Casualty Unit and Maternity Ward. The Casualty Unit and Operation Theatre would be on the ground floor, and Maternity Ward would be on the first floor.

(8) Both sides agreed to add High Dependence Unit (HDU) with four beds to the Operation Theatre.

The Minutes of Meeting between Hospital Management and the Japanese Survey Team at Hoima RRH is shown in Annex-9-1.

7-2. Kabale RRH

(1) The Ugandan side explained that the plot earlier planned for OPD had issues which require considerable time to solve, and proposed new site next to the existing OPD within hospital land. The Team agreed on the proposed alternative site. The Ugandan side further explained that after completion of new OPD under the Project, they would plan to demolish the existing OPD building.

(2) The Ugandan side reported that plans to reinforce the staffing levels were under way between Kabale RRH and MOH which is responsible for recruitment through the Health Service Commission. The Ugandan side explained that in July 2011, MOH assigned 43 staff to Kabale RRH including 4 doctors (medical officers), and it is expected that most of the necessary positions especially for doctors will be filled by 2014.

(3) Regarding the number of consultation rooms of OPD, 7 consultation rooms were agreed based on the calculation prescribed in the Interim Report. In addition, one additional consultation room for gynaecology is agreed by the request from the Ugandan side considering the special equipment needed for gynaecology examination, with totaling 8 consultation rooms.

(4) Both sides agreed that Maternity Ward need 80 beds based on the calculation prescribed in the Interim report. The Ugandan side explained that it would use part of the existing Maternity Ward for Eye/ENT Ward and only 22 beds would be retained for the existing Maternity Ward. In response, both sides agreed to have 58 beds for new Maternity Ward.

(5) Both sides agreed that the new Operation Theatre would have 3 operation rooms based on the calculation prescribed in the Interim Report. The Ugandan side agreed that it would demolish the existing Main Theatre before the construction of new Operation Theatre, and it would temporarily utilize a theatre in Private Wing during construction of new Operation Theatre.

(6) Both sides agreed that two double storey blocks would be constructed; one block for OPD and Casualty Unit and the other block for Operation Theatre and Maternity Ward. The Operation Theatre would be on the ground floor, and Maternity Ward would be on the first floor.

(7) Both sides agreed to add High Dependence Unit (HDU) with four beds to the Operation Theatre.

(8) Since Kabale RRH has a 200kVA standby generator installed in 2006, new buildings could be covered by this generator. Both sides agreed that no generator would be supplied under the Project.

The Minutes of Meeting between Hospital Management and the Japanese Survey Team at Kabale RRH with the attachment of current layout plan is shown in Annex-9-2.

7-3. Fort Portal RRH

(1) The Ugandan side reported that plans to reinforce the staffing levels were under way between Fort Portal RRH and MOH which is responsible for recruitment through the Health Service Commission. The Ugandan side explained that in July 2011, MOH assigned 48 staff to Fort Portal RRH including 5 doctors (medical officers), and it is expected that most of the positions especially for doctors will be filled by 2014.

(2) The Ugandan side explained that it would plan to construct a Casualty Unit in the financial year 2012/13 (from July 2012 to June 2013) using the capital development fund, and it would be completed by September 2013. The number of casualty patients is the similar level with that of Hoima and Kabale RRHs, and both sides agreed that the equipment plan for the casualty unit would be prepared based on the current situation of casualty patients of Fort Portal RRH. The Ugandan side explained that in case that Fort Portal RRH need more equipment with consideration of layout plan of new Casualty Unit, it would procure necessary equipment by its own funds. The Ugandan side also mentioned that if the construction of planned Casualty Unit is not completed by September 2013, it would plan to temporarily utilize the part of the ground floor of the administration office space on the Private/administration building which is under construction and scheduled to be completed by November 2011.

(3) While the current space for ENT Clinic is limited, the Ugandan side explained that current Eye Clinic would be transferred to current Private Ward once new Private/administration building is completed in November 2011, and ENT Clinic would utilize the space for current Eye Clinic accordingly. In response, both sides confirmed that ENT Clinic would have enough space for medical equipment to be procured under the Project.

The Minutes of Meeting between Hospital Management and the Japanese Survey Team at Fort Portal RRH is shown in Annex-9-3.

7-4. The Ugandan side agreed to allocate budget (operational and maintenance costs) and manpower (health service providers and any other personnel) necessary for the proper and sustainable operation and maintenance of the facilities and the equipment to be provided under the Project. In this regard, the Ugandan side explained that it would provide for the maintenance contract for selected equipment to be supplied under the Project after the warranty period is expired. Both sides further confirmed that the list of selected equipment for maintenance contract would be prepared by the Ugandan side by the end of the Field Survey II.

7-5. The Team recognized that the shortage of medical staff (especially medical doctors) was crucial at each targeted RRH, and it should be addressed before improving infrastructure by the Project. While the results of discussions with each targeted RRH were prescribed in above 7-1 to 7-3, the Ugandan side replied that it would take necessary measures to secure medical staff through coordination between MOH and the Health Service Commission. Also, both sides confirmed that conducting in-house hospital training programs, with necessary coordination with other RRHs and/or National Referral Hospitals, as explained in the report submitted to the Team by each targeted RRH would be crucial for providing equipment under the Project. Some equipment would be provided with the condition that necessary in-house hospital trainings would be conducted to the concerned medical staff and/or healthcare staff to secure necessary capacities to utilize such equipment.

7-6. Both sides agreed to the following designing policies of facility:

(1) The provisional facility master plans for Hoima RRH and Kabale RRH should be considered, and the facilities to be rehabilitated by the Project should be planned to serve as central functions for medical service delivery of each RRH.

(2) The scale or size of the planned facilities will be determined based on the present and past performance data on diagnosis and treatment, with considering forecast of population increase.

(3) In principle, the buildings will be two storeys in height with ramps.

(4) The Project will adopt the Ugandan standards for earthquake resistance and wind force resistance, and the structure of the facilities will be designed to allow the facilities to provide continuous medical activities without disruption in case of natural disasters.

(5) The facility plan will be formulated in consideration of the technical and fiscal sustainability of the hospitals, based on their management capabilities (number of medical and healthcare professionals, their technical levels, financial affordability, state of procurement of consumables and spare parts, etc.) and staff reinforcement plan of the medical staff.

(6) Plot plan and construction plan will be designed to enable the provision of sustainable medical service delivery.

7-7. Both sides agreed to the following selection criteria of equipment:

(1) The equipment listed in the standard equipment list of the target hospital should be prioritized.

(2) The room (either in the new or existing building) where the equipment will be installed is secured, and will be ready to install the equipment.

(3) The equipment should not require large scope of construction works for its installation.

(4) The equipment should conform to the medical service of the target hospitals.

(5) Certain staffs are/will be appointed who can properly operate and maintain the equipment.

(6) The equipment which spare parts and consumables can be procured in Uganda should be selected.

(7) The equipment should not be for the sake of private use.

(8) The equipment should be for clinical use. (General furniture, office equipment, etc. will be excluded.)

(9) The equipment that can be easily procured by the Ugandan side will be excluded.

(10) The equipment that can be supplied by other donors or by the budget of the Government of Uganda will be excluded. Also, the equipment whose purpose will overlap the existing ones that are in sufficient quantity will be excluded.

(11) Consumables itself should not be included. (Equipment accessory is acceptable.)

(12) The equipment which can be substituted by existing other equipment or other means should be excluded.

(13) Facility equipment should not be included as medical equipment.

*The above criteria are guiding principles, and actual equipment selection will be adjusted to each hospital situation.

7-8. Soft component

The Ugandan side requested that training of the equipment users, technicians and managers be part of the consulting services of the Project for effective operation and maintenance of equipment which require higher-level skills for operation and maintenance and improved hospital management.

Annex-1 Location Map of the Project Sites

Annex-2-1 Current Organization Chart of MOH

Annex-2-2 Current Organization Chart of Health Infrastructure Division

Annex-2-3 Current Organization Chart of RRH

Annex-3 Facility List

Annex-4 Equipment List

Annex-5 Japan's Grant Aid

Annex-6 Major Undertakings to be Taken by Each Government

Annex-7 Major Undertakings to be Taken by the Ugandan Side at Each Site

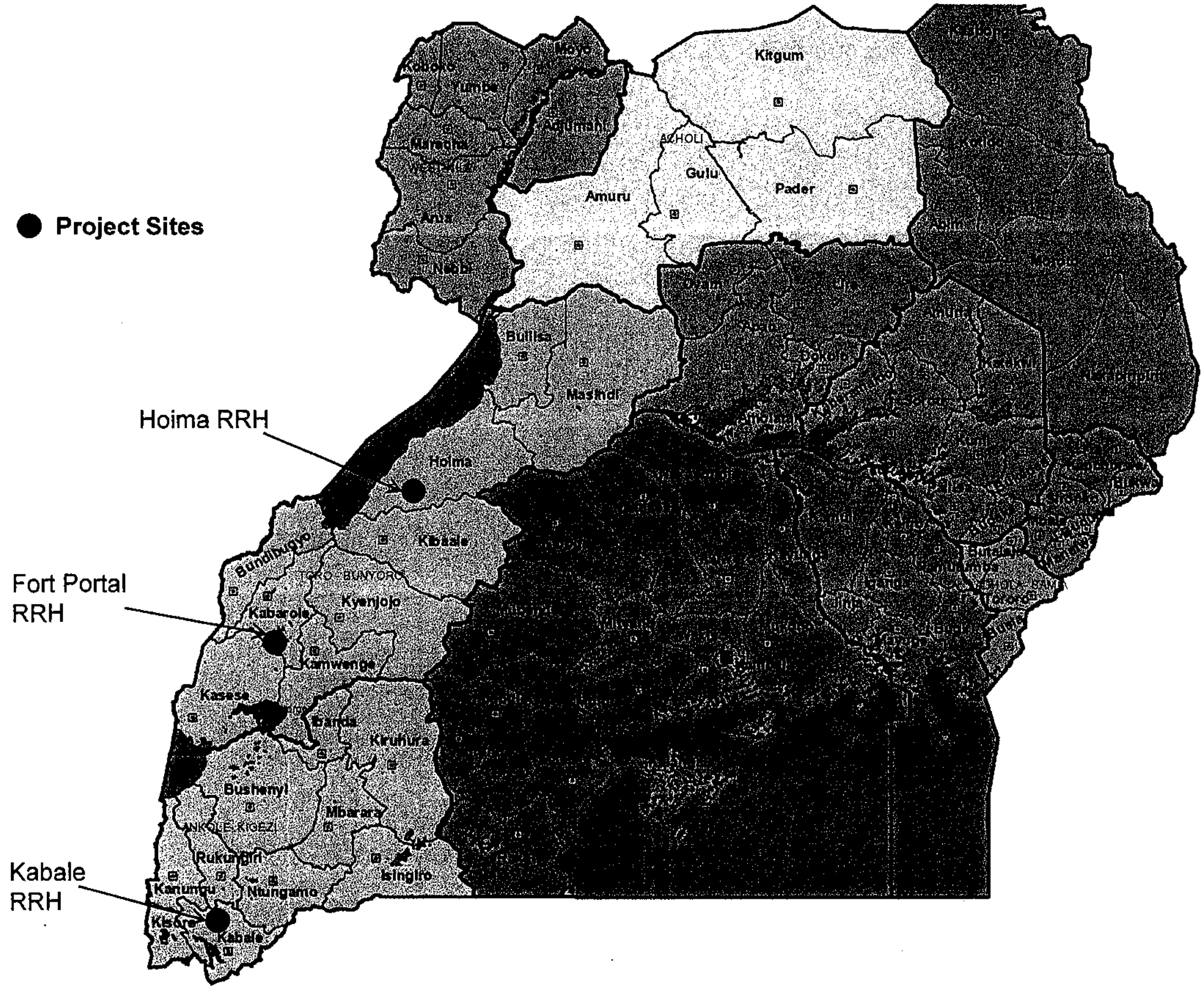
Annex-8 Revised Layout Plan for Hoima RRH

Annex-9-1 Minutes of the Meeting between Hospital Management and the Japanese Survey Team at Hoima RRH

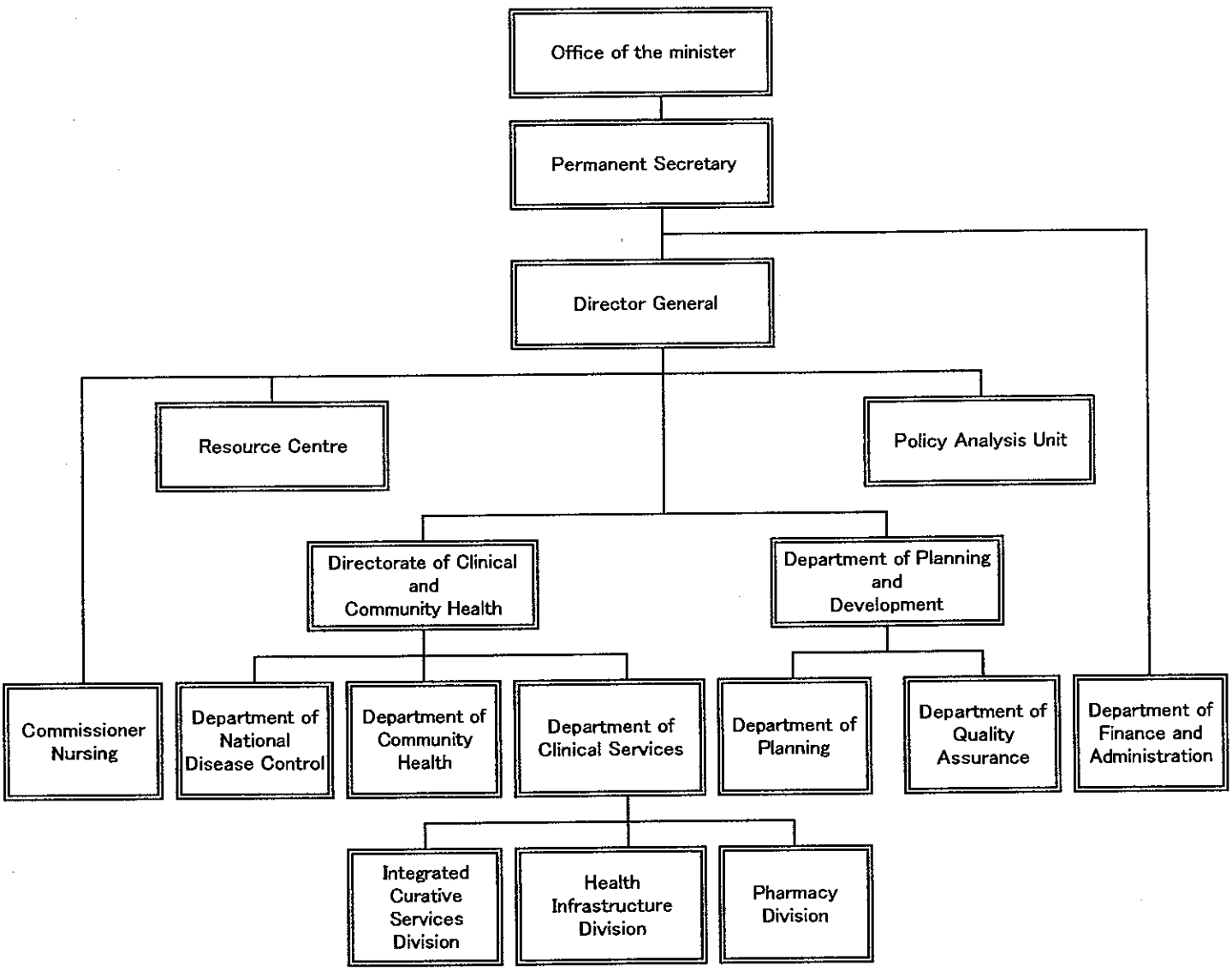
Annex-9-2 Minutes of the Meeting between Hospital Management and the Japanese Survey Team at Kabale RRH

Annex-9-3 Minutes of the Meeting between Hospital Management and the Japanese Survey Team at Fort Portal RRH

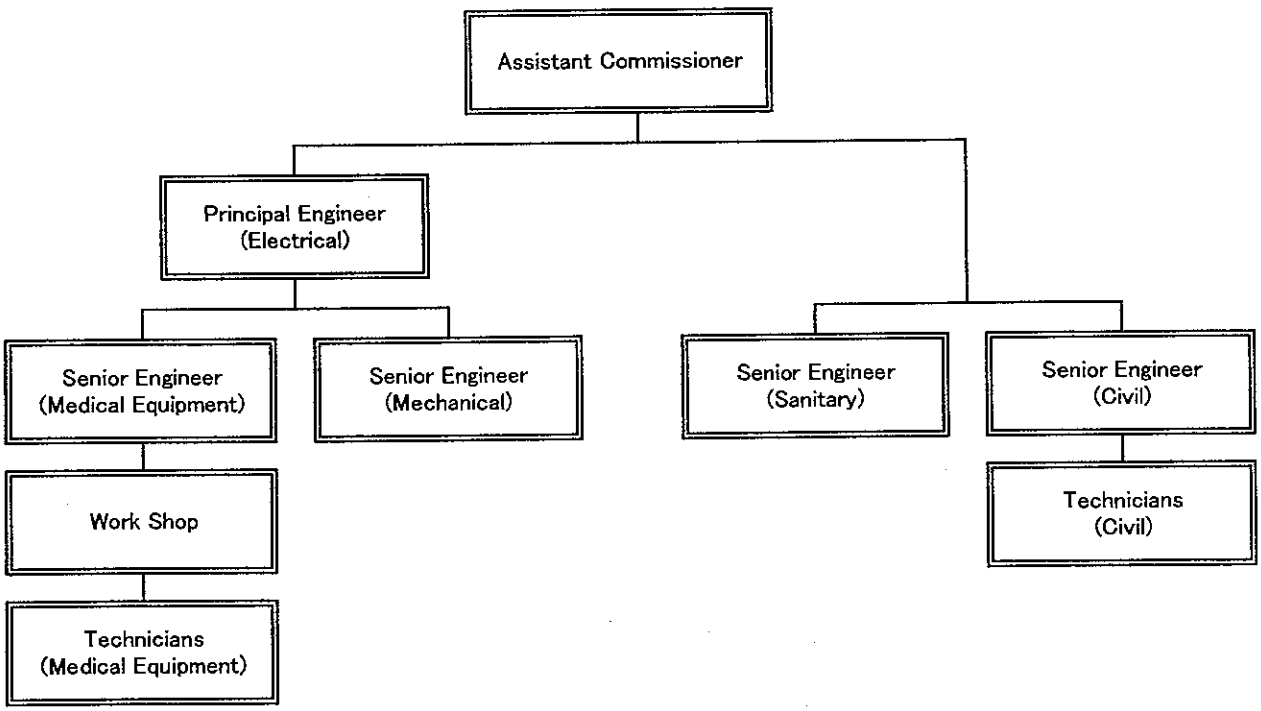
Location Map of the Project Sites



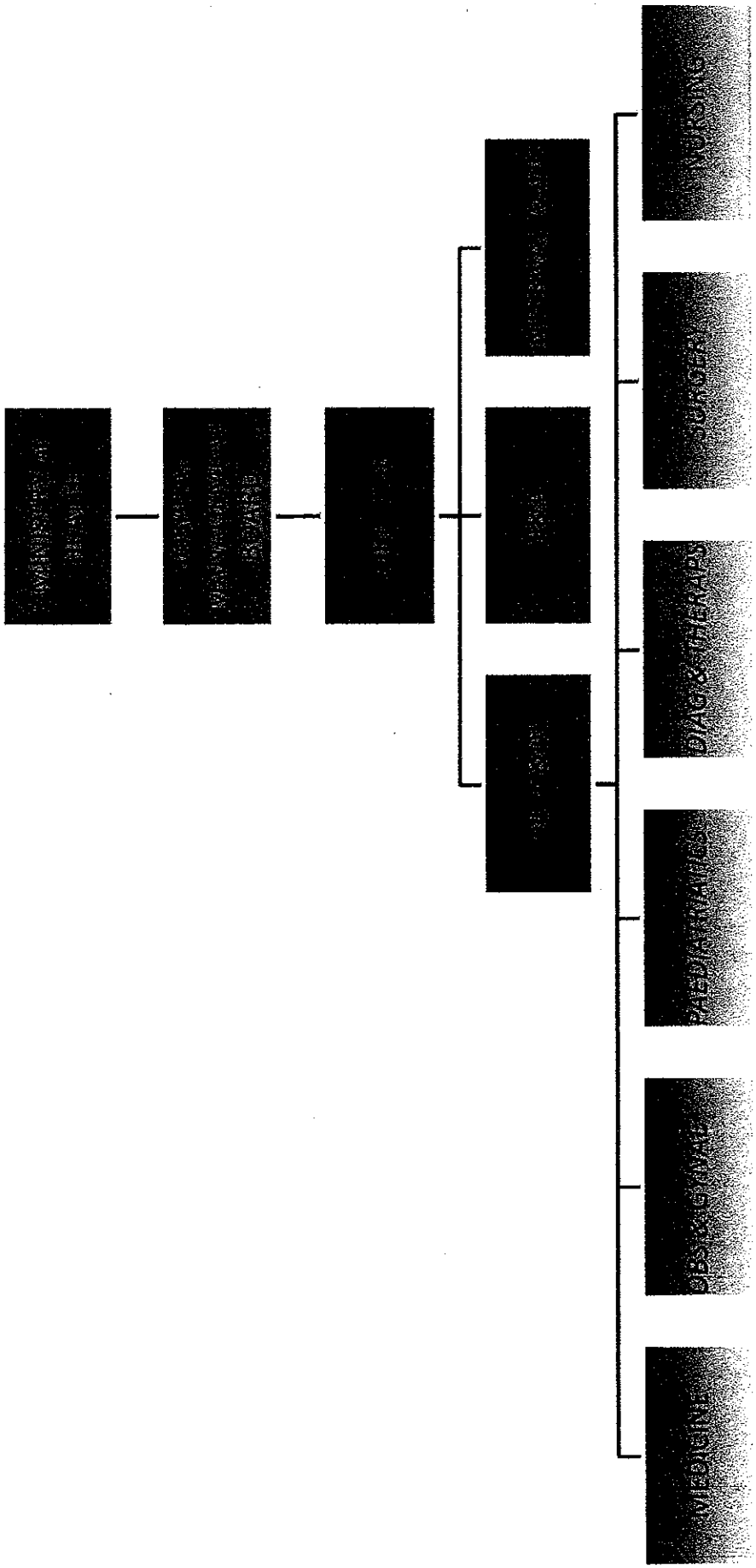
Current Organization Chart of MOH



Current Organization Chart of Health Infrastructure Division



Current Organization Chart of RRH



Annex-3

Facility List

	Block	Structure		Component
Hoima RRH	1. OPD	RC, Double Storey	G.F.	Consultation room: 6 rooms, Reception, Satellite Lab., Pharmacy, etc.
			1st.F	Consultation room: 5 rooms, Dental Clinic (2)
	2. Operation Theatre, Casualty Unit , Maternity Ward	RC, Double Storey	G.F.	Operation room: 2 rooms Casualty Unit
			1st.F	Maternity Ward: 50 beds
Kabale RRH	1. OPD Casualty Unit	RC, Double Storey	G.F.	Reception, Satellite Lab., Pharmacy, etc. Casualty Unit
			1st.F	Consultation room: 7 rooms Dental Clinic
	2. Operation Theatre, Maternity Ward	RC, Double Storey	G.F.	Operation room: 3 rooms (One for Obstetrics)
			1st.F	Maternity Ward: 58 beds

Equipment List

Hoima RRH

S.No.	Department	No.	Equipment	Q'ty
1	OPD	1	Doctor's Desk & Chair	12
2		2	Stool	12
3		3	X-ray Film Viewer	11
4		4	Weight/Height measuring scales	4
5		5	Weighing scales (Infants)	1
6		6	Examination Couch	16
7		7	Instrument Trolley	5
8		8	Diagnostic set	5
9		9	Examination Table for Ob/Gyn w/Examination Unit	2
10		10	Mobile Examination Lamp	5
11		11	Dressing Instrument Set	8
12		12	Irrigation Stand	8
13		13	Nebulizer	3
14		14	Microscope	1
15		15	Centrifuge	1
16		16	Wheel Chairs	5
17		17	Instrument Cabinet	1
18		18	Refrigerator for Medicine	1
19		19	Autoclave(Tabletop Type)	1
20	High Dependence Unit	1	Examination couch	1
21		2	Stretcher	1
22		3	Drug trolley	1
23		4	Emergency trolley	1
24		5	Ward round trolley	1
25		6	Dressing trolley	1
26		7	ECG (12 lead)	1
27		8	Patient monitor	4
28		9	Weight/Height measuring scales	1
29		10	Adult ventilators	2
30		11	Paediatric ventilators	1
31		12	Suction machine	2
32		13	ICU beds	4
33		14	Bed for nursing bed sores	1
34		15	Bed cradles	2
35		16	Mobile patient feeding tables	4
36		17	Defibrillator	1
37		18	Oxygen concentrator	2
38		19	Patient transfer suitcase	1
39		20	Syringe Pump	4
40		21	Infusion Pump w/Stand	4
41		22	Laryngoscope	1
42	Casualty	1	Patient Bed	3
43		2	Irrigation Stand	1
44		3	Portable Monitor	3
45		4	Oxygen concentrator	2
46		5	Nebulizer	1
47		6	Examination Lamp	2
48		7	Infusion Pump w/Stand	2
49		8	Syringe Pump	2
50		9	Autoclave (Tabletop Type)	1
51		10	Patient Trolley	2
52		11	Ambulance	2
53		12	Desk & Chair	2
54		13	Examination Table	1
55		14	Defibrillator	1
56		15	Drug trolley	1
57		16	Emergency trolley	1
58		17	Suction Machine	2
59		18	X ray visual light	1
60		19	Tracheostomy set	1
61	CSSD	1	Autoclave (Large)	2
62		2	Working Table (Large)	1
63		3	Instrument Shelf	2
64		4	Sterilizing Drum	1 set
65		5	Sterilizing Carrier	1 set
66	Operation Theatre	1	Anaesthetic machine	3
67		2	Patient Monitor	3
68		3	Operating tables	3
69		4	Operating lights	2
70		5	Operating lights, Mobile type	1
71		6	Surgeon's Stool	1
72		7	Oxygen supplies unit (Central)	1
73		8	Inside patient trolleys	6
74		9	Outside patient trolleys	4
75		10	Suction machines	5

S.No.	Department	No.	Equipment	Q'ty
76	Operation Theatre	11	Refrigerator	1
77		12	Instrument Cabinet	1
78		13	Washing Basin with Stand	3
79		14	Tracheostomy set	1
80		15	C-arm X-ray Unit	1
81	Surgery	1	Herniotomy Instrument Set	2
82	OB/GYN	1	Bilateral tubal ligation sets	10
83		2	Vasectomy sets	2
84		3	Gynecological sets	6
85		4	Portable examination light	2
86		5	Examination couches	2
87		6	Examination table for Ob/Gy	2
88		7	Delivery beds	8
89		8	Weighing/Height Scale (Adults)	2
90		9	Resuscitation Bag	2
91		10	Patient Bed	50
92		11	Bed Side Table	50
93		12	Irrigation Stand	15
94		13	Drug trolley	4
95		14	Dressing Instrument Set	10
96		15	Autoclave (Tabletop Type)	2
97		16	Dressing Drum	5
98		17	Oxygen concentrator	4
99		18	Mobile Examination Lamp	4
100		20	Examination Lamp	1
101		21	Oxygen concentrator	1
102		22	Patient Monitor	1
103		23	Caesarean Section Instrument Set	5
104		24	Dilatation Instrument Set	5
105		25	Dressing Drum	5
106		26	Refrigerator for Medicine	1
107	ENT	1	Tympanometer	1
108		2	Audiometer	1
109		3	Endoscope set	1
110		4	Set of laryngoscope	1
111		5	Myringotomy set	1
112		6	Tonsillectomy set	1
113		7	Polypectomy set	1
114		8	Proof puncture set	1
115		9	Antrum wash out set	1
116		10	Adenoidectomy set	1
117		11	ENT Unit	1
118		12	Operating microscope	1
119		13	Sound Proofing Booth	1
120		14	Turbinectomy set	1
121	Dental	1	Dental Unit	3
122		2	Amalgamators	2
123		3	Light cure machines	2
124		4	Ultrasonic scaler (mobile)	2
125		5	Autoclave (Tabletop Type)	2
126		6	Set of extraction forceps	2
127		7	Filling Instrument set	2
128		8	Dental Surgery Instrument Set	1
129	Medical	1	Diagnostic set	3
130		2	Resuscitation tables	3
131		3	ECG machine	2
132		4	Patient trolleys	5
133		5	Irrigation Stand	10
134	Paediatrics	1	Digital weighing scales (Children and adults)	1
135		2	Mobile hand wash trolley	3
136		3	Infant Incubators	5
137		4	Wheel chairs	2
138		5	Irrigation Stand	10
139		6	Suction Machine	2
140		7	Oxygen concentrator	1
141		8	Baby Cot	5
142	Orthopaedic	1	Hawley tables	1
143		2	X ray viewing boxes	1
144		3	Electric saws	1
145		4	Sign nails	20
146		5	Bohlers stirrups	30
147		6	Orthopaedic beds	10
148		7	Orthopaedic accessories kit	1
149		8	Balkan beams	2
150		9	Skull calipers	5

S.No.	Department	No.	Equipment	Q'ty
154	ENT	1	Operating table	1
155		2	Operating lamp	1
156		3	Anaesthesia machine	1
157		4	Operating microscope	1
158		5	Instrument trolleys	1
159		6	Patient trolleys	1
160		7	Mayo trolleys	1
161		8	Audiometers	1
162		9	Bull head lamp	1
163		10	Head worn surgical lights	1
164		11	Head worn magnifiers	1
165		12	Otoscopes	2
166		13	Tympanometer	1
167		14	Oxygen apparatus	1
168		15	ENT Unit	1
169		16	Sound Proofing Booth	1
170	Ophthalmology	1	Portable operating microscope	1
171		2	Slit Lamp	2
172		3	Retinoscope	2
173		4	Visual field analyzer	1
174		5	Vitrectomy machine and accessories	1
175		6	Head worn indirect ophthalmoscope	1
176		7	Ophthalmoscope (direct)	2
177		8	Lense (+20D for Indirect Ophthalmoscope)	1
178	Radiology	1	Ultrasound scanner	1
179	Laboratory	1	Chemistry analyzer	1
180		2	Electrical centrifuges	2
181		3	Refrigerator with a freezer section	1
182		4	Blood bank fridge with an independent uninterruptible power supply	1
183		5	Hot air Oven	1
184		6	Water bath	1
185		7	CD4 count machine	1
186		8	Haematology analyzer	1
187		9	Microscope	1
188	Physiotherapy	1	Short wave diathermy Therapy Machine	1
189		2	Ultrasound therapeutic machine	1
190		3	Stationed bicycles	1
191		4	Muscle stimulator	1
192		5	Shoulder Wheel	1
193		6	Traction Bed	1
194		7	Tilting Table	1
195		8	Finger Exerciser	1
196	Occupational Therapy	1	Goniometer set	1
197		2	Dynamometer (Hand, Finger)	1
198		3	Pinch Gauge (Hydraulic)	1
199	Mortuary	1	Refrigerator, Mortuary	1
200		2	Specimen fridge	1
201		3	Specimen weighing scale	1
202		4	Morgue Cart	1
203		5	Stretcher, Mortuary	1
204		6	Instrument set (Pathology)	1
205		7	Steam sterilizer	1

Kabale RRH

S.No.	Department	No.	Equipment	Q'ty
1	OPD	1	Doctor's Desk & Chair	7
2		2	Stool	7
3		3	X-ray Film Viewer	7
4		4	Weight/Height measuring scales	3
5		5	Weighing scales (Infants)	1
6		6	Examination Couch	11
7		7	Instrument Trolley	4
8		8	Diagnostic set	3
9		9	Examination Table for Ob/Gyn w/Examination Unit	1
10		10	Mobile Examination Lamp	4
11		11	Dressing Instrument Set	5
12		12	Irrigation Stand	5
13		13	Nebulizer	3
14		14	Microscope	1
15		15	Centrifuge	1
16		16	Wheel Chairs	3
17		17	Instrument Cabinet	1
18		18	Refrigerator for Medicine	1
19		19	Autoclave (Tabletop)	1
20	Casualty	1	Wheel Chairs	8
21		2	Patients trolleys	4
22		3	Examination Beds	3
23		4	OP Light (Movable type)	3
24		6	Ophthalmoscopes	1
25		7	Weighing/Height scales (Adults)	1
26		8	Weighing scales (Infant)	1
27		10	Resuscitation kits (Adults)	2
28		11	Resuscitation kits (Paediatric)	2
29		12	Nebulizers	2
30		13	Glucometers	2
31		14	Oxygen Concentrators	2
32		15	ECG machine	1
33		20	Ultrasonographic machine	1
34		21	Mobile X-ray Unit	1
35		1	Operating Table	1
36		2	Operating lights	1
37		3	Surgeon's stool	2
38		4	Laryngoscope sets	1
39		5	Tracheostomy kits	1
40		6	Patient monitors	3
41		7	Defibrillators	1
42		8	General set of Surgical instruments	3
43		9	Instrument sets (Dressing)	10
44		10	Instrument sets (Surgical toilet and Suture)	10
45	High Dependence Unit	1	Stretcher	1
46		2	Drug trolley	1
47		3	Dressing trolley	1
48		4	ECG (12 lead)	1
49		5	Patient monitor	4
50		6	Weight/Height scales	1
51		7	Ventilator (Adult)	2
52		8	Ventilator (Paediatric)	1
53		9	Suction machine	2
54		10	ICU beds	4
55		11	Bed for nursing bed sores	1
56		12	Bed cradles	2
57		13	Mobile patient feeding tables	4
58		14	Defibrillators	1
59		15	Oxygen concentrator	2
60		16	Syringe Pump	2
61		17	Infusion Pump	2
62		18	Intubation Set	1
63		19	Glucometers	1
64		20	Resuscitator pack, manual adult	1
65		21	Instrument sets (Dressing)	1
66		22	Irrigation stands	4
67		23	Nebulizers	1
68	Operation theatre	1	Anaesthesia machine	3
69		2	Patient monitors	3
70		3	Diathermy (ESU)	2
71		4	Operating table	3
72		5	Operating lamps	3
73		6	Operating lamps (Mobile)	1
74		7	Defibrillator	1
75		8	Instrument sets (general surgical)	6

S.No.	Department	No.	Equipment	Q'ty
76	Operation theatre	9	Instrument sets (Laparotomy)	4
77		10	Instrument sets (Orthopaedic)	5
78		11	Skin grafting set	2
79		12	Head worn surgical light	1
80		13	Head worn magnifiers	1
81		14	Needle Aspiration Biopsy set	2
82		15	Oxygen concentrators	3
83		16	Suction Machines	2
84		17	Instrument Cabinet	3
85		18	Instrument Trolley	3
86		19	Patient Trolley	5
87		20	Surgeon's stool	3
88		21	C-arm Mobile X-ray	1
89		22	Bronchoscopy kit	1
90		23	Endoscope set	1
91	CSSD	1	Autoclave (Large)	2
92		2	Working Table (Large)	1
93		3	Instrument Shelf	2
94		4	Sterilizing Drum	1set
95		5	Sterilizing Carrier	1set
96	OB/GYN	1	Ultrasound machine (Portable)	2
97		2	Examination/spot lamps with power backup	3
98		3	Electrical vacuum extractor	2
99		4	Doppler	3
100		5	Patient trolleys with provisions adjusting the height	1
101		6	Delivery beds	5
102		7	Gynecological examination beds with Unit	2
103		8	Delivery instrument sets	10
104		9	Neonatal/baby weighing scales	5
105		10	Infant radiant warmers	2
106		11	Neonatal incubators	3
107		12	Incubators (for Transport)	1
108		13	Patient beds	66
109		14	Bed side lockers	58
110		15	Patient monitors	1
111		16	Electrical suction machines	3
112		17	Oxygen concentrators	4
113		18	Instrument cupboard (Metal with glass door)	2
114		19	Instrument sets (Caesarean section)	5
115		20	Instrument set (Obstetric laparotomy)	3
116		21	Instrument sets (Dilation and Curettage)	3
117		22	Instrument sets (Dressing)	10
118		23	Weighing/Height Scales (Adult)	1
119	Dental	1	Dental unit	3
120		2	Dental X-ray machine (OPGM type)	1
121		3	X-ray processing unit for dental films	1
122		4	Light curing machine	1
123		5	Dental extraction/examination instrument sets	12
124		6	Instrument Cabinet	2
125	Medical	1	ECG machine with both a screen and printer	1
126	Orthopaedic	1	Orthopaedic Plaster table	1
127		2	Electrical plaster saw	2
128		3	Manual plaster shears	2
129		4	Plaster Bender	2
130		5	Bone hand drill	1
131		6	External fixators	10
132		7	Skull calipers with key	5
133		8	Instrument cupboard (Metal with glass door)	1
134		9	Traction beds	10
135		10	Instrument Trolley	1
136		11	Patient Trolley	1
137		12	Wheel chairs	1
138	Ward (Medical, Paediatric, Surgery, TB)	1	Electrical suction machines	8
139		2	Manual suction Machines	4
140		3	Autoclave (Tabletop)	4
141		4	Weighing/Height scales	1
142		5	Examination coaches	4
143		6	Examination lamps	4
144		7	Resuscitator pack, manual adult	4
145		8	Resuscitator pack, manual paediatric	1
146		9	Oxygen concentrators	8
147		10	Instrument trays (Stainless steel)	6
148		11	Instrument/Drug trolleys	7
149		12	Patient Trolleys	7
150		13	Wheel chairs	7
151		14	Instrument sets (Dressing)	14
152		15	Nebulizers	6
153		16	Glucometers	4

S.No.	Department	No.	Equipment	Q'ty
154	ENT	1	Operating table	1
155		2	Operating lamp	1
156		3	Anaesthesia machine	1
157		4	Operating microscope	1
158		5	Instrument trolleys	1
159		6	Patient trolleys	1
160		7	Mayo trolleys	1
161		8	Audiometers	1
162		9	Bull head lamp	1
163		10	Head worn surgical lights	1
164		11	Head worn magnifiers	1
165		12	Otoscopes	2
166		13	Tympanometer	1
167		14	Oxygen apparatus	1
168		15	ENT Unit	1
169		16	Sound-Proof Booth	1
170	Ophthalmology	1	Portable operating microscope	1
171		2	Slit Lamp	2
172		3	Retinoscope	2
173		4	Visual field analyzer	1
174		5	Vitrectomy machine and accessories	1
175		6	Head worn indirect ophthalmoscope	1
176		7	Ophthalmoscope (direct)	2
177		8	Lense (+20D for Indirect Ophthalmoscope)	1
178	Radiology	1	Ultrasound scanner	1
179	Laboratory	1	Chemistry analyzer	1
180		2	Electrical centrifuges	2
181		3	Refrigerator with a freezer section	1
182		4	Blood bank fridge with an independent uninterruptible power supply	1
183		5	Hot air Oven	1
184		6	Water bath	1
185		7	CD4 count machine	1
186		8	Haematology analyzer	1
187		9	Microscope	1
188	Physiotherapy	1	Short wave diathermy Therapy Machine	1
189		2	Ultrasound therapeutic machine	1
190		3	Stationed bicycles	1
191		4	Muscle stimulator	1
192		5	Shoulder Wheel	1
193		6	Traction Bed	1
194		7	Tilting Table	1
195		8	Finger Exerciser	1
196	Occupational Therapy	1	Goniometer set	1
197		2	Dynamometer (Hand, Finger)	1
198		3	Pinch Gauge (Hydraulic)	1
199	Mortuary	1	Refrigerator, Mortuary	1
200		2	Specimen fridge	1
201		3	Specimen weighing scale	1
202		4	Morgue Cart	1
203		5	Stretcher, Mortuary	1
204		6	Instrument set (Pathology)	1
205		7	Steam sterilizer	1

Fort Portal RRH

S.No.	Department	No.	Equipment	Q'ty
1	OPD	1	Autoclave (Tabletop)	1
2		2	Instrument Cabinet	1
3		3	Drug Cabinet	2
4		4	Examination Light	9
5		5	Instrument Trolley	4
6		6	Patient Trolley	4
7		7	Wheel Chair	3
8		8	Weighing/Height Scale	2
9	Casualty	1	Bed (for Emergency)	3
10		2	Patient Monitor	3
11		3	Oxygen Concentrator	3
12		4	Suction Machine (Electric)	2
13		5	Suction Machine (Manual)	2
14		6	Infusion Pump w/Stand	3
15		7	Defibrillator	1
16		8	Ultrasound Scanner (Portable)	1
17		9	Doctor's Desk & Chair	1
18		10	Examination Couch	1
19		11	Patient Stool	1
20		12	Nebulizer	1
21		13	Instrument Tray	2
22		14	Instrument Trolley	1
23	Operation Theater	1	Anaesthesia Machine	5
24		2	Electro Surgical Unit	3
25		3	Instrument Trolley	10
26		4	Instrument Tray Stand	6
27		5	Mayo Table	4
28		6	Operating Light, Mobile	4
29		7	Operating Table, Hydraulic	3
30		8	Oxygen Concentrator	3
31		9	Resuscitator, Manual, Adult	3
32		10	Resuscitator, Manual, Infant	3
33		11	Stool, Surgeon	8
34		12	Patient Trolley	4
35		13	Suction Apparatus, Electric	5
36		14	Suction Apparatus, Manual	5
37		15	Instrument Set, Intubation	3
38		16	Instrument Set, Caesarean Section	3
39		17	Instrument Set, Dilation and Curettage	3
40		18	Instrument Set, General Surgery Large	3
41		19	Instrument Set, Gynaecology	3
42		20	Instrument Set, Hernia/Hydrocoelectomy	4
43		21	Instrument Set, Hysterectomy	3
44		22	Instrument Set, IV Cut Down	5
45		23	Instrument Set, Laparotomy	7
46		24	Instrument Set, Lumbar Puncture Paediatric	2
47		25	Instrument Set, Lumber Puncture, Adult	5
48		26	Instrument Set, Orthopaedic	1
49		27	Instrument Set, Skin Graft	3
50		28	Instrument Set, Tracheostomy	2
51		29	Instrument Set, Tubal Ligation	4
52		30	Instrument Set, Urology	2
53		31	Instrument Set, Vasectomy	2
54		32	Patient Monitor	5
55		33	Endoscope set	1
56		34	Doppler	1
57		35	Instrument Set, VVF	2
58		36	Refrigerator (Medicine)	2
59		37	Instrument Set, Laparotomy for Paediatric	3
60		38	Instrument Set, Burr Hole	2
61		39	Instrument Set, for Stripping	3
62		40	C-arm x-ray unit	1
63		41	Instrument Set, Surgical Toilet & Suture	5
64	CSSD	1	Autoclave (Large)	2
65		2	Autoclave (Table Top)	1
66		3	Dressing Drum (L)	1 set
67		4	Dressing Drum (S)	1 set
68		5	Container	1 set
69		6	Instrument Cabinet	2
70	Medical	1	Patient Monitor	4
71		2	Ventilator	2
72		3	Infusion Pump	10
73		4	Clank Bed (for HCU)	4
74		5	Refrigerator	1
75		6	Oxygen Concentrator	4

S.No.	Department	No.	Equipment	Q'ty
76	Medical	7	Patient Trolley	4
77		8	Suction Machine	5
78		9	Weighing/Height Scale	3
79		10	Pulse Oxymeter	3
80		11	Nebulizer	3
81		12	Underwater Seal Set	3
82		13	Defibrillator	1
83		14	Retinoscope	1
84		15	Spirometer	1
85		16	ECG	2
86		17	EMG	1
87		18	Autoclave (Tabletop)	2
88		19	Drug cabinet	2
89		20	Instrument Cabinet	2
90		21	Examination Light	3
91		22	Instrument Set, Lumber Puncture (Adult)	1
92		23	Wheel Chair	2
93	Pediatric	1	Oxygen concentrator	3
94		2	Patient Monitor	3
95		3	Autoclave	1
96		4	Infusion Pump	10
97		5	Examination Light	2
98		6	Weighing Scale	1
99		7	Pulse Oxymeter	2
100		8	Nebulizer	3
101		9	Under Water Seal Drainage Set	2
102		10	Defibrillator	1
103		11	Instrument Set, Dressing	3
104		12	Instrument Set, IV Cut Down	1
105		13	Instrument Set, Lumber Puncture (Paediatric)	1
106		14	Wheel Chair	2
107	OB/GYN	1	Baby Cot	10
108		2	Delivery Bed	5
109		3	Doppler	2
110		4	Infant Incubator	4
111		5	Instrument Trolley	10
112		6	Oxygen Concentrator	4
113		7	Phototherapy Unit	1
114		8	Resuscitator, Manual, Adult	4
115		9	Resuscitator, Manual, Infant	2
116		10	Vacuum Extractor, Electric	1
117		11	Vacuum Extractor, Manual	1
118		12	Diagnostic Equipment Set for MCH	6
119		13	Instrument Set, Delivery	10
120		14	Instrument Set, IUCD	2
121		15	Instrument Set, Gynaecology	3
122		16	Instrument Set, Hysterectomy	3
123		17	Autoclave(Tabeletop)	3
124		18	Sterilizing Carrier set	3
125		19	Instrument Tray	10
126		20	Wheel Chair	6
127		21	Examination Table for OB/GYN	6
128		22	Ultrasound Scanner (Portable)	1
129		23	Examination Light	4
130	Surgery	1	Autoclave(Tabeletop)	1
131		2	Examination Couch	1
132		3	Examination Light	1
133		4	Instrument Trolley	2
134		5	Oxygen Concentrator	2
135		6	Patient Trolley	2
136		7	Electric Suction Machine	2
137		8	Suction Machine (Manual)	2
138		9	Weighing /Height Scale	2
139		10	Instrument Set, Dressing	6
140		11	Instrument Set, Stitch Removing	4
141		12	Instrument Set, Suture	4
142		13	Instrument Set, IV Cut Down	4
143		14	Instrument Set, Lumbar Puncture	4
144		15	Instrument Tray	6
145		16	Pulse Oxymeter	2
146		17	Patient Monitor	4
147		18	Under Water Seal Drainage Set	2
148		19	Medicine Trolley	2
149		20	Wheel Chair	4
150		21	Nebulizer	2

S.No.	Department	No.	Equipment	Q'ty
151		1	Otoscope	2
152		2	Instrument Set, ENT casualty	1
153		3	ENT Unit w/Chair	2
154		4	Operating Microscope	1
155		5	Esophagoscope	1
156		6	Bronchoscope	1
157		7	Hearing aid Analyzer	1
158		8	Audiometer (Clinical)	1
159		9	Audiometer (Screening)	1
160	ENT	10	Sound Proofing Booth	1
161		11	Tympanometer (Handheld)	1
162		12	Paediatric Audiometer	1
163		13	Tonsillectomy Set	2
164		14	Mastoidectomy Set	2
165		15	Sinus Operation Set	2
166		16	Turbinectomy Set	2
167		17	ENT Clinical Set	1
168		18	ABR System	1
169		19	OAE Machine	1
170		1	Lens, trial set	2
171		2	Electric Cautery Apparatus	1
172		3	Ophthalmoscope (Standard)	3
173	Ophthalmology	4	Slitlamp	1
174		5	Intra Ocular Instrument Set	1
175		6	Extra Ocular Instrument Set	1
176		7	Glucometer	2
177		8	Digital Tonometer	2
178	Mental Health	1	ECT	1
179		2	EEG	1
180		1	Amalgamator	1
181		7	Instrument Set, Dental	3
182		3	Instrument Set, Dental Surgery	2
183	Dental	4	Ultrasonic Dental Scaler	2
184		5	Dental Curing Light Machine	2
185		6	Dental Unit	1
186		7	Autoclave (Tabletop)	1
187	Radiology	1	Ultrasound Machine (Colour Doppler)	1
188		2	Automatic Film Processor	1
189		1	Electric Balance, Laboratory	1
190		2	Balance, Electrical, Precision	2
191		3	Centrifuge, Electric	1
192		4	Centrifuge, HCT	2
193		5	Colorimeter	1
194		6	Deep Freezer	1
195		7	Microscope binocular	2
196		8	pH Meter	1
197	Laboratory	9	Refrigerator, Blood Bank	1
198		10	Spectrophotometer	1
199		11	VDRL Shaker	2
200		12	Water Bath	1
201		13	Water Distilling Apparatus	2
202		14	Autoclave	1
203		15	Electrophoresis Apparatus	1
204		16	Hot Plate	1
205		17	Touch Mixer	2
206		1	Exerciser Arm Muscle	1
207		2	Static Bicycle	1
208		3	Infrared Light Therapy Unit	1
209		4	Mattress, Exercising	1
210		5	Metal Weight Set	1
211	Physiotherapy	6	Mirror	1
212		7	Short Wave Therapy Unit	1
213		8	Ultrasonic Therapy Unit	1
214		9	Waxbath	1
215		10	Quadriceps Chair	1
216		11	EMS	1
217		12	Refrigerator w/Ice Pack	1
218	Laundry	1	Dryer, Laundry, Institutional	1
219		2	Washing Machine, Instiutional	1
220		1	Refrigerator, Mortuary	1
221	Mortuary	2	Instrument Set, Post Mortem	1
222		3	Autoclave(Tabeletop)	1
223		4	Morgue Cart	1

*The priorities of the equipment are still under consideration.

JAPAN'S GRANT AID

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 a 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.

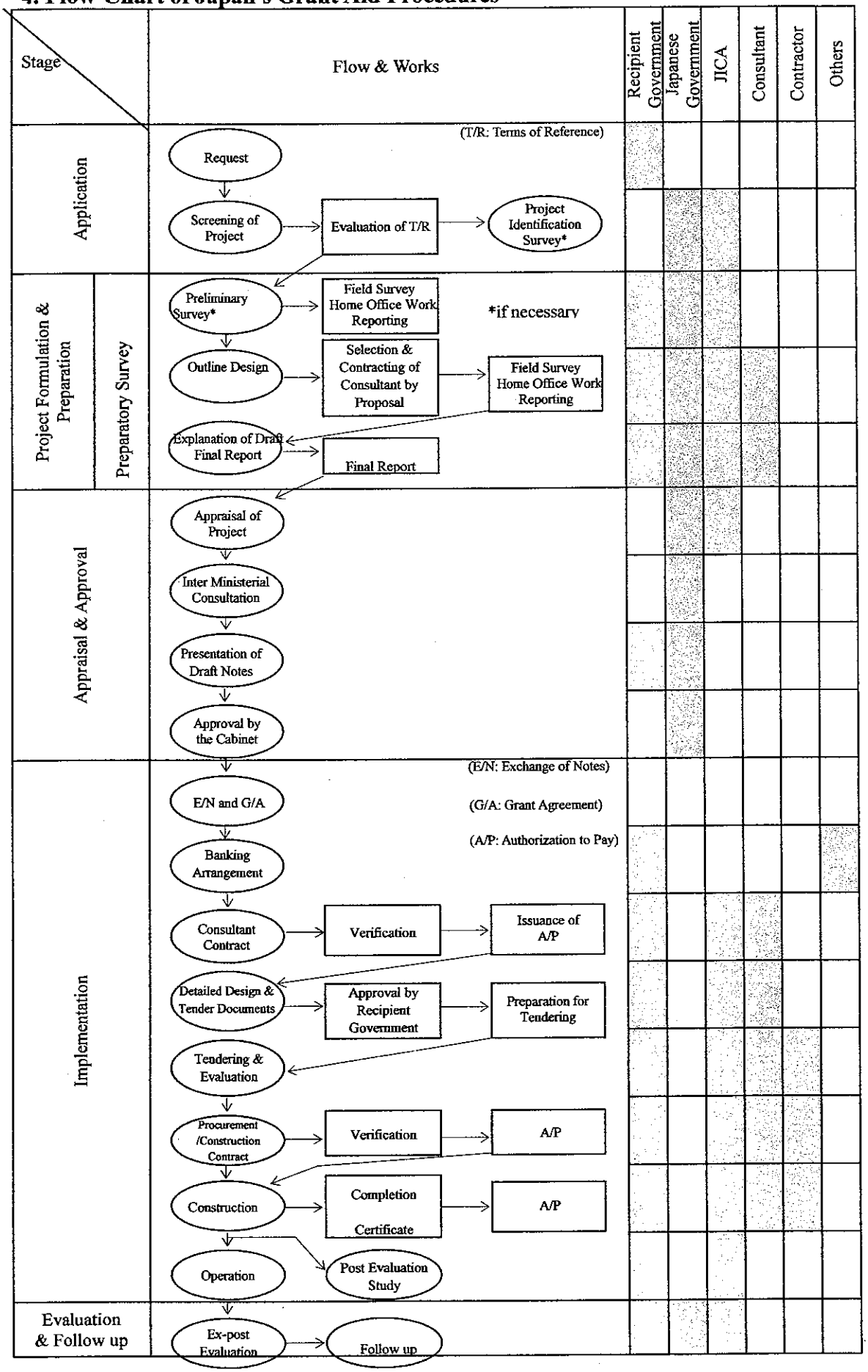
(9) Authorization to Pay (A/P)

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



Annex-6

Major Undertakings to be Taken by Each Government (Facilities)

No.	Items	To be covered by Grant Aid	To be covered by Recipient Side
1	To secure 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 if necessary (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 if available		
	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 and/or other countries to the recipient country	●	
	2) Tax exemption and customs 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		●
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 environmental and social consideration in the implementation of the Project.		●

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

Annex-6

Major Undertakings to be Taken by Each Government (Facilities)

No.	Items	To be covered by Grant Aid	To be covered by Recipient Side
1	To secure 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 if necessary (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 if available		
	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 and/or other countries to the recipient country	●	
	2) Tax exemption and customs 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		●
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 environmental and social consideration in the implementation of the Project.		●

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

Major Undertakings to be Taken by Each Government (Equipment)

No.	Items	To be covered by Grant Aid	To be covered by Recipient Side
1	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 and/or other countries to the recipient country	●	
	2) Tax exemption and customs clearance of the products at the port of disembarkation		●
	3) Internal transportation from the port of disembarkation to the project site	●	
2	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		●
3	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		●
4	To ensure that the products be maintained and used properly and effectively for the implementation of the Project		●
5	To conduct clinical training for users to utilize the equipment to be provided under the Project		●
6	To bear all the expenses, other than those covered by the Grant, necessary for the implementation of the Project		●
7	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		●
8	To give due environmental and social consideration in the implementation of the Project.		●

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

Annex-7

Major Undertakings to be Taken by the Ugandan Side in Each Site

1) Hoima RRH

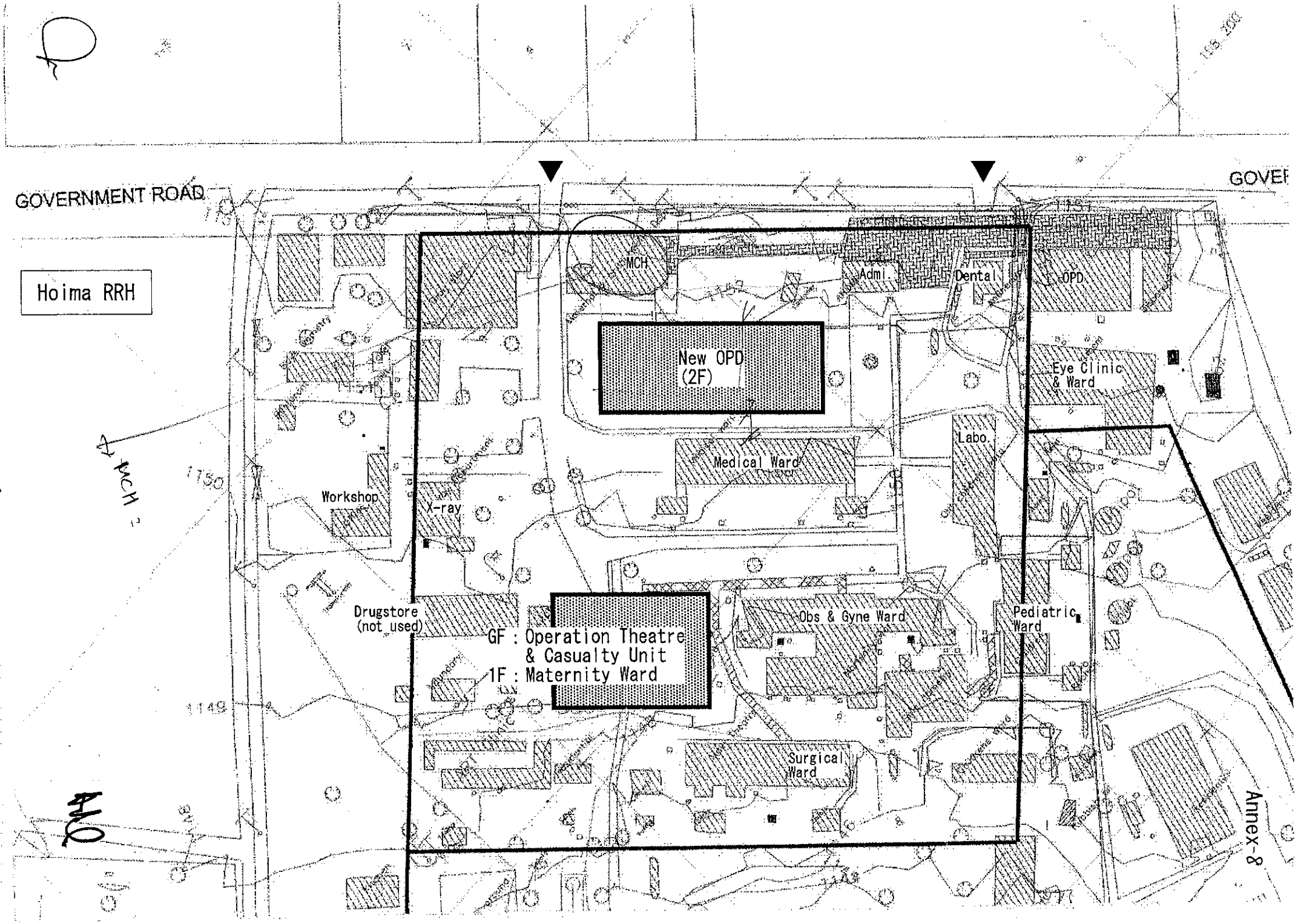
No.	Items
1	To demolish/remove the existing buildings (Main Theatre, kitchen, etc.)
2	To remove the existing trees
3	To clear the site
4	To construct gates and fences in and around the site
5	To provide electricity line to the site, and provide new bigger transformer if necessary with connection from the new transformer to the power house
6	To provide water supply to the site
7	To provide telephone line to the site
8	To provide construction work area

2) Kabale RRH

No.	Items
1	To demolish/remove the existing buildings (Main Theatre, etc.)
2	To remove the existing trees
3	To clear the site
4	To construct gates and fences in and around the site
5	To provide electricity line, including electricity line from the existing generator, to the site, and provide new bigger transformer if necessary with connection from the new transformer to the power house
6	To provide water supply to the site, and upgrade the meter and service water line to the hospital
7	To provide drainage pipe to the site
8	To provide telephone line to the site
9	To provide construction work area

3) Fort Portal RRH

No.	Items
1	To secure the space for medical equipment
2	To provide electricity, water, and drainage pipe for medical equipment


GOVERNMENT ROAD
Hoima RRH
MCH
Admi.
Dental
OPD
New OPD
(2F)
Eye Clinic
& Ward
Labo.
Medical Ward
Workshop
X-ray
Drugstore
(not used)
GF : Operation Theatre
& Casualty Unit
1F : Maternity Ward
Obs & Gyne Ward
Pediatric
Ward
Surgical
Ward
Annex-8

MINUTES OF THE MEETING BETWEEN HOSPITAL MANAGEMENT AND THE JAPANESE SURVEY TEAM HELD FROM 3rd - 6th AUGUST,2011 AT HOIMA REGIONAL REFERRAL HOSPITAL

The Japanese survey team for the proposed rehabilitation of Hoima regional referral Hospital, under the project for rehabilitation of hospitals and supply of medical equipment in the western region, visited the hospital from 3rd – 6th August,2011. During their visit, the following issues concerning the project were discussed and / or agreed with the hospital management.

1. General

i) The Japanese team explained contents of the interim report to the Hospital Director and staff. The hospital team understood the contents.

ii) Title deed: The official paper of the title deed was not yet ready. During the meeting with the District Chairman, he contacted the District Land Board Chairman to speed up the process to have the title deed ready by the 15th August 2011.

iii) Surveying and geotechnical investigation started on 5th August 2011 by Technology Consults Ltd. The consultants were introduced to the hospital, and the District Chairman introduced them to the Resident District Commissioner (RDC).

2. Facilities

i) Eleven consultation rooms have been agreed on for the OPD according to the calculations of the interim report but hospital management requested for two more consultation rooms for antenatal and gyneacological/ postnatal clinics. The existing antenatal unit is too small for the service.

ii) Hospital management requested that the casualty unit be attached to the operating theatre. The Japanese survey team agreed with this proposal.

iii) It was proposed that two blocks will be constructed; one block for out patient department and a second block for operation theatre, casualty unit and maternity ward. The casualty unit and operation theatre on the ground floor and the maternity ward on the first floor. (See attached option 4)

iv) The Japanese survey team and the hospital management agreed to add a four bed high dependence unit (HDU) to the operating theatre.

v) It was noted that there will be need for a new bigger transformer to be provided by the Ugandan side. The Ugandan side will also make connection from the new transformer to the power house to be constructed by the Japanese side.

3. Equipment

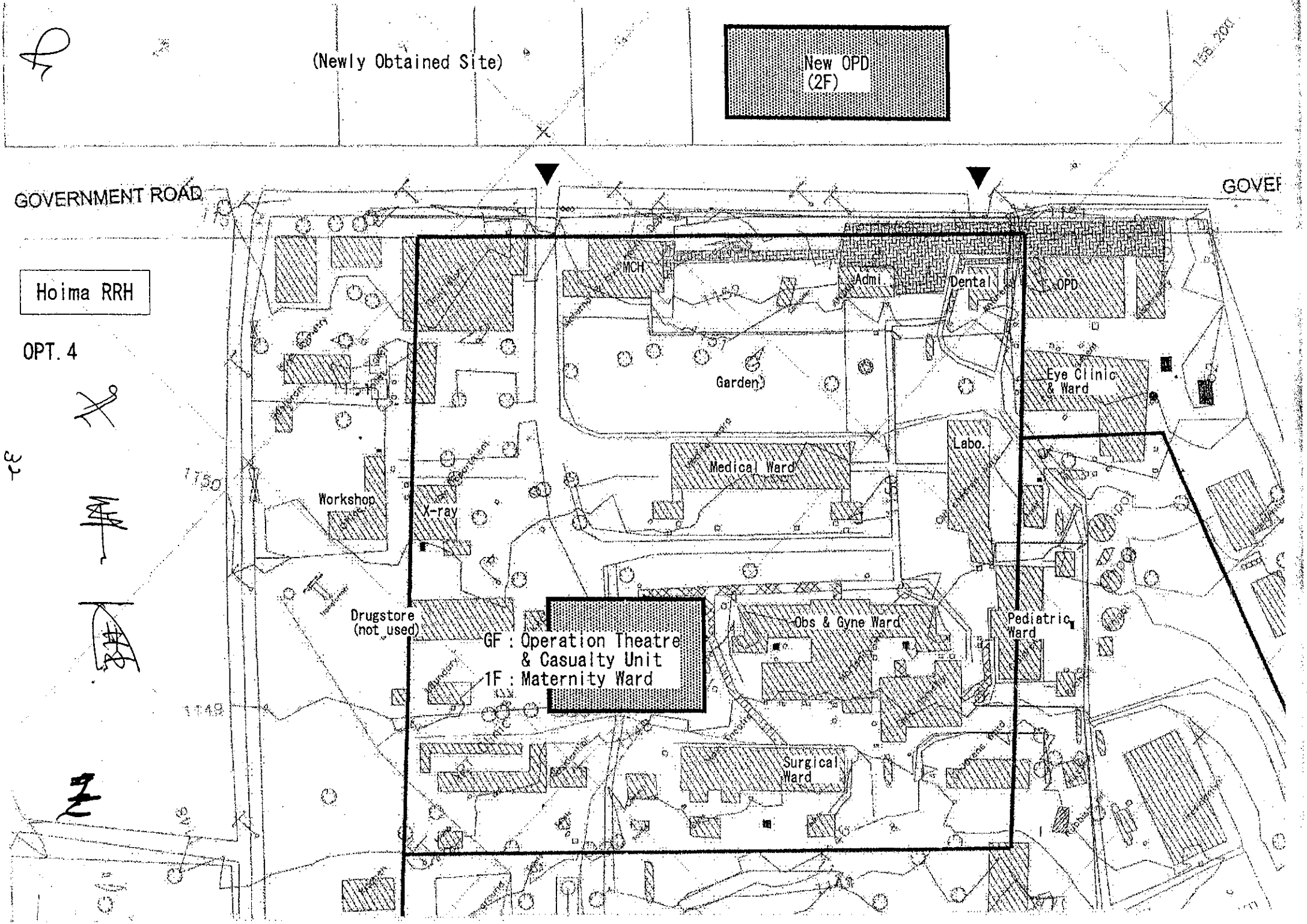
1. The survey team explained the equipment selection criteria and the hospital team understood and accepted.
2. The survey team discussed the list of selected equipment with each department/user and the list was reviewed and confirmed. The consultant will review the CSSD and OPD equipment list and submit it to the hospital for confirmation by the 15th August 2011.

Signed on the 6th Day of August 2011.

Dr. Mulwanyi Francis W.
Hospital Director
Hoima Regional Referral Hospital

Mr. Keiichi Ide
Project manager
Survey Team

Engr. Kaliba Paul
Civil Engineer
Ministry of Health


(Newly Obtained Site)
New OPD
(2F)
GOVERNMENT ROAD
GOVEF
Hoima RRH
OPT. 4
MCH
Admi.
Dental
OPD
Garden
Eye Clinic
& Ward
Labo.
Medical Ward
Workshop
X-ray
Drugstore
(not used)
GF : Operation Theatre
& Casualty Unit
1F : Maternity Ward
Obs & Gyne Ward
Pediatric
Ward
Surgical
Ward
1150
1149

MINUTES OF THE MEETING BETWEEN HOSPITAL MANAGEMENT AND THE JAPANESE SURVEY TEAM HELD 8TH – 10TH AUGUST, 2011 AT KABALE REGIONAL REFERRAL HOSPITAL.

The Japanese Survey Team for the proposed Rehabilitation of Kabale Regional Referral Hospital under the "Project for Rehabilitation of Hospitals and Supply of Medical Equipment in the Western Region in Uganda" visited the hospital from 8th – 10th August 2011. During the visit, the following issues concerning the project were discussed and agreed upon with the Hospital Management.

1. **General**

   a. The Japanese Survey Team explained contents of the Interim Report to the Hospital Director and Staff. The Hospital Management and staff understood the contents of the Interim Report.

   b. Plot for proposed OPD: The plot earlier planned for OPD construction was reported to have issues which require considerable time to solve. The hospital management proposed a new site next to the existing OPD, and the Japanese Survey Team agreed with the alternative site.

   c. Topographic Survey and Geotechnical Investigations started on 10th August 2011 by local consultants - M/S Technology Consults Ltd. The consultants were introduced to the Hospital Management.

   d. Hospital Staff Reinforcement Plan .The Hospital Management reported to the Japanese Survey Team that plans to reinforce the staffing levels were under way between the hospital and the Ministry of Health which is responsible for recruitment through the Health Service Commission. In July 2011 the Ministry of Health sent 43 staff to the hospital including four doctors (Medical Officers). The recruitment plan for the hospital is sent to the Ministry at the beginning of every financial year. It is expected that by 2014 most of the vacant positions especially for doctors will have been filled.

The Staff recruitment plan will be submitted to the Japanese Survey Team while answering the questionnaire for the field survey II, and also the Hospital Management will make a report that explains the relationship between Kabale Regional Referral Hospital and National Referral Hospitals on the visiting doctors and in house hospital training program by 15th August 2011 to the Japanese Survey Team.

2. Facilities

a. Seven (7) consultation rooms have been agreed upon for the Outpatient Department in accordance with the calculation prescribed in the Interim Report. More so, the Hospital Management requested for one additional consultation room for gynaecology because of the special equipment needed for gynaecology examination and the Japanese Team agreed upon the request, making the total number of consultation rooms 8 (eight).

b. It was agreed that the Maternity Ward needs 80 beds in accordance with the calculation of the Interim Report. The hospital management plans to use part of the existing Maternity Ward for Eye / ENT Ward when the new Maternity Ward is completed. Only 22 beds will be retained for Maternity ward therefore the new Maternity Ward will need 58 beds.

c. It was agreed that the new Operation Theatre should have 3 operation rooms as determined by the calculations prescribed in the Interim Report with one dedicated for obstetrics.

d. It was proposed that two double storey blocks will be constructed; one for Outpatient Department and Casualty Unit and the second block for Operation Theatre and Maternity Ward. The Operation Theatre shall be on the ground floor and the Maternity Ward on the first floor. (See attached option 4). In the option 4, the existing Operation Theatre will be demolished by the Ugandan side.

e. The Japanese Survey Team and the Hospital Management agreed to add a High Dependence Unit with four (4) beds to the Operation Theatre complex.

f. It was noted that there will be need for a new bigger transformer to be provided by the Ugandan side. The Ugandan side will also make connection from the new transformer to the power house to be constructed by the Japanese side.

g. The hospital has a 200kVA standby generator installed in 2006. The new buildings will be covered by the same generator and therefore no generator will be supplied under the proposed project.

h. It was noted that there will be need to upgrade the meter and service water line to the hospital to be catered for by the Ugandan side.

3. Medical Equipment

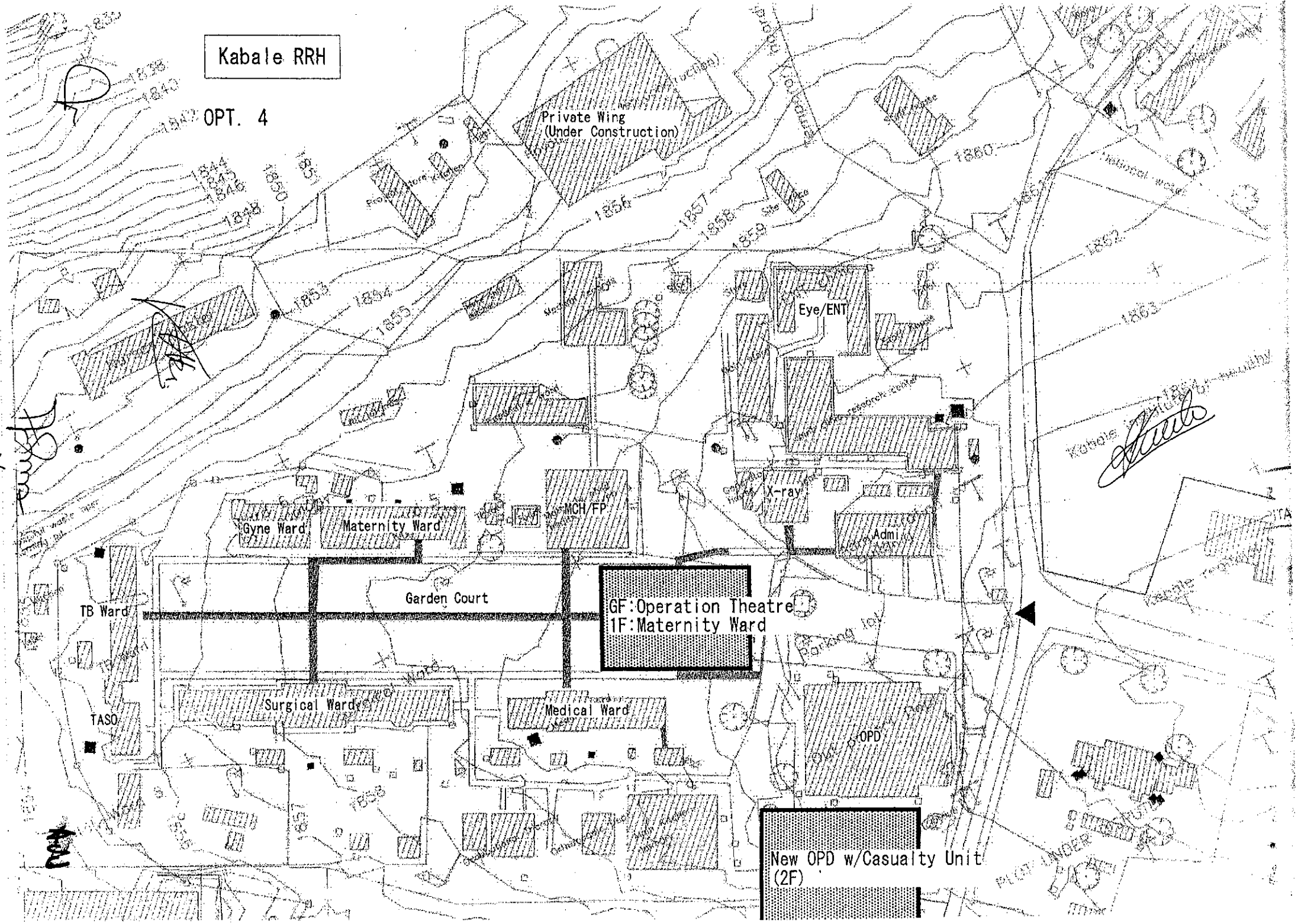
1. The Japanese Survey Team explained the equipment selection criteria and the hospital management understood and accepted it.
2. The Japanese Survey Team discussed the list of requested equipment with each department / user and the list was reviewed and confirmed. The consultant will review the CSSD and OPD equipment list and submit it to the Hospital Management by 15th August, 2011 and the hospital Management will confirm the list on 16th August, 2011.

Signed on the 10th day of August 2011.

Dr. Placid Mihayo
Hospital Director
Kabale Regional Referral Hospital

Mr. Keiichi Ide
Project Manager
Survey Team

Eng. Paul Kaliba
Civil Engineer
Ministry of Health


Kabale RRH
OPT. 4
Private Wing
(Under Construction)
Eye/ENT
X-ray
MCH/FP
Gyne Ward
Maternity Ward
Garden Court
TB Ward
GF:Operation Theatre
1F:Maternity Ward
Surgical Ward
Medical Ward
OPD
TASO
New OPD w/Casualty Unit
(2F)

MINUTES OF THE MEETING BETWEEN HOSPITAL MANAGEMENT AND THE JAPANESE SURVEY TEAM HELD 11TH - 13TH AUGUST, 2011 AT FORT PORTAL REGIONAL REFERRAL HOSPITAL

The Japanese Survey Team for the proposed Supply of Medical Equipment to Fort Portal Regional Referral Hospital under the "Project for Rehabilitation of Hospitals and Supply of Medical Equipment in the Western Region in Uganda" visited the hospital from 11th – 13th August 2011. During the visit, the following issues concerning the project were discussed and agreed upon with the Hospital Management.

1. **Interim Report**

   The Japanese Survey Team explained contents of the Interim Report to the Hospital Management and Staff. The Hospital Management and staff understood the contents of the Interim Report.

2. **Hospital Staff Reinforcement Plan**

   The Hospital Management reported to the Japanese Survey Team that plans to reinforce the staffing levels were under way between the hospital and the Ministry of Health which is responsible for recruitment through the Health Service Commission. In July 2011 the Ministry of Health sent 48 staff to the hospital including five (5) doctors (Medical Officers). Additionally, 14 Intern doctors (medical officers) were posted to the hospital. The recruitment plan for the hospital is sent to the Ministry at the beginning of every financial year. It is expected that by 2014 most of the vacant positions especially for doctors will have been filled. The Staff recruitment plan was submitted to the Japanese Survey Team in the questionnaire for the field survey II, and also the Hospital Management will make a report that explains the relationship between Fort Portal Regional Referral Hospital and National Referral Hospitals on the visiting doctors and in-house hospital training program by 15th August 2011 to the Japanese Survey Team.

3. **Medical Equipment**

   1) The Japanese Survey Team explained the equipment selection criteria and the hospital management understood and accepted it.
   2) The Japanese Survey Team discussed the list of requested equipment with each department / user and the list was reviewed and confirmed.

MINUTES OF THE MEETING BETWEEN HOSPITAL MANAGEMENT AND THE JAPANESE SURVEY TEAM HELD 11TH - 13TH AUGUST, 2011 AT FORT PORTAL REGIONAL REFERRAL HOSPITAL

The Japanese Survey Team for the proposed Supply of Medical Equipment to Fort Portal Regional Referral Hospital under the "Project for Rehabilitation of Hospitals and Supply of Medical Equipment in the Western Region in Uganda" visited the hospital from 11th – 13th August 2011. During the visit, the following issues concerning the project were discussed and agreed upon with the Hospital Management.

1. **Interim Report**

   The Japanese Survey Team explained contents of the Interim Report to the Hospital Management and Staff. The Hospital Management and staff understood the contents of the Interim Report.

2. **Hospital Staff Reinforcement Plan**

   The Hospital Management reported to the Japanese Survey Team that plans to reinforce the staffing levels were under way between the hospital and the Ministry of Health which is responsible for recruitment through the Health Service Commission. In July 2011 the Ministry of Health sent 48 staff to the hospital including five (5) doctors (Medical Officers). Additionally, 14 Intern doctors (medical officers) were posted to the hospital. The recruitment plan for the hospital is sent to the Ministry at the beginning of every financial year. It is expected that by 2014 most of the vacant positions especially for doctors will have been filled. The Staff recruitment plan was submitted to the Japanese Survey Team in the questionnaire for the field survey II, and also the Hospital Management will make a report that explains the relationship between Fort Portal Regional Referral Hospital and National Referral Hospitals on the visiting doctors and in-house hospital training program by 15th August 2011 to the Japanese Survey Team.

3. **Medical Equipment**

   1) The Japanese Survey Team explained the equipment selection criteria and the hospital management understood and accepted it.
   2) The Japanese Survey Team discussed the list of requested equipment with each department / user and the list was reviewed and confirmed.

3) Casualty Unit: The hospital plans to construct a casualty unit in the financial year 2012/13 using the capital development fund and it will be completed by September 2013 (see attached hospital capital development priorities for 2012/13). The number of casualty patients is similar level to that of Hoima and Kabale RRHs. Accordingly, the equipment plan for the casualty unit was considered based on the current situation of the casualty patients of Fort Portal RRH.

In case that Fort Portal RRH need more equipment with consideration of new layout plan of new casualty unit, the hospital management explained that it would procure the necessary additional equipment by their own funds. In case the planned casualty unit construction is not completed by September 2013, the hospital management would temporarily utilise part of the ground floor of the administration office space on the Private / administration building under construction and scheduled to be completed by November 2011.

4) Eye & ENT Clinic: Currently the ENT Clinic on the OPD is used by Eye Clinic. The hospital plans to transfer eye clinic to the current private ward when the new private / administration building is completed in November 2011 and the ENT clinic would utilise the space currently used by the eye clinic accordingly. The Hospital Management and the Japanese Survey Team agreed that ENT Clinic would have enough space for medical equipment to be procured under the project. Additionally, Eye clinic has two operation theatres in the current surgical ward.

Signed on the 13th day of August 2011

Dr. Charles Olaro
Hospital Director
Fort Portal Regional Referral Hospital

Mr. Keiichi Ide
Project Manager
Japanese Survey Team

Eng. Paul Kaliba
Civil Engineer
Ministry of Health

FORT PORTAL REGIONAL REFERRAL HOSPITAL: PRESENTATION TO THE SOCIAL SERVICES COMMITTEE OF PARLIAMENT

11 August 2011

DR OLARO CHARLES
HOSPITAL DIRECTOR

This is to confirm that this is a certified copy

MEDICAL SUPERINTENDENT
FORT PORTAL REGIONAL REFERRAL HOSPITAL

DR OLARO CHARLES
HOSPITAL DIRECTOR

Priorities FY 2012/13

- Construction of Accident and emergency unit
- Construction of staff Hostel
- Construction of EYE/ENT Unit
- Construction of patient attendant kichen
- Continuing equipping the hospital- JICA

MINUTES OF DISCUSSIONS
ON PREPARATORY SURVEY
ON THE PROJECT FOR THE REHABILITAION OF HOSPITALS AND SUPPLY OF MEDICAL EQUIPMENT IN THE WESTERN REGION IN UGANDA
IN THE REPUBLIC OF UGANDA
(EXPLANATION ON DRAFT REPORT)

Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched a Preparatory Survey Team (Field Survey I) on the Project for the Rehabilitation of Hospitals and Supply of Medical Equipment in the Western Region in Uganda (hereinafter referred to as "the Project") to the Republic of Uganda (hereinafter referred to as "Uganda") from May to June 2011, and also dispatched a Preparatory Survey Team (Field Survey II) on the Project to Uganda from July to August 2011, and through discussion, field survey, and technical examination of the survey results in Japan, JICA prepared a draft report of the survey.

In order to explain and to consult Uganda on the components of the draft report, JICA sent to Uganda a Draft Report Explanation Team (hereinafter referred to as "the Team"), which is headed by Ms. Sonoko Takahashi, Deputy Director, Health Division 1, Human Development Department, from 4th June to 13th June, 2012.

In the course of discussions, both parties confirmed the main items described on the attached sheets. The Team will proceed with further works and prepare the Preparatory Survey Report.

Kampala, 12th June, 2012

Ms. Sonoko Takahashi
Leader
Draft Report Explanation Team
Japan International Cooperation Agency

Dr. Lukwago Asuman
Ag. Permanent Secretary
Ministry of Health
The Republic of Uganda

ATTACHMENT

1. Components of the Draft Report

The Government of Uganda agreed and accepted in principle the components of the draft report explained by the Team.

2. Japan's Grant Aid Scheme

The Ugandan side understands the Japan's Grant Aid Scheme and the necessary measures to be taken by the Government of Uganda as explained by the Team and described in Annex-5, Annex-6, and Annex-7 of the Minutes of Discussions signed by both parties on 17th August, 2011 (hereinafter referred to as "M/D in August 2011").

3. Schedule of the Study

JICA will complete the final report in accordance with the confirmed items and send it to the Government of Uganda by August 2012.

4. Confidentiality of the Project

Both sides confirmed that all information related to the Project including detailed specifications of equipment and other technical information shall not be released to any outside parties before the signing of all the Contract(s) for the Project.

5. Other Relevant Issues

5-1 Confidentiality of the Project Cost Estimation

The Team explained the cost estimation of the Project as described in Annex-1. Both sides agreed that the Project Cost Estimation should never be duplicated or released to any outside parties before the signing of all the Contract(s) for the Project. The Ugandan side understands that the Project Cost Estimation described in Annex-1 is not final and is subject to change.

5-2 Scope of Works

The issues discussed between the Team and the Ugandan side are as follows:

5-2-1 The Ugandan side explained to the Team that although providing new bigger transformer was agreed as the undertakings to be taken by the Ugandan side in the M/D in August 2011, the renewal of the pole transformer from the existing 100kVA

type to a 315kVA type in both Hoima and Kabale Regional Referral Hospitals (hereinafter referred to as "RRH(s)") would take considerable time based on their recent experience, which may cause delay to the supply of the electricity to the project buildings.

Therefore the Ugandan side requested that instead of the renewal of the transformer by the Ugandan side, new 200kVA pole transformer for the project buildings in both Hoima and Kabale RRHs would be included in the scope of Japanese cooperation.

The Team understood the necessity of this request and will consider this request.

5-2-2 The Ugandan side requested that the solar heater system should be included to the hot water system in both Hoima and Kabale RRHs, to save running cost.

The Team understood the necessity of this request and will consider this request.

5-2-3 Minor modifications in the building design

1) Hoima RRH

a) The Ugandan side requested that one access door to the staff corridor on the ground floor and the access corridor to the staff corridor from public corridor at the outside staircase on the 1st floor of the OPD block should be added. The Team understood the necessity for such change. Both sides confirmed that the estimated cost increase would be predicted as minimum.

b) The Ugandan side requested that the High Dependency Unit (HDU) nurse station and the nurse station of OT should be combined, so that one surgeon office on the ground floor of the OT/Maternity Ward should be provided. The Team understood the necessity of such change. Both sides confirmed that no cost increase would be expected.

c) The Ugandan side requested that the sluice space (2mx3m) should be added outside of Central Sterilization Supply Department (CSSD) along the outside corridor on the ground floor of the OT/Maternity Ward. The Team understood the necessity of such change. Both sides confirmed that the estimated cost increase would be predicted as minimum.

2) Kabale RRH

a) The Ugandan side requested that the access corridor to the staff corridor from the public corridor at the outside staircase on the 1st floor of the OPD/Casualty Block. The Team understood the necessity of such change. Both sides confirmed that the estimated cost increase would be predicted as minimum.

b) The Ugandan side requested that the HDU nurse station and nurse station of OT should be combined, so that one surgeon office on the ground floor of the OT/Maternity Ward should be provided. The Team understood the necessity of such change. Both sides confirmed that no cost increase would be expected.

c) The Ugandan side requested that the sluice space should be separated in CSSD by wall and the door on the ground floor of the OT/Maternity Ward. The Team understood the necessity of such change. Both sides confirmed that the estimated

cost increase would be predicted as minimum.

5-2-4 Equipment

The Ugandan side requested additional equipment as follows:

1) Hoima RRH
   a) Code No. 88 Infant Incubator: 1 set
   b) Code No. 185 Portable Monitor: 1 set

2) Kabale RRH
   a) Code No. 55 ECG : 1 set
   b) Code No. 69 Examination Lamp: 1 set
   c) Code No. 109 Instrument Set (for General Surgery Large): 1 set
   d) Code No. 243 Ultrasound Scanner (Portable): 1 set

3) Fort Portal RRH
   a) Code No. 45 Delivery Bed: 2 sets
   b) Code No. 69 Examination Lamp: 5 sets
   c) Code No. 110 Instrument Set (for Gynecology): 2 sets
   d) Code No. 114 Instrument Set (for Intubation): 1 set
   e) Code No. 125 Instrument Set (for Orthopedic): 1 set
   f) Code No. 137 Instrument Set (for Tracheostomy): 1 set
   g) Code No. 160 Nebulizer: 1 set
   h) Code No. 216 Stool (for Surgeon): 4 sets
   i) Code No. 221 Suction Machine (Electric): 2 sets

Based on the above, both sides agreed, as the scope of works of the Project, the outline of the project described in Annex-2, design drawings described in Annex-3, and equipment list described in Annex-4.

Both sides also noted the change indicated in above 5-2-1, 5-2-2 and 5-2-4 would cause the increase of the project cost estimation. Although further cost estimation is necessary, the Team pointed out that the projected cost increase for 5-2-1 and 5-2-2 could be covered, by simplifying the external work for both Hoima and Kabale RRHs and simplifying the outside staircase of the OT/Maternity Ward in Kabale RRH, while the cost increase for 5-2-4 need further consideration. In reply, the Ugandan side agreed on the proposal from the Team. Both sides agreed on the changes indicated in above 5-2-1, 5-2-2, 5-2-3 and 5-2-4, and confirmed that such changes will be subject to the approval of the Government of Japan.

5-3 Operation and Maintenance Cost

The Ugandan side agreed to secure and allocate necessary budget and staff for the proper and sustainable operation and maintenance of the facilities and the equipment to be provided under the Project as described in Annex-5.

The Ugandan side further agreed that the Ministry of Health (hereinafter referred to as "MOH") would prepare the maintenance service contracts with supplier's local agent for selected

equipment listed in the draft report for management by Hoima, Kabale, and Fort Portal RRHs.

The Team requested that the Ugandan side should secure the budget under the fiscal year (FY) 2013/14 budget (from July 2013 to June 2014) and/or FY 2014/15 budget, with considering appropriate timing based on the actual implementation schedule. The Ugandan side agreed to it.

5-4 Obligation Works by the Ugandan side

The Ugandan side agreed to implement the necessary works related to the Project at the appropriate time and secure necessary budget allocation for expenses for such works as described in Annex-7. The Team explained that the timely completion of the said works by the Ugandan side based on the schedule in Annex-7 is crucial for the Japanese side to implement its works as scheduled. In case the works by the Ugandan side are behind the schedule for certain period of time, the Japanese side might have to re-schedule its implementation schedule accordingly.

5-5 Tentative Schedule of the Project

The tentative schedule of the Project is described in Annex-8.

Annex-1 Project Cost Estimation

Annex-2 Outline of the Project

Annex-3 Design Drawings

Annex-4 Equipment List

Annex-5 Operation and Maintenance Cost for Facilities and Equipment

Annex-6 Maintenance Organization

Annex-7 Undertakings by the Ugandan side

Annex-8 Tentative Schedule of the Project

This page is closed due to the confidentiality.

Annex-2 Outline of the Project

(1) Hoima RRH

Project Component	Floor Areas		Description
OPD Block (including outpatient toilet)	GF	760.00 m^2	Reception, Laboratory, Pharmacy, Staff room, Consultation rooms (paediatric, gynaecology, obstetrics.), ENT clinic, patient toilet, etc.
	1F	778.00 m^2	General OPD, Specialised OPD, Dental unit, HIV consultation room, Patient toilet, etc.
Subtotal		1,538.00 m^2	
OT/Maternity Ward	GF	810.00 m^2	OT: OT (2), HDU, Recovery room, Staff locker room, OT hall, CSSD Casualty: Ambulance, Triage/Clinic, Resuscitation room, Office, Sluice/sterilisation, Staff room, etc.
	1F	699.75 m^2	Maternity: Ward (42 beds), Newborn baby room, Maternity treatment room, Nurse station, Sluice/sterilisation, Patient toilet, etc.
Subtotal		1,509.75 m^2	
Power Receiving House	1F	36.0 m^2	Power receiving room, Generator room
Total		3,083.75 m^2	
Equipment for Main OT: 11 items Equipment for CSSD: 3 items Equipment for Casualty and HDU: 5 items Equipment for OPD: 10 items Equipment for Ward: 2 items Equipment for Common use: 12 items Total: 43 items			Anaesthesia Machine, Operating Table, Operating Light, Operating Instrument Set, etc. Autoclave, Sterilizing Container Set, etc. Infusion Pump, Syringe Pump, Ventilators, etc. Diagnostic Set, Examination Couch, etc. Bed for Ward, Infant Incubator X-ray Film Viewer, Nebulizer, etc.

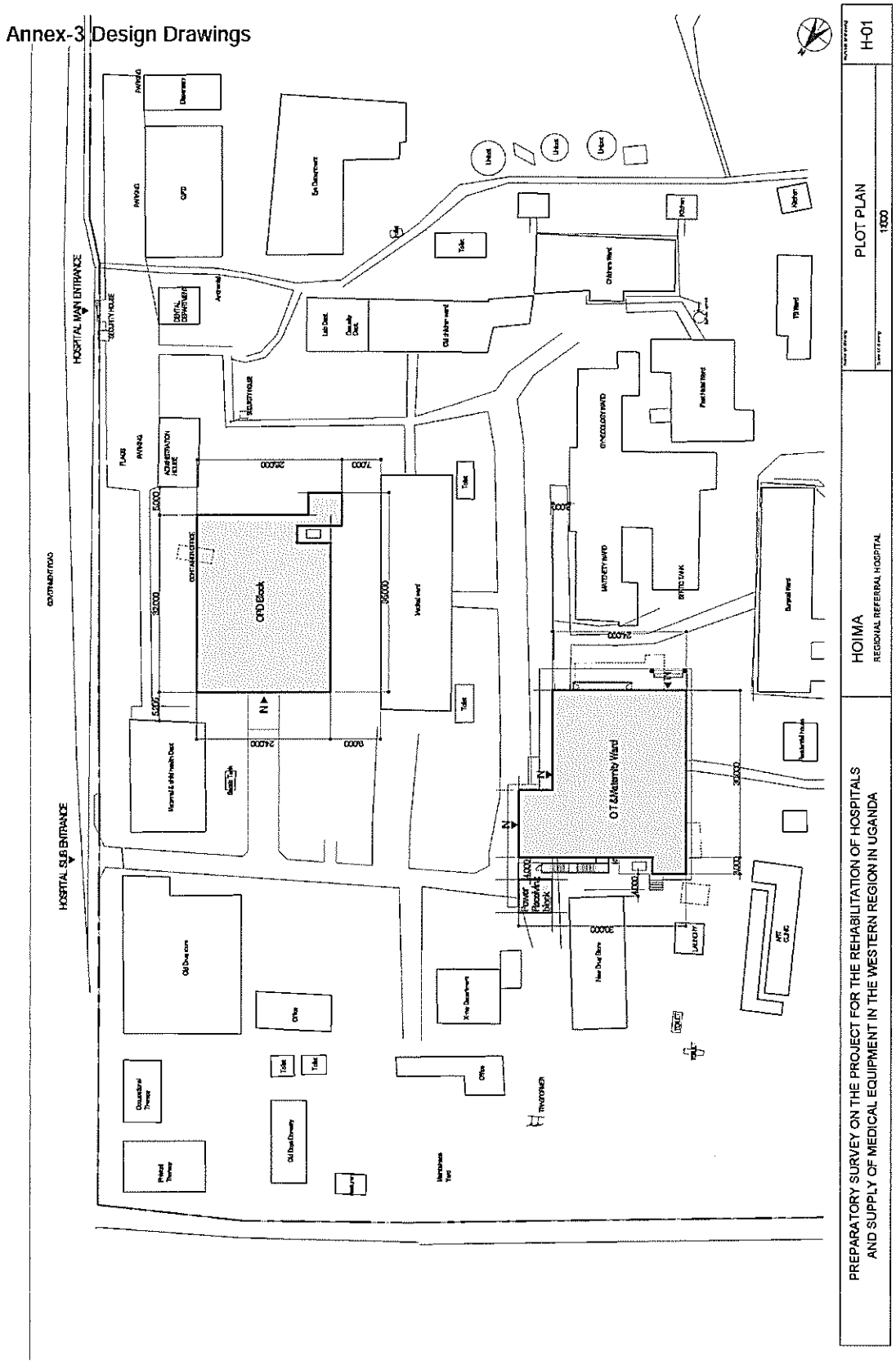
(2) Kabale RRH

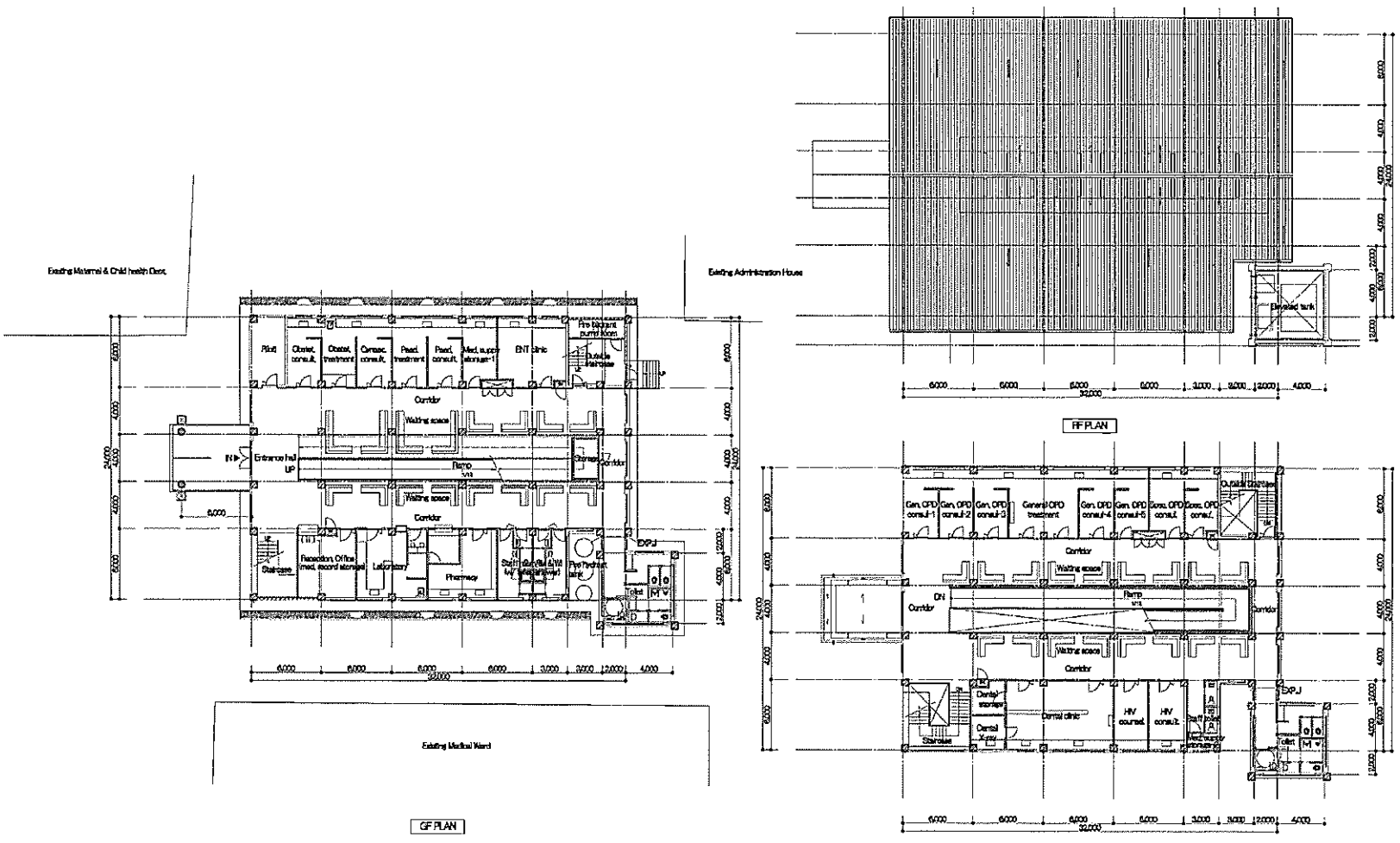
Project Component	Floor Areas	Description
OPD/Casualty Block (including outpatient toilet and connecting corridor)	GF 833.20 m^2	OPD: Reception, Laboratory, Pharmacy, Staff room, Patient toilet, etc. Casualty: Ambulance, Triage/clinic, Resuscitation room, Minor OT, Sluice/sterilisation, Office, Staff room, etc.
	1F 790.00 m^2	Consultation rooms (paediatric, gynaecology, general OPD, specialised OPD), Dental unit, Patient toilet, etc.
Subtotal	1,623.20 m^2	
OT/Maternity Ward	GF 744.00 m^2	OT(3), HDU, CSSD, Recovery room, Staff locker room, OT hall, etc.
	1F 765.75 m^2	Maternity: ward (42 beds), Delivery room (5), Newborn baby room, Nurse station, Sluice/sterilisation, Patient toilet, etc.
Subtotal	1,509.75 m^2	
Total	3,132.95m^2	
Equipment for Main OT: 13 items Equipment for CSSD: 3 items Equipment for Casualty and HDU: 8 items Equipment for Delivery room: 3 items Equipment for OPD: 9 items Equipment for Ward: 2 items Equipment for Common use: 14 items Total: 52 items		Anaesthesia Machine, Operating Table, Operating Light, Operating Instrument Set, etc. Autoclave, Sterilizing Container Set, etc. Infusion Pump, Syringe Pump, Ventilators, etc. Delivery bed, Doppler, etc. Diagnostic Set, Examination Couch, etc. Bed for Ward, Infant Incubator, etc. X-ray Film Viewer, Nebulizer, etc.

(3) Fort Portal RRH

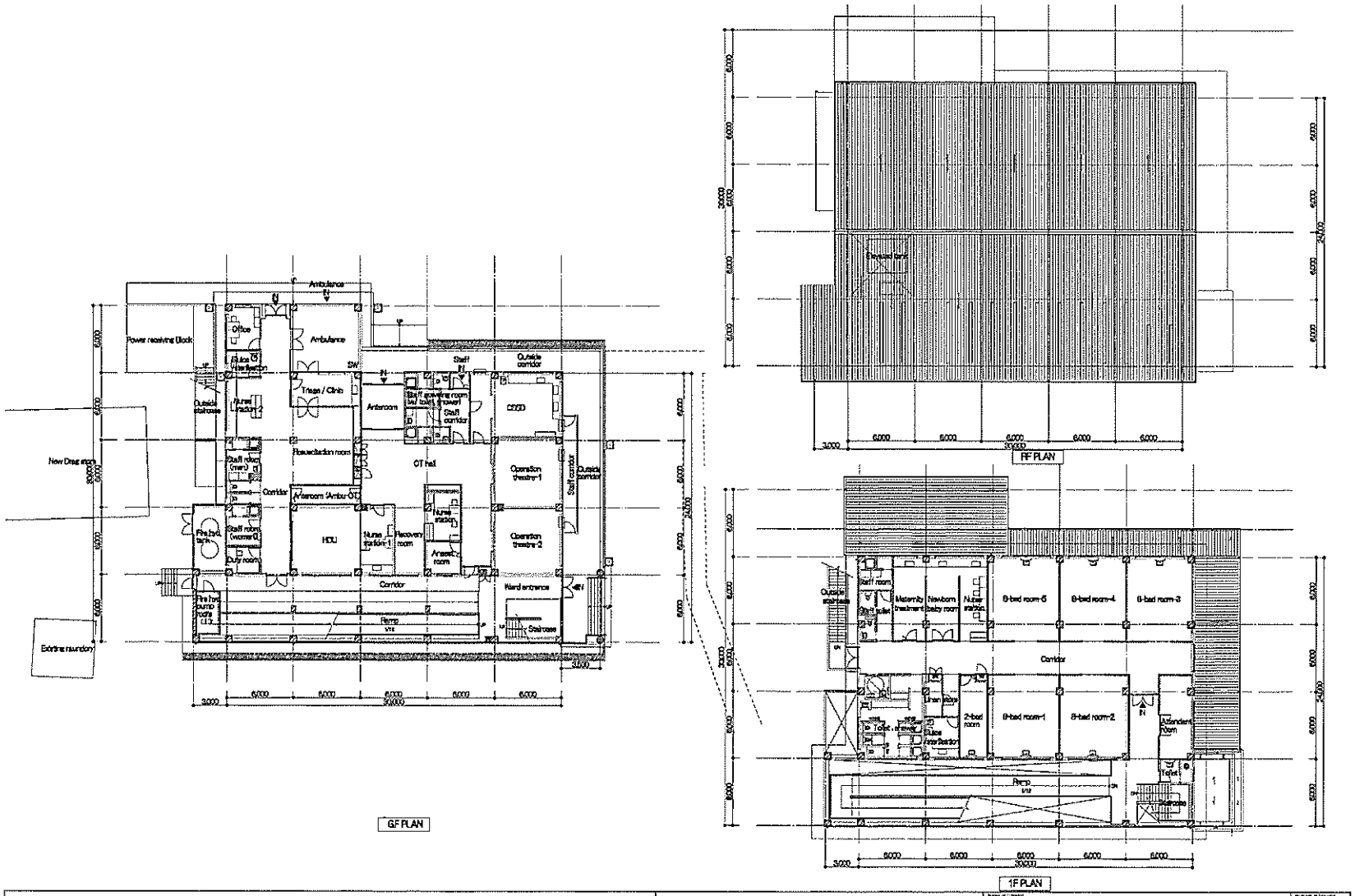
Project Component	Description
Equipment for Main OT: 9 items Equipment for CSSD: 2 items Equipment for Casualty and HDU: 4 items Equipment for Delivery room: 1 item Equipment for OPD: 4 items Equipment for Ward: 1 item Equipment for common use: 8 items Total: 29 items	Anaesthesia Machine, Operating Table, Operating Light, Operating Instrument Set, etc. Autoclave, Sterilizing Container Set Infusion pump, Ventilators, etc. Doppler Diagnostic set, Examination couch, etc. Infant Incubator X-ray Film Viewer, Nebulizer, etc.

Annex-3 Design Drawings

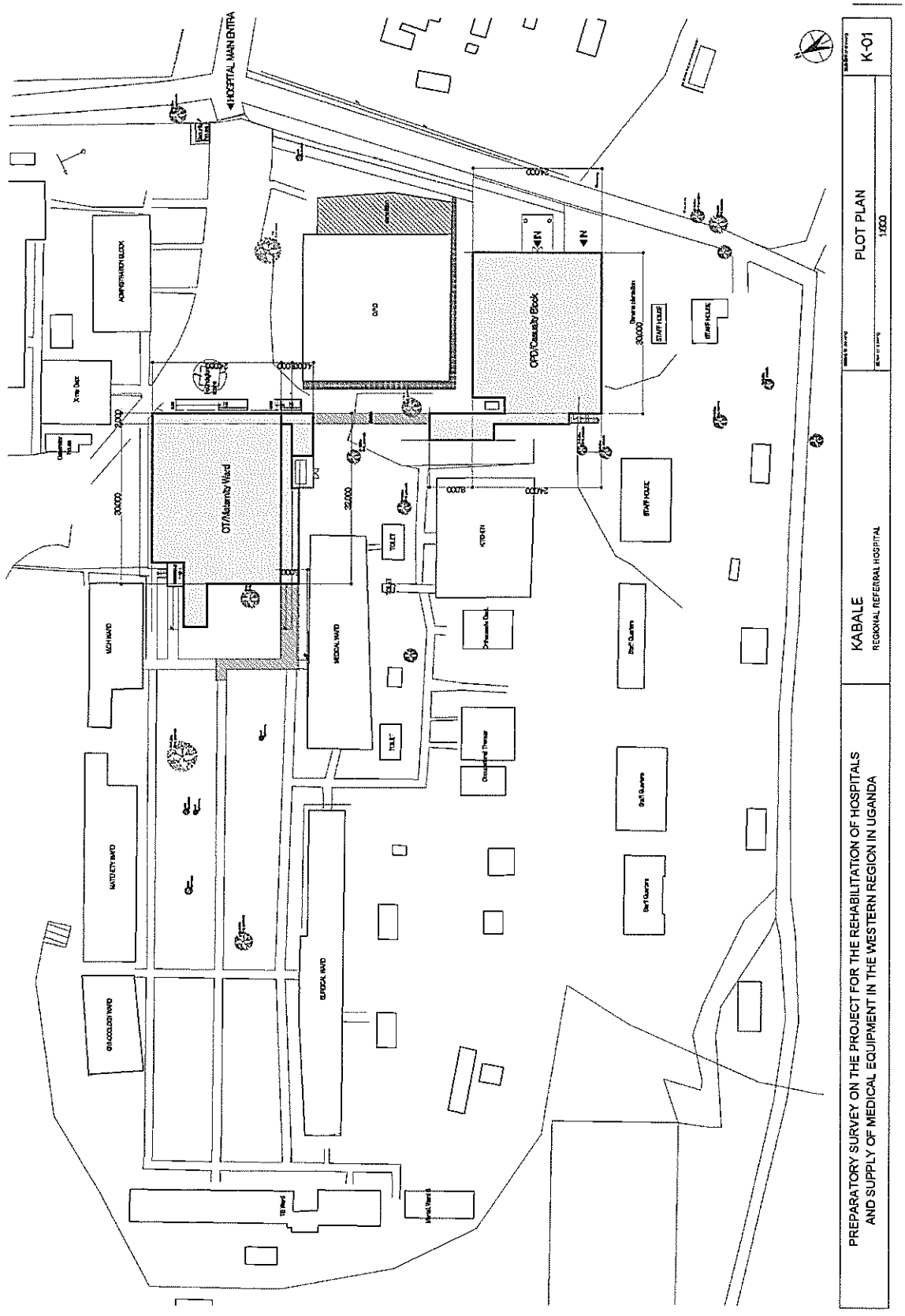


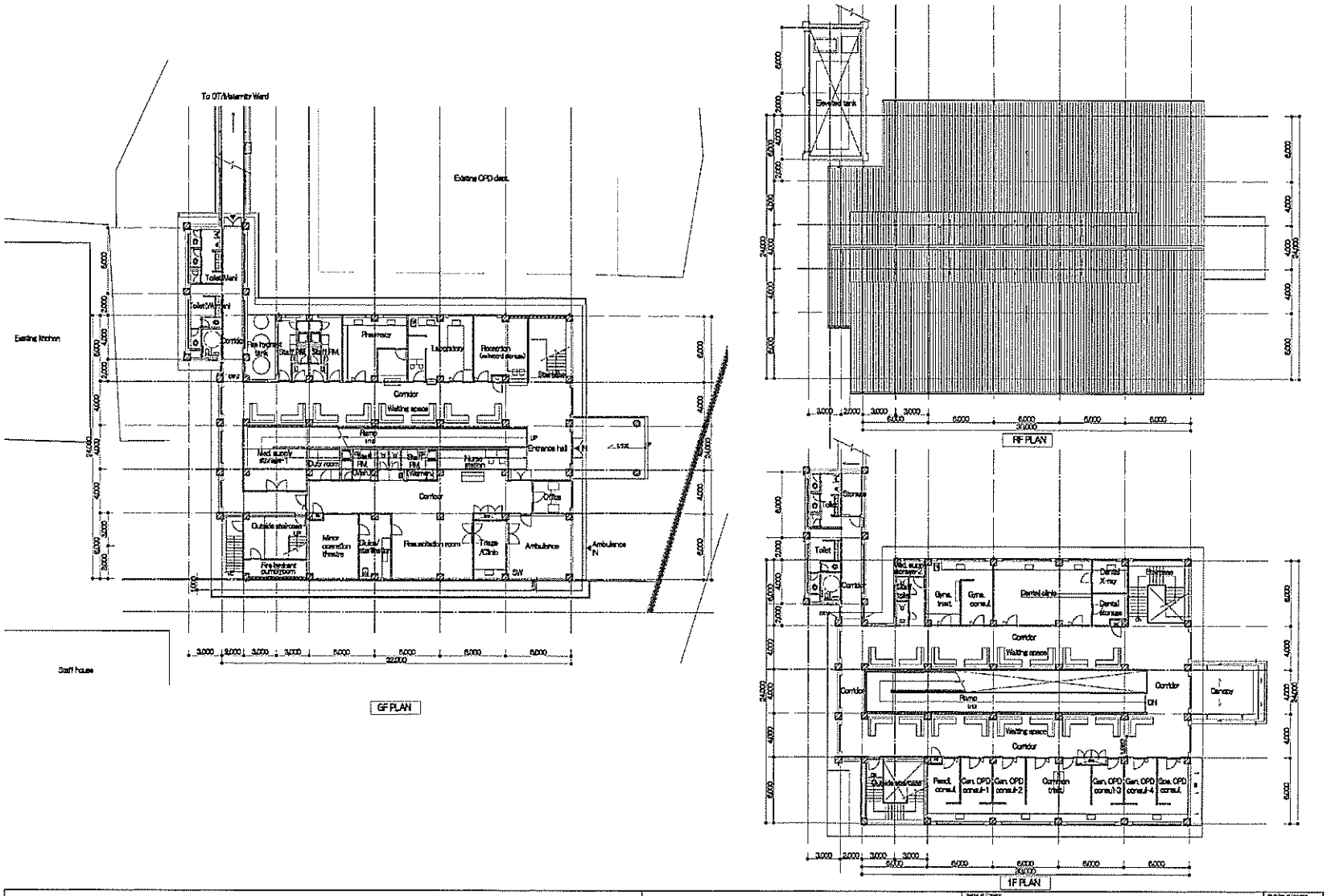


PREPARATORY SURVEY ON THE PROJECT FOR THE REHABILITATION OF HOSPITALS AND SUPPLY OF MEDICAL EQUIPMENT IN THE WESTERN REGION IN UGANDA	HOIMA REGIONAL REFERRAL HOSPITAL	OPD Block PLAN 1/300	H-02

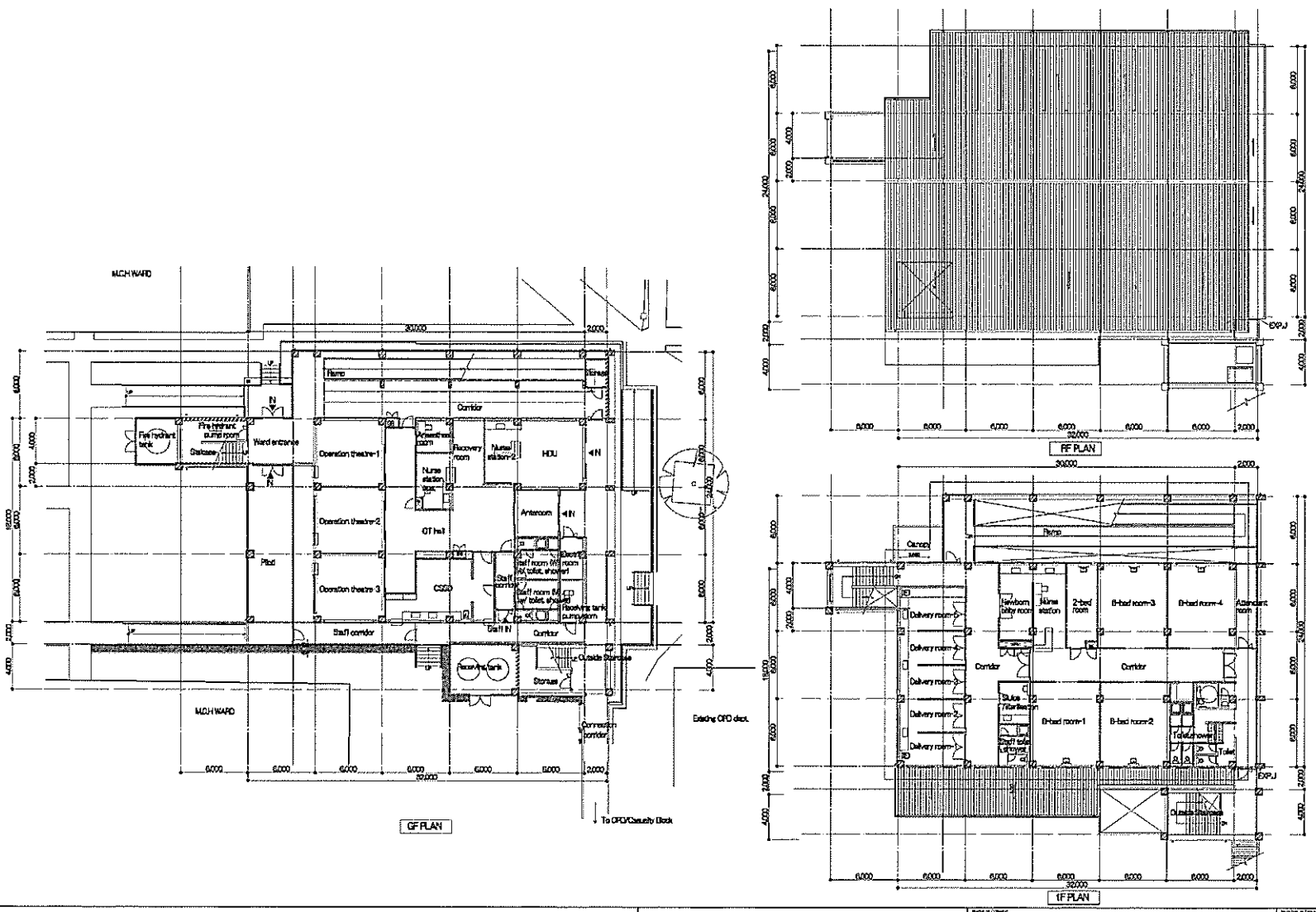


PREPARATORY SURVEY ON THE PROJECT FOR THE REHABILITATION OF HOSPITALS AND SUPPLY OF MEDICAL EQUIPMENT IN THE WESTERN REGION IN UGANDA	HOIMA REGIONAL REFERRAL HOSPITAL	OT/Maternity Ward PLAN 1/300	H-04


HOSPITAL MAIN ENTRA
ADMINISTRATION BLOCK
X-ray Dept
OPD
OPD/Casualty Block
STAFF HOUSE
OT/Maternity Ward
KITCHEN
TOILET
MCH WARD
MEDICAL WARD
Dispensing Pharmacy
Staff Quarters
MATERNITY WARD
SURGICAL WARD
GYNECOLOGY WARD
TB Ward
Mortuary
PREPARATORY SURVEY ON THE PROJECT FOR THE REHABILITATION OF HOSPITALS AND SUPPLY OF MEDICAL EQUIPMENT IN THE WESTERN REGION IN UGANDA
KABALE
REGIONAL REFERRAL HOSPITAL
PLOT PLAN
1/500
K-01



PREPARATORY SURVEY ON THE PROJECT FOR THE REHABILITATION OF HOSPITALS AND SUPPLY OF MEDICAL EQUIPMENT IN THE WESTERN REGION IN UGANDA	KABALE REGIONAL REFERRAL HOSPITAL	OPD/Casualty Block PLAN 1300	K-02



PREPARATORY SURVEY ON THE PROJECT FOR THE REHABILITATION OF HOSPITALS AND SUPPLY OF MEDICAL EQUIPMENT IN THE WESTERN REGION IN UGANDA	KABALE REGIONAL REFERRAL HOSPITAL	OT/Maternity Ward PLAN 1/300	K-04

Code No.	Equipment	Q'ty	Unit	Allocation List			Remarks
				Hoima	Kabale	Fort Portal	
5	Anaesthesia Machine Set	8	Sets	2	3	3	
8	Audiometer (Screening)	2	Sets	1		1	
10	Autoclave (Large)	3	Sets	1	1	1	
19	Bed (for Emergency)	9	Sets	3	3	3	
20	Bed (for ICU)	8	Sets	4	4		
22	Bed (for Patient)	76	Sets	42	34		
29	Bronchoscope	2	Sets		1	1	
34	C-arm X-ray Unit	3	Sets	1	1	1	
39	Centrifuge	2	Sets	1	1		
44	Defibrillator	5	Sets	1	2	2	
45	Delivery Bed	7	Sets		5	2	Additional requirement (Fort Portal x 1) is included.
46	Dental Unit Set	2	Sets	1	1		
49	Diagnostic Set	6	Sets	3	3		
52	Doppler	2	Sets		1	1	
55	ECG (12 lead)	4	Sets	1	2	1	Additional requirement (Kabale x 1) is included
59	Electric Surgical Unit	3	Sets	1	1	1	
65	Endoscope Set	2	Sets	1	1		
66	ENT Unit	3	Sets	1	1	1	
68	Examination Couch	24	Sets	15	9		
69	Examination Lamp (Mobile Type)	13	Sets	4	4	5	Additional requirements (Kabale x 1, Fort Portal x 5) are included
70	Examination Table (for Ob&Gy w/Examination Unit)	3	Sets	2	1		
88	Infant Incubator	7	Sets	3	2	2	Additional requirement (Hoima x 1) is included
92	Infusion Pump	5	Sets	2	2	1	
97	Instrument Set (for Caesarean Section)	3	Sets	1	1	1	
99	Instrument Set (for Delivery)	3	Sets		3		
100	Instrument Set (for Dental examination)	1	Set		1		
104	Instrument Set (for Dilatation)	2	Sets	1	1		
107	Instrument Set (for ENT Clinic)	1	Set			1	
109	Instrument Set (for General Surgery Large)	3	Sets		2	1	Additional requirement (Kabale x 1) is included
110	Instrument Set (for Gynecology)	4	Sets	2		2	Additional requirements (Fort Portal x 2) are included
114	Instrument Set (for Intubation)	2	Set		1	1	Additional requirement (Fort Portal x 1) is included.
117	Instrument Set (for Laparotomy)	2	Sets		1	1	
125	Instrument Set (for Orthopedic)	3	Sets	1	1	1	Additional requirement (Fort Portal x 1) is included.
137	Instrument Set (for Tracheostomy)	4	Sets	2	1	1	Additional requirement (Fort Portal x 1) is included.
155	Microscope (Binocular)	2	Sets	1	1		
160	Nebulizer	8	Sets	3	3	2	Additional requirements (Fort Portal x 2) are included

Code No.	Equipment	Q'ty	Unit	Allocation List			Remarks
				Hoima	Kabale	Fort Portal	
163	Operating Light (Ceiling Type)	5	Sets	2	3		
164	Operating Light (Mobile Type)	5	Sets		1	4	
165	Operating Microscope (for ENT)	3	Sets	1	1	1	
167	Operating Table	7	Sets	2	3	2	
177	Patient Trolley	6	Sets	2	2	2	
185	Portable Monitor	11	Sets	4	4	3	Additional requirement (Hoima x 1) is included
193	Refrigerator (for Laboratory)	2	Sets	1	1		
194	Refrigerator (for Medicine)	2	Sets	1	1		
196	Resuscitation Bag (for Adult)	2	Sets		2		
197	Resuscitation Bag (for Paediatric)	1	Set		1		
216	Stool (for Surgeon)	9	Sets	2	3	4	Additional requirements (Fort Portal x 4) are included
218	Sterilizing Container Set (Drum & Carrier)	3	Sets	1	1	1	
221	Suction Machine (Electric)	13	Sets	4	4	5	Additional requirements (Fort Portal x 2) are included
225	Syringe Pump	5	Sets	3	2		
243	Ultrasound Scanner (Portable)	2	Set		1	1	Additional requirement (Kabale x 1) is included
249	Ventilators (Adult)	3	Sets	1	1	1	
263	Working Table (Large)	2	Sets	1	1		
264	X-ray Film Viewer	12	Sets	8	4		
268	Oxygen Cylinder w/Regulator & Trolley	11	Sets	3	4	4	
269	Endoscope Set w/Coagulation	1	Set			1	
270	Examination Table w/Examination Unit	3	Sets	2	1		

Note: The instrument sets exclude, from the NACME standard list, items that can easily be procured locally.

Annex-5 Operation and Maintenance Cost for Facilities and Equipment

Annual Costs for Operation and Maintenance (in UShs)

(1) Hoima RRH

Item	Initial fiscal year	Following fiscal years
① Electricity charge	77,929,843	77,929,843
② Telephone charge	4,082,600	4,082,600
③ Fuel cost of generator	17,841,600	17,841,600
④ Water charge	15,607,668	15,607,668
⑤ Oxygen charge	169,920	169,920
⑥ Building maintenance cost	0	9,251,250
Sub-total ① – ⑥ (facility maintenance cost)	115,631,631	124,884,881
⑦ Equipment maintenance cost	5,951,250	5,951,250
Total ① – ⑦	121,582,881	130,836,131

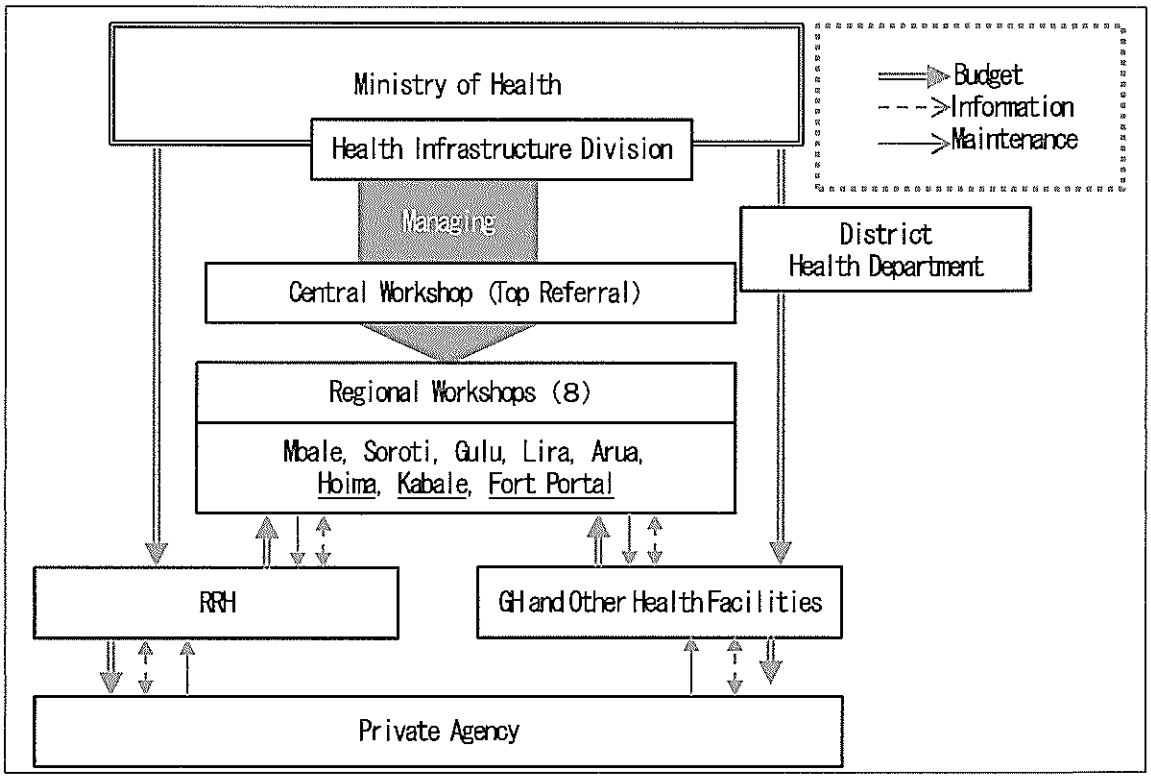
(2) Kabale RRH

Item	Initial fiscal year	Following fiscal years
① Electricity charge	77,929,843	77,929,843
② Telephone charge	4,082,600	4,082,600
③ Fuel cost of generator	17,841,600	17,841,600
④ Water charge	13,926,360	13,926,360
⑤ Oxygen charge	169,920	169,920
⑥ Building maintenance cost	0	9,398,850
Sub-total ① – ⑥ (facility maintenance cost)	113,950,323	123,349,173
⑦ Equipment maintenance cost	6,021,250	6,021,250
Total ① – ⑦	119,973,573	129,370,423

(3) Fort Portal RRH

Item	Initial fiscal year	Following fiscal years
① Equipment maintenance cost	7,341,250	7,341,250

Annex-6 Maintenance Organization

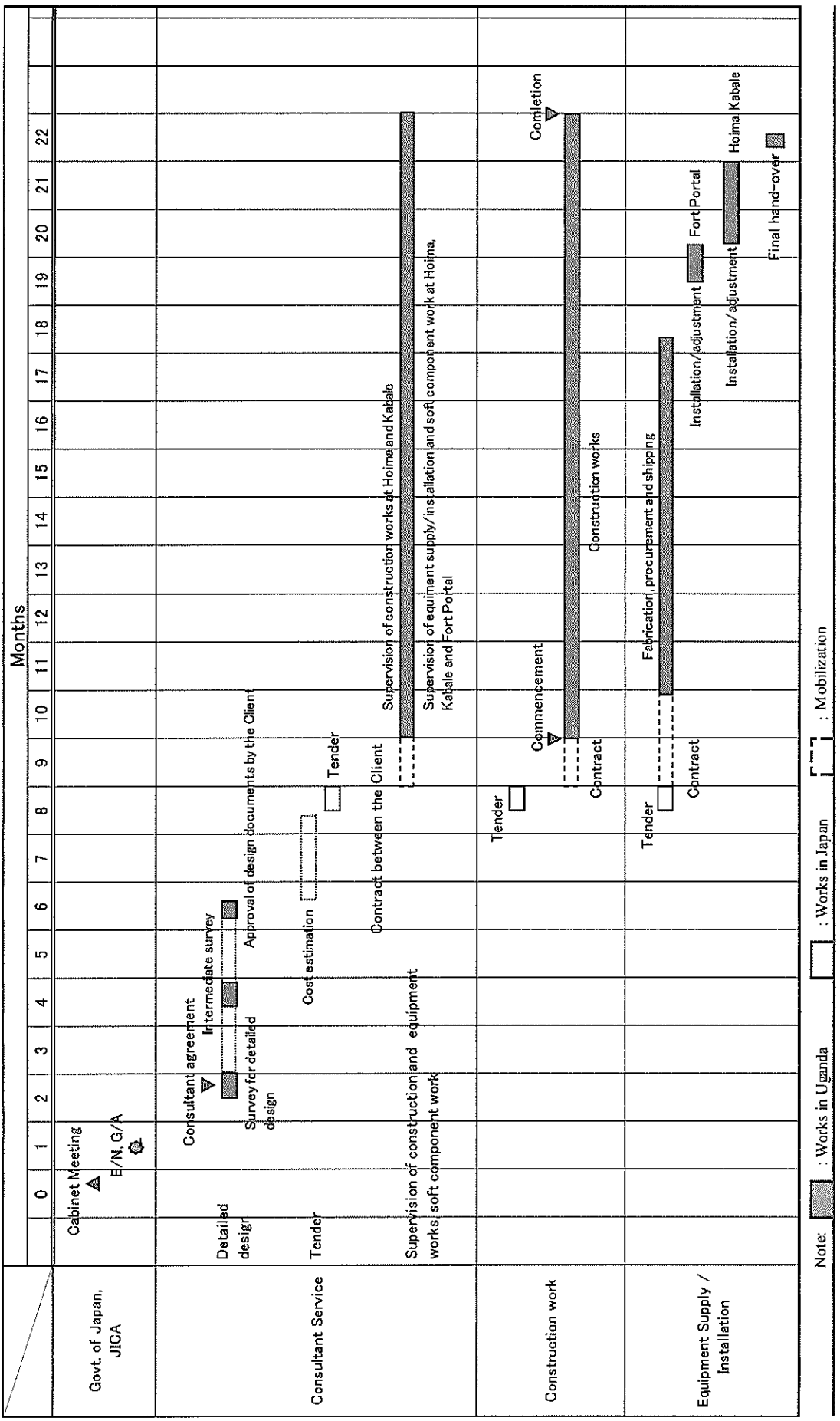


Outline of Maintenance and Management System

Annex-7 Undertakings by the Ugandan Side

Items	To be completed			
	MOH	Hoima RRH	Kabale RRH	Fort Portal RRH
1) Issuance of the Banking Arrangement and the Authorization to Pay, and payment of required banking commissions (approx. 0.2% of the contract price)	For Consultant- Within 1 month after signing the Consultant Agreement	N/A		
	For Contractor/ Supplier- Within 1 month after signing the Contract	N/A		
2) Acquisition of the permission for construction	N/A	Before commencement of construction work		N/A
3) Provision of land necessary for construction work (temporary material yard)	N/A	Before commencement of construction work		N/A
4) Transfer of functions from the existing Operation Theatre	N/A	Before commencement of construction work		N/A
5) Demolition and removal of the existing facilities in the site (existing Operation Theatre, kitchen and container office)	N/A	Before commencement of construction work	N/A	N/A
6) Demolition of and removal of the existing facilities in the site (existing Operation Theatre, part of OPD and outpatient toilet)	N/A	NA	Before commencement of construction work	N/A
7) Cutting of trees in the site and removal of topsoil	N/A	Before commencement of construction work		N/A
8) Removal of the existing power cable, telephone cable, water supply pipe and wastewater pipe passing the site, and their rerouting	N/A	Before commencement of construction work		N/A
9) Renewal of the pole transformer from the existing 100kVA type to a 315kVA type	N/A	During the construction work period		N/A
10) Construction of a fence to separate the outpatient area and inpatient area, and transfer of the gate	N/A	After completion of construction work	N/A	N/A
11) Construction of fences and gates	N/A	N/A	After completion of construction work	N/A
12) Construction of a hospital road connecting the sub entrance of hospital premises and the OT/Maternity Ward	N/A	After completion of construction work	N/A	N/A
13) Construction of a road outside the site	N/A	N/A	After completion of construction work	N/A
14) Procurement of general furniture and fixtures	N/A	After completion of construction work		N/A
15) Functional transfer from the existing facilities to the new facilities (OPD Block, OT/Maternity Ward)	N/A	After completion of construction work		N/A
16) Securing locations for mounting the equipment to be procured in this project, transfer of the existing equipment and ensuring necessary power source, etc.	N/A	Before installation of equipment supplied in the project		

Annex-8 Tentative Schedule of the Project



TECHNICAL NOTE
ON PREPARATORY SURVEY (FIELD SURVEY II)
ON THE PROJECT FOR THE REHABILITATION OF HOSPITALS AND SUPPLY OF MEDICAL EQUIPMENT IN THE WESTERN REGION IN UGANDA

After Signing of Minutes of Discussions on 17th August 2011, the consultant team held discussions with the officials concerned from the Government of Uganda. In the course of discussions and field surveys, both parties confirmed the items described below.

1. Japanese Survey Team and Representative of MOH (Eng.Kaliba) visited Hoima RRH on 23rd August 2011 and held discussion with the hospital management to confirm the new OPD building, and other relevant items. The Minutes of Meeting are attached.

2. The Japanese Survey Team explained roughly the required building Conceptual Schematic Design (Hoima and Kabale RRH; OPB Block and Main Theater Block) to the Ugandan Counterparts. The Ugandan Counterparts understood and accepted the Building Conceptual Schematic Design.

3. Regarding Structural Calculations, both parties agreed that the Consultant will use Ugandan Seismic Factor and Load parameters, but using Japanese Computerized Calculation method.

4. Both sides confirmed the information, data, report or answer of the Questionnaire which were not submitted to the Japanese Survey Team. They include the items described below;
   1) Report on the relationship between RRH and NRH from Hoima and Kabale RRH
   2) ADB, USAID and Ugandan Government Project Unit rates for on going projects
   3) Answer of MOH Questionnaire

5. Equipment

(1) Both sides agreed that the Aggregate Equipment List which the Consultant assembled for Hoima, Kabale and Fort Portal RRH is the final request from Ugandan side. In addition, Consultant reported that the necessity and priorities of equipment are still under consideration to ensure proper coordination with facilities which is still at planning stage. Consultant explained that the content of the

equipment may be readjusted to match facility planning which the Ugandan side agreed with.

(2) The Consultants explained that ambulances were missing from the equipment list which was attached as Annex-4 of the Minutes of Discussions signed on 17th August, 2011 between JICA and Ugandan side. Ugandan side requested for addition of the ambulances to the Aggregate Equipment List.

(3) The Consultants requested MOH to submit technical data on equipment where specifications were not yet given. The Consultant will submit to MOH a list of the equipment which requires further clarification on specification.

(4) The Consultants explained that some equipment requires maintenance contract with suppliers after one year warranty and some equipment requires technical training. The Consultant submitted the lists of the equipment that need the maintenance contract and technical training and MOH understood the necessity and agreed with the consultant's recommendation.

Kampala, 24th August, 2011

Dr. Jacinto Amandua
Commissioner,
Clinical Services, MOH

Mr. Keiichi Ide
Project manager
Survey Team

MINUTES OF THE MEETING BETWEEN HOSPITAL MANAGEMENT AND THE JAPANESE SURVEY TEAM HELD ON 23RD AUGUST 2011 AT HOIMA REGIONAL REFERRAL HOSPITAL

The Japanese Survey Team for the proposed rehabilitation of Hoima regional referral hospital, under the "Project for Rehabilitation of Hospitals and Supply of Medical Equipment in the Western Region in Uganda" visited the hospital ion 23rd August 2011. During the visit, the following issues concerning the project were discussed and agreed upon with the Hospital Management.

1. Revision of the Site of the Out Patient Department

The Japanese Survey Team and the Ministry of Health representative explained the discussions held with Ministry of Health regarding the change of the site for the Outpatient Department to within the current hospital premises. The Hospital Management understood and accepted.

Following preliminary measurements by the survey team, the hospital and the survey team agreed to locate the proposed Outpatient Department in the space between the medical ward and the MCH buildings. It was also agreed that the current MCH building will be demolished to allow space for access and circulation around the proposed OPD.

2. High Dependence Unit (HDU)

The consultant anaesthesiologist provided good references for determination of the number of beds for HDU in relationship with the size of hospital. The Japanese survey team requested that the Ministry of Health should submit the references officially with recommendation of Uganda's National Standards for HDU.

3. Hospital Staff Reinforcement Plan

The hospital will make a report that explains the relationship between Hoima Regional Referral Hospital and the National Referral Hospitals on the visiting doctors and in-house training programme and submit it to the Japanese Survey Team by 25th August 2011.

Dr. Francis W. Mulwanyi
Hospital Director
Hoima Regional Referral Hospital

Mr. Keiichi Ide
Project Manager
Japanese Survey Team

Eng. Paul Kaliba
Civil Engineer
Ministry of Health

Aggregate Equipment List

No.	Equipment	Q'ty			
		Hoima	Kabale	Fort Portal	Total
1	ABR System			1	1
2	Air Mattress (for Bedsore Prevention)	1	1		2
3	Amalgamator	2		1	3
4	Ambulance	2	1	1	4
5	Anaesthesia Machine	3	4	5	12
6	Audiometer (Clinical)	1	1	1	3
7	Audiometer (for Paediatric)			1	1
8	Audiometer (Screening)	1		1	2
9	Auto Refractor	1	1		2
10	Autoclave (Large)	2	2	2	6
11	Autoclave (Medium)	1			1
12	Autoclave (Table Top Type)	8	5	12	25
13	Automatic Film Processor			1	1
14	Baby Cot	9	10	10	29
15	Balance (Analytical)	2		2	4
16	Balance (Electric)	2		1	3
17	Balkan Beam	2			2
18	Band Saw	1			1
19	Bed (for Emergency)	3	3	3	9
20	Bed (for HCU)	7	4	4	15
21	Bed (for Orthopedic)	10	10		20
22	Bed (for Patient)	50	66		116
23	Bed Side Locker	50	58		108
24	Belt Sander	1			1
25	Bobarth Ball Set	1			1
26	Bohlers Stirrups	30			30
27	Bone Drilling Machine (Manual)	1	1		2
28	Bone Saw	2			2
29	Bronchoscope		1	1	2
30	Bull Head Lamp		1		1
31	Cabinet (for Drug)			4	4
32	Cabinet (for Drying)	1			1
33	Cabinet (for Instrument)	2	9	5	16
34	C-arm X-ray Unit	1	1	1	3
35	Cassette Set	1			1
36	Cassette Set (Gridded Type)	1			1
37	CD4 Counter		1		1
38	Centrifuge (HCT)			2	2
39	Centrifuge (Table Top Type)	2	3	1	6
40	Chemistry Analyzer		1		1
41	Colorimeter			1	1
42	Crutches	1			1
43	Deep Freezer			1	1
44	Defibrillator	2	3	3	8
45	Delivery Bed	8	5	5	18
46	Dental Unit	3	3	1	7
47	Dental X-ray Machine		1		1
48	Desk & Chair Set (for Doctor)	14	7	1	22
49	Diagnostic Set	8	3		11
50	Diagnostic Set (for MCH)			6	6
51	Distillator	1		2	3
52	Doppler		3	3	6
53	Dryer			1	1
54	Dynamometer (Hand, Finger)		1		1

Aggregate Equipment List

No.	Equipment	Q'ty			
		Hoima	Kabale	Fort Portal	Total
55	ECG (12 lead)	3	3	2	8
56	ECT			1	1
57	Electric Cautery Apparatus			1	1
58	Electric Saw	1			1
59	Electric Surgical Unit	2	2	3	7
60	Electrical Nerve Stimulators (TENS)	1			1
61	Electroencephalogram (EEG)	1		1	2
62	Electrophoresis Apparatus			1	1
63	EMG			1	1
64	EMS			1	1
65	Endoscope Set	1	1	1	3
66	ENT Unit	1	1	2	4
67	Esophagoscope			1	1
68	Examination Couch	20	15	2	37
69	Examination Lamp (Mobile Type)	14	11	19	44
70	Examination Table (for Ob&Gy w/Examination Unit)	4	3	6	13
71	Exercise Ball Set	1			1
72	Exercise Equipment Set (for Hand therapy)	1			1
73	Exerciser (for Arm Muscle)			1	1
74	Exerciser (for Finger)		1		1
75	External Fixation Set	10	10		20
76	Extraction Forceps Set	2			2
77	Glucometer		7	2	9
78	Goniometer		1		1
79	Grinder.	1			1
80	Haematology Analyzer		1		1
81	Hand Circular Saw	1			1
82	Hand Wash Trolley	3			3
83	Hawley Table	1			1
84	Hearing Aid Analyzer			1	1
85	Hot Air Oven	1	1		2
86	Hot Plate			1	1
87	Incubator (Anaerobic)	1			1
88	Infant Incubator	5	3	4	12
89	Infant Incubators (for Transport)		1		1
90	Infant Warmer		2		2
91	Infrared Therapy Machine	1		1	2
92	Infusion Pump	6	2	23	31
93	Instrument Set (for Adenoidectomy)	1			1
94	Instrument Set (for Antrum Wash Out)	1			1
95	Instrument Set (for Bilateral Tubal Ligation)	10			10
96	Instrument Set (for Burr Hole)			2	2
97	Instrument Set (for Caesarean Section)	5	5	3	13
98	Instrument Set (for Cataract)	5			5
99	Instrument Set (for Delivery)		10	10	20
100	Instrument Set (for Dental)			3	3
101	Instrument Set (for Dental extraction/Examination)		12		12
102	Instrument Set (for Dental Filling)	2			2
103	Instrument Set (for Dental Surgery)	1		2	3
104	Instrument Set (for Dilatation)	5	3	3	11
105	Instrument Set (for Dressing)	18	40	9	67
106	Instrument Set (for ENT Casualty)			1	1
107	Instrument Set (for ENT Clinic)			1	1
108	Instrument Set (for Extra Ocular)			1	1

Aggregate Equipment List

No.	Equipment	Q'ty			
		Hoima	Kabale	Fort Portal	Total
109	Instrument Set (for General Surgery Large)		9	3	12
110	Instrument Set (for Gynecology)	6		6	12
111	Instrument Set (for Hernia/Hydrocoelectomy)	2		4	6
112	Instrument Set (for Hysterectomy)			6	6
113	Instrument Set (for In t ra Ocular)			1	1
114	Instrument Set (for Intubation)		1	3	4
115	Instrument Set (for IUCD)			2	2
116	Instrument Set (for IV Cut Down)			10	10
117	Instrument Set (for Laparotomy)		4	7	11
118	Instrument Set (for Laparotomy, Paediatric)			3	3
119	Instrument Set (for Lumbar Puncture, Adult)			10	10
120	Instrument Set (for Lumbar Puncture, Paediatric)			3	3
121	Instrument Set (for Mastoidectomy)			2	2
122	Instrument Set (for Myringotomy)	1			1
123	Instrument Set (for Obstetric Laparotomy)		3		3
124	Instrument Set (for Orthopedic Accessories)	1			1
125	Instrument Set (for Orthopedic)		5	1	6
126	Instrument Set (for Pathology)		1		1
127	Instrument Set (for Polypectomy)	1			1
128	Instrument Set (for Post Mortem)			1	1
129	Instrument Set (for Proof Puncture)	1			1
130	Instrument Set (for Sinus Operation)			2	2
131	Instrument Set (for Skin Grafting)		2	3	5
132	Instrument Set (for Stech Removing)			4	4
133	Instrument Set (for Stripping)			3	3
134	Instrument Set (for Surgical Toilet and Suture)		10	5	15
135	Instrument Set (for Suture)			4	4
136	Instrument Set (for Tonsillectomy)	1		2	3
137	Instrument Set (for Tracheostomy)	2	1	2	5
138	Instrument Set (for Tubal Ligation)			4	4
139	Instrument Set (for Turbinectomy)	1		2	3
140	Instrument Set (for Urology)			2	2
141	Instrument Set (for Vasectomy)	2		2	4
142	Instrument Set (for VVF)			2	2
143	Instrument Shelf	2	2		4
144	Instrument Tray w/Stand			6	6
145	Instrument Tray		6	18	24
146	Irrigation Stand	44	9	3	56
147	IV Production Unit	1			1
148	Jigsaw	1			1
149	Laryngoscope Set	2	1		3
150	Lens Set (Trial)			2	2
151	Lens (+20D for Indirect Ophthalmoscope)		1		1
152	Light Cure Machine	2	1	2	5
153	Magnifier (Head Worn Type)		2		2
154	Mattress (for Exercising)			1	1
155	Microscope (Binocular)	3	2	2	7
156	Mirror	1		1	2
157	Mobile X-ray Unit		1		1
158	Multipurpose Tent	1			1
159	Muscle Stimulator		1		1
160	Nebulizer	4	12	9	25
161	Needle Aspiration Biopsy Set		2		2
162	OAE Machine			1	1

Aggregate Equipment List

No.	Equipment	Q'ty			
		Hoima	Kabale	Fort Portal	Total
163	Operating Light (Ceiling Type)	2	3		5
164	Operating Light (Mobile Type)	1	6	4	11
165	Operating Microscope (for ENT)	1	1	1	3
166	Operating Microscope (Portable)		1		1
167	Operating Table	3	5	3	11
168	Ophthalmoscope (Direct)		3	3	6
169	Ophthalmoscope (Indirect, Head Worn Type)		1		1
170	Otoscope		2	2	4
171	Over Bed Table	4	4		8
172	Oxygen Concentrator	13	20	19	52
173	Paraffin Bath	1		1	2
174	Parallel Bar (for Children and Adults)	1			1
175	Patient Monitor	8	11	19	38
176	Patient Transfer Suitcase	1			1
177	Patient Trolley	17	19	14	50
178	pH Meter			1	1
179	Phototherapy Unit			1	1
180	Pinch Gauge (Hydraulic)		1		1
181	Plaster Bender		2		2
182	Plaster Saw (Electrical)		2		2
183	Plaster Shear (Manual)		2		2
184	Plaster Table		1		1
185	Portable Monitor	3			3
186	Pulse Oxymeter			7	7
187	Quadriceps Chair			1	1
188	Refrigerator (for Mortuary)		1	1	2
189	Refrigerator (for Specimen)		1		1
190	Refrigerator (for Blood Bank)	1	1	1	3
191	Refrigerator (for Ice Pack)	1		1	2
192	Refrigerator (for Kitchen)	1			1
193	Refrigerator (for Laboratory)	1			1
194	Refrigerator (for Medicine)	3	1	3	7
195	Refrigerator (w/ Freezer)		1		1
196	Resuscitation Bag (for Adult)	2	7	7	16
197	Resuscitation Bag (for Paediatric)		3	5	8
198	Retinoscope		2	1	3
199	Sewing Machine (Electric)	2			2
200	Shaker	1			1
201	Shaker (for VDRL)			2	2
202	Short Wave Diathermy Machine	1	1	1	3
203	Shoulder Wheel	1	1		2
204	Sign Nails	20			20
205	Skull Caliper (w/ Key)	5	5		10
206	Slit Lamp (w/ Applanation Tonometer)		2		2
207	Slit Lamp (w/ Teaching Provision)	1			1
208	Slitlamp			1	1
209	Soundproofing Booth	1	1	1	3
210	Spectrophotometer	1		1	2
211	Spirometer			1	1
212	Stair	1			1
213	Standing Frame	1			1
214	Stationary Bike	1	1	1	3
215	Steam Sterilizer		1		1
216	Stool (for Surgeon)	4	5	8	17

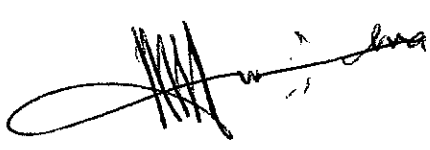
Aggregate Equipment List

No.	Equipment	Q'ty			
		Hoima	Kabale	Fort Portal	Total
217	Stool (for Patient)	12	7	1	20
218	Sterilizing Container Set (Drum & Carrier)	1	1	1	3
219	Stretcher	1	1		2
220	Stretcher (for Mortuary)		1		1
221	Suction Machine (Electric)	11	15	14	40
222	Suction Machine (for Vacuum Molding)	1			1
223	Suction Machine (Manual)		4	9	13
224	Surgical Light (Head Worn Type)		2		2
225	Syringe Pump	6	2		8
226	Tilting Table		1		1
227	Tonometer (Digital)			2	2
228	Tonometer (Non Contact Type)	1			1
229	Touch Mixer			2	2
230	Traction Machine (for Neck & Back)	1	1		2
231	Treadmill	1			1
232	Trolley (for Dressing)	1	1		2
233	Trolley (for Drug & Instrument)		7		7
234	Trolley (for Drug)	6	1	2	9
235	Trolley (for Emergency)	2			2
236	Trolley (for Instrument)	5	9	27	41
237	Trolley (for Mortuary)		1	1	2
238	Trolley (Mayo Type)		1	4	5
239	Tympanometer	1	1		2
240	Tympanometer (Handheld)			1	1
241	Ultrasonic Dental Scalar	2		2	4
242	Ultrasound Keratometer Machine	1			1
243	Ultrasound Scanner (Portable)		3	2	5
244	Ultrasound Scanner (for Clinical)		1	1	2
245	Ultrasound Therapy Machine	1	1	1	3
246	Under Water Seal Drainage Set			7	7
247	Vacuum Extractor (Electric)		2	1	3
248	Vacuum Extractor (Manual)			1	1
249	Ventilators (Adult)	2	2	2	6
250	Ventilator (Paediatric)	1	1		2
251	Universal Polishing Machine	1			1
252	Visual Field Machine (Automated)	1	1		2
253	Vitrectomy Machine		1		1
254	Walking Frame	2			2
255	Washing Basin w/Stand	3			3
256	Washing Machine	1		1	2
257	Water Bath	1	1	1	3
258	Weighing Scale (for Specimen)		1		1
259	Weighing Scale (Infant)	2	8	2	12
260	Weight Set	1		1	2
261	Weight/Height Measuring Scale	8	10	8	26
262	Wheel Chair	7	19	17	43
263	Working Table (Large)	1	1		2
264	X-ray Film Viewer	13	7		20
265	X-ray Processing Unit (for Dental Film)		1		1
266	YAG Laser Machine	1			1

Recommended Equipment List for Maintenance Contranct

No.	Equipment	Degree of necessity	Reasons
1	Anaesthea Machine	A	It might cause fatal accident by it's malfunction. Furthermore, it requires accuracy control on calibrator.
2	Audiometer	B	It requires regular calibration.
3	Autoclave (Large)	A	It is planned to install at CSSD and assumed to be frequent use.
4	Bronchoscope	B	It is comparatively high cost to introduce this equipment and contains sophisticated machinery. However, it is not unsure the coverage range by maintenance contract.
5	C arm X-ray Unit	A	It is high cost equipment.
6	CD4 Counter	A	It is analytical equipment and requires regular maintenance.
7	Chemistry Analyzer	A	It is comparatively high cost to introduce this equipment. Furthermore, it quite often causes accident in circulating specimen material and test reagent.
8	Defibrillator	C	The equipment will be utilize in emergency case, so it requires to keep the equipment normal function at any moment. However, the frequency of equipment use will be low and it does not cause malfunction so often.
9	Dental Chair	C	It causes malfunctioning in compressor or air turbine quite often, however, it would not be often to lead fatal accident.
10	Dental X-ray	B	For the reasons of frequent report of mal function
11	ECG	C	It is basic diagnostic equipment and the use will be frequent. However, it will not be often in case of malfunction.
12	Electric Surgical Unit	C	The necessity at operation and the frequency of use will be high. However, the case of malfunction would not be so often.
13	Electroencephalogram	B	Sophisticated machinery. However, the frequency of use would not be so high.
14	EMG	B	ditto
15	Infant Incubator	B	This equipment is required at premature baby care. The frequency of use would be high. However, the frequency of malfunction would not be so high.
16	Mobile X-ray unit	B	It is assumed of trouble due to the type of mobile. However, the frequency of malfunction would not be so high.
17	Patient Monitor	A	There is a possibility to lead fatal accident for it's purpose is monitor the serious patients.
18	Potable Monitor	A	ditto
19	Refrigerator (for Blood Ban	B	It is concerned that the malfunction of this fridge cause deterioration of transfusion blood. However, The frequency of malfunction would not be so high.
20	Refrigerator (Mortuary)	A	For the reasons of frequent report of mal function
21	Syringe Pump	B	It is essential to control accuracy. However, the quantity of equipment would be large and it can be operated by substituted equipment.
22	Vitrectomy Machine	B	High-cost equipment
23	Ultrasound Scanner	B	Comparatively high-cost equipment. However, the frequency of malfunction would not be so high.
24	Ventilator (Adult)	A	First aid equipment in emergency
25	Ventilator (Paediatric)	A	ditto
26	Yag Laser Machine	B	High-cost equipment

[Necessity] A:Essencial B:Desirable C:if possible



Recommended Equipment List for Training

No.	Equipment	Training method and degree of necessity			Objectives of the training and remarks
		Ugandan side		Japanese side	
		In-house	Outside Hospital	Soft Component	
1	Anaesthea Machine	A		A	Misuse of this equipment can cause fatal problem, so it requires proficient understand for operation. In-house training is effective to cultivate the human
2	Autoclave (Large)			B	To forward centralization, it is requires the long term training to change the consciousness of sanitalization system among hospital staffs. In addition, once the centralized system is established, malfunction of Autoclave might cause a consusion, so training for preventive maintenance by Soft Component will be important.
3	CD4	A		B	It is important for skilled technician to provide training to the others, for all the staffs should share the technique for accurate analysis.
4	Chemistry Analyzer			A	It is essential to do daily maintainance for the laboratory equipment especially using test regent, so Soft Component is held to train regular maintenance.
5	Defibrillator	A		C	Malfunction of this equipment can cause fatal proble. In-house training is held to refresh their understanding of use in clinical clinical use by the expert doctor. Soft component is held to strengthen long-term maintaining method.
6	Dental Chair			B	To strengthen long-term maintaining method and so on
7	ECG	A	B		To advance technique for diagnosis
8	Electric Surgical Unit			B	To train method for safety operation and daily maintenance
9	Electroencephalogram		A	A	It is not general-use equipment, so it requires proficient technique for measuring and diagnosis. The necessity of training is depend on the level of the doctor using the equipment. Soft component is held to train the method for operation and maintenance specialized in the new equipment.
10	EMG		A	A	ditto
11	Endoscope	A		C	Operating equipment is not so difficult, however, it requires proficient technique for examining method. Inner training is held to cultivate the person within the hospital.
12	Haematology Analyzer			B	The equipment utilizing test reagent requires daily maintenance. Soft Component is held to training the method of regular maintenance.
13	Infant Incubator	A		C	To train paramedical staff, such as nurses, midwives, for refreshing their clinical understanding.
14	Patient Monitor	A		A	The aim of in-house training is to train paramedical staff, such as nurses, midwives, for refreshing their clinical knowledge. It is also assumed that Soft Component would be necessity for training how to operate and main ten with the supplied equipment to ensure the long term operation.
15	Potable Monitor	A		A	ditto
16	Resuscitation Bag	A			This equipment is the manual ventilator, so the training for manipulative skill is necessary.
17	Ventilator (Adult)	A		A	It is life saving equipment for clitical patients, so it requires proficient clinical knowledge and correspondence in an acute condition. Soft Component is held to train how to operate and maintain.
18	Ventilator (Paediatric)	A		A	ditto

In House Training: In house or visiting doctor who has sufficient clinical and technical skill conducts training to the doctors
[Necessity] A:Essencial B:Desirable C:if possible

PREPARATORY SURVEY
ON
THE PROJECT FOR THE REHABILITATION
OF
HOSPITALS AND SUPPLY OF MEDICAL EQUIPMENT
IN THE WESTERN REGION IN UGANDA
IN
THE REPUBLIC OF UGANDA

Soft Component (Technical Assistance) Plan

August 2012

Consortium of

Yokogawa Architects & Engineers, Inc.

and INTEM Consulting, Inc.

Contents

1. Background of Soft Component

The Project for the Improvement of Health Facilities in Western Uganda (hereinafter called the Project) in the Republic of Uganda (hereinafter called Uganda) is to improve facilities and medical equipment in three regional referral hospitals in Western Uganda. Among the targeted hospitals, Hoima Regional Referral Hospital (hereinafter called "RRH") and Kabale RRH will be assisted through the construction of facilities and procurement of medical equipment, and Fort Portal RRH through the procurement of medical equipment.

Focusing on the improvement of healthcare service as a propriety area in the Health Sector Strategic and Investment Plan: (HSSIP,2010/11−2014/15), the government is deploying efforts for such improvement and conducting activities such as upgrade and expansion of facilities and medical equipment in health facilities across the country. At the same time, with the recognition that the improvement of the maintenance and management system for medical equipment is also important, they are improving the maintenance and management system for medical equipment in regional referral hospitals, e.g., expanding budget for maintenance and management of medical equipment in regional referral hospitals (2009/2010) and implementing Japanese technical cooperation project, "Project on Improvement of Health Service through Health Infrastructure Management" (hereinafter called the Technical Assistance Project).

However, they still do not have a high level of awareness or technique of maintenance and management at the field level, and there is a situation where improper use causes trouble and repair of faulty equipment, maintenance and management of equipment etc. are not sufficiently conducted. It is possible to establish a nationwide management system for medical equipment, as the targeted hospitals of the technical assistance are located all over the country, and also to provide training on how to maintain and manage general-purpose equipment. However, it is difficult to provide guidance on maintenance and management techniques and operational and clinical techniques for rather specialized equipment such as the medical equipment to be procured in the Project.

Therefore, we need to make sure that the targeted equipment will be kept in a decent state and utilized over a long period of time through the provision of technical training on how to maintain and manage the specific equipment procured in the Project.

It has been decided that the equipment plan of the Project will include somewhat advanced equipment for the departments deemed to have sufficient personnel who can utilize such equipment, e.g., those with experience in using such equipment. However, there are cases where such equipment is not owned as existing equipment, and not all the staff members, including non-core staff members (paramedical staff), are proficient in the use of such equipment. Therefore, we need to ensure that such more advanced equipment will be utilized more effectively through the provision of training on clinical knowledge and appropriate usage based on such knowledge.

Currently each department of the targeted hospitals owns a small-size sterilizer to sterilize instruments. In response to the request from the Ugandan side to establish Central Sterilization Supply Department (hereinafter referred to as CSSD) in time with the improvement of operation and emergency departments in the Project, we have considered the need and decided to include large high pressure steam sterilizers in the plan. As all the hospitals have extensive experience in using high pressure steam sterilizers, training

on basic usage etc. will not particularly be required. However, the concept of centralized control by a CSSD is not well established in the whole hospital, and we need to make sure that such equipment will be utilized more appropriately by clarifying the appropriate state of the CSSD of each hospital and providing technical training to improve the system of the hospital.

The purpose of the Project has been defined as, "In Western Uganda, by improving health infrastructure of the targeted hospitals, the health service delivery will be enforced." Achievement of the Project purpose to "improve healthcare service" will be more assured if such healthcare infrastructures as facilities and equipment are improved by the Project; technical training is provided through the plan and soft components; medical techniques and maintenance and management abilities are improved in the targeted hospitals; and the hospital systems are improved.

From such viewpoints, the Ugandan side requested the Japanese side to provide soft components.

2. Objective of Soft Component

2-1. Objective of Soft Component

Technical training will be provided to regional workshop technicians and health professionals (medical doctors, nurses, user trainers etc.) assigned to the hospitals of Hoima RRH, Kabale RRH and Fort Portal RRH, in the presence of the person in charge of the central workshop[1] assigned by the director of the Infrastructure Division, the Clinical Service Department, of the Ministry of Health (hereinafter called the Infrastructure Division of MOH). If the effect of the assistance of the plan continues, the achievement of the following three objectives can be expected.

I. Maintenance and management techniques for procured equipment will be improved and the equipment will be properly managed and operated over a long period of time.
II. Operational and clinical techniques for the effective use of procured equipment will be improved and hospital service will also be improved.
III. At each hospital, roles and functions of the CSSD will be clarified, the operation system will be improved, and prevention of hospital infections will be strengthened.

3. Output of Soft Component

The outputs to be achieved at the completion of soft components are as follows.

I Improvement of Maintenance and Management Techniques for Procured Equipment

The followings will be achieved through the provision of technical training to regional workshop technicians in charge of the targeted hospitals, and user trainers, nurses etc. assigned to the targeted hospitals.

I-① By confirming operation principles, purpose of use etc. of procured equipment and reorganizing and reviewing basic knowledge, such abilities will be better established.

I-② Methods of inspection and maintenance specifically for the procured equipment will be learned and a reasonable maintenance and management plan will be established with the existing system taken into consideration.

I-③ The level of troubleshooting techniques will be improved; e.g., accurate information can be provided to the central workshop or maintenance technicians of manufacturers while fault locations can be identified at the time of a failure.

[1] Workshop: Workshops are in charge of maintenance and management of all infrastructures including facilities and medical equipment at governmental healthcare facilities. There are eight workshops in the country. The capital, Kampala, is covered by the central workshop under the control of the Infrastructure Division of MOH, and the other seven areas are covered by regional workshops. A regional workshop is stationed at each of the target sites of the Project, the three RHHS, controlling maintenance and management of all the health facilities located in its service area. As the central workshop is considered as a referral center for regional workshops and plays such roles as getting a referral of equipment that cannot be repaired at a regional workshop, a nationwide maintenance and management system has been established.

II Improvement of Operational and Clinical Techniques for Effective Utilization of Procured Equipment

The followings will be achieved through the provision of technical training to the personnel (such as medical doctors and nurses) who will operate the procured equipment at the targeted hospitals.

II-① Knowledge about the functions and roles of the procured equipment will be organized.

II-② Appropriate handling techniques with the use of target equipment that are tailored to the situation of the patient will be learned.

III Clarification of Roles and Functions of the CSSD and Improvement of the Operation System

The followings will be achieved through the provision of technical training to such personnel as health professionals and regional workshop technicians concerned in the CSSDs of the targeted hospitals.

III-① An operation system for the CSSD deemed appropriate for each hospital will be organized and improved.

III-② Techniques for operation, maintenance and management of the procured equipment will be improved.

4. Method for Confirming the Degrees of Achievement of Outputs

Achievement of the soft components will be confirmed in the following manner.

Output		Method of Confirming Achievements
I Maintenance Technique	① Confirmation of basic knowledge of procured equipment	Level of understanding will be confirmed by carrying out technical assessment before and after the provision of technical training.
	② Acquirement of methods of daily and periodic maintenance of procured equipment	Manuals for procured equipment etc. will be added to the existing maintenance and management system.
	③ Improvement of failure diagnosis and handling techniques	Failure diagnosis manual etc. will be created.
II Clinical Technique	① Confirmation of functions and roles of procured equipment	Level of understanding will be confirmed by carrying out technical assessment before and after the provision of technical training.
	② Acquisition of appropriate handling techniques with the use of target equipment that are tailored to the situation of the patient	Level of understanding will be confirmed by carrying out technical assessment before and after the provision of technical training.
III CSSD	① Improvement of the system of CSSD	Opinions of hospital staff will be collected and an operation system chart will be created.
	② Improvement of operation and management techniques for procured equipment	Operation manual will be created.

5. Activities of Soft Component (Input Plan)

Activities to achieve each output (Input Plan) are as follows.

(1) Plan of Operation

Output		Plan of Operation	
		Lecturer	Outline of Training
I Maintenance technique	① Confirmation of basic knowledge of procured equipment	Consultant for equipment maintenance technique	Confirmation of operation principles, purpose of use etc., and reorganization and review of basic knowledge
	② Acquirement of methods of daily and periodic maintenance of procured equipment		Acquisition of methods of daily and periodic maintenance of procured equipment Development of a maintenance and management plan
	③ Improvement of failure diagnosis and handling techniques		Acquisition of troubleshooting techniques including identification of fault locations and handling techniques
II Clinical technique	① Confirmation of functions and roles of procured equipment	Consultant for clinical technique	Acquisition of knowledge such as operation principles of procured equipment
	② Acquisition of appropriate handling techniques with the use of target equipment that are tailored to the situation of the patient		Acquisition of patient handling and management methods suited to the condition of the patient
III CSSD	① Improvement of the system of CSSD	Consultant for equipment maintenance technique	Improvement of a suitable operation system of CSSD of each hospital
	② Improvement of operation and management techniques for procured equipment		Acquisition of operation techniques with the use of procured equipment

(2) Lecturers

Consultant for equipment maintenance technique: Japanese, 1 person

Consultant for clinical technique: Ugandan medical doctor, 1 person

Consultant for technical training planning: Japanese, 1 person

As elaborate preparations are required, such as development of a technical training plan, meetings with MOH, targeted hospitals, other related organizations etc., arrangement of venues, arrangement of transportation and scheduling, Consultant for “Technical Training Planning” shall be assigned to conduct such operations.

(3) (Proposed) Curricula

I. Training of Maintenance and Management Techniques

No.		Training Item	Output	Form	Trainee
Day 1	AM	Confirmation of basic knowledge such as operation principles and purpose of use of procured equipment	I-①	Lecture	Regional workshop technicians, user trainers and nurses
	PM	Clarification of daily and periodic maintenance methods	I-②	Lecture	
Day 2	AM	Anaesthesia machine	I-① I-③	Lecture Practical training	Ditto
	PM	Ventilators	I-① I-③	Lecture Practical training	
Day 3	AM	Endoscope and bronchoscope[*1]	I-① I-③	Lecture Practical training	Ditto
	PM	Portable monitor/ECG	I-① I-③	Lecture Practical training	
Day 4	AM	C-arm X-ray unit	I-① I-③	Lecture Practical training	Ditto
	PM	Ultrasonic tomographic equipment[*]	I-① I-③	Lecture Practical training	
Day 5	AM	Infusion pump/syringe pump[*2]	I-① I-③	Lecture Practical training	Ditto
	PM	Defibrillator	I-① I-③	Lecture Practical training	
Day 6	AM	Summary	I-①②③	Lecture	Ditto
	PM	Confirmation of assignment documents and level of settlement	I-①②③	Lecture	

* Bronchoscope[*1] will not be procured for Hoima RRH. Syringe pump[*2] will not be procured for Fort Portal RRH.

II. Training of Clinical Techniques

Day 1	AM	Confirmation of functions and roles of procured equipment	II-①	Lecture	Medical doctors and nurses
	PM	Confirmation of clerical knowledge concerning anaesthesia	II-②	Lecture	
Day 2	AM	Breath control method	II-②	Lecture	Ditto
	PM	Handling of ventilators	II-②	Practical training	
Day 3	AM	Infusion management method	II-②	Lecture	Ditto
	PM	Handling of syringe pump and infusion pump	II-②	Practical training	
Day 4	AM	Methods of general management and postoperative management of patients in severe condition	II-②	Lecture	Ditto
	PM	Handling of portable monitor/ECG	II-②	Practical training	
Day 5	AM	Method of patient management during operation	II-②	Lecture	Ditto
	PM	Handling of anaesthesia machine	II-②	Practical training	
Day 6	AM	Summary	II-①②	Lecture	Ditto
	PM	Confirmation of assignment documents and level of settlement	II-①②	Lecture	

III. Training of techniques for CSSD

Day 1	AM	Clarification of the concept of CSSD	III-①	Lecture	Hospital administrators, regional workshop technicians, user trainers and nurses
	PM	Operation methods of procured equipment	III-②	Practical training	Regional workshop technicians, user trainers and nurses

6. Method for Procuring Resources for the Implementation of Soft Component

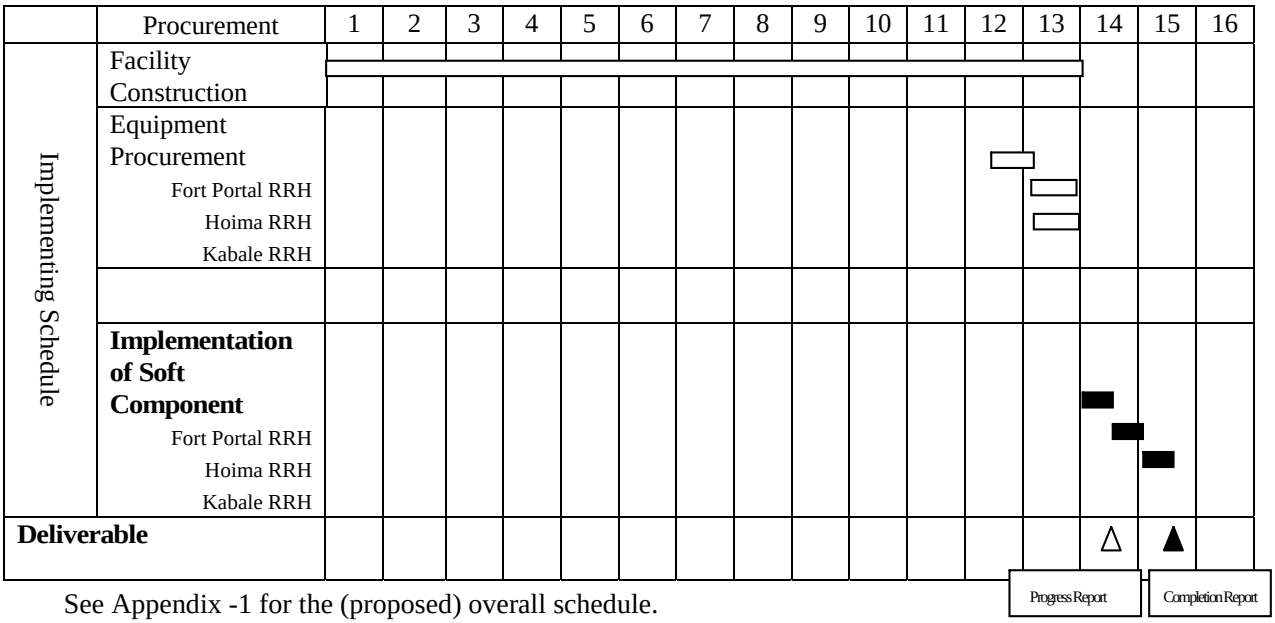
For the implementation of the soft components, Japanese consultants who have professional knowledge specifically in the equipment procured in the Project shall be in charge of "Training of Equipment Maintenance Techniques" and "Training of CSSD". Regarding "Clinical Training", as an expert with high-level techniques has been identified in Uganda, the Ugandan consultant with high-level techniques shall be hired and carry out clinical training to promote the continuing effort in the future.

The person in charge of technical training planning will check the contents of technical training, overall schedule etc., before the implementation of the soft components through consultation with the persons concerned in the plan in the Infrastructure Division of MOH, the central workshop, targeted hospitals, regional workshops etc.

7. Implementing Schedule of Soft Component

(Proposed) implementing schedule at this stage is as follows. The final implementing schedule will be determined after considering the requests from the Ugandan side with the Japanese consultant for equipment maintenance technique and the Ugandan consultant for clinical technique.

(Proposed) Overall Schedule



See Appendix -1 for the (proposed) overall schedule.

The implementation sites will be Fort Portal RRH, Hoima RRH and Kabale RRH, which are the targeted hospitals of the Project. Practical training shall be carried out with procured equipment immediately after the completion of the equipment procurement process in the grant aid.

8. Deliverable of Soft Component

Other than the completion report to the client and the Japanese side, the following documents will be the deliverables of the soft components.

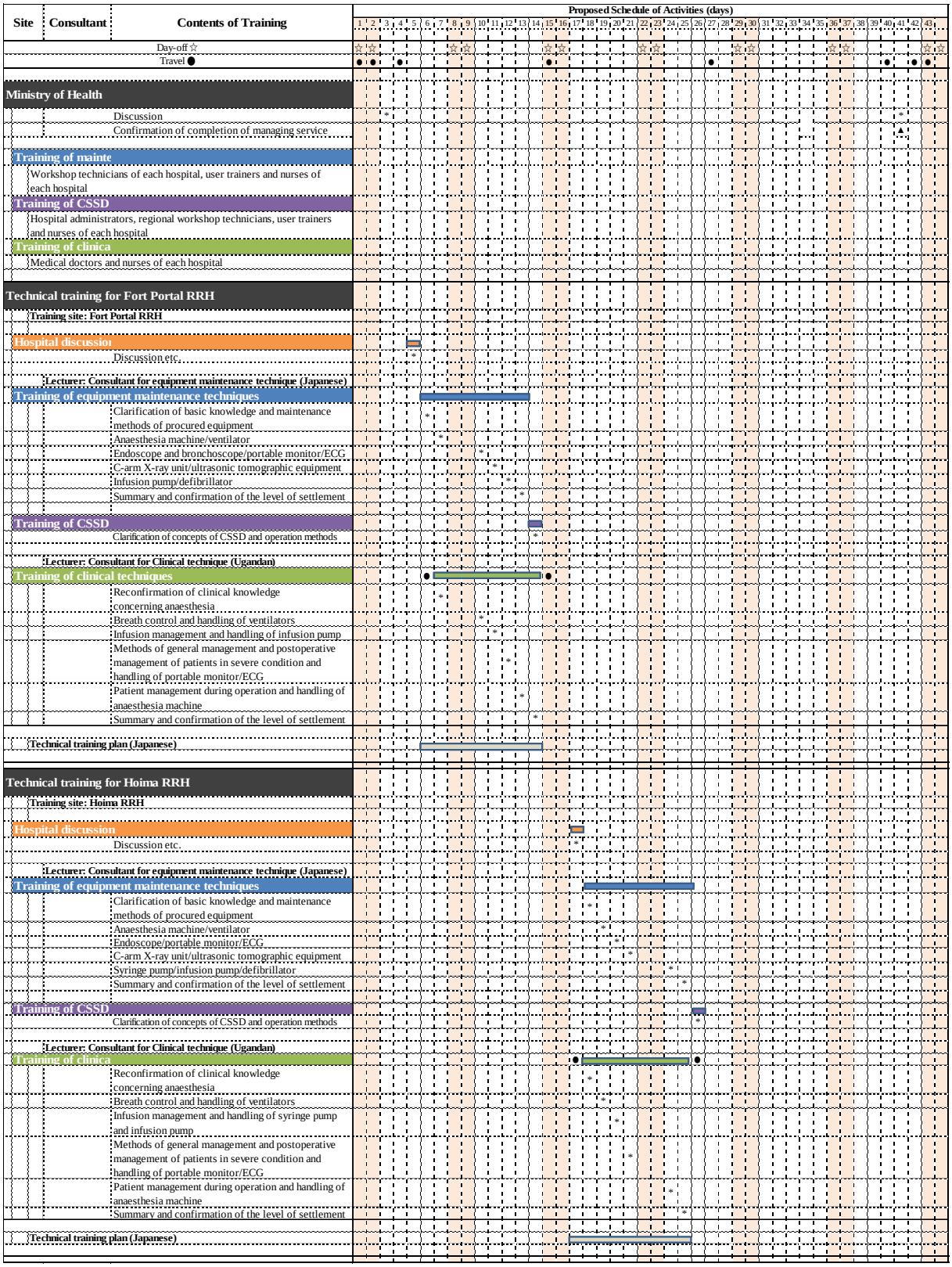
① Training materials

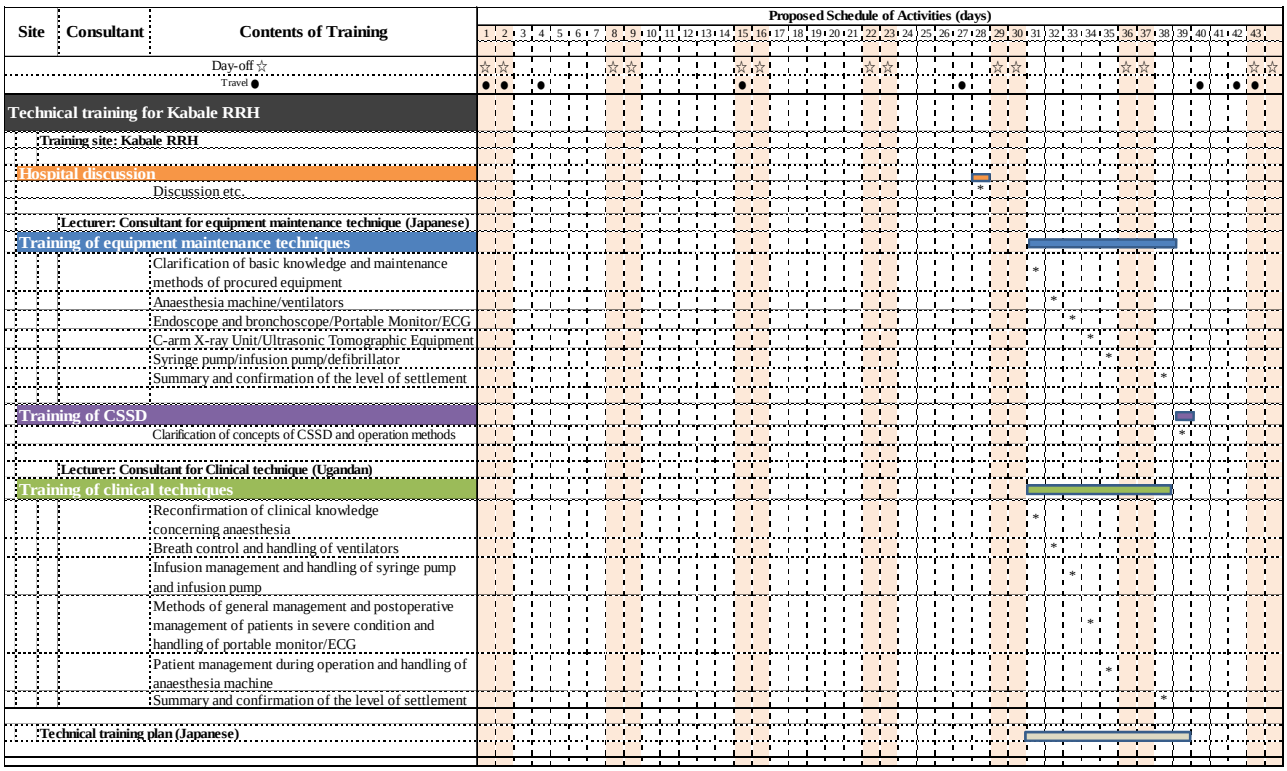
② Reports

9. Responsibility of Implementing Agencies of Recipient Country

Persons concerned in the plan in the Infrastructure Division of MOH, the central workshop, targeted hospitals, regional workshops etc. are required to select trainees and ensure they will participate in the technical training, as well as coordinating the schedule of the technical training and providing the venues. Persons in charge in the Infrastructure Division of MOH and targeted hospitals are also required to make efforts to retain the effect and improve techniques, such as participating in the training as needed, developing an operational system based on the acquired techniques so that procured equipment can be properly operated for a long time, and conducting similar training continuously.

Appendix-1 (Proposed) Implementing Schedule

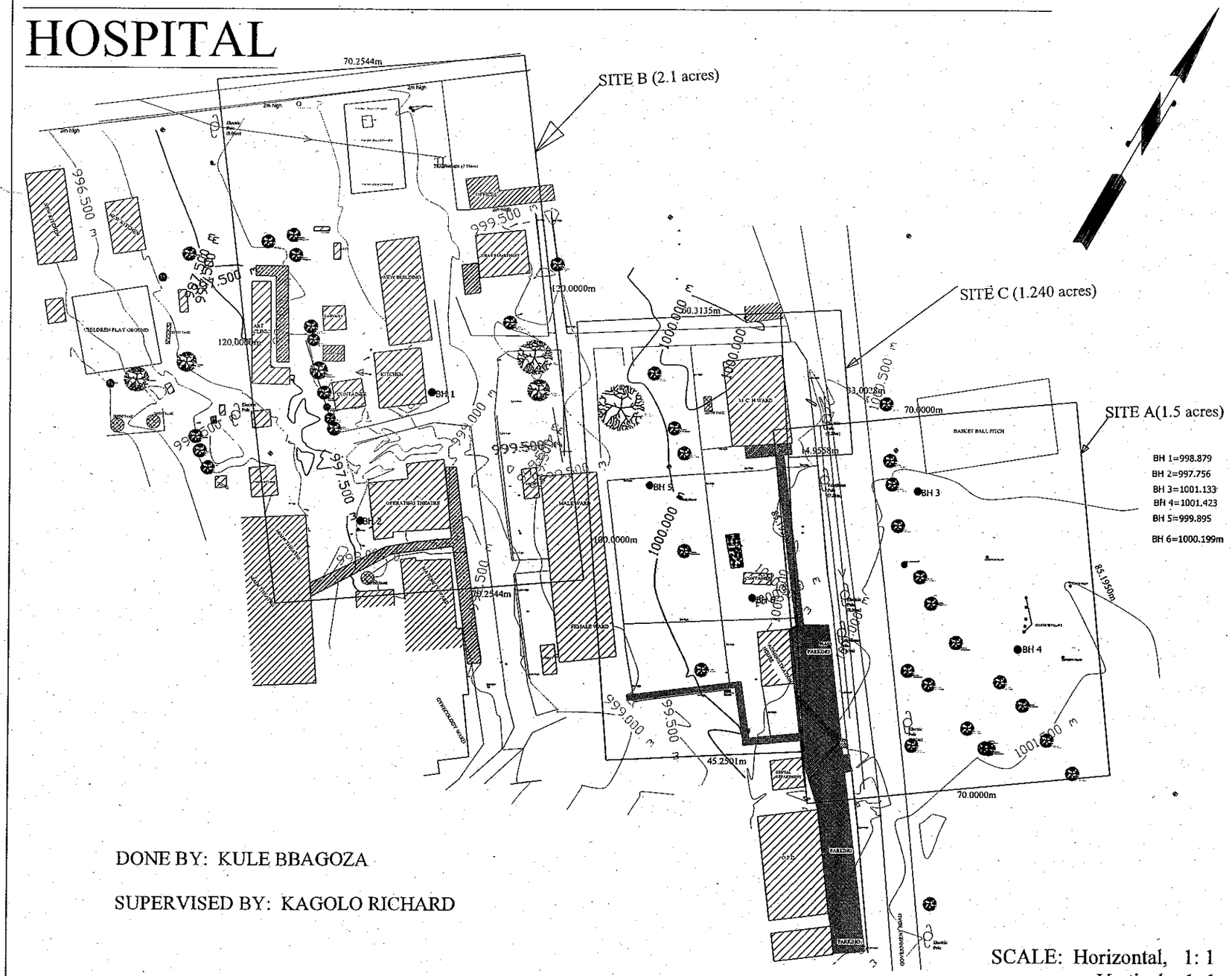



Site
Consultant
Contents of Training
Proposed Schedule of Activities (days)
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43
Day-off ☆
Travel ●
Technical training for Kabale RRH
Training site: Kabale RRH
Hospital discussion
Discussion etc.
Lecturer: Consultant for equipment maintenance technique (Japanese)
Training of equipment maintenance techniques
Clarification of basic knowledge and maintenance methods of procured equipment
Anaesthesia machine/ventilators
Endoscope and bronchoscope/Portable Monitor/ECG
C-arm X-ray Unit/Ultrasonic Tomographic Equipment
Syringe pump/infusion pump/defibrillator
Summary and confirmation of the level of settlement
Training of CSSD
Clarification of concepts of CSSD and operation methods
Lecturer: Consultant for Clinical technique (Ugandan)
Training of clinical techniques
Reconfirmation of clinical knowledge concerning anaesthesia
Breath control and handling of ventilators
Infusion management and handling of syringe pump and infusion pump
Methods of general management and postoperative management of patients in severe condition and handling of portable monitor/ECG
Patient management during operation and handling of anaesthesia machine
Summary and confirmation of the level of settlement
Technical training plan (Japanese)

Appendix 7 References

7-1 Topographic Map

TOPOGRAPHIC MAP OF THE SELECTED SITES "A", "B" &"C" AT HOIMA REGIONAL REFFERAL HOSPITAL



DONE BY: KULE BBAGOZA

SUPERVISED BY: KAGOLO RICHARD

SCALE: Horizontal, 1: 1
Vertical, 1: 1

NOTES

1: Diameter is representend by "D" measured in meters and "B" for number of Branches

2:Names of trees were determined by asking the local people, those not known are indicated, The trees are all hard trees and suitable for timber.

3:All trees are fairly tall,

4:Total area surveyed is approximately 4.840 acres

5:Contour interval is 0.5m

Project: Topographic survey of Hoima and Kabale refferal hospitals

Client: The Consortium of
Yokogawa Architects & Engineers, Inc and
INTEM Consulting, Ltd
2-20-28 Shimomeguro, Meguro-ku, Tokyo, Japan

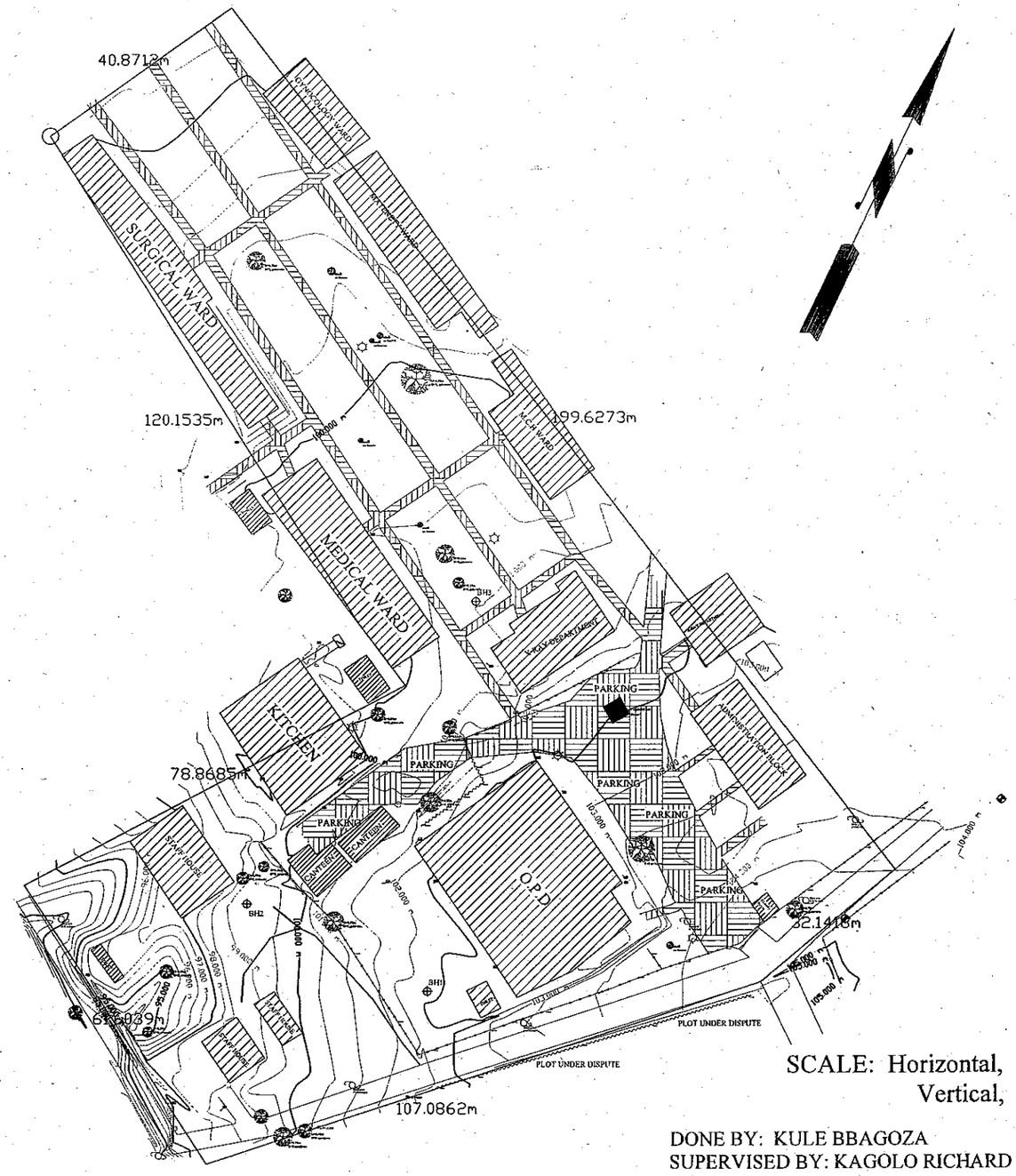
Consultant:

TECHNOLOGY CONSULTS LTD
Consulting in Architecture
Computing, Engineering
Surveying & Planning
Room 200 Faculty of Technology, Makere University

LEGEND

	BUILDINGS
	TREES
	MANHOLES
	BENCH MARKS
	UTILITY POLES
	FENCES
	HEDGES
	ROADS
	SHED
	SITE EXTENTS

TOPOGRAPHIC MAP OF THE SELECTED SITE AT KABALE REGIONAL REFFERAL HOSPITAL



SCALE: Horizontal, 1: 1
Vertical, 1: 1

DONE BY: KULE BBAGOZA
SUPERVISED BY: KAGOLO RICHARD

NOTES

1:Diameter is representend by "D" measured in meters and "B" for number of Branches

2:Names of trees were determined by asking the local people, those not known are indicated, The trees are all hard trees and suitable for timber.

3:All trees are fairly tall,

4:Total area surveyed is approximately 3.731 acres

Project: Topographic survey of Hoima and Kabale refferal Hospitals

Client: The Consortium of
Yokogawa Architects & Engineers, Inc and
INTEM Consulting, Ltd
2-20-28 Shimomeguro, Meguro-ku, Tokyo, Japan

Consultant:

TECHNOLOGY CONSULTS LTD
Consulting in Architecture
Computing, Engineering
Surveying & Planning
Room 200 Faculty of Technology, Makere University

LEGEND

	BUILDINGS		
	TREES	⊕ BH1	BoreHole 1(102.4metres
	MANHOLES	⊕ BH2	BoreHole 2(99.2metres)
	BENCH MARKS	⊕ BH3	BoreHole 3(101.0metres
	FENCES		
	HEDGES		
	ROADS		
	UTILITY POLES		
	SITE EXTENTS		

Geotechnical Investigation Report for Sites in Hoima Regional Referral Hospital (HRRH)

The Consortium of Yokogawa Architects and Engineers Inc. and Intem Consulting Ltd.
JAPAN

M/s Technology Consults Ltd
KAMPALA, UGANDA.
P O Box 26690, Kampala (U)
Tel: +256-414-540618
Email: techcons@teco.co.ug

October 2011

3.3 RESULTS AND DISCUSSION

3.3.1 Summary of Field Inspection

The soil strata in the boreholes comprised of mainly silty clayey gravel from 0 – 1.0m and molten clayey silty rocky material between 1.0 – 12.5m as shown in the logs in the Attachments at the end of the report. Based on the SPT results, the soil characteristics have in the main been categorized as described in Table 3.2.

3.3.2 Evaluation of the Soil Bearing Capacity Based on SPT

The soil bearing capacity was evaluated using the SPT 'N' value method. The maximum pressures the soils are capable of resisting have been estimated from the field N-values using empirical relations. For purposes of computing the soil's bearing capacity, the following assumptions were made;

i. The Peck et al., (1967) relationship between N-values and unconfined compressive strength is valid.
ii. The maximum allowable settlement in non-cohesive soils is 25mm.
ii. The design N-values are derived from the statistical average of all values within a depth zone equal to the footing width below the founding depth.

Results of N-values and Levels of stiffness (consistency) are shown in Table 3.2. The bearing capacity evaluations were carried based on the SPT values and the results are given in Table 3.3. For cohesive soils, the relationship q_u = 13.27 x Design N-value is used for evaluation of the Unconfined Compressive Strength q_u, the cohesion $C_u = q_u/2$ and q_{ult} = 5.14 x Cu. q_{all} is evaluated using a factor of safety of 3. Allowable bearing capacity with settlement limited to approximately 25mm for cohesion less soils read off directly from the Chart (Published by Terzaghi and Peck, 1967); For high water table, the allowable bearing capacity should be halved or multiplied by a correction factor for the water table.

Table 3.2: SPT Values for Strata and Soils Description

Bore Hole No.	Sampling Level	Depth (m)	Range of SPT blows	Consistency	Soil Description (By Visual Inspection)
BH 1	I	1.0 – 1.5	5 – 12	Firm	Reddish brown clayey silt.
	II	2.0 – 2.5	11 – 34	Dense	Brownish Molted Clayey Silt.
	III	3.0 – 3.5	19 – 46	Very Hard	Grayish/Reddish brown Molted Clayey Silt.
	IV	4.5 – 5.0	28 - >50		Yellowish brown Molted Clayey Silty Rocky Material.
	V	6.0 – 6.5	20 – 50		
	VI	7.5 – 8.0	23 – 55		
	VII	9.0 – 9.5	34 - >50		Darkish brown molted rocky material.

Table 3.2: SPT Values for Strata and Soils Description (Continued)

Bore Hole No.	Sampling Level	Depth (m)	Range of SPT blows	Consistency	Soil Description (By Visual Inspection)
BH 2	I	1.0 – 1.5	21 – 52	Very Dense	Yellowish brown silty clayey gravel.
	II	2.0 – 2.5	8 – 14	Very Stiff	Yellowish brown clayey silt.
	III	3.0 – 3.5	11 – 31	Hard	Yellowish brown molted clayey silt.
	IV	4.5 – 5.0	16 – 38	Very Hard	Grayish brown molted clayey silt.
	V	6.0 – 6.5	15 – 36		
	VI	7.5 – 8.0	21 – 43		Cream clayey silt.
	VII	9.0 – 9.5	15 - 24	Hard	Brownish yellow clayey sandy silt.
	VIII	10.5 – 11.0	43 - >50	Very Hard	Brownish yellow molted clayey silt.
	IX	12.0 – 12.5	>50		Blackish/brownish yellow clayey silty rocky material.

Table 3.2: SPT Values for Strata and Soils Description (Continued)

Bore Hole No.	Sampling Level	Depth (m)	Range of SPT blows	Consistency	Soil Description (By Visual Inspection)
BH 5	I	1.0 – 1.5	5 – 8	Firm	Reddish brown silty clayey gravel.
	II	2.0 – 2.5	5 – 7	Firm	Yellowish/Reddish brown gravelly clayey silt.
	III	3.0 – 3.5	13 – 28	Hard	Brownish molted clayey silt with some stones.
	IV	4.5 – 5.0	24 – >50	Very Hard	Yellowish molted clayey silt.
	V	6.0 – 6.5	35 – >50		Yellowish grey molted silt.
	VI	7.5 – 8.0	10 – >50		Brownish molted clayey silt.
	VII	9.0 – 9.5	42 - >50		Darkish brown molted clayey silty rocky material.
	VIII	10.5 – 11.0	>50		
	IX	12.0 – 12.5	>50		

Table 3.2: SPT Values for Strata and Soils Description (Continued)

Bore Hole No.	Sampling Level	Depth (m)	Range of SPT blows	Consistency	Soil Description (By Visual Inspection)
BH 6	I	1.0 – 1.5	5 – 13	Firm	Yellowish brown sily clayey gravel.
	II	2.0 – 2.5	6 – 8	Firm	Yellowish/Reddish brown gravelly clayey silt.
	III	3.0 – 3.5	9 – 15	Very Stiff	Yellowish brown clayey silt.
	IV	4.5 – 5.0	16 – 40	Very Hard	Cream molted clayey silt.
	V	6.0 – 6.5	13 – 18	Hard	Yellowish brown clayey silt with some sands.
	VI	7.5 – 8.0	12 – 50	Very Hard	Black/Brownish grey clayey sandy silty rocky material.
	VII	9.0 – 9.5	43 –>50		Black/Brown clayey silt with rock particles rocky
	VIII	10.5 – 11.0	49 – >50		Brownish silt.
	IX	12.0 – 12.5	>50		Blackish/Grayish brown silty rocky material.

Table 3.3: EVALUATION OF BEARING CAPACITY BASED ON FIELD SPT VALUES

BH No.	Depth (m)	Predominant Soil Fraction	Measured SPT N-value N	Correction Factor C_N	Corrected SPT N-value $N_1 = C_N N$	Correction Factor for Water Table C_W	Unconfined Compressive Strength q_u (kPa)	Undrained Cohesion C_u (KPa)	Ultimate Bearing Capacity Q_{ult} (KPa)	Allowable Bearing Capacity read off from Chart Q_{all} (KPa)	Allow Bearing Capacity Q_{all} (KPa)
BH1	1.00	Reddish brown Clayey Silt.	17	2.93	50	1.15	660	330	1696	-	565
	2.00	Brownish Molted Clayey Silt.	55	2.07	114	0.93	1510	755	3880	-	1293
	3.00	Grayish/Reddish brown Molted Clayey Silt.	81	1.69	137	0.83	1815	908	4666	-	1555
	4.50	Yellowish brown Molted Clayey Silty Rocky Material.	>60	1.38		0.74				-	REFUSAL
	6.00	Yellowish Molted Clayey Silt.	83	1.19	99	0.69	1315	658	3381	-	1127
	7.50	Yellowish brown Molted Clayey Silty Rocky Material.	98	1.07	105	0.65	1389	695	3570	-	1190
	9.00	Darkish brown molted rocky material.	>60	0.98		0.63				-	REFUSAL

Table 3.3: EVALUATION OF BEARING CAPACITY BASED ON FIELD SPT VALUES (Continued

BH No.	Depth (m)	Predominant Soil Fraction	Measured SPT N-value N	Correction Factor C_N	Corrected SPT N-value $N_1 = C_N N$	Correction Factor for Water Table C_W	Unconfined Compressive Strength q_u (kPa)	Undrained Cohesion C_u (KPa)	Ultimate Bearing Capacity Q_{ult} (KPa)	Allowable Bearing Capacity read off from Chart Q_{all} (KPa)	Allowable Bearing Capacity Q_{all} (KPa)
BH2	1.00	Yellowish brown silty clayey gravel.	91	2.93	266	1.15	3533	1766	9079	-	3026
	2.00	Yellowish brown clayey silt.	24	2.07	50	0.93	659	329	1693	-	564
	3.00	Yellowish brown molted clayey silt.	50	1.69	84	0.83	1121	560	2880	-	960
	4.50	Grayish brown molted clayey silt.	64	1.38		0.74				-	REFUSAL
	6.00	Grayish brown molted clayey silt.	60	1.19	72	0.69	951	475	2444	-	815
	7.50	Cream clayey silt.	82	1.07	88	0.65	1162	581	2987	-	996
	9.00	Brownish yellow clayey sandy silt.	43	0.98	42	0.63	556	278	1430	-	477
	10.50	Brownish yellow molted clayey silt.	>60	0.90		0.61				-	REFUSAL
	12.00	Blackish/brownish yellow clayey silty rocky material.	>60	0.84		0.60				-	REFUSAL

Table 3.3: EVALUATION OF BEARING CAPACITY BASED ON FIELD SPT VALUES (Continued)

BH No.	Depth (m)	Predominant Soil Fraction	Measured SPT N-value N	Correction Factor C_N	Corrected SPT N-value $N_1 = C_N N$	Correction Factor for Water Table C_W	Unconfined Compressive Strength q_u (kPa)	Undrained Cohesion C_u (KPa)	Ultimate Bearing Capacity Q_{ult} (KPa)	Allowable Bearing Capacity read off from Chart Q_{all} (KPa)	Allowable Bearing Capacity Q_{all} (KPa)
BH5	1.00	Reddish brown silty clayey gravel.	15	2.93	44	0.90	582	291	1496	-	499
	2.00	Yellowish/Reddish brown gravelly clayey silt.	13	2.07	27	0.77	357	178	917	-	306
	3.00	Brownish molted clayey silt with some stones.	41	1.69	69	0.70	919	459	2362	-	787
	4.50	Yellowish molted clayey silt.	>60	1.38		0.65				-	REFUSAL
	6.00	Yellowish grey molted silt.	>60	1.19		0.61				-	REFUSAL
	7.50	Brownish molted clayey silt.	>60	1.07		0.59				-	REFUSAL
	9.00	Darkish brown molted clayey silty rocky material.	>60	0.98		0.58				-	REFUSAL
	10.50		>60	0.90		0.57				-	REFUSAL
	12.00		>60	0.84		0.56				-	REFUSAL

Table 3.3: EVALUATION OF BEARING CAPACITY BASED ON FIELD SPT VALUES (Continued)

BH No.	Depth (m)	Predominant Soil Fraction	Measured SPT N-value N	Correction Factor C_N	Corrected SPT N-value $N_1 = C_N N$	Correction Factor for Water Table C_W	Unconfined Compressive Strength q_u (kPa)	Undrained Cohesion C_u (KPa)	Ultimate Bearing Capacity Q_{ult} (KPa)	Allowable Bearing Capacity read off from Chart Q_{all} (KPa)	Allowable Bearing Capacity Q_{all} (KPa)
BH6	1.00	Yellowish brown sily clayey gravel.	23	2.93	67	0.90	893	446	2295	-	765
	2.00	Yellowish/Reddish brown gravelly clayey silt.	16	2.07	33	0.77	439	220	1129	-	376
	3.00	Yellowish brown clayey silt.	24	1.69	41	0.70	538	269	1382	-	461
	4.50	Cream molted clayey silt.	65	1.38	90	0.65	1189	595	3057	-	1019
	6.00	Yellowish brown clayey silt with some sands.	35	1.19	42	0.61	-	-	-	550	338
	7.50	Black/Brownish grey clayey sandy silty rocky material.	74	1.07	79	0.59	1049	524	2696	-	899
	9.00	Black/Brown clayey silt with rock particles rocky material.	>60	0.98		0.58				-	REFUSAL
	10.50	Brownish silt.	>60	0.90		0.57				-	REFUSAL
	12.00	Blackish/Grayish brown silty rocky material.	>60	0.84		0.56				-	REFUSAL

4. Conclusions

4.1 INTRODUCTION

This study was conducted during August and September in respect of testing suitability of a site in Hoima, to hold and suitably sustain loads that are to be imparted by storied structures to be built. The objective was to conduct a geotechnical investigation on the materials at the site.

Based on the findings from the study, the following were obtained:

1. The drilling was done and loggings that show the soil stratigraphy were determined and are given in the annex of the report.
2. Information on the water table level was obtained and given in the logging diagrams.
3. Bearing capacity of the soils was determined based on Field SPT values. In addition, information of the level of stiffness of the soil was determined and is given.
4. For the samples from various depths, the grain size distribution was obtained and showed the percentage of material that passes sieve number 200 which is an indicator of level of permeability and clay content in the soil.
5. The plasticity was also ascertained based on the PL and PI values followed by the Swell potential of the soils.
6. The natural moisture content (NMC) was obtained for all the samples as indicated in the results.
7. The Unconfined compressive strength was determined on remoulded samples and the results and also given.
8. As regards compressibility, the soil settlement variation with time and level of loading can be studied and ascertained from the Change in dial reading against log time plots given.

Client : **Contractor: TECO**

BORE HOLE RECORD

PROJECT	: **HOIMA HOSPITAL**	**BOREHOLE NO**	: **BH1** **DRILL POINT(DP1)**
LOCATION	: **BOMA GROUND**	**WATER TABLE**	: **6.5M**
ELEVATION	:	**TEST METHOD**	: **BS 5930: 1990**
COORDINATES	:	**DATE**	: **Start: 10/08/2011 & End: 11/08/2011**

Ground Water	Depth m	Description of the Strata	Legend	Level	Samples & Tests Depth (m)	Type	No	SPT Blows	SPT N	Remarks
	0.00	Darkish silty clayey gravel with roots.								
	0.50	Brown silty clayey gravel.		-0.50	0.50				–	
	1.00	Reddish brown clayey silt.		-1.00	1.00	D	1	5 5 12	**17**	
	1.50			-1.50	1.50					
	2.00	Brownish Molted Clayey Silt.		-2.00	2.00	D	2	11 21 34	**55**	
	2.50			-2.50	2.50					
	3.00	Grayish/Reddish brown Molted Clayey Silt.		-3.00	3.00	D	3	19 35 46	**81**	
	3.50			-3.50						
	4.00			-4.00	4.00					
	4.50	Yellowish brown Molted Clayey Silty Rocky Material.		-4.50	4.50	D	4	28 >50	**>60**	
	5.00			-5.00	5.00					
	5.50			-5.50						
	6.00			-6.00	6.00	D	5	20 33 50	**83**	
▼	6.50			-6.50	6.50					
	7.00			-7.00						
	7.50			-7.50	7.50	D	6	23 43 55	**98**	
	8.00			-8.00	8.00					
	8.50			-8.50	8.50					
	9.00	Darkish brown molted rocky material.		-9.00	9.00	D	7	34 >50	**>60**	
	9.50	Rock sample.		-9.50	9.50					
	10.00			-10.00	10.00					

▼ Ground Water Table

Sample Types

D : Disturbed sample

SPT: Standard Penetration Test

1) Ground water table (GWT) was encountered at 9.5m but not so much.

Logged By: Robinson Onen

Checked By:Nancy Kajwalo

Client : **Contractor: TECO** Sheet No:1 of 1

BORE HOLE RECORD

PROJECT : HOIMA HOSPITAL		BOREHOLE NO : BH2	DRILL POINT (DP2)
LOCATION : BOMA GROUND		WATER TABLE : 6.5 m	
ELEVATION : 1143 m		TEST METHOD : BS 5930: 1990	
COORDINATES : N01° 25.713' E031° 21.327'		DATE : Start: 09/08/2011 & End: 10/08/2011	

Ground Water	Depth m	Description of the Strata	Legend	Level	Depth (m)	Type	No	SPT Blows	SPT N
	0.00								
	0.50			1142.50	0.50				–
	1.00	Yellowish brown silty clayey gravel.		1142.00	1.00	D	1	21 39 52	**91**
	1.50			1141.50	1.50				
	2.00			1141.00	2.00	D	2	8 10 14	**24**
	2.50	Yellowish brown clayey silt.		1140.50	2.50				
	3.00			1140.00	3.00	D	3	11 19 31	**50**
	3.50	Yellowish brown molted clayey silt.		1139.50	3.50				
	4.00			1139.00					
	4.50			1138.50	4.50	D	4	16 26 38	**64**
	5.00			1138.00	5.00				
	5.50			1137.50	5.50				
	6.00	Grayish brown molted clayey silt.		1137.00	6.00	D	5	15 24 36	**60**
	6.50			1136.50	6.50				
	7.00			1136.00	7.00				
	7.50			1135.50	7.50	D	6	21 39 43	**82**
	8.00			#	8.00				
	8.50	Cream clayey silt.		1134.50	8.50				
	9.00			1134.00	9.00	D	7	15 19 24	**43**
	9.50			#	9.50				
	10.00	Brownish yellow clayey sandy silt.		1133.00	10.00				–
	10.50			1132.50	10.50	D	8	43 >50	**>60**
	11.00			1132.00	11.00				
	11.50	Brownish yellow molted clayey silt.		1131.50	11.50				
	12.00			1131.00	12.00				
	12.50	Blackish/brownish yellow clayey silty rocky material.		1130.50	12.50	D	9	>50	**>60**

Ground Water Table

Sample Types

D : Disturbed sample

SPT: Standard Penetration Test

1) Ground water table (GWT) encountered at 10.5m.

2) After 24hrs waater table rose up by 4.0m.

Logged By: Robinson Onen

Checked By:Nancy Kajwalo

Client : **Contractor:** TECO CONSULTANTS

BORE HOLE RECORD

PROJECT : HOIMA HOSPITAL		BOREHOLE NO : BH5	DRILL POINT (DP5)
LOCATION : HOIMA HOSPITAL		WATER TABLE : 4.0 m	
ELEVATION : 1143 m		TEST METHOD : BS 5930: 1990	
COORDINATES : N01° 25.702' E031° 21.286'		DATE : Start: 31/08/2011 & End: 1/09/2011	

Ground Water	Depth m	Description of the Strata	Legend	Level	Tests Depth (m)	Type	No	SPT Blows	N	Remarks
	0.00	Dark brown silty clayey gravel with vegetation roots.								Ground Water Table Sample Types D : Disturbed sample SPT: Standard Penetration Test
	0.50			1142.50	0.50					
	1.00	Reddish brown silty clayey gravel.		1142.00	1.00	D	1	5 8 7	15	
	1.50			1141.50	1.50					
	2.00	Yellowish/Reddish brown gravelly clayey silt.		1141.00	2.00	D	2	5 6 7	13	1) Ground water table (GWT) encountered at 7.5m.
	2.50			1140.50	2.50					
	3.00	Brownish molted clayey silt with some stones.		1140.00	3.00	D	3	19 28 13	41	2) After 48hrs waater table rose up to 4.0m.
	3.50			1139.50	3.50	U	1			
▼	4.00			1139.00						
	4.50	Yellowish molted clayey silt.		1138.50	4.50	D	4	24 >50	>60	
	5.00			1138.00	5.00					
	5.50			1137.50	5.50					
	6.00	Yellowish grey molted silt.		1137.00	6.00	D	5	35 >50	>60	
	6.50			1136.50	6.50					
	7.00			1136.00	7.00					
	7.50	Brownish molted clayey silt.		1135.50	7.50	D	6	10 40 >50	>60	
	8.00			1135.00	8.00					
	8.50			1134.50	8.50					
	9.00	Darkish brown molted clayey silty rocky material.		1134.00	9.00	D	7	42 >50	>60	
	9.50			1133.50	9.50					
	10.00			1133.00	10.00					
	10.50			1132.50	10.50	D	8	50 >50	>60	
	11.00			1132.00	11.00					
	11.50			1131.50	11.50					
	12.00			1131.00	12.00	D	9	>50	>60	
	12.50			1130.50	12.50					

Logged By: Robinson Onen

Checked By:Nancy Kajwalo

BORE HOLE RECORD

PROJECT : HOIMA HOSPITAL		BOREHOLE NO : BH6	DRILL POINT (DP6)
LOCATION : HOIMA HOSPITAL		WATER TABLE : 4.0 m	
ELEVATION : 1143 m		TEST METHOD : BS 5930: 1990	
COORDINATES : N01° 25.700' E031° 21.306'		DATE : Start: 02/09/2011 & End: 03/09/2011	

Ground Water	Depth m	Description of the Strata	Legend	Level	Tests Depth (m)	Type	No	SPT Blows	SPT N	Remarks
	0.00	Black top soil with vegetation roots.								
	0.50			1142.50	0.50					
	1.00	Yellowish brown sily clayey gravel.		1142.00	1.00	D	1	5 10 13	23	
	1.50			1141.50	1.50					
	2.00			1141.00	2.00	D	2	6 8 8	16	1) Ground water table (GWT) encountered at 7.5m.
	2.50	Yellowish/Reddish brown gravelly clayey silt.		1140.50	2.50					
	3.00			1140.00	3.00	D	3	12 9 15	24	2) After 48hrs waater table rose up to 4.0m.
	3.50	Yellowish brown clayey silt.		1139.50	3.50					
▼	4.00			1139.00		U	1			
	4.50			1138.50	4.50	D	4	16 25 40	65	
	5.00	Cream molted clayey silt.		1138.00	5.00					
	5.50			1137.50	5.50					
	6.00			1137.00	6.00	D	5	13 17 18	35	
	6.50	Yellowish brown clayey silt with some sands.		1136.50	6.50					
	7.00			1136.00	7.00					
	7.50			1135.50	7.50	D	6	12 24 50	74	
	8.00	Black/Brownish grey clayey sandy silty rocky material.		1135.00	8.00					
	8.50			1134.50	8.50					
	9.00			1134.00	9.00	D	7	43 >50	>60	
	9.50	Black/Brown clayey silt with rock particles rocky material.		1133.50	9.50					
	10.00			1133.00	10.00			–	–	
	10.50			1132.50	10.50	D	8	49 >50	>60	
	11.00	Brownish silt.		1132.00	11.00					
	11.50			1131.50	11.50					
	12.00			1131.00	12.00	D	9	>50	>60	
	12.50	Blackish/Grayish brown silty rocky material.		1130.50	12.50					

Ground Water Table

Sample Types

D : Disturbed sample

SPT: Standard Penetration Test

Geotechnical Investigation Report for Sites in Kabale Regional Referral Hospital (KRRH)

The Consortium of Yokohama Architects and Engineers Inc. and Intem Consulting Ltd.
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October 2011

3.3 RESULTS AND DISCUSSION

3.3.1 Summary of Field Inspections

The soil strata in the boreholes comprised of mainly silty clays from 0.5 up to 7.5 and whitish grey chalky material to weathering rock from 9.0 to 15m as shown in the logs in Appendix 2.

3.3.2 Evaluation of the Soil Bearing Capacity Based on SPT

The soil bearing capacity was evaluated using the SPT 'N' value method. The maximum pressures the soils are capable of resisting have been estimated from the field N-values using empirical relations. For purposes of computing the soil's bearing capacity, the following assumptions were made;

i. The Peck et al., (1967) relationship between N-values and unconfined compressive strength is valid.
ii. The maximum allowable settlement in non-cohesive soils is 25mm.
ii. The design N-values are derived from the statistical average of all values within a depth zone equal to the footing width below the founding depth.

Results of N-values and Levels of stiffness (consistency) are shown in Table 3.2. The bearing capacity evaluations were carried based on the SPT values and the results are given in Table 3.3. For cohesive soils, the relationship q_u = 13.27 x Design N-value is used for evaluation of the Unconfined Compressive Strength q_u, the cohesion $C_u = q_u/2$ and q_{ult} = 5.14 x Cu. q_{all} is evaluated using a factor of safety of 3. Allowable bearing capacity with settlement limited to approximately 25mm for cohesion less soils read off directly from the Chart (Published by Terzaghi and Peck, 1967); For high water table, the allowable bearing capacity should be halved or multiplied by a correction factor for the water table.

Table 3.2: SPT Values for Strata Soils

Bore Hole No.	Sampling Level	Depth (m)	Total SPT N-Values	Consistency	Soil Description (By Visual Inspection)
BH 1	I	1.0 - 1.5	14	Firm	Silty Clays
	II	2.0 - 2.5	16	Firm	
	III	3.0 - 3.5	18	Stiff	
	IV	4.5 - 5.0	27	Very Stiff	Silty Clays
	V	6.0 - 6.5	28	Very Stiff	
	VI	7.5 - 8.0	30	Hard	Gravelly Silty Clay
	VII	9.0 - 9.5	34	Hard	Lateritic Gravelly Clay

Bore Hole No.	Sampling Level	Depth (m)	Total SPT N-Values	Consistency	Soil Description (By Visual Inspection)
BH 2	I	1.0 - 1.5	17	Firm	Silty Clay
	II	2.0 - 2.5	22	Firm	
	III	3.0 - 3.5	25	Very Stiff	
	IV	4.5 - 5.0	29	Very Stiff	
	V	6.0 - 6.5	54	Very Hard	
	VI	7.5 - 8.0	58	Very Hard	Gravelly Silty Clay
	VII	9.0 - 9.5	62	Very Hard	Lateritic Gravelly Clay
BH3	I	1.0 - 1.5	>50	Very Hard	Silty Clayey Gravel
	II	2.0 - 2.5	>50		Silty Clayey Lateritic Gravel
	III	3.0 - 3.5	42	Hard	Gravelly Silty Clay
	IV	4.5 - 5.0	35		Silty Clay
	V	6.0 - 6.5	37		Silty Clayey Chalky material
	VI	7.5 - 8.0	>50	Very Hard	Gravelly Silty Clay
	VII	9.0 - 9.5	>50		Gravelly Clay (weathering rock).

TP no	Depth m	Predominant Soil Fraction	Total SPT N-Value	Unconfined Compressive Strength qu (kPa)	Undrained Cohesion Cu (kPa)	Ultimate bearing capacity (Kpa)	Allowable bearing capacity (Kpa)
BH1	1.0-1.5	Silty Clays	14.0	183.40	91.70	471.34	157.11
	2.0-2.5	Silty Clays	16.0	209.60	104.80	538.67	179.56
	3.0-3.5	Silty Clays	18.0	235.80	117.90	606.01	202.00
	4.5-5.5	Silty Clays	27.0	353.70	176.85	909.01	303.00
	6.0-6.5	Silty Clays	28.0	366.80	183.40	942.68	314.23
	7.5-9.0	Gravelly silty Clays	30.0	393.00	196.50	1010.01	336.67
	9.0-9.5	Gravelly silty Clays	34.0	445.40	222.70	1144.68	381.56
	15.5-16.0	Gravelly Chalky material	75.0	982.50	491.25	2525.03	841.68

TP no	Depth m	Predominant Soil Fraction	Total SPT N-Value	Unconfined Compressive Strength qu (kPa)	Undrained Cohesion Cu (kPa)	Ultimate bearing capacity (Kpa)	Allowable bearing capacity (Kpa)
BH2	1.0-1.5	Silty Clays	17.0	222.70	111.35	572.34	190.78
	2.0-2.5	Silty Clays	22.0	288.20	144.10	740.67	246.89
	3.0-3.5	Silty Clays	25.0	327.50	163.75	841.68	280.56
	4.5-5.5	Silty Clays	29.0	379.90	189.95	976.34	325.45
	6.0-6.5	Silty Clays	54.0	707.40	353.70	1818.02	606.01
	7.5-9.0	Gravelly silty Clays	58.0	759.80	379.90	1952.69	650.90
	9.0-9.5	Gravelly silty Clays	62.0	812.20	406.10	2087.35	695.78

TP no	Depth m	Predominant Soil Fraction	Total SPT N-Value	Unconfined Compressive Strength qu (kPa)	Undrained Cohesion Cu (kPa)	Ultimate bearing capacity (Kpa)	Allowable bearing capacity (Kpa)
BH3	1.0-1.5	Silty Clays	>50	_	**REFUSAL**		>700
	2.0-2.5	Silty Clays	>50	_	**REFUSAL**		>700
	3.0-3.5	Silty Clays	42.0	550.20	275.10	1414.01	471.34
	4.5-5.5	Silty Clays	35.0	458.50	229.25	1178.35	392.78
	6.0-6.5	Silty Clays	37.0	484.70	242.35	1245.68	415.23
	7.5-9.0	Gravelly silty Clays	>50	_	**REFUSAL**		>700
	9.0-9.5	Gravelly silty Clays	>50	_	**REFUSAL**		>700

4. Conclusions

4.1 INTRODUCTION

This study was conducted during August and September in respect of testing suitability of a site in Hoima, to hold and suitably sustain loads that are to be imparted by storied structures to be built. The objective was to conduct a geotechnical investigation on the materials at the site.

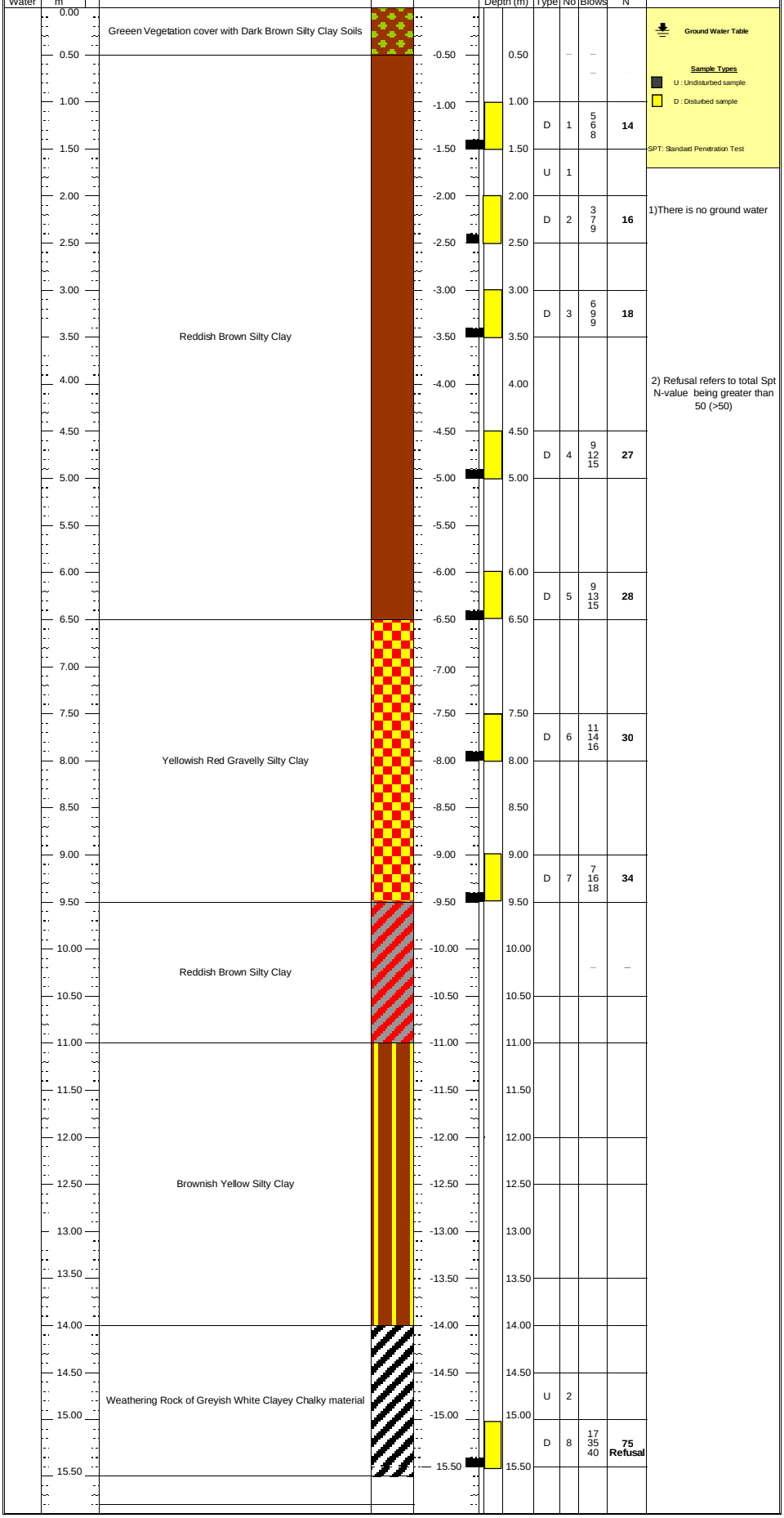
Based on the findings from the study, the following were obtained:

1. The drilling was done and loggings that show the soil stratigraphy were determined and are given in the annex of the report.
2. Information on the water table level was obtained and given in the logging diagrams.
3. Bearing capacity of the soils was determined based on Field SPT values. In addition, information of the level of stiffness of the soil was determined and is given.
4. For the samples from various depths, the grain size distribution was obtained and showed the percentage of material that passes sieve number 200 which is an indicator of level of permeability and clay content in the soil.
5. The plasticity was also ascertained based on the PL and PI values followed by the Swell potential of the soils.
6. The natural moisture content (NMC) was obtained for all the samples as indicated in the results.
7. The Unconfined compressive strength was determined on remoulded samples and the results and also given.
8. As regards compressibility, the soil settlement variation with time and level of loading can be studied and ascertained from the Change in dial reading against log time plots given.

Client : YOKOHAMA **Contractor:** TECO

BORE HOLE RECORD

PROJECT	: KABALE HOSPITAL	**BOREHOLE NO**	: BH01
LOCATION	: KABALE.	**WATERTABLE**	: Nil
ELEVATION	:	**TEST METHOD**	: BS 5930: 1990
COORDNATES	:	**DATE**	: Start: 14/09/2011 & End: 15/09/2011



Logged By: Ivan Masuba

Checked By: Eng Remegie G.

Client : YOKOHAMA **Contractor:** TECO

BORE HOLE RECORD

PROJECT	: KABALE HOSPITAL	BOREHOLE NO	: BH02
LOCATION	: KABALE	WATER TABLE	: Nil
ELEVATION	:	TEST METHOD	: BS 5930: 1990
COORDINATES	:	DATE	: Start: 15/09/2011 & End: 15/09/2011

Ground Water	Depth m	Description of the Strata	Legend	Level	Samples & Tests Depth (m)	Type	No	SPT Blows	SPT N	Remarks
	0.00	Green vegetation cover with blackorganicsoils of Silty Clay								Ground Water Table Sample Types U : Undisturbed sample D : Disturbed sample SPT: Standard Penetration Test
	0.50			-0.50	0.50	–	–	–	–	
	1.00	Dark Brown Silty Clay		-1.00	1.00	D	1	7 8 9	17	
	1.50			-1.50	1.50					
	2.00	Brownish Red Silty Clay		-2.00	2.00	D	2	9 11 11	22	1) No ground want was encountered
	2.50			-2.50	2.50					
	3.00			-3.00	3.00	D	3	10 12 13	25	
	3.50			-3.50	3.50					
	4.00	Yellowish Red Silty Clay		-4.00	4.00					2) Refusal refers to total Spt N-value being greater than 50 (>50)
	4.50			-4.50	4.50	D	4	11 14 15	29	
	5.00			-5.00	5.00					
	5.50			-5.50	5.50					
	6.00			-6.00	6.00	D	5	12 19 35	54 Refusal	
	6.50	Yellowish Red Gravelly Silty Clay		-6.50	6.50					
	7.00			-7.00						
	7.50			-7.50	7.50	D	5	14 21 37	58 Refusal	
	8.00	Yellowish Red Lateratic Gravelly Clay		-8.00	8.00					
	8.50			-8.50	8.50					
	9.00			-9.00	9.00	D	6	15 23 39	62 Refusal	
	9.50	Greyish Yellow and Red Chalky Silty Clay material		-9.50	9.50					
	10.00			-10.00	10.00					
	10.50			-10.50	10.50					
	11.00			-11.00	11.00					
	11.50			-11.50	11.50					
	12.00			-12.00	12.00					
	12.50			-12.50	12.50					
	13.00			-13.00	13.00					
	13.50	Light Yellowish Grey Chalky Clay(weathering rock)		-13.50	13.50					
	14.00			-14.00	14.00					
	14.50			-14.50	14.50					
	15.00			-15.00	15.00					

Logged By: Ivan Masuba

Checked By: Eng Remegie G.

Client : YOKOHAMA **Contractor:** TECO

BORE HOLE RECORD

PROJECT	: KABALE HOSPITAL	BOREHOLE NO	: BH3
LOCATION	: KABALE	WATER TABLE	: Nil
ELEVATION	:	TEST METHOD	: BS 5930: 1990
COORDINATES	:	DATE	: Start: 16/09/2011 & End: 16/09/2011

Ground Water	Depth m	Description of the Strata	Legend	Level	Samples & Tests Depth (m)	Type	No	SPT Blows	SPT N	Remarks
	0.00	Vegetation cover with Dark Brown Silty Clay								Ground Water Table Sample Types U : Undisturbed sample D : Disturbed sample SPT: Standard Penetration Test
	0.50			-0.50	0.50			–	–	
	1.00	Brown Silty Clayey Gravel with some big boulders		-1.00	1.00	D	1	45 >50 >50	Refusal	
	1.50			-1.50	1.50					
	2.00	Yellowish Red Silty Clayey Lateratic Gravel		-2.00	2.00	D	2	46 55 >50	Refusal	1)There is no ground water
	2.50			-2.50	2.50					
	3.00	Yellowish Red Gravelly Silty Clay		-3.00	3.00	D	3	11 19 23	42	
	3.50			-3.50	3.50					
	4.00	Yellowish Red Silty Clay		-4.00	4.00					2)Refusal refers to total Spt N-value being greater than 50 (>50)
	4.50			-4.50	4.50	D	4	9 14 21	35	
	5.00			-5.00	5.00					
	5.50	Greyish red silty Clayey Chalky material(weathering rock)		-5.50						
	6.00			-6.00	6.00	D	4	10 15 22	37	
	6.50			-6.50	6.50					
	7.00			-7.00						
	7.50			-7.50	7.50	D	5	45 >50 >50	Refusal	
	8.00	Very hard surface of Greyish Red Gravelly Silty Clay		-8.00	8.00					
	8.50			-8.50	8.50					
	9.00			-9.00	9.00	D	6	50 >50 >50	Refusal	
	9.50			-9.50	9.50					
	10.00			-10.00	10.00			–	–	
	10.50	Very Hard weathering rock		-10.50	10.50					
	11.00			-11.00	11.00					
	11.50			-11.50	11.50					
	12.00			-12.00	12.00					
	12.50			-12.50	12.50					
	13.00			-13.00	13.00					
	13.50	Very Hard Rock bed was encountered		-13.50	13.50					
	14.00			-14.00	14.00					
	14.50			-14.50	14.50					
	15.00			-15.00	15.00					

Logged By: Ivan Masuba

Checked By: Eng Remegie G.