The Islamic Republic of Pakistan
Health Department, Government of Sindh

PREPARATORY SURVEY REPORT
ON
THE PROJECT FOR IMPROVEMENT OF CHILD HEALTH INSTITUTE IN KARACHI
IN
THE ISLAMIC REPUBLIC OF PAKISTAN

May, 2012

Japan International Cooperation Agency (JICA)

Consortium of
Yamashita Sekkei Inc.
Binko International Ltd.

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Preface

Japan International Cooperation Agency (JICA) decided to conduct the preparatory survey and entrust the survey to the Consortium of Yamashita Sekkei Inc. and Binko International Ltd.

The survey team held a series of discussions with the officials concerned of the Government of the Islamic Republic of Pakistan, and conducted field investigations. As a result of further studies in Japan, the present report was finalized.

I hope that this report will contribute to the promotion of the project and to the enhancement of friendly relations between our two countries.

Finally, I wish to express my sincere appreciation to the officials concerned of the Government of Pakistan for their close cooperation extended to the survey team.

May, 2012

Ms. Nobuko Kayashima
Director General,
Human Development Department
Japan International Cooperation Agency

Summary

1. Outline of the Country

The Islamic Republic of Pakistan (hereinafter referred to as “Pakistan”) has the land area of approximately 796 thousand square kilo meters (twice as large as Japan), and Karachi city of the Province of Sindh (hereinafter referred to as “the POS”) is located at the estuary of the Indus River emptying into the Arabian sea.

The population of Pakistan is approximately 176.7 million (2011) and the annual growth rate of population is approximately 1.8% (2010), and those of the POS are approximately 40 million and 2.8% and those of Karachi city are approximately 13.6 million and 3.7% respectively. Most of the manufacturing and the service industry of Pakistan are located in the POS and the Province of Punjab (hereinafter referred to as “the POP”), especially concentrated in Karachi city because it has ports along the sea. Karachi city accounts for a large portion of the Gross Domestic Product of Pakistan. Therefore, Karachi city is receiving many migrant workers from all over Pakistan and refugees from neighboring Afghanistan. The increased population is mostly low income, and consequently the lack of the public services to them is getting the problem.

The 10 Year Perspective Developing Plan 2001-2011 and the Poverty Reduction Strategy Paper on 2003 of Pakistan state the necessity of safeguard for the poor and the socially vulnerable, and the National Health Policy 2001 indicates the improvement of the medical services for them as one of the priority issues. In addition, the Health Policy for the POS 2005 promotes the improvement of the pediatric medical care as the priority issue. Those shows that there is an urgent need to address the improvement of pediatric medical care as a province and a country.

2. Background and Outline of the Project

The POS in the Islamic Republic of Pakistan is leading the economic growth of the country as well as the POP. However, the ratio of children under 12 is higher than the other provinces, and the insufficient medical service for them is considered as a major issue.

Referring to index for child health of the POS, Infant Mortality Rate (IMR) is 78 out of 1,000 live births and Under 5 Mortality Rate is 100 out of 1,000 live births, which are the lower level than the other provinces. The Health Department, the Government of Sindh (hereinafter referred to as “HDGS”) finds the situation is caused by the referral system. In Karachi city, the National Institute of Child Hospital (NICH) is the only one public medical care center for children which can provide the advanced medical services. There is also Sindh Government Children Hospital (SGCH), a pediatric medical facility of the Provincial Government which has a capacity of 50 beds. SGCH can provide only limited medical services due to the lack of equipment etc., and patients who require specialized pediatric medical treatment of advanced surgery etc. are referred to NICH. Furthermore, primary medical facilities in the province do not function properly because of the limited human resources and medical equipment. NICH is obliged to handle even the primary medical services of vaccination etc.

Therefore,, a large number of patients crowd into this facility and patients of serious case cannot receive proper medical services.

The Government of Pakistan (hereinafter referred to as “the GOP”) requested the cooperation for “Establishment of Child Health Institute at Karachi, Larkana and Sukkur in the POS and “Improvement of District Head Quarter Hospital at Multan in the POP to The Government of Japan (hereinafter referred to as “the GOJ”) as the Grant Aid. (Afterwards, there was an offer from the GOP to exclude Larkana from the request.) The contents of the request for Establishment of Child Health Institute at Karachi and Sukkur in the POS is as followed;

Table i : Contents of Request

Establishment of Child Health Institute at Karachi and Sukkur in the POS	
Level of Medical Services	Tertiary Level
Outline of Facilities	Administration, Outpatient Department (OPD), Medical Ward, Emergencies, Pharmacy, Image Diagnostics, Laboratories, Pediatric Intensive Care Unit (PICU), Physiotherapy & Rehabilitation Unit, Surgery, Burns Plastic Surgery, School of Nursing, Cardiology, Medical Education, Dentistry –Total 220 beds
Outline of Equipment	Related Equipment for Neonate and Pediatric Medical Services

In response to the request from the GOP, the GOJ has decided to conduct the preparatory survey (hereinafter referred to as “the Survey”), and the Japan International Cooperation Agency (JICA) has dispatched a survey team for cooperation preparation survey (No.1). The survey concluded that SGCH has the highest priority and it is appropriate to improve facilities and equipment of SGCH. It was agreed by the Government of Sindh (hereinafter referred to as “the GOS”) on February, 2011 that the new facilities shall be secondary level, as followed.

Table ii : Contents of Agreement

Level of Medical Services		Secondary Level
Outline of Facilities	Scale of Facilities	200-250 beds (including existing 50 beds) Approx.12,000sqm (Approx. 8,000sqm for new facilities)
	Department	Administration, OPD, Medical Ward, Emergencies, Pharmacy, Image Diagnostics, Laboratories, PICU, Physiotherapy & Rehabilitation Unit, Surgery, Medical Education, Dentistry
Outline of Equipment	Treatment Equipment (beds, surgical instruments and operation sets), Diagnosis / Testing Equipment (Magnetic Resonance Imaging (MRI), Computed Tomography (CT), X-ray (mobile type), Ultrasound Scanner etc. -Approx. 500 items	

3. Outline of the Survey / Contents of the Project

Based on the above, JICA has dispatched the Preparatory Survey Team (hereinafter referred to as “the Team”) twice from July to September, 2011. The Team elaborated the facilities plan and the equipment plan in accordance with the domestic analysis after the Survey. Thereafter, the Team

explained the outline of the result of the Survey to the GOP in February of year 2012, and compiled the final report of the Survey.

(1) Scope of the Assistance

As the result of the Survey, the validity of the Project was confirmed to extend the facilities and procure the necessary equipment for the purpose of adding the secondary medical function to SGCH which is now providing mainly primary medical services. In particular, the Project is for those additional functions below;

- Early stage medical services including blood transfusion, for high-risk neonates
  - Establishing Neonatal Care Unit (NCU) with equipment
  - Establishing emergency blood transfusion unit
- Mitigation of overload of the higher level medical facilities by care of moderately to severely-ill children who do not need the tertiary medical care
  - Establishing PICU with equipment
  - Increasing the number of beds in General Ward, Diarrhea Ward and Surgical Ward
- Enhancement of Pediatric Surgeries and Operation Theater (OT) Department
  - Establishing operation theaters with equipment
- Enhancement of pediatric specialized medical services
  - Establishing Special OPD (Ophthalmology and Ear, Nose and Throat (ENT))

The scale of the facilities and the variety and number of equipment to be procured depend on operation and maintenance by the medical staff who are to be allocated to SGCH by the completion of the Project.

(2) Study of the Request

The scope of the Project was established in accordance with the activities of the new facilities as the secondary hospital which correspond to the standard of public hospitals in Pakistan and the implementing capabilities of the existing SGCH. Specifically, as the Table iii shows, the scale of the new facilities was determined to be 129 beds and eight incubators (also, 10 emergency beds, 10 incubators for Mother Treatment NCU and two recovery beds) and approximately 140 types of equipment to be provided, and the outline is as follows.

Table iii : Outline of the Project

<table>
<tr><th></th><th>Outline of the Project</th></tr>
<tr><td>Facilities</td><td>
Facilities (two floors, Reinforced Concrete Building)
<table>
<tr><th colspan="2">Department</th><th>Floor Area (sqm)</th></tr>
<tr><td rowspan="11">New Facilities</td><td>Special OPD</td><td>186.11</td></tr>
<tr><td>Emergencies</td><td>283.66</td></tr>
<tr><td>Image Diagnostics</td><td>155.37</td></tr>
<tr><td>NCU/PICU</td><td>356.93</td></tr>
<tr><td>Ward (Internal Medicine)</td><td>1,413.58</td></tr>
<tr><td>Laboratories</td><td>128.37</td></tr>
<tr><td>Operation Theater</td><td>348.15</td></tr>
<tr><td>Ward (Surgeries)</td><td>353.04</td></tr>
<tr><td>Common Use</td><td>1,303.26</td></tr>
<tr><td>Subtotal</td><td>4,528.47</td></tr>
<tr><td>Incidental Facilities</td><td>80.84</td></tr>
<tr><td colspan="2">Total</td><td>4,609.31</td></tr>
</table>
Electrical / Mechanical / Plumbing and Sanitary
・ Electrical : Power Supply (Main Power Supply Facilities, Emergency Generator, Automatic Voltage Regulator(AVR) / Isolation Transformer / Medical Grounding), Lighting and Receptacle Facilities, Communication Facilities (including LAN), Public Address Facilities, Collective Television Receiving Facilities, Interphone Facilities, Monitoring Camera Facilities, Automatic Fire Alarm Facilities, Lightening Protection Facilities
・ Mechanical : Air Conditioning Facilities, Ventilation Facilities
・ Plumbing and Sanitary : Sanitation Facilities, Water Supply Facilities, Hot Water Supply Facilities, Drainage Facilities, City Gas Facilities, Firefighting Facilities, Medical Gas Facilities, Well Facilities
</td></tr>
<tr><td>Equipment</td><td>
・ Ward(Internal): Hospital Bed, Oxygen Flow Meter & Humidifier, Electric Suction Machine, Laryngoscope Sets, Infusion Pump, Pulse Oxymeter, Patient Monitor, Intensive Care Unit (ICU) Patient Bed, Defibrillator, etc.
・ Operation Theater : Shadow-less Lamp, Operation Table, Anesthesia Apparatus with Ventilator, Capnograph, Rigid Bronchoscope, Sterilizer, Recovery Bed, etc.
・ Emergencies : Ultrasonic Nebulizer, Blood Pressure Apparatus、Defibrillator、Diagnostic Set、First Aid Kit etc.
・ Special OPD : Examination Couch, Resuscitation Bag Sets, Boiling Sterilizer, X-ray Illuminators etc.
・ Physiotherapy : Ultrasound Therapy Unit, Cycle (Ergometer), Chairs and Stands for Cerebral Palsy Child etc.
・ NCU : Oxygen Flow Meter, & Humidifier, Phototherapy Unit etc.
・ Laboratories : Laboratory Equipment used for Central/Pathology, Hematology, Biochemistry, Blood Transfusion Unit.
・ Image Diagnostics : Digital X-ray Unit, Mobile X-ray Unit, Color Doppler Ultrasound Scanner, EEG, Audiometer for Neonatal Hearing Test etc.
・ Pharmacy : Medicine Cabinet, Pharmaceutical Refrigerator etc.
・ Others : Waiting Bench, Projector etc.
</td></tr>
</table>

4. Construction Period and Cost Estimation of the Project

The necessary period of the construction for the Project is estimated to be approximately 24 months (eight months for detailed design and tendering, 15 months for construction of the facilities and three months for installation and inspection of equipment), judging from the scale of the facilities, situation of construction in Pakistan, budgeting systems of both countries and the period of clearing the Project site etc. The estimated cost of the Project to be covered by the Pakistani side is approximately 20.7 million Rs.

5. Evaluation of the Project

(1) Relevance

- Appropriateness of the Project

  SGCH receives pediatric patients from all over the northern Karachi city, whose population is approximately 4.16 million and that of children under 12, beneficiary group of the Project, is approximately 1.77 million. In the area, the ratio of the poor and the growth rate of population are high.

  The Project provides appropriate medical services to an enormous number of poor children, who are forecasted to be increased hereafter, and has great effect on the beneficiary group.

- Necessity

  The existing facilities of SGCH can provide only limited medical services due to the lack of equipment, etc. and patients who require the advanced medical care are referred to the tertiary medical facilities, such as NICH. Therefore, SGCH provides only the primary medical services at present. Furthermore, NICH is obliged to provide even primary medical services of vaccination, etc. Consequently, a lot of patients concentrate on NICH and patients in serious conditions cannot receive sufficient medical services. After the completion of the Project, the improvement of pediatric medical services of SGCH contributes to the provision of the tertiary medical services to severely-ill patients appropriately, as well as to improvement of the primary and the secondary medical services.

- Priority

  The contribution of the Project to the improvement of the pediatric medical services agrees with the Poverty Reduction Strategic Paper of Pakistan, the National Health Policy and the Health Policy of the POS. In addition, the Project falls under the Development Issue “Ensuring Primary Health Care Services” in the Priority Area “Ensuring Human Security and Human Development” of the rolling plan for Pakistan of Japan’s ODA, and has the high priority.

(2) Effectiveness

The effectiveness of the Project will be confirmed by the following indexes.

Table iv : Quantative Indexes

	Indexes	Base Value (2011)	Target Value (2018)
1	Number of Inpatients (NCU excluded)	2,276	4,100
2	Number of NCU inpatients	0	190
3	Number of Biochemistry Tests	851	2,100

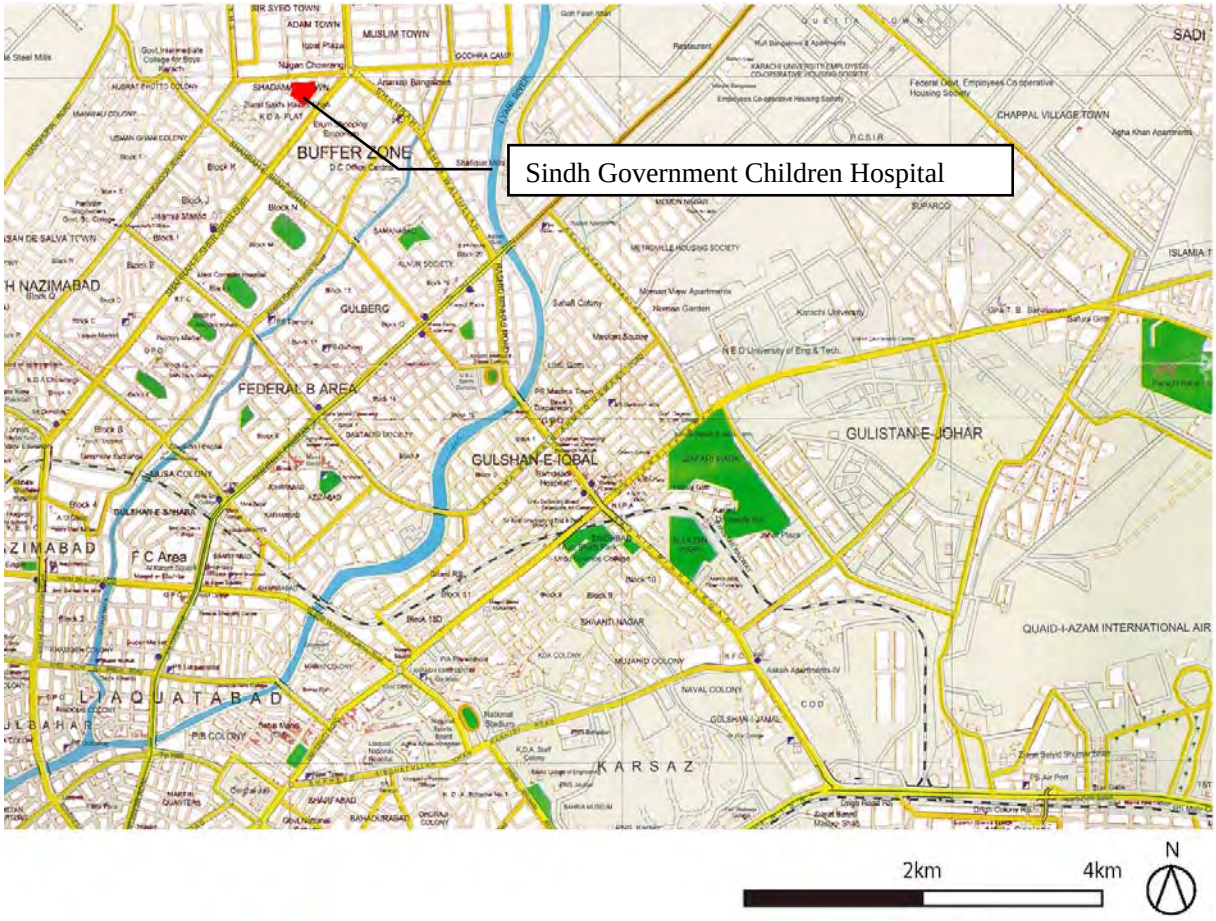
Table v : Qualitative Indexes

1	Prompt diagnose and treatment will be enabled because of the room layout considering medical staff flow. The effectiveness of medical care will be enhanced by improving the working environment.
2	Clear demarcation of clean and dirty zone will contribute to easy control of cleanliness and prevent from in-hospital infection.
3	SGCH will provide the appropriate medical services also to patients who cannot receive proper medical care now, such as NCU, and it will contribute to the improvement of the referral system in the catchment area.

Contents

[Appendices]

Location Map



Source : Surveyor General of Pakistan

Fig. i : Sindh Government Children Hospital and its Surroundings

Perspective

Fig. ii : Aerial Perspective

Fig. iii : Perspective of the Entrance

List of Figures & Tables

Abbreviations

ACOS	Automatic Change Over Switch Board
AGSP	Automatic Generator Starting Point
ARI	Acute Respiratory Infection
ASP	Automatic Synchronization Panel
AVR	Automatic Voltage Regulator
BME	Bio-Medical Engineer
CT	Computed Tomography
DHS	Demographic Health Survey
EEG	Electroencephalography
EIA	Environment Impact Assessment
EMG	Electromyography
EMLT	Essential Main LT Switch Board
E/N	Exchange of Notes
ENT	Ear, Nose and Throat
EOJ	Embassy of Japan
FCPS	Fellowship of the College of Physicians and Surgeons
FRP	Fiber Reinforced Plastic
FPD	Flat Panel Detector
G/A	Grant Agreement
GDP	Gross Domestic Product
GIZ	Deutsche Gesellschaft fur Internationale Zusammenarbeit
HDGS	Health Department, Government of Sindh
ICU	Intensive Care Unit
JPMC	Jinnah Postgraduate Medical Center
JIS	Japan Industrial Standard
KESC	Karachi Electric Supply Company
KWSB	Karachi Water and Sewage Board
LHW	Lady Health Worker
MBBS	Bachelor of Medicine, Bachelor of Surgery
MCPS	Member of the College of Physicians and Surgeons
MDF	Main Distribution Frame
MRI	Magnetic Resonance Imaging
NCU	Neonatal Care Unit
NCV	Nerve Conduction Velocity Testing
NHP	National Health Policy
NICH	National Institute of Child Health
NICU	Neonatal Intensive Care Unit

NMLT	Non Essential Main LT Switch Board
PABX	Private Automatic Branch Exchange
PICU	Pediatric Intensive Care Unit
PIMS	Pakistan Institute of Medical Sciences
PRSP	Poverty Reduction Strategic Paper
PQ	Prequalification
PTCL	Pakistan Telecommunication Company Limited
SSGC	Sui Southern Gas Company
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
UPS	Un-interruptive Power Supply
USAID	U.S. Agency for International Development
VCB	Vacuum Circuit Breaker
WFP	World Food Programme
WHO	World Health Organization

Chapter 1 Background of the Project

1-1 Background of the Project

The POS, the Islamic Republic of Pakistan is leading the economic growth of the country as well as the POP. However, the ratio of children under 12 is higher than the other provinces, and the insufficient medical service for them is considered as a major issue.

As an index for child health, Infant Mortality Rate (IMR) and Under 5 Mortality Rate of the POS are 78 and 100 respectively, which is the lower level than the other provinces. This situation is caused by the referral system. In Karachi city, the National Institute of Child Hospital (NICH) is the only one public medical care center for children which can provide specialized pediatric medical services, and all patients who need advanced pediatric medical services crowd into this facility.

There is also Sindh Government Children Hospital (SGCH), a pediatric medical facility of the Provincial Government which has a capacity of 50 beds. SGCH can provide only limited medical services due to the lack of equipment etc. and patients who require specialized pediatric medical treatment of advanced surgery etc. are referred to NICH. Furthermore, NICH is obliged to provide even the primary medical services of vaccination etc. Consequently, a large number of patients crowd into NICH and patients in serious conditions cannot receive proper medical services.

1-2 Request from the Recipient Country

The GOP requested the cooperation for “Establishment of Child Health Institute at Karachi, Larkana and Sukkur in the POS and “Improvement of District Head Quarter Hospital at Multan in the POP to the GOJ as the Grant Aid. (Afterwards, there was an offer from the GOP to exclude Larkana from the request.)

Table 1-1 : Contents of Request

Establishment of Child Health Institute at Karachi and Sukkur in the POS		
Level of Medical Services	Tertiary Level	
Outline of Facilities	Administration, OPD, Medical Ward, Emergencies, Pharmacy, Image Diagnostics, Laboratories, PICU, Physiotherapy & Rehabilitation Unit, Surgery, Burns Plastic Surgery, School of Nursing, Cardiology, Medical Education, Dentistry –Total 220 beds	
Outline of Equipment	Related Equipment for Neonate and Pediatric Medical Services	

From the end of April to the beginning of June 2010, a survey team for cooperation preparation survey (No.1) was dispatched to Pakistan to verify the survey object, contents, scale of the Project, etc., as well as the necessity and the appropriateness of the request. The survey concluded that SGCH has the highest priority and it is appropriate to improve facilities and equipment of SGCH.

The original request for SGCH was the tertiary level hospital, however it was agreed by the Government of Sindh (hereinafter referred to as “the GOS”) on February, 2011 that the new facilities

shall be secondary level, as followed.

Table 1-2 : Contents of Agreement

Level of Medical Services		Secondary Level
Outline of Facilities	Scale of Facilities	200-250 beds (including existing 50 beds) Approx.12,000sqm (Approx. 8,000sqm for new facilities)
	Department	Administration, OPD, Medical Ward, Emergencies, Pharmacy, Image Diagnostics, Laboratories, PICU, Physiotherapy & Rehabilitation Unit, Surgery, Medical Education, Dentistry
Outline of Equipment	Treatment Equipment (beds, surgical instruments and operation sets), Diagnosis / Testing Equipment (MRI, CT, X-ray (mobile type), Ultrasound Scanner etc. Approx. 500 items	

1-3 Natural Conditions

(1) Geography

The hospital site is shaped like a home plate of baseball, approx. 309 meters wide and 300 meters deep, and the existing hospital is located at the center. Between the existing hospital and the northern road is a flat ground, however the other area, that is, the west, the south and the east of the existing hospital, is a pan from two to three meters below at maximum.

A mosque is located at the east of the existing hospital, and faces to the eastern road and has a direct access. This mosque does not have an access to SGCH and disturb the access to SGCH from the eastside.

(2) Geological Conditions

The geological condition of Karachi is composed of the gravel with hard silt from the ground level to approximately 10 meters depth. It is said in Karachi that this layer of gravel has sufficient bearing capacity for constructing mid-rise buildings.

During the second field survey, the geological survey was outsourced to the local geotechnical company and conducted including the plate bearing tests at the two points around the Project site. These two points have the almost same geological conditions which got the gravel with silt at approximately 1.2 meters depth from the ground level and a large volume of ground water at 0.7 meter.

Table 1-3 : Geological Conditions

Depth	Soil Description
Ground Level - 0.65m	Backfilling Material
0.65m - 1.2m	Dark Gray, Sandy Silty Clay
0.7m	Ground Water Level
1.2m - 1.5m Loading Level	Gravel with Silt

According to the water quality test, the ground water contains a lot of sulfate and chloride, so it is common in Karachi to use sulfate resisting concrete and to keep thick covering depth from the concrete surface.

(3) Climate

1. Temperature and Humidity

According to the climatic data of 2010, the yearly mean maximum temperature of Karachi is 33.0 degree Celsius, the yearly mean minimum temperature is 21.9 degree and the yearly mean humidity is 62.1 percent. Especially, from May to September, the maximum temperature is around 35 degree and the humidity is around 70 percent, and it is the hottest and most humid in the year. On the other hand, from December to February, the maximum temperature is below 30 degree and the humidity is around 50 percent, and it is comfortable.

The southern east wind blows all year round, and the yearly mean maximum wind is 6.7 meters per second in the day time.

Table 1-4 : Climatic Data of Karachi (2010)

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Average
Mean Maximum Temperature (℃)	27.5	29.2	34.0	35.7	36.5	34.7	34.6	33.2	34.5	35.9	32.7	28.0	33.0
Mean Minimum Temperature (℃)	12.2	14.7	21.3	25.1	28.0	28.2	28.3	27.2	25.8	23.9	17.4	11.1	21.9
Monthly Precipitation (mm)	0.0	0.5	0.0	0.0	0.0	97.4	120.4	111.5	42.7	0.4	0.0	0.0	372.9
Monthly Average Humidity (%)	53.6	49.9	60.2	62.6	70.2	73.1	74.7	77.0	69.9	62.4	47.1	44.3	62.1
Max. Wind Speed (m/s)	5.1	6.2	6.2	6.2	7.2	8.2	8.2	8.2	6.2	6.2	5.1	7.2	6.7
Wind Direction	Southern east wind all year round												

2. Precipitation

Rainfall of Karachi is characterized by variation of precipitation among months and a large amount of precipitation per day. The rainy season is from June to September. Although the yearly precipitation is small, such as 122mm on 2008, 280mm on 2009 and 373mm on 2010, the maximum precipitation per day is 142.5mm on 19th July, 2009, which is equal to half of the yearly precipitation, and 77.1mm on 6th June, 2010, which is equal to 20 percent of the yearly precipitation. On 13th September, 2011, during the second field survey, it rained 65mm per day, and most of roads were flooded for one to two days.

3. Earthquake

In Pakistan, earthquakes occur frequently, and the seismic risk map is prepared. The quake-resistance standards are regulated and Karachi falls into Zone-II on the map.

4. Termite

Wood materials are often damaged by termite in Karachi. Chemical grouting into the ground and termite proofing on wood materials are necessary during the construction of the new facilities. Chemical grouting into the ground is necessary every three to four years due to the duration of the effect.

1-4 Environmental Social Consideration

The Project is the improvement of the existing medical facilities. The increase of the environmental impact by the Project will be by the enlargement of the existing hospital and the surrounding areas by the construction works and the equipment works of the equipment, therefore it is limited.

(1) Environmental Impact Assessment (EIA)

EIA report is applied only for production facilities such as factory, and not applied for medical facilities such as the Project.

(2) Disposal of Waste

1. Medical Waste

Karachi has the regulations that medical wastes and general wastes are to be separated to prevent the surrounding areas and relevant people from being infected and medical wastes are to be disposed by the incinerator in the site. There are ways that SGCH installs its own incinerator and that SGCH uses the paid incineration services of the municipal government of Karachi.

2. Waste Solution

SGCH releases the waste solution and laboratory discharged water to the sewer line in the same way as the other medical facilities in Karachi. After completion of the Project, the medical effluent from the new facilities will also be released to the sewer line due to the difficulties of maintenance from the point of human resource and budget.

3. General Waste

General wastes are collected by the municipal government of Karachi and dumped in the two treatment plants of the municipal government.

(3) Tree

In Karachi, it takes long time for trees to grow up due to little precipitation. It is basically prohibited to cut down trees, and specialized care for trees is needed.

(4) Impact to the surrounding area

1. Activities of the New Facilities

The increase of outpatients and wastes by the improvement of medical activities of the existing facilities will have a negative impact on the surrounding areas. The increase of outpatients will lead to the increase of vehicles to visit the hospital. However, a sufficient parking area can be secured on the front road, and the impact will be small.

After completion of the Project, medical wastes will be disposed by the incinerator owned by SGCH or the incineration service of the municipal government, and general wastes will be collected and dumped by the municipal government. Therefore, the impact by the increase of the wastes will be small.

2. Construction

- Impact to the traffic and outpatients

The western gate on the front road will be used for the construction works and the equipment works. The impact to the outpatients and vehicles which pass the front road will be small by managing the entry and exit of the gate.

In the hospital site, the Project site will be enclosed by the temporary fence to prevent the mixture of outpatients and people relevant to the Project during the construction works and the equipment works.

- Noise and Vibration during Construction

An impact will be assumed by noise and vibration by the construction, especially by the concrete casting which will be planned at night, etc. These works will be as few as possible based on coordination with the existing hospital.

- Construction Waste Disposal

Construction waste will be disposed by the local company and dumped in the designated place.

Chapter 2 Contents of the Project

2-1 Basic Concept of the Project

The POS is leading the economic growth of the country as well as the POP. However, the ratio of children under 12 is higher than the other provinces, and the insufficient medical service for them is considered as a major problem. As an index for child health, the interim target (2009-2011) of Millennium Development Goals (MDGs) of Pakistan shows that Infant Mortality Rate (IMR) is 65 out of 1,000 live births and Under 5 Mortality Rate is 77 out of 1,000 live births, but those of the POS are 78 and 100 respectively (source from the World Health Statistics 2011), which is the lower level than the other provinces. It is considered to be a long way to go to achieve the target.

This situation is caused by the referral system. In Karachi city, NICH with 485 beds is the only one public medical care center for children which can provide specialized pediatric medical services, and all patients who need advanced pediatric medical services crowd into this facility. There is also SGCH, a pediatric medical facility of the Provincial Government which has a capacity of 50 beds. SGCH can provide only limited medical services due to the lack of equipment etc., and patients who require specialized pediatric medical treatment of advanced surgery etc. are referred to NICH. Furthermore, primary medical facilities in the province do not function appropriately because of the limited human resources and medical equipment. NICH is obliged to provide even the primary medical services of vaccination etc. Consequently, a large number of patients crowd into NICH and patients in serious conditions cannot receive proper medical services.

The Project aims at the improvement of SGCH for the purpose of enhancement of the pediatric medical services in Karachi city.

For achieving the goal mentioned above, Special OPD, Pediatric Surgeries, PICU, NCU, Emergencies, Laboratories etc. are to be added to the existing hospital as new departments, and medical equipment which is necessary in those departments are to be procured. It will enable SGCH to provide the proper secondary medical services.

2-2 Outline Design of the Requested Japanese Assistance

2-2-1 Design Policy

2-2-1-1 Basic Policy

(1) Scope of Assistance

The Project is to extend the facilities and procure the necessary equipment for the purpose of adding the secondary medical function to SGCH which is now providing mainly primary medical services. In particular, it is to realize the following functions.

- Early stage medical services, including blood transfusion, for high-risk neonates
  - Establishing NCU with equipment
  - Establishing emergency blood transfusion unit
- Mitigation of overload of the higher level medical facilities by care of moderately to severely-ill children who do not need the tertiary medical care
  - Establishing PICU with equipment
  - Increasing the number of beds in General Ward, Diarrhea Ward and Surgical Ward
- Enhancement of Pediatric Surgeries and OT Department
  - Establishing operation theaters with equipment
- Enhancement of pediatric specialized medical services
  - Establishing Special OPD (Ophthalmology and ENT)

The scale of the facilities and the variety and number of equipment to be procured depend on operation and maintenance by the medical staff who is to be allocated to SGCH by the completion of the Project.

The Project is to construct facilities and procure equipment for the secondary level while the existing facilities is to provide the primary medical services and relevant medical care, such as day care. Therefore, the existing facilities does not need any large scale refurbishment, and will be used for general OPD, public medical services such as family planning, administration and management, storages, service department etc. Functional diagram of the existing and the new facilities is as followed,

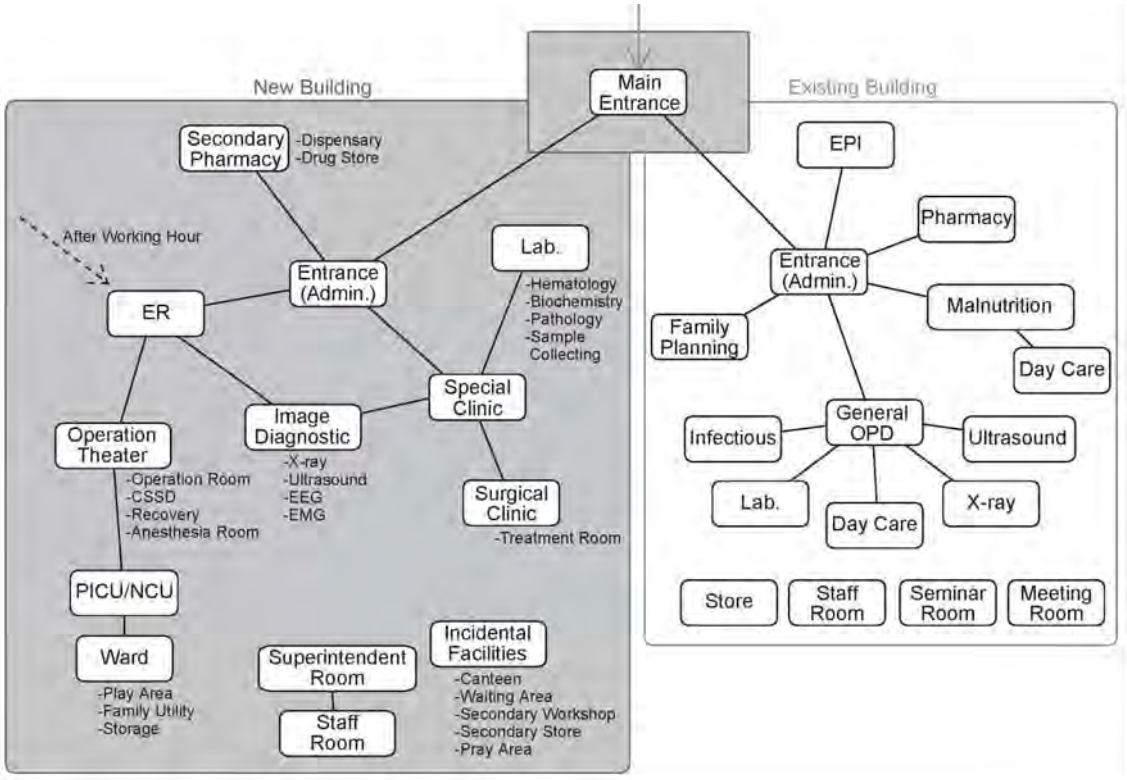


Fig.2-1 : Functional Diagram of SGCH

(2) Selection of the Project Site

The Project site is located in the residential area in North Nazimabad, North Karachi. It has approximately 65,000 square meters of land, most of which is open area excluding the existing buildings. The south part of the site is approximately two to three meters lower than the other part.

The north-west part of the hospital site is considered to be the most appropriate as the Project site for continuous use of the existing facilities during construction. In addition, the Project site is accessed easily from the outside through the existing sub-gate and intercommunicated sufficiently with the existing facilities, and the cost of earth filling is reasonable since the ground level of the Project site is almost same as that of the existing facilities and the surroundings. Adding to the existing facilities, there are a mosque facing to the eastern road and the local government facility at the south-east corner of the hospital site. However, both of them are facing to the outer roads directly and far enough from the existing facilities and the Project site, so they will not disturb the hospital medical activities.

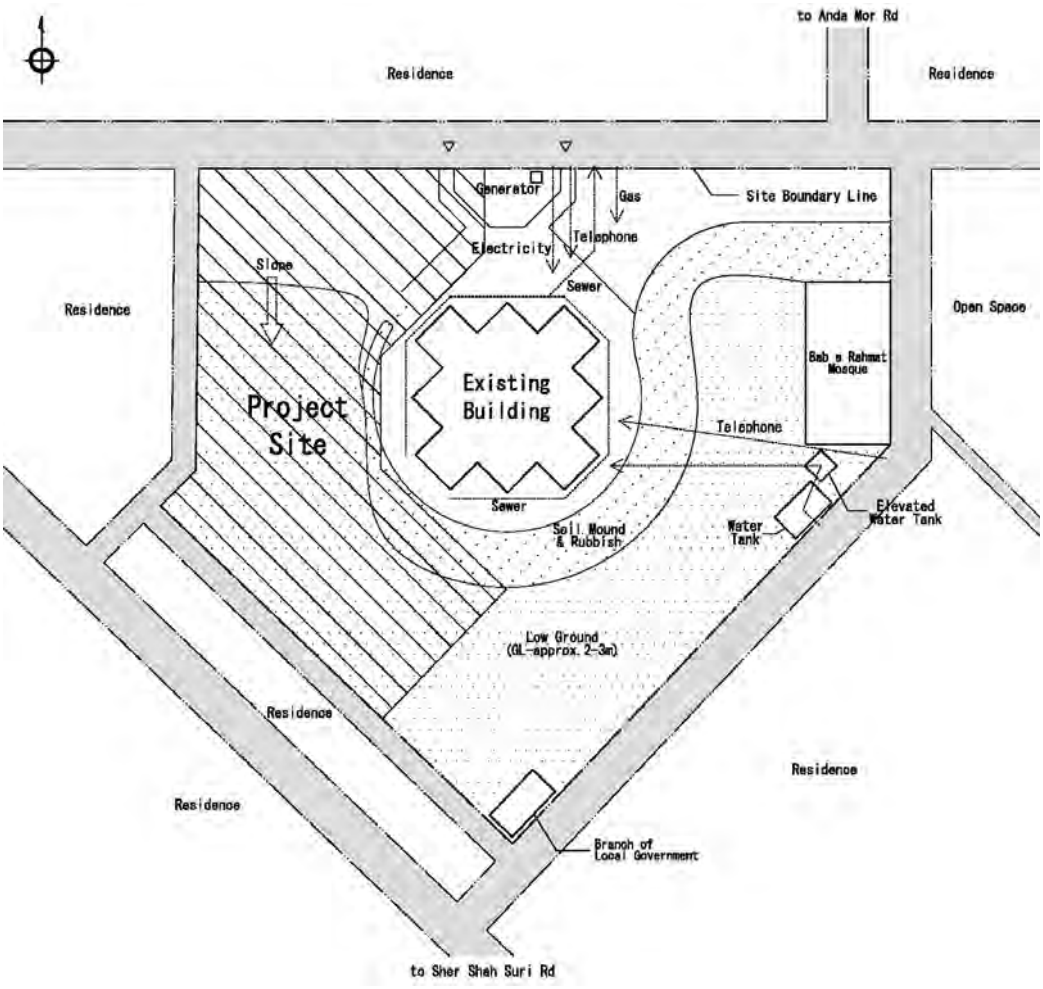


Fig. 2-2 : Site Use Plan

2-2-1-2 Policy on Natural Conditions

(1) Temperature / Sunshine

Although Karachi city is severely hot all year round, each room of the new facilities is planned to have a ceiling high enough to get sufficient natural ventilation in order to have a comfortable living space without air conditioning. In rooms which have air conditioners for functional need, air conditioning load is mitigated by having double outer walls to enhance the thermal insulation performance.

In addition, direct sunlight can be prevented by installing eaves and side walls, and solar insulation can be reduced by enhancing the rooftop thermal insulation.

(2) Rainfall

The floor level of the new facilities is planned to be higher than the front road level to prevent flood damage which is reported in the north of Karachi city. Also, the new facilities is planned to be constructed on the place higher than the surroundings and to secure draining routes to discharge rainwater falling on and around the facilities to the lower place in the Project site

2-2-1-3 Policy on Socioeconomic Conditions

(1) Nursing by Mothers

It is common in public hospitals in Pakistan to have mothers accompany and nurse their own children. Ward Department under the Project needs to be planned for the same conditions.

(2) Consideration on Religion

97 percent of the Pakistanis are Muslims and there are praying spaces in many of public hospitals. The new facilities is planned to have praying spaces and supplementary facilities, such as washing places.

2-2-1-4 Policy on Construction and Procurement Situations

(1) Building Regulations / Laws

1. Building Regulations

Many building regulations are organized in Karachi city. In the area of the Project site, the floor numbers of a building are regulated to be no more than three floors, the building coverage ratio to be 70 percent and the set-back from the boundary to be three meters. On the Project, the local building regulations will be observed under the guidance of the Works and Services Department of the Government of Sindh.

2. Fire Fighting

As the result of a discussion with the local Fire Fighting Department, it is judged that the new facilities needs only stairs and emergency exits for smooth evacuation and installation of fire extinguishers. In addition, fire detectors and alarms are to be installed for safety.

(2) Quality and Procurement of Local Equipment and Materials

Facility equipments and materials for construction, except those for elevators and some parts of mechanical and electrical works, can be easily procured because local products and those imported through agencies are widely sold in the local markets. The quality of these facility equipments and materials has no specific problem and will be utilized, except facility equipments mentioned above.

(3) Local Labor

Although normal working hour is from eight am to five pm, it is common to work in the morning and in the evening to avoid severely hot daytime. In addition, it is often the case that casting concrete is done from the evening to prevent concrete mixture trucks from being late due to the traffic jam.

2-2-1-5 Policy on Local Contractors

Local construction methods will be adopted in order to utilize local contractors. Local contractors in

Pakistan are categorized by the Pakistan Engineering Council as C-A, which is the top, C-B,C-1, C-2,,, Contractors categorized as C-A can participate to offer a tender of all the public construction works, ones as C-B can offer a tender no more than two billion Rs, ones as C-1 can offer a tender no more than 1 billion Rs, etc.

Contractors in Pakistan, including Karachi city, have enough technical capabilities. Contractors between C-A to C-2 have capabilities and sufficient construction machines for subcontracting work under Japanese contractors if the construction is done in general method. Therefore, the Project will adopt the local, general method which is familiar to local contractors.

2-2-1-6 Policy on Capabilities of Operation and Maintenance

Since full time facility maintenance technicians are not allocated in SGCH, advanced mechanical utilities which require such full time technicians are not to be selected for the Project. Ease of getting consumables and maintenance products is the first priority in the selection of mechanical and electrical utilities which require daily maintenance. Medical equipment is to be selected based on operationality by the existing radiologist and laboratory technicians in Image Diagnostics and Laboratories.

At the time of handover of equipment, equipment engineers of the local manufacturer employed by the equipment supplier are to instruct doctors and the medical staff in the operational method and the maintenance method thoroughly for proper and safe use of the equipment.

2-2-1-7 Policy on the Grade of Facilities and Equipment

The first priority in deciding the grade of facilities is the durability and the ease of maintenance for facilities planning (medical services flow lines and nursing units, interior and exterior finishes etc.), structural planning, mechanical, electrical and plumbing planning etc. in reference to general secondary and tertiary public hospitals in Pakistan. The scale of facilities, such as corridor widths and room areas, is to be planned in reference to the standard case of public hospitals.

The grade of equipment is the very minimum for SGCH to implement primary and secondary pediatric medical services and can be operated by the medical staff, including doctors working in the existing hospital. In addition, it is to be maintained by local agencies in Karachi city.

2-2-1-8 Policy on the Terms of Work

In construction of facilities, it is necessary to decide the period of works in consideration of a decrease of working efficiency during the month of Ramazan and two-week no-business days after Ramazan. The treatment of spring water is necessary during the construction of the foundation because of high ground water level, which will affect the period of works.

2-2-2 Basic Plan

2-2-2-1 Facilities Plan

(1) Study of Request

The GOJ was requested by the GOP for the construction of the new facilities and procurement of equipment for SGCH, as stated on Chapter 1 1-2.

The scope of the Project is to be established in accordance with the activities of the new facilities as the secondary hospital which should correspond to the standard of public hospitals in Pakistan and the implementing capabilities of the existing hospital. It was determined that Japanese assistance in the Project focuses on the department which needs 24 hour services and the special OPD for neonates vulnerable to infection in the general OPD, children of severely maldevelopment or cerebral anesthesia children, and which have difficulties providing proper services in the existing facilities due to lack of sanitary equipment.

It was confirmed that the departments which provide the medical services as follows are to be established in the new facilities. Also, the scale of the new facilities was determined to be 129 beds and eight incubators (also, 10 emergency beds, 10 incubators for Mother Treatment NCU and two recovery beds) and approximately 140 types of equipment to be provided.

Table 2-1 : Main Departments of the New Facilities

Department	Activities
Ward	The treatment is to be provided for the internal medicine cases and patients in convalescence stage after the operation and of diarrhea and infectious disease and the undernourished who can be taken care of in the secondary hospital. In accordance with extension of Special OPD, the number of beds is to be secured corresponding to each clinic. Patients who need the tertiary level care such as respiratory management are to be transferred to the higher referral facilities. As of now, there are many patients who are diagnosed to be hospitalized but cannot. In addition, the existing ward does not have the proper medical treatment environment and any fire prevention equipment.
OT	At present, major operations that need general anesthesia are not performed due to the lack of facilities and supporting staff such as anesthesiologists. After the construction of the new facilities, the operations of groin hernia, intestinal perforation, acute abdomen conditioning whose patients are transferred to the higher medical facilities are to be carried out regularly. A small operation room is to be provided to handle emergency operations such as accidental ingestion, traffic accident and endoscopic examination with an anesthesia management.
Special OPD	It is an OPD of re-examination for the patients who were checked at the general OPD (ARI (Acute Respiratory Infection), Gastroenteritis, Urinary Tract Infection etc.) or reception and needed specialized medical examination and treatment by specialized doctors from each clinic. The risk of the nosocomial infection can be reduced especially by isolating the newborn who is vulnerable to infection and patients of cerebral palsy etc. from the large number of general outpatients including the infectious disease patients. Special OPD is to have a consulting room (Neurology, Nephrology, Endocrinology, Asthma Clinic etc.) in addition to Surgical Clinic, Internal Medicine Clinic, ENT, Ophthalmology and a treatment room for common use.

Department	Activities
Emergencies	24 hour emergency outpatient services are to be performed. Patients with ARI, febrile convulsion, severe diarrhea, etc. are to have a nebulization and oxygen inhalation, drip infusion, etc. after diagnose and examination. After treatments, patients who need to be hospitalized are to be transported to each ward and patients who need operations are to be transported to the OT department on the upper floor. In addition, an isolation room is to be placed in order to prevent infection among patients.
Image Diagnostics	It is to diagnose patients by using flouscopic contrast image, to confirm the location of accidental ingestion by fluorography and to take X-ray of pneumonia patients' chest. Since in the existing facilities the equipment expires the period of duration and the radiation protection is not appropriate, it is judged difficult to use the existing facilities continuously. Moreover, in addition to the sonography to support diagnoses of the diseases of the internal organs, the electroencephalographic measurement, the myogenic potential measurement and the audiometric test, etc. are to be performed in order to diagnose specialized outpatients.
NCU	The intensive care is to be provided in the isolated nursing unit equipped with incubators for neonates with low birth weight, in a bad breathing condition and with congenital disease such as esophageal atresia. Neonates from the treatments in NCU are to be treated by their mothers in another isolated area continuously.
PICU	Intensive care is to be provided for children who need centralized management care because of acute pneumonia, encephalopathy, postoperative and other severely ill children. Lightly-ill or recovered children are to move to a high care unit provided in a ward department, and to have nursing care.
Laboratories	<Examination Department> Pathological, hematological and biochemical examinations for outpatient diagnosis and hospitalized treatment are to be carried out. <Blood Transfusion Department> It is for urgent need of blood during operations which outside blood banks cannot cope with and for emergency blood transfusion to children. In addition, patients who get worse from jaundice to Sepsis are also treated with blood transfusion support continuously. From the experience of transfusion in the internal medicine and surgery department of NICH and cases to be coped with in the new facilities, it is judged that blood transfusion to be carried out at least twice a week.
Pharmacy	The management and storage of medicines treated in each department are to be carried out. Medication, preparation for infusion in the ward and medication for Special OPD are to be performed in Pharmacy. Dispensing is to be carried out at the existing pharmacy.
Administration	The management of the common service including the guidance of patients, the management and delivery of medical records, the supply of meal and linen is to be performed. Patients are to be divided into each department through a reception. Office administration of the whole hospital, the long term safekeeping of medical records for the new facilities, medicines, linens, foods are to be done in the existing facilities continuously.

At present 52 doctors and 43 paramedical staff (nurse, technician) are working in SGCH. As for the implementation system after completion of the Project, since the number of beds is being increased, it is essential to secure the medical staff. Since paramedical staff are less than doctors and most of them are involved in the outpatient services now. Therefore, it is nesessary to increase not only ward doctors but also paramedical staff to cope with the increase of the number of beds.

(2) Site and Layout Planning

Most outpatients will approach to the existing and the new facilities through the existing main gate of the hospital site on foot. A connecting corridor will be arranged as a common entrance between the

entrance hall of the existing facilities and the new facilities. Ambulances and maintenance services vehicles will use the existing sub-gate facing to the front road. The staff parking and the internal road for the services will be allocated between the new facilities and the front road.

Meanwhile, meals and clean linens for patients will be supplied through the service entrance of the new Ward facing to the existing facilities.

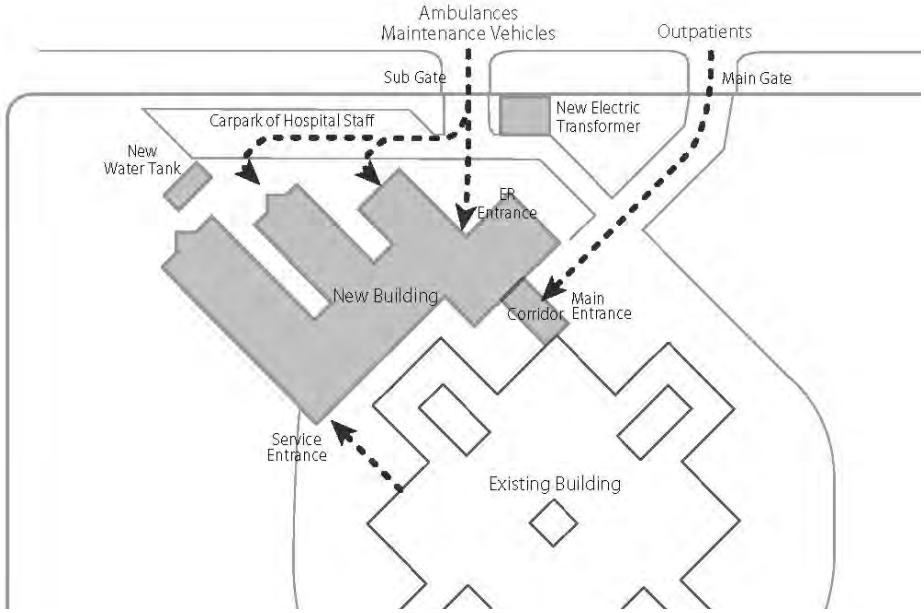


Fig.2-3 : Layout Plan of Facilities

2-2-2-2 Architectural Plan

(1) Floor Plan

1. Concept of Floor Planning

The following points are to be taken notice.

- The layout will comply with the frequency of access from outside. Departments are placed in accordance with patients' convergence from the entrance (Special OPD, Emergencies then Image Diagnostics) to prevent mixture of flow line to each department and enhances the privacy of Ward located farthest from the entrance. Vertically, the flow of outpatients ends on the ground floor by locating Special OPD, Emergencies and Image Diagnostic on the ground floor and OT and Laboratories on the first floor.
- The circulation of outpatients and the medical staff is separated by Image Diagnostics and Laboratories in order not to cross each other.
- The ratio of the effective area and the operating rate of the facilities will be high by using part of corridors as rooms.
- Waiting areas where many patients and their families gather are to have double floor-height and top light windows above to provide comfortable space with natural ventilation.

The floor composition based on the above concepts is shown in the figure below.

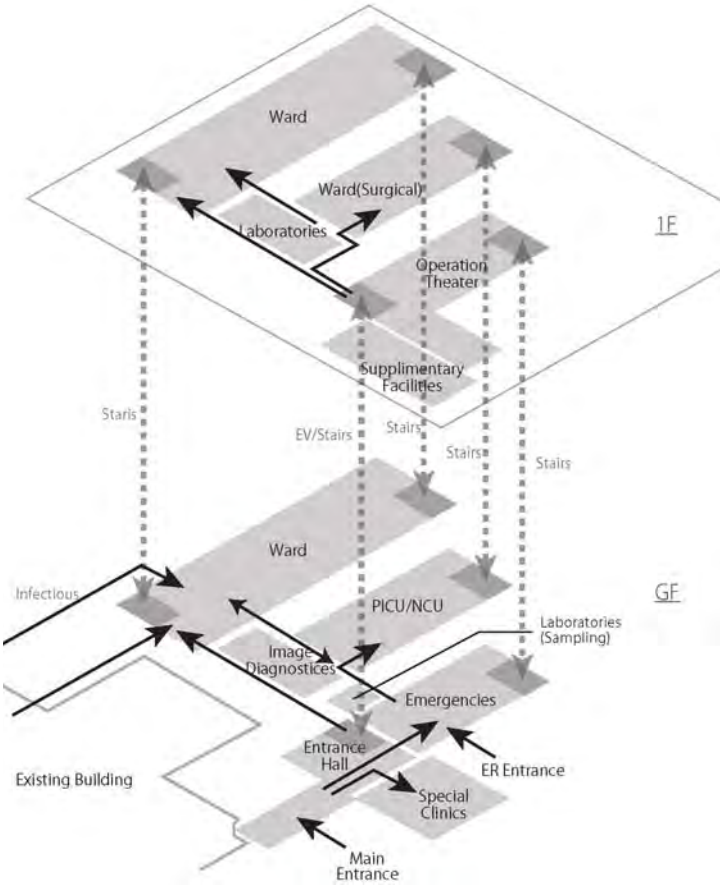


Fig.2-4 : Plan of Facilities Zoning

2. Design of Each Department Plan

- Ward Department

  Doctors and nurses work in three shifts at the staff station. Each nursing unit is responsible for five rooms (24 to 26 beds) in the internal medicine ward and five rooms (20 beds) in the surgical ward. The treatment room in which change of clothes and simple suture are performed is placed on each floor in the internal medicine ward and near the staff station in the surgical ward. WC (Water Closet) and Sluice etc. are to be located at the end of Ward for natural ventilation.

Table 2-2 : Rooms in Ward (Internal Medicine)

Room Name	Number of Rooms	Floor Area (sqm)	Function
6 BED-ROOM	11	38	Six sets of bed and bed-side locker are to be equipped. An opening on the partition wall between the corridor makes observing easier for the medical staff.
4 BED-ROOM	6	32	Four sets of bed and bed-side locker are to be equipped. (Other spec is same as 6 Bed-Room.)
5 BED-ROOM	1	36	Five sets of bed and bed-side locker are to be equipped and this room is to be used as an isolation room. By placing a lavatory with a shower inside the room and running the exhaust fan all the time, the room will be kept in negative pressure. A direct exit to the outside is to be placed. (Other spec is same as 6 Bed-Room.)
3 BED-ROOM (HIGH CARE-UNIT)	2	31	Three sets of bed and bed-side locker are to be equipped. The room is to be used as a high care unit, to be placed next to the staff station and to have a direct exit. (Other spec is same as 6 Bed-Room.) The room is to be larger than other ward rooms and to have 10sqm per bed in consideration of dealing with serious cases.
STAFF STATION	2 2	10 12	The main function is to observe all the ward room in the nursing unit and to be equipped with a service counter, a shelf and a washstand. A wall cabinet is to be installed above the counter so the medical records can be stored.
DOC ROOM	2	20	It is to be placed next to the staff station and for doctors during shift to wait inside. A work desk, a cot for doze, lavatory and washstand are to be installed.
NURSE ROOM	2	12	It is to be placed next to the staff station for nurses during shift time to wait inside. It is to be the minimum area needed for a work desk, a cot for doze and a lavatory.
TREATMENT ROOM	2	11	Simple treatments such as change of dressing, a simple suture, etc. are to be performed.
SUPPLY	2	6	One Supply is to be placed on each floor and the area is secured to store necessary equipment (an electric suction unit, an ultrasonic nebulizer, an infusion pump, an pulse oxymeter, a saturation monitor) and consumables (medical supplies such as bandages, transfusion sets, cups of medical nebulizing, bellows of suction units, etc.) for about two weeks.
STORAGE	2	7	The area is to store refrigerators for medicines, laryngoscope and medicine for about two weeks.
CLEAN LINEN	2	7	It is to be placed on each floor to store necessary linens (bed sheets and pillowcases). The number of linen is to be the same to the number of beds.
DIRTY LINEN	2	10	Used linen is stored temporarily before cleaning. A clinical slop sink is to be installed and filth (feces, vomit, etc.) from examination, treatment and in ward is to be disposed.
FAMILY/UTILITY	2	27	It is where patients and their families can cook and eat. A cooking stove, a sink, a table and chairs are to be equipped.
MAINTENANCE	1	12	It is to be used as a waiting room for cleaning crews.
ADM(WARD)	1	12	Entering and exit of patients of the medical ward is to be managed. The necessary area for the medical staff to do office work is secured.
PRAY ROOM	2	10	Areas to pray for patients, their families and staff in the hospital are placed at the end of each floor.
PATIENTS WC	2	38	Since many patients and their families will use it, it is likely get dirty. To deal with stench, it is to be placed remote from ward rooms. For attendant families who stay overnight, shower rooms is to be placed.
STAFF WC	2	18	It is to be placed near the staff station and other rooms for the service. A shower room is to be placed for night staff.

Table 2-3 : Rooms in Ward (Surgeries)

Room Name	Number of Rooms	Floor Area (sqm)	Functions
4 BED-ROOM	4	28	Four sets of bed and bed-side locker are to be installed. (Other spec is same as 6 Bed-Room.)
4 BED-ROOM (HIGH CARE-UNIT)	1	46	Four sets of bed and bed-side locker are to be installed and this room is to be used as a high care unit. This room is to be adjacent to the staff station and have a direct exit. (Other spec is same as 6 Bed-Room) The room is to be larger than other ward rooms and to have 11sqm per a bed in consideration of dealing with serious cases.
STAFF STATION	1	22	It is located to observe all the ward room in the nursing unit and to be equipped with a counter, a shelf and a washstand. A wall cabinet is to be installed above the counter and the medical records can be stored. The area is to be separated by a movable partition and the simple treatment such as change of dressing, a simple suture, etc. will be done.
DOC ROOM NURSE ROOM	1	9	This room is to be adjacent to the staff station and a doctor and nurses in shift time will wait inside. A work desk, a cot for doze, lavatory and washstand are to be installed.
STORAGE	1	7	The area is to store consumables (bandages, medicines for about two weeks) and to treat patients promptly when necessary.
SUPPLY	1	8	The area is to store the necessary equipment (an electric suction unit, an ultrasonic nebulizer, an infusion pump, a pulse oxymeter, saturation monitor).
PRAY	1	10	The area of prayer for patients, their families and staff in the hospital is to be placed at the end of each floor.
DIRTY LINEN	1	9	Used linen is to be stored temporarily before cleaning.
CLEAN LINEN	1	8	It is to be placed on each floor to store necessary linen (bed sheets and pillowcases). The number of linen is same to the number of the bed.
SLUICE	1	5	The filth (feces, vomit, etc.) exhausted in examination, treatment and in ward is to be disposed.
KITCHEN	1	11	Patients and their families can cook inside.
PATIENTS WC	1	16	Since many patients and their families will use, it will get dirty. To deal with stench, it is to be placed far from ward rooms. A shower room is to be placed for attendant families who stay overnight,

- OT Department

  Scheduled operations are expected to be performed three days a week, four to five times a day, and one operation room is to be provided for this purpose. In addition, another operation room is to be provided for emergent operations and endoscopic examination with an anesthesia apparatus. Areas for doctors and staff are to be separated from areas for patients, and Changings are to be located on the border of the clean zone, which keeps cleanliness in OT department.

  Clean zone and dirty zoneare to be clearly divided in OT. Clean Corridor, Recovery, OT1 and OT2 are in the clean zone and Dirty Corridor is in the dirty zone. Auto Clave and Sterile Store are to laid out at the edge of the facilities to carry in and out the equipment and medical wastes, etc. easily.

Table 2-4 : Rooms in OT Department

Room Name	Number of Rooms	Floor Area (sqm)	Functions
OT1	1	34	Scheduled operations are to be performed. The scale of the room is 6m×6m, same as NICH and the existing facilities. Oxygen is to be provided from the central medical gas distribution system and dinitrogen monoxide and compressed air are to be provided by individual cylinders. An air conditioner is to be installed.
OT2	1	23	Emergent operations of the patient transported from Emergencies and an endoscopy with an anesthesia apparatus are to be performed. Since the equipment of emergent operations is less than that of scheduled operations, this room is to be smaller than OT1. Infrastructure is same as OT1.
PREPARATION	1	28	Setup and packing of operation equipment after autoclaved, washing of steel articles after operations and preparation before and after operation are to be performed.
AUTO CLAVE	1	13	Two gas sterilizers of approximately 150 liter are to be installed and to be carried in and out from the outside balcony directly when exchange of the equipment.
STERILE STORE	1	10	The sterilized equipment is to be stored. The area to store steel articles for four operations is to be secured. Since cleanliness is required, a ceiling is to be installed.
STERILE POUCH/ SETTING ROOM	1	8	Equipment for operations is to be prepared. The room connects with Sterile Store directly and has the area where steel articles and linens are to be put on the cart inside. Since cleanliness is required, a ceiling is to be installed.
SCRUB/PRAY	1	14	The scrub is to be installed for the doctors and the surgical staff to wash hands before operations. Since an operation is practiced by a team of five staff, it is assumed that five people wash hands sequentially and three faucets are to be installed. Necessary area to pray is secured in order to pray without changing clothes before and after operations,
RECOVERY	1	17	Patients are to take anesthetic before operations and postoperative patients are to recover in the room. In accordance with the number of operation rooms, area for two beds is secured.
STAFF ROOM	1	8	An anesthesiologist and the other two surgical staff (three shifts) are to wait in the room. The opening is to be installed on the partition between Recovery and Staff Room to observe patients easily.
LOBBY	1	37	It is for families of patients to wait during operations. Chairs for eight people (two people per a family x four operations) and a reception are to be equipped. Patients access to Lobby directly from a lift.
CHANGING	2	8 9	Lockers for nine men and nine women are to be installed. Shower rooms and the rest rooms are to be added.
SURGERY DOCTOR ROOM	1	13	A surgeon waits before and after an operation. The area is to be minimum for one doctor to rest in.
TREATMENT ROOM	1	17	It will be adjacent to Surgery Doctor Room and a simple treatment and change of dressing are to be performed. It has 5.5m x 3m area which is same as an existing specialized doctor room for outpatient.

- Special OPD

  Special OPD is to be arranged around Waiting which is connected to entrance hall directly. All the rooms are to face to the outside to get natural lighting and natural ventilation.

  The division of Special OPD is as follows.

1	Surgical Clinic
2	Surgical Treatment Room
3	ENT Clinic
4	Ophthalmology Clinic
5	Internal Medicine Clinic by Senior Consultants
6	To be shared by the current Neurology, Nephrology,
7	Endocrinology, Asthma Clinic and other new sub-specialties

Table 2-5 : Rooms in Special OPD

Room Name	Number of Rooms	Floor Area (sqm)	Functions
SPECIAL OPD/ TREATMENT ROOM	7	7	An examination desk, an examination couch, lavatory etc. are to be equipped in the room which has 5.5m x 3m area, same as the existing specialized doctor room. An air conditioner is to be installed like the existing facilities, a ceiling is to be equipped to enhance the air conditioning efficiency.
SLUICE	1	5	The filth exhausted in examination and treatment is to be disposed.
WAITING	1	58	It is supposed that 90 to 100 patients will come a day. In Karachi, the parents usually attend upon a pediatric patient. The benches for around 20 percent (for 48 people) of visitors assumed per day are to be equipped. A hand washing is to be installed for visitors.

- Emergencies Department

  Examinations and treatments for patients after working hours and emergency case are to be performed. After treatment, patients who have to be hospitalized are to be transported to each ward and those who need operations are to OT department on the upper floor. Furthermore, Isolation Emergency Rooms are to be placed due to the necessity for preventing pediatric patients from infection.

  Two accesses are to be secured from the entrance hall and the ER entrance and a reception is to be placed in between. In addition, in consideration of the connection with OT1 and OT2, a lift is to be installed to connect ER Lobby with Lobby in OT department directly.

  Emergency Room is to be divided by partitions about 1,800 mm high into care units each of which has a bed, which helps to get natural lighting from windows in the both sides of the room. Beds are to be laid out to be watched from the staff station for nursing by the small number of staff.

  The scale of this department is determined to be 10 beds (six beds for general use+ two for treatment + two for isolation).

Table 2-6 : Rooms in Emergency Department

Room Name	Number of Rooms	Floor Area (sqm)	Functions
EMERGENCY ROOM	1	151	Six sets of first-aid bed and two beds for treatment are to be equipped, all of which are to be observed easily from the staff station. Waiting areas (for eight people) of an attendant for each bed is to be placed. An air conditioner is to be installed and oxygen is to be supplied to each bed, same as the existing emergency department.
ISOLATION EMERGENCY ROOM	2	8	Two Isolation emergency rooms with a bed for each are to be placed. Infrastructure and facilities are the same as an Emergency Room.
ER CONSULTANT	1	15	It is to be placed near the ER entrance and to be served as reception as well. If necessary, emergency patients are treated in Emergency Room after measurement of height and weight and examination.
ER LOBBY	1	37	It is a waiting area for patients who wait in line and their attendants. The same number of chairs of the waiting area in Emergency Room are to be installed. A lift connects to OT department directly on the upper floor.
DOC ROOM	1	5	The resting room for the doctor in charge.
DUTY	1	6	The night-duty room for doctor of the night shift.
SUPPLY1	1	13	The area is for equipment necessary for Emergencies (including an infusion pump, a pulse oxymeter) and medical materials (needles, bandage, medicines etc. for about two weeks)
SUPPLY2	1	7	Infusion-related things such as instillation or the nebulizing liquid medicine and the medical materials including the bandage are to be stored. The area is only for two weeks.
SLUICE	1	6	The filth exhausted in an examination and a treatment are to be disposed.
PATIENTS WC	1	8	

- Image Diagnostic Department

  In consideration of collaboration with Special OPD, Image Diagnostic Department is to be located near Special OPD. X-Ray is to be laid out to face Waiting Lobby with the radiation protection and to be faced to Operator. Ultrasound, EEG etc. are not to face to the outside due to necessity of lightning control, sound isolation and soundproof and to be accessed from Waiting.

  About 70 patients are expected to have examinations a day. An examination by a color doppler is necessary to perform the function as the secondary hospital, apart from an ultrasound of universal type.

Table 2-7 : Rooms in Image Diagnostic Department

Room Name	Number of Rooms	Floor Area (sqm)	Functions
X-RAY	1	26	It is to be radiation protected. It is to be connected to an adjacent control room by installing of cable trench to shelter from radiation. In consideration of the scale (4mx4m) necessary to install the digital fluoroscopic and general X-ray machine and the area for changing and placement of the radiographic controller, 6mx5m room size is to be secured.
OPERATOR	1	14	It is next to X-Ray, equipped with a remote console. It is the temporary storage of mobile X-ray device to use in Emergencies and Ward mainly, and equipped with other storing shelves.
DOC ROOM	2	8	For a radiologist for viewing X-ray photographs
ULTRASOUND	2	9	One is to be equipped with general purpose, another with Color Doppler Ultrasound Machine.
EEG	1	8	One electroencephalograph(EEG) is to be equipped.
EMG/ AUDIOMETRY ROOM	1	8	An Electromyography (EMG) and an audiometer are to be installed.
WAITING LOBBY	1	42	It is anticipated that around 70 patients a day will come for radiography and totally around 150-200 including attendants. Since diagnosis takes long time per patient, chairs for the around 30 percent (48 chairs) are to be installed.
WAITING	1	16	The patients who come to Ultrasounds, EEG and EMG / Audiometry Room and attendant families will wait.

- NCU

  In addition to NCU which will have the incubators to be relocated from the existing facilities, an area for mothers who take care of their own pediatric patients are to be secured.(Mother Treatment NCU) Since NCU requires the high standard of cleanliness, the medical staff and mothers enter the rooms after changing their clothes in Changing with showers. A pediatric patient is handed over in Doc/Nurse which is also used as a reception and moved into an incubator in NCU after treated in Treatment.

  The existing NICU is not in use due to shortage of the medical staff, and it is considered to be difficult to collect more number of staff than the number of existing incubators. Therefore, the scale of the department is to be eight incubators which is the same number as the existing NICU, and the existing incubators etc. will be relocated in the new facilities. Furthermore, in Mother Treatment NCU for mild case pediatric patients and improved pediatric patients, the number of cots is to be equal to or more than the number of incubators in NCU, and 10 sets of a couch for a mother and a cot for a pediatric patient are to be installed.

Table 2-8 : Rooms in NCU Department

Room Name	Number of Rooms	Floor Area (sqm)	Functions
NCU	1	33	4sqm per one incubator, which is larger than the existing NCU, is to be secured to install a pulse oxymeter and a monitor, a syringe pump in addition to an existing incubator. Same as the existing NCU, oxygen is to be supplied and an air conditioner is to be installed.
TREATMENT	1	5	It is to be placed next to NCU. Pediatric patients are laid on a counter for treatment.
DOC/NURSE(SUR)	1	5	An opening is to be installed on the partition between NCU and this room to observe NCU and play a role of the reception and handing over pediatric patients. A desk and a chair are to be installed.
COUNSELING	1	7	This is for parents of the patient to have an interview with a doctor, and a desk and a chair are to be equipped.
MOTHER TREATMENT NCU	1	62	Since there is a possibility that this room is changed to NCU in the future, the plumbing for oxygen supply is to be installed in the room to facilitate future extension of NCU.
MOTHER CHANGE	1	11	It is for mothers to change clothes before entering NCU. Lockers almost as many (for nine people) as incubators in NCU are to be equipped. A shower and lavatory are to be installed.
CHANGING	2	7	It is for staff of NCU and PICU. Nine lockers for men and women each are to be installed in accordance with about 10 to 11 staff working in each shift.
DUTY ROOM	1	6	It is for the doctor in night shift.
SUPPLY	1	5	It is for equipment necessary in NCU and PICU (including a suction machine, a phototherapy device, and a pulse oxymeter) and consumables (bandages and medicines for three months)
SLUICE	1	4	The filth exhausted in examination and treatment will be treated.
STAFF WC	1	4	For staff of NCU and PICU

- PICU

  The staff station will be located in the position where each bed can be observed easily. Changing etc. will be shared with PICU and NCU for flexibility to adjust the number of staff between PICU and NCU.

  From the point of ratio of the number of beds in ICU in pediatric ward of other public hospitals in Karachi city, the number of beds of the department is to be eight.

Table 2-9 : Rooms in PICU Department

Room Name	Number of Rooms	Floor Area (sqm)	Functions
PICU	1	88	11sqm per one bed, which is larger than the existing ICU, is to be secured to install a pulse oxymeter and a monitor, a syringe pump as well as bed-side locker. Same as the existing NCU, oxygen is to be supplied and an air conditioner is to be installed.
DUTY ROOM	1	6	It is for the doctor in night shift.
WAITING	1	6	Chairs as many as PICU beds are to be installed (for eight people).
PATIENTS WC	1	8	Placed next to PICU.
PRAY	1	10	It is to be placed at the end of each floor for staff to rest and pray is.

- Laboratory Department

  Laboratory (Central/Pathology) is to be used as a common area and as many areas, benches and equipment as possible are to be shared for effective use. Although Laboratory itself is on the first floor, rooms for a collecting blood and urine for examination are to be placed on the ground floor to control the flow of outpatients. Collecting blood for blood transfusion are to be done in Laboratory(Blood Transfusion Unit) on the first floor and blood is to be saved in the same room.

  About 40 to 50 samples are to be tested a day.

Table 2-10 : Rooms in Laboratory Department

Room Name	Number of Rooms	Floor Area (sqm)	Functions
LABORATORY (CENTRAL/PATHOLOGY)	1	31	An electrolyte analyzers, a blood gas analyzers, a distillation plant, an electronic balance, a blood bank refrigerator, etc. which exist in the existing facilities are to be installed. This room has the equipment shared by Hematology, Biochemistry, Pathology, Blood Transfusion Units.
LABORATORY (HEMATOLOGY)	1	12	A Hematology Analyzer and a coagulation analyzer are to be installed.
LABORATORY (BIOCHEMISTRY)	1	21	An automated chemistry analyzer and a photometer etc. are to be installed.
LABORATORY (BLOOD TRANSFUSION UNIT1)	1	27	Blood collection area : Donor beds are to be installed to collect blood for transfusion.
LABORATORY (BLOOD TRANSFUSION UNIT12)	1	15	Preparation area of specimen screening and blood transfusion : An Elisa (plate reader) with printer & automated washer and a blood bank refrigerator are to be installed.
BLOOD CLLECTION	1	9	It is to be placed on the ground floor, and the minimum area necessary to collect blood of one person at a time is to be secured.

- Incidental Facilities/Common Area

  Basically the administration department, resting areas, storages etc. are to use vacant rooms in the existing facilities. The following rooms are to be placed in the new facilities, limited to supplementary use as a secondary storage which keeps medicines and drugs which needs to be stored close to ward rooms or treatment rooms for prompt treatment, a secondary office etc.

Table 2-11 : Rooms of Common Area

Room Name	Number of Rooms	Floor Area (sqm)	Functions
ADMISSION /INFO	1	15	It is a reception for visitors and equipped with shelves storing forms necessary for desk works of the reception.
OFFICE	1	19	Storing shelves of forms such as medical records are to be installed. In addition, lavatory and a handwashing are to be provided.
COUNSELING	1	4	A telephone for hospital staff to call a doctor is to be installed.
MECH ROOM	2	5 17	Main distribution board and PABX(Private Automatic Branch Exchange) are to be installed.
DRUG STORE	1	25	It is to store medicines and infusion for approximately 90 to 100 outpatients a day for two weeks. The dispensing of medicines is to be carried out according to the prescription of the doctor. An air conditioner is to be installed to make the most suitable environment for safekeeping of the medicine.
PHARMACY	1	7	Medicines dispensed in the adjacent medicine store are to be issued to patients. A reception counter is to be placed.
ENTRANCE HALL	1	142	It is for patients and their families. Chairs for 48 people are to be installed for people who overflowed from Waitings of Special OPD and Image Diagnostics.
STAFF REST	1	26	It is for night shift staff (six to eight nurses, around 10 paramedical staff) to rest and take light meals, and four tables (for 16 staff) and handwashings are to be installed.
CANTEEN	1	27	It is for night shift staff (six to eight nurses, around 10 paramedical staff) to rest and take light meals, and four tables (for 16 people) and handwashings are to be installed.
LOCKER	2	13	In consideration of the lockers for approximately 20 to 25 staff except the doctors for one shift, 27 lockers are to be installed for men and women respectively.
MEDICAL GAS	1	17	Oxygen cylinders to supply oxygen for necessary rooms are to be stored. The area is to be secured necessary to set up the oxygen cylinders including spares.
MEDICAL SUPER-INTENDENT	1	32	Because it is limited to the secondary use, it is 5m x 5m, smaller than Medical Superintendent of the existing facilities. A rest room is to be added.
KITCHEN	1	6	A minimum area for installing a gas burner and a sink is to be secured.
STAFF ROOM	1	18	Waiting room for staff.
MEETING	1	29	A conference table and six chairs are to be equipped. It will be used for small seminars or study sessions etc.
STAFF WC	2		It is to be placed between OT and NCU/PICU for staff of both departments. A room for pray is to be added.
LOBBY/FAMILY PLAY ROOM	1	35	Waiting area for Ward
PRAY	2	5	A place for staff to rest and pray is to be secured at the end of each floor.
ENTRANCE	1	47	It is a main entrance for visitors to hospital and a roofed corridor connecting the existing facilities and the new.
PUMP ROOM	1	6	A pump to lift up water to the water tank is to be installed.

Table 2-12 : Rooms of Incidental Facilities

Room Name	Number of Rooms	Floor Area (sqm)	Functions
ELECTRICAL ROOM 1	1	42	This room will be lent to the KESC and a transformer will be installed by KESC.
ELECTORICAL ROOM2	2	38	A substation and an AVR are to be installed.

The area of each department and the new facilities is as followed.

Table 2-13 : Floor Areas of Each Department

Department	Area (sqm)
Ward (Internal Medicine)	1,413.58
Ward (Surgery)	353.04
OT	348.15
Special OPD	186.11
Emergencies	283.66
Image Diagnostics	155.37
NCU / PICU	356.93
Laboratories	128.37
Common Area	1,303.26
Subtotal	4,528.47
Incidental Facilities	80.84
Total	4,609.31

(2) Sectional Plan

Securing of natural ventilation and natural lighting, cutting off direct sunlight and prevention of rainwater sneaking into the building are to be considered. The floor height is to be 3.6m, which is sufficient to make the comfortable indoor environment with natural ventilation. As for rooms in which air conditioning is functionally necessary such as OT1 and OT2, the ceiling height is to be kept lower and the air conditioning load is not too much. Furthermore, wing walls are to be put on both sides of many openings facing to the east and the west to control direct sunlight to windows and outer walls.

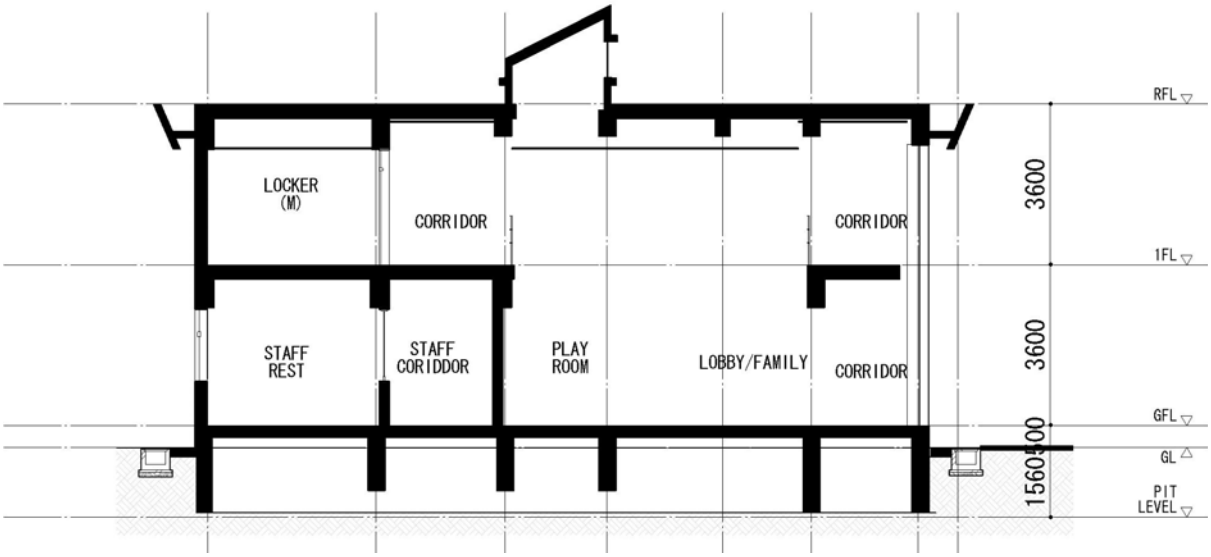


Fig.2-5 : Section of Family Lobby in Ward

The waiting rooms of Image Diagnostics and Ward (Internal Medicine) are to have atriums with two floor height with openings on the top. By using the natural lighting and facilitating natural ventilation from the top light, the environment of the waiting rooms will be improved for many people concentrated in the rooms.

(3) Design of Structure Plan

1. Soil Condition of the Project site and the foundation plan

According to the geological survey result, the layer of 1.5m below the ground level has an allowable bearing capacity of 17.5 ton/sqm. Since it became clear that the ground water level is in the pebble layer approximately 1m below the ground level, it is appropriate to adopt the spread foundation structure about 1.5m below the ground level for easy construction.

2. Superstructure Plan

The superstructure of the new facilities is to be a reinforced-concrete rigid frame structure with concrete-block walls which is widely adopted in Karachi. Rooms which are air-conditioned are to have double block walls which keep airspace in between and mitigate the load of air conditioning.

3. Condition of Structural Design

The load and the external force adopted in the Project are set as follows in consideration of the local weather, the standard and the building use.

- Dead Load
  It is calculated according to each finishing and construction material used in the Project.

- Live Load
  It adopts the numerical numbers as follows in accordance with the Pakistan building code and the building standards in Japan.

  Counceling, Treatment Room, Recovery, Office : 3,900 N/sqm
  OT : 3,900 N/sqm
  Roof : 1,800 N/sqm

- Seismic Load
  It is calculated according to the map of the earthquake zoning in Pakistan as follows.
  According to the Building Code of Pakistan, the seismic shear force for design (V) is calculated in the formula as follows.

  V = Z x I x K x C x S x W
  Z = Zone coefficient (Karachi is ”Zone-II”, Zone-II is 3 / 8＝0.375)
  I = Importance Coefficient 1.25
  K = Coefficient of Horizontal Force 1.0
  C = Horizontal Seismic Coefficient $= \frac{1}{15\sqrt{T}}$ (T = Natural Period)

T = 0.10 x N = 0.1 x 2 = 0.2 (N = Number of Floor)

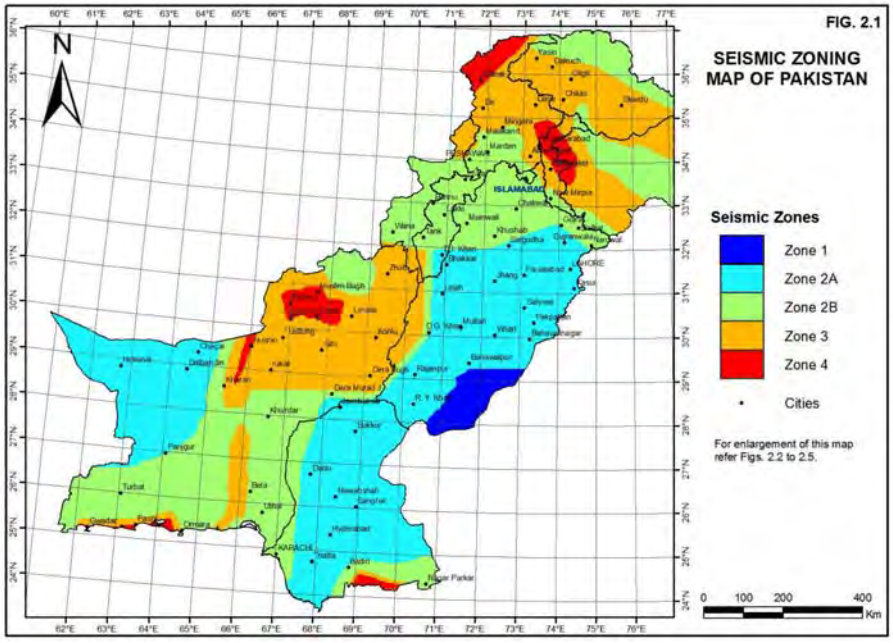
$\therefore C = \frac{1}{15\sqrt{0.2}}$ = 0.149 (C is defined as 0.12 or less. Thus, C = 0.12)

S = Characteristic Frequency Coefficient 1.0

W = Building Seismic Load

Therefore, the seismic shear force for design on the ground floor (V) is

V = Z x I x K x C x S x W = 0.375 x 1.25 x 1.0 x 0.12 x 1.0 x W = 0.05625 x W



source: Building Code of Pakistan 2007

Fig. 2-6 : Earthquake Zoning in Pakistan

- Construction Materials

  Concrete : Design strength Fc = 24 N/mm^2

  The ground water includes much sulfate and chloride, so sulfate resisting portland cement needs to be used and the reinforcing bar needs to have thick covering depth from the concrete surface on the parts which face the ground water.

  Reinforcing Bar : Yield Strength 345 N/mm^2 , 295 N/mm^2

(4) Electrical Facility Plan

1. Power Receiving and Transforming Facilities

The electric power is to be supplied from the high-voltage overhead distribution line along the northern road of the Project site as one line for the new facilities and the existing. The lead in

voltage is 11 kV.

The electricity branches at the secondary transformer in the new electrical room and is supplied for the new facilities and the existing separately.

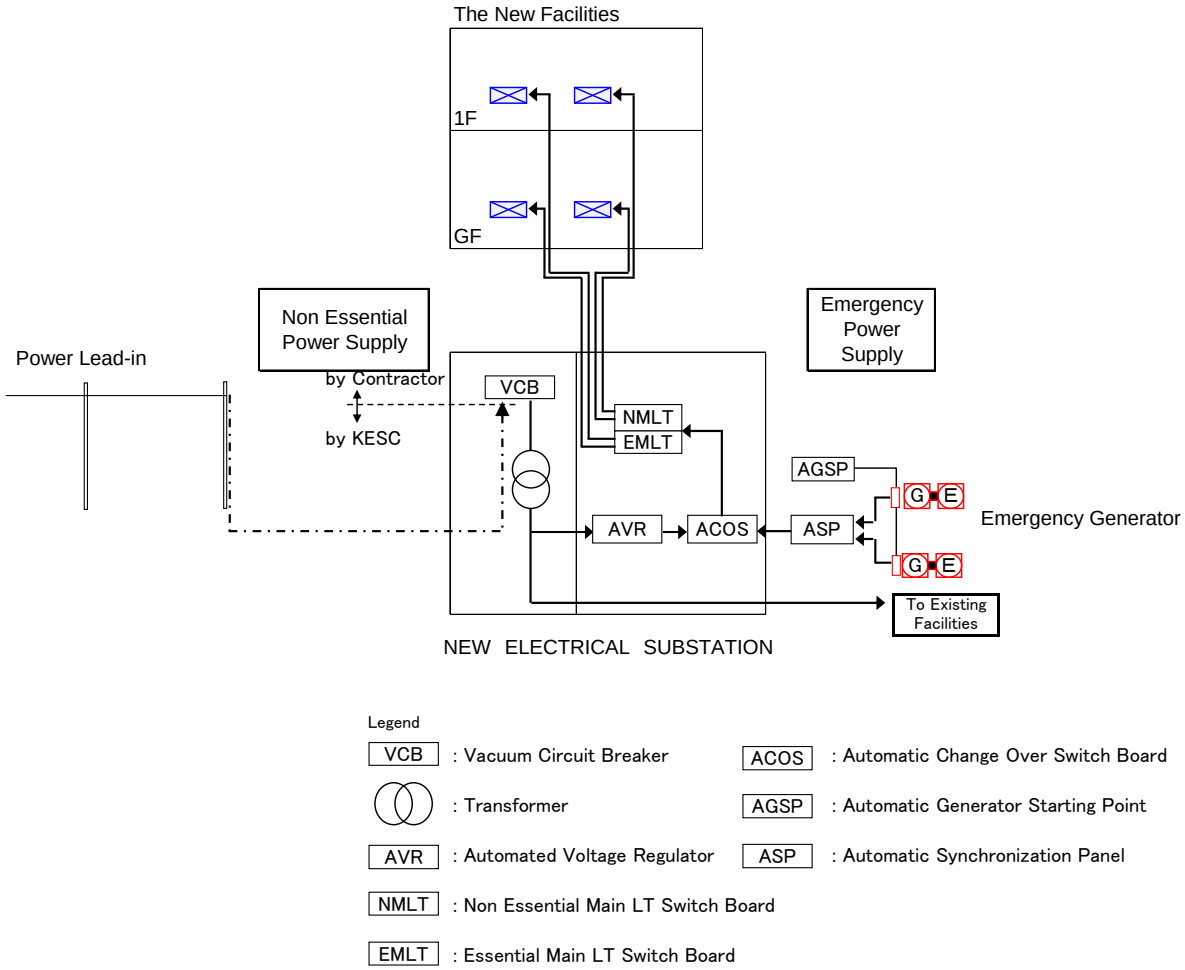


Fig.2-7 : Power Distribution Diagram

2. Power Supply

- Main Power Supply Facilities

  The power is supplied through the underground wiring in the Project site from the panel board to the lighting distribution switchboard and the power control board in the new facilities. The main power voltage is 3 phases 3W400V, 1 phase 3W230V (frequency 50Hz).

- Emergency Generator

  The emergency generator (100kVA x 1 generator, 150kVA × 1 generator) is to be installed to keep the essential medical services. A part of power supply for OT1 and OT2 and medical equipment (including X-ray equipment) is through the emergency power generator circuit. The fuel is to be stored for 24 hours in the outdoor oil tank.

Table 2-14 : Load of Emergency Generator Power Supply

Rooms and Equipment to be Supplied	Load
OT	Power Source of Medical Equipment Power Source of Lighting Power Source of Air conditioning
PICU / NCU	
Emergency Room	Power Source of Medical Equipment Power Source of Lighting
Ward Room	
Administration（Office/ Medical Superintendent）	Power Source of Lighting, Outlet, etc.
Medical Equipment	X-ray Equipment, Medicine Refrigerator, etc.
Common Utility	Pumps, Lift, Medical Gas Facilities

- AVR, Isolation Transformer, Grounding of Medical Equipment

  AVR is to be installed in consideration of the local power supply situation and in order to prevent burnout accident of medical equipment etc.

  Shutdown by an earth fault is to be prevented by isolating the power supply unit of OT1 and OT2 from the other electrical circuit by isolation transformer. The condition is to be monitored on the supervisory board, and an alarm is to be called when the electricity is over the rating.

  The receptacle outlets in OT, Emergencies, Ward etc. have the medical groundings.

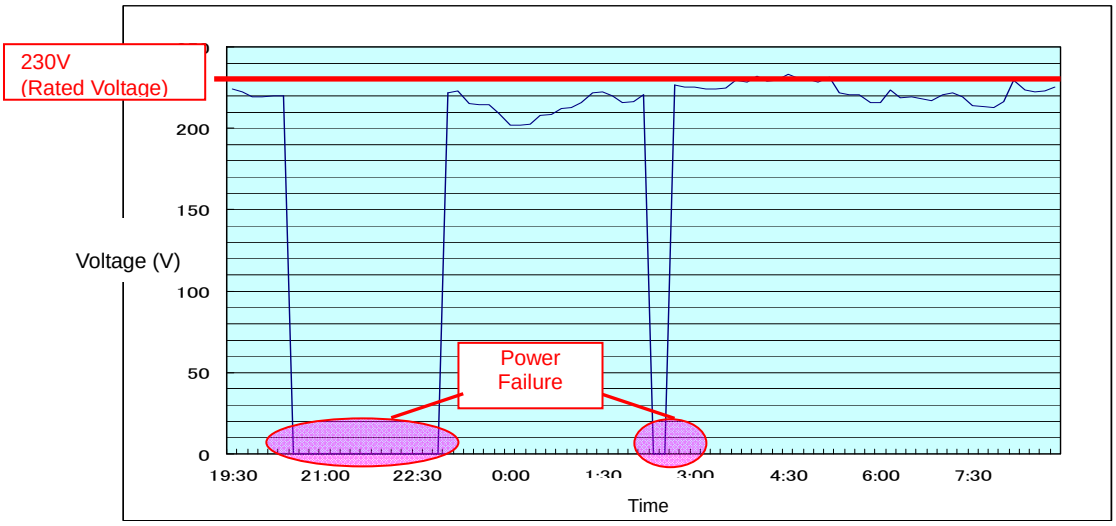


Fig.2-8 : Voltage Measurement Result of the Existing Facilities

(19:30 29th Sep - 8:30 30th Sep.)

3. Lighting and Receptacle Facilities

A lighting distribution switchboard is to be installed on each floor with an appropriate circuit configuration. Conduit wiring for secondary circuitry will run from the switchboard to the lighting fixtures and receptacles.

- Light Facilities
  - General Lighting: Lighting fixtures mainly using fluorescent lamps are to be selected.
  - Specialized Lighting Equipment: Shadowless lamps in OT1 and OT2 and other medical lighting equipment are to be included in the medical equipment works.
  - Emergency Lighting Equipment: Built-in battery wall-type emergency lighting equipments are installed in necessary rooms and corridors.

- Receptacles Facilities

  Receptacles for general use are to be with switches and grounding terminals. The power sources for medical equipment are to be configured to meet the required power capacity considering the equipment layout.

4. Communication Facilities

The extension telephones are to be installed in the main rooms of the medical staff such as staff stations. The lead-in external circuits for telephone are two lines and the piping is from the north side of the Project site to the Main Distribution Frame (MDF) in the new facilities. Furthermore, the outlets of LAN and LAN cables are to be plotted in the minimum required number of rooms.

5. Public Address Facilities

The public address facilities is to be installed for communication in the facilities. Speakers are to be in all the necessary rooms and common areas, broadcast amplifiers are in the ground floor reception / office room.

6. Collective Television Receiving Facilities

The outlets of TV are to be installed in the minimum required number of rooms.

7. Interphone Facilities

An interphone line is to be installed between X-Ray and Operator.

8. Monitoring Camera Facilities

Monitoring cameras are to be installed in the entrance hall and ER Lobby on the ground floor for facility management and security, and in Emergency Treatment Room, PICU and NCU for medical care.

9. Automatic Fire Alarm Facilities

The automatic fire alarm facilities by heat sensor and smoke detector are to be installed in consideration of safety.

10. Lightening Protection Facilities

A lightening conductor is to be installed on the roof for lightening protection.

(5) Mechanical Facilities Plan

1. Air Conditioning Facilities

Ceiling fans are to be installed in general rooms, and the rooms which need air-conditioners like OT1 and OT2, etc. and the rooms in which facilities needs control of room temperature are to be air-conditioned. Basically, a packaged air-conditioner is to be adopted, and an indoor unit is wall mounted. Floor mounted ducting type air conditioners with a pretreatment filter + a middle efficiency air filter are to be adopted. All outdoor units are to be installed on the roof.

2. Ventilation Facilities

Rooms are to be ventilated basically by natural ventilation, and WC and kitchens are to be installed with exhaust fans. An exhaust fans are also to be installed in the rooms which do not have exterior openings in order to keep the air current. In OT1 and OT2, outdoor air is to be inducted in packaged air-conditioner and be flowed out to corridors by the differential pressure damper.

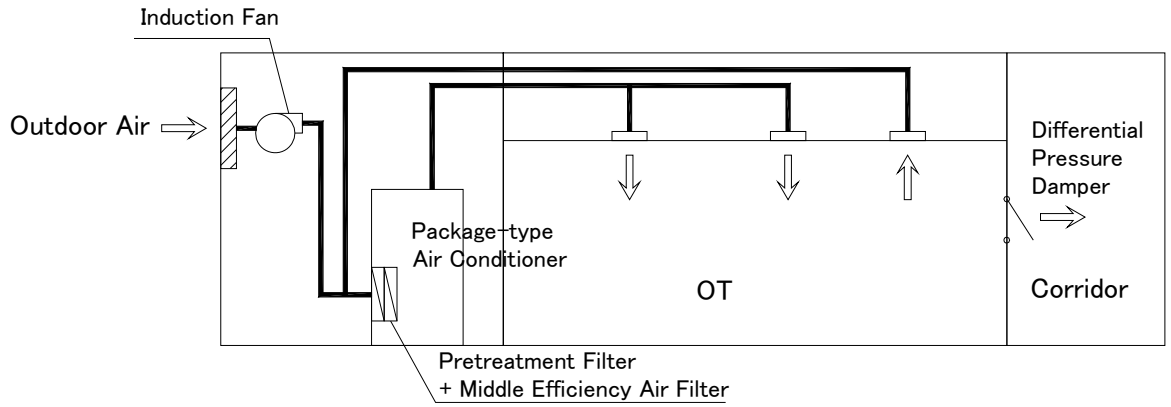


Fig.2-9 : Diagram of Ventilation and Air Conditioning in OT

3. Sanitation Facilities

Sanitary fixtures are to be installed in accordance with architectural planning. Closet bowls are to be water-saving type with low tank in order to reduce consumption of water.

4. Water Supply Facilities

City water is to be lead in independently from the northern road. However, a vacuum pump is necessary because city water is in short supply, supplied only eight to 12 hours, 4,500 gallons per day (20.4m3/day) and three to four feet water pressure (nine to 12 kPa). Therefore, two lines of tap water and non-potable water are to be installed. Tap water will use city water and non-potable

water will use well water. In addition, to compensate for shortage of city water, well water is partly clarified and used as tap water. Water will be pumped up to the elevated tank after reserved in water tank, and supplied to each place by gravity. Aside from this facilities, potable water is to be prepared by the hospital.

- Estimated Water Supply

  Water supply in the new facilities is supposed as follows.

Table 2-15 : Rough Estimate of Water Supply

User	Assumption of the Number of Persons	Amount of Water Supply Per Unit (liter/person・day)	Amount of Water Supply per Day (liter/day)
Inpatient (Child)	150	400	60,000
(Family)	150	400	60,000
Staff	100	100	10,000
Visitor	500	10	5,000
Total			135,000
		Tap Water (30%)	40,500
		Non-potable Water (70%)	94,500

- Reservoir Capacity

  The capacity of a water tank is 50 percent of water supply in one day as a rough indication in Japan, however, it is to be as much as one day water supply to cope with shortage. The two tank type water tank with partition made of Fiber Reinforced Plastic (FRP) is to be adopted and each tank is to be used for tap water and non-potable water.

  Capacity of Water Tank＝135,000 L/day × 1.0 ÷ 1,000 = 135 m^3
  Capacity of Elevated tank＝135,000 L/day ÷ 12 hour ÷ 1,000 = 12.25 m^3

5. Hot Water Supply Facilities

Instantaneous gas water heaters are to be installed in Kitchens and necessary rooms. In addition, solar water heaters are to be used for showers, which is hot water supply with natural energy. There is fear for lack of hot water due to bad weather, but no back up system by gas or etc. is installed in consideration of economical efficiency and maintenance.

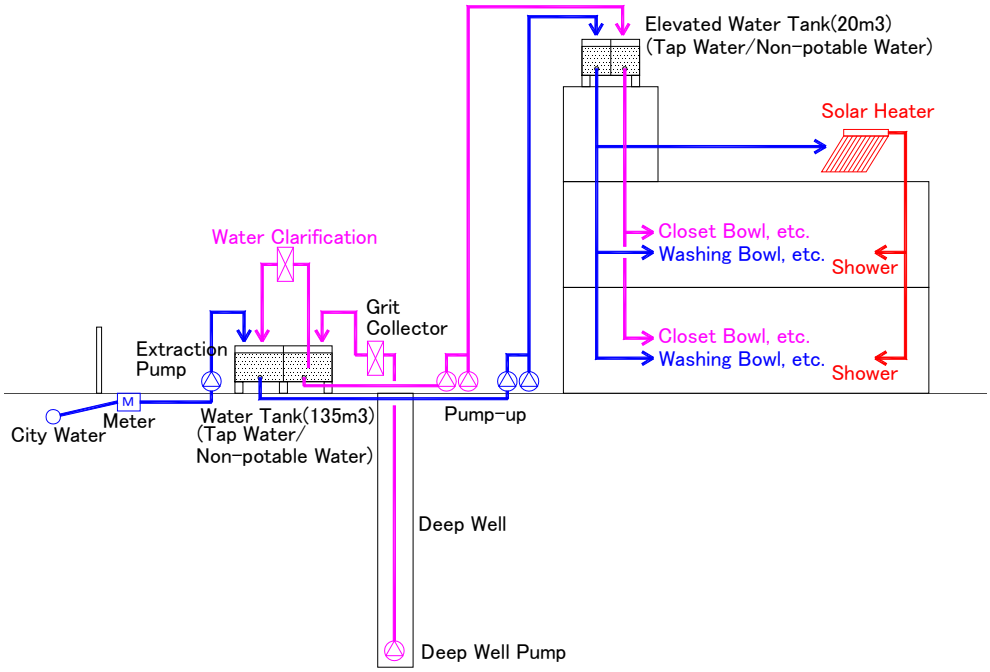


Fig.2-10 : Flow Chart of Water Supply and Hot Water Supply

6. Drainage Facilities

Waste water and non-potable water are to be distributed inside the facilities and be joined on the outside. They are to be connected to the existing catch basin with 150A on the western side of the sub entrance gate and will be discharged to the sewer (12 inches diameter, five feet deep) under the northern road independently by gravity. Basically, rainwater on the roof and in the premises will be penetrated into the ground in the Project site. The waste solution which includes heavy metals are to be stored in the plastic container and collected by outside waste treatment companies from the points of protection of the environment and safety.

7. City Gas Facilities

City gas is supplied economically and stably, and to be used for the heat source of the instantaneous gas water heater, the gas stove at Kitchen etc. and the steam sterilizer (autoclave). It is to branch off at the meter of the existing gas lead-in tube in the hospital site and be supplied for the new facilities.

8. Firefighting Facilities

Fire extinguishers are to be installed within 20 meter walking distance in accordance with Japanese installation standard.

9. Medical Gas Facilities

The central type oxygen supply system with cylinders is to be adopted from the points of maintenance and supplying credibility. The contractor’s work will be piping facilities from the

manifold to each outlet.

10. Well Facilities

A deep well is to be established as the available quantity of city water supply is limited. To secure the usable quality and amount of water, it will be deep well with 820 feet (250m) depth and eight inch (200mm) diameter. According to the water quality test result of the neighboring well water, the degree of hardness of the well water is over 1,000 (mg/liter) and it contains a lot of sodium. Therefore, it is to be utilized basically for non-potable water. Furthermore, to compensate the shortage of city water, a part of well water is to be utilized for tap water after water clarification.

(6) Construction Material Plan

1. Basic Policy

Considering the climate, the conditions of construction, the construction period, the recurrent cost and management system of SGCH, the following policies are set based on the design principle of the Project.

- Local materials are to be utilized as many as possible in order to make the construction cost reasonable.
- The materials which fit the local climate have the durability and are maintained and managed easily are to be selected in order to maintain the new facilities without difficulties.
- The materials are to be sanitary and durable since OT1 and OT2, NCU/PICU etc. require high quality finishing.

2. Materials

- Structural Materials

  The new facilities are to be constructed in combination of reinforced concrete regid frame and concrete block walls which are widely adopted in the local construction method as well as the existing facilities. It is possible to supply fresh concrete to the Project site using concrete mixer lorries.

- Materials of the Exterior Finishes

  The materials to be used for the main exterior finishing are as follows.

Table 2-16 : Materials of the Exterior Finishing

Part	Material to be used	notes
Exterior Wall	Stucco	Common in the local and durable
Roof	Insulation Tiles on Waterproof Layer	Well insulated
Exterior Fixture	Aluminum fitting	Durability and waterproof

- Materials of the Interior Finishes

  The materials to be used for the main interior finishing are as follows.

Table 2-17 : Materials of the Interior Finishing

Room Name	Floor	Wall	Ceiling	Notes
EXAMINATION ROOM	Terrazzo Tile	Tile / Paint Finish (upper part)	Acoustic Board	Durable / Easy to clean
TREATMENT ROOM	Terrazzo Tile	Tile / Paint Finish (upper part)	Acoustic Board	Durable / Easy to clean
PHARMACY	Terrazzo Tile	Tile / Paint Finish (upper part)	Paint Finish	Durable / Easy to clean
EMERGENCY ROOM	Terrazzo Tile	Tile / Paint Finish (upper part)	Acoustic Board	Durable / Easy to clean
ISOLATION(ER)	Terrazzo Tile	Tile / Paint Finish (upper part)	Acoustic Board	Durable / Easy to clean
ULTRASOUND	Terrazzo Tile	Tile / Paint Finish (upper part)	Acoustic Board	Durable / Easy to clean
COUNSELING	Terrazzo Tile	Tile / Paint Finish (upper part)	Acoustic Board	Durable / Easy to clean
WARD ROOM	Terrazzo Tile	Tile / Paint Finish (upper part)	(GF)Paint Finish (1F)Acoustic Board	Durable / Easy to clean
LAB	Terrazzo Tile	Tile / Paint Finish (upper part)	Acoustic Board	Durable / Easy to clean
WC	Tile	Tile	Painted Waterproof Board	Durable / Easy to clean
CORRIDOR	Terrazzo Tile	Tile / Paint Finish (upper part)	(GF)Paint Finish (1F)Acoustic Board	Durable / Easy to clean
CLEAN LINEN	Terrazzo Tile	Tile / Paint Finish (upper part)	Acoustic Board	Durable / Easy to clean
DIRTY LINEN	Tile	Tile	Painted Waterproof Board	Durable / Easy to clean
DOC ROOM	Terrazzo Tile	Tile / Paint Finish (upper part)	(GF)Paint Finish (1F)Acoustic Board	Durable / Easy to clean

2-2-2-3 Equipment Plan

(1) Overall Plan

The Project is to strengthen the medical services of SGCH as a secondary pediatric hospital and procure equipment for Ward (Internal Medicine and Surgeries), Special OPD, OT, Emergencies, Image Diagnostics, Laboratories etc., which is to conform with functions of these departments and contents of the medical care services.

(2) Policy on Selection of Equipment

In the Project, necessary equipment is to be selected in accordance with the following policies,

- Grading of equipment equivalent to that of public medical facilities such as NICH
- Equipment which contributes to reduction of harzardous waste such as mercury
- Grading of equipment which can follow technical advance of medical equipment such as degitalization at the time of commencement of facilities (which is assumed 2014)
- Grading of equipment which can be operated and maintained at the technical levels of the existing staff
- Equipment equivalent to the exsiting equipment has the priority in replacement and supplement for easy operation and maintenance.
- Equipment which can be repaired and maintained easily by local agents
- Minimum quantity of equipment considering the increase of the number of patients
- Equipment which specifies manufacturers and disturbs competitive tendering is to be excluded in selection.

(3) Contents of the Request

1. Selection Criteria

Based on the policy on selection of equipment, equipment requested by the GOP and additionally necessary equipment were confirmed. The variety and the quantity of equipment were decided in accordance with the following seven criteria.

- Purpose of Use
  ○: Equipment suitable for the basic medical services as secondary medical facilities
  ×: Equipment not suitable for the basic medical services as secondary medical facilities

- Necessity
  ○: Equipment indispensable for pediatric medical services at the secondary level
  ×: Equipment not necessary for pediatric medical services at the secondary level, or its beneficiaries are limited

- Technical Level
  ○: Equipment compatible with the current technical level
  ×: Equipment which requires higher technical skills

- Operational System
  ○: Equipment whose medical staff are properly allocated or expected
  ×: Equipment whose medical staff are not expected to be allocated

- Maintenance and Management System
  ○: Equipment which can be regularly inspected and repaired by local agents, and whose spare parts and consumables can be easily procured
  ×: Equipment which has difficulties on maintenance by local agents and on procurement of spare parts and consumables

- Operation and maintenance Cost
  ○: Equipment whose operation and maintenance cost is low or affordable
  ×: Equipment whose operation and maintenance cost is high or not affordable

- Overall Evaluation
  ○: Equipment which is procured appropriately and borne by the Project
  ×: Equipment which is inappropriate and not borne by the Project

Table 2-18 : Examination List of Requested Equipment

Dept.	Item No.	Description	Requested Quantity	Objective	Necessity	Technical Capability	Organization	Maintenance	Running cost	Overall Evaluation	Quantity to be provided
Ward (Interna Medicine)	PM-1	Hospital Beds with Mattress	110	○	○	○	○	○	○	○	101
	PM-2	Bed Side Lockers	120	○	○	○	○	○	○	○	101
	PM-3	Over Bed Table	120	X	○	○	○	○	○	X	0
	PM-4	Electric Suction Machine(S)	5	○	○	○	○	○	○	○	4
	PM-5	Glucose meter	4	○	○	○	○	○	X	X	0
	PM-6	Laryngoscope (Children Blades)	2	○	○	○	○	○	○	○	2
	PM-7	Diagnostic Set (ENT)	2	○	X	○	○	○	○	X	0
	PM-8	Ophthalmoscope	2	○	X	○	○	○	○	X	0
	PM-9	Pleural Aspiration Set (Children)	4	X	○	○	○	○	○	X	0
	PM-10	BP Apparatus with Stand Mercury (Pediatric Cuff)	4	○	○	○	○	○	○	○	6
	PM-11	Ambu Bag (with Different Size Masks)	10	○	X	○	○	○	○	X	0
	PM-12	Ultrasonic Nebulizer (Hospital Use)	5	○	○	○	○	○	○	○	4
	PM-13	Infusion Pumps	5	○	○	○	○	○	○	○	8
	PM-14	Pulse Oxymeter	10	○	○	○	○	○	○	○	6
	PM-15	Saturation Monitor (Patient Monitor)	5	○	○	○	○	○	○	○	8
	PM-16	Oxygen Concentrator	4	○	X	○	○	X	○	X	0
	PM-17	Patient Trolley	2	X	○	○	○	○	○	X	0
	PM-18	Portable X-RAY machine 300 mA	1	X	○	○	○	○	○	X	0
	PM-19	ECG Machine(one channel)	1	○	X	○	○	○	○	X	0
	PM-20	Refrigerator Pharmaceutical	2	○	○	○	○	○	○	○	2
	PM-21	X-Ray Viewing Box	10	○	○	○	○	○	○	○	4
	PM-23	Pediatric Upper GI endoscope	4	○	X	○	○	X	○	X	0
	PM-24	Central Oxygen System	1	○	X	○	○	○	○	X	0
	PM-25	CO2 Monitor	5	X	X	○	○	○	○	X	0
	PM-26	Electric Water Filter	2	○	X	○	○	○	○	X	0
	PM-27	Ward Screen 4 fold	10	○	X	○	○	X	○	X	0
	PM-28	Dialysis Units	4	○	X	○	○	○	○	X	0
	PM-29	IV Stand	n/a	○	○	○	○	○	○	○	35
	PM-30	Oxygen Flow Meter, and Humidifier	n/a	○	○	○	○	○	○	○	14
	PM-31	Instrument Trolley	n/a	○	○	○	○	○	○	○	4
	PM-32	Desk for Consultation	n/a	○	○	○	○	○	○	○	4

Dept.	Item No.	Description	Requested Quantity	Objective	Necessity	Technical Capability	Organization	Maintenance	Running cost	Overall Evaluation	Quantity to be provided
	PM-33	Chair for Doctor and Patients	n/a	○	○	○	○	○	○	○	6
	PM-35	Examination Couch	n/a	○	○	○	○	○	○	○	2
	PM-36	Dressing Set	n/a	○	○	○	○	○	○	○	2
	PM-37	Wheel Chairs	n/a	○	○	○	○	○	○	○	4
	PM-38	Room Bed	n/a	○	○	○	○	○	○	○	4
	PM-39	Medicine Cabinet with Key (Transparent Glass)	n/a	○	○	○	○	○	○	○	1
	PM-40	Instrument Cabinet	n/a	○	○	○	○	○	○	○	3
	PM-42	Laundry Cart	n/a	○	○	○	○	○	○	○	2
	PM-44	Hospital Sluice Sink	n/a	○	○	○	○	○	○	○	2
	PM-45	Pedal Box	n/a	○	○	○	○	○	○	○	1
	PICU-1	Defibrillator	n/a	○	○	○	○	○	○	○	1
	PICU-2	ICU Beds for Recovery Room	n/a	○	○	○	○	○	○	○	8
	PICU-3	Bed Side Lockers	n/a	○	○	○	○	○	○	○	8
	PICU-4	IV Stand	n/a	○	○	○	○	○	○	○	4
	PICU-5	ICU Monitors (Patient Monitors)	n/a	○	○	○	○	○	○	○	4
	PICU-6	Pulse Oxymeter	n/a	○	○	○	○	○	○	○	2
	PICU-7	Diagnostic Set	n/a	○	○	○	○	○	○	○	1
	PICU-9	BP Apparatus with Stand Mercury (Pediatric Cuff)	n/a	○	○	○	○	○	○	○	4
	PICU-10	Hospital Sluice Sink	n/a	○	○	○	○	○	○	○	1
	PICU-12	Room Bed	n/a	○	○	○	○	○	○	○	1
Special OPD (Pediatric Surgeries)	OPDPS-1	Auto Clave (Boiling sterilizer)	n/a	○	○	○	○	○	○	○	1
	OPDPS-2	Electric Suction Machine(S)	n/a	○	○	○	○	○	○	○	1
	OPDPS-10	Chair for Doctor and Patients	n/a	○	○	○	○	○	○	○	2
	OPDPS-11	Desk for Consultation	n/a	○	○	○	○	○	○	○	1
	OPDPS-12	Instrument Trolley	n/a	○	○	○	○	○	○	○	1
	OPDPS-13	Examination Couch	n/a	○	○	○	○	○	○	○	2
	OPDPS-4	Sanitary Box	n/a	○	○	○	○	○	○	○	1
	OPDPS-5	Examination Lamp	n/a	○	○	○	○	○	○	○	1
	OPDPS-7	Ambu Bag (Pediatrics) (1L & 2L)	n/a	○	○	○	○	○	○	○	1
	OPDPS-9	X-Ray Viewing Box	n/a	○	○	○	○	○	○	○	1
Ward (Surgeries)	PS-1	Hospital Beds with Mattress	n/a	○	○	○	○	○	○	○	16
	PS-2	ICU Beds for Recovery Room	n/a	○	○	○	○	○	○	○	4
	PS-3	Bed Side Lockers	n/a	○	○	○	○	○	○	○	20
	PS-4	IV Stand	n/a	○	○	○	○	○	○	○	8
	PS-5	Oxygen Flow meter, and Humidifier	n/a	○	○	○	○	○	○	○	4
	PS-6	ICU Monitors (Patient Monitors)	n/a	○	○	○	○	○	○	○	2
	PS-7	Syringe Pumps	n/a	○	○	○	○	○	○	○	2
	PS-8	Infusion Pumps	n/a	○	○	○	○	○	○	○	2
	PS-10	Instrument Trolley	n/a	○	○	○	○	○	○	○	2
	PS-11	Instrument Cabinet	n/a	○	○	○	○	○	○	○	2
	PS-12	Medicine Cabinet with Key (Transparent Glass)	n/a	○	○	○	○	○	○	○	1
	PS-13	Sanitary Box	n/a	○	○	○	○	○	○	○	2
	PS-14	Room Bed	n/a	○	○	○	○	○	○	○	1
	PS-15	Locker	n/a	○	○	○	○	○	○	○	6
	PS-16	Desk for Consultation	n/a	○	○	○	○	○	○	○	1
	PS-19	Hospital Sluice Sink	n/a	○	○	○	○	○	○	○	1
	PS-17	Chair for Doctor and Patients	n/a	○	○	○	○	○	○	○	4
	PS-18	Laundry Cart	n/a	○	○	○	○	○	○	○	1
	PS-21	Examination Couch	n/a	○	○	○	○	○	○	○	1
	OT-36	Anesthesia Machine with Ventilator	1	○	○	○	○	○	○	○	2
	PS-2	Laparoscope	1	○	X	○	○	○	○	X	0
	PS-3	Instrument Trolley	10	○	X	○	○	○	○	X	0
	PS-4	Diathermy Machine	4	○	X	○	○	○	○	X	0
	PS-5	Autoclave	5	○	X	○	○	○	○	X	0
	PS-6	Sterilizer	5	○	X	○	○	○	○	X	0
	PS-7	Patients Trolley	12	○	X	○	○	○	○	X	0
	PS-8	Ambu Bag 1L (rubber reusable)	6	○	X	○	○	○	○	X	0
	PS-9	Ambu Bag 2L (rubber reusable)	6	○	X	○	○	○	○	X	0
	PS-10	Ambu Bag 3L (rubber reusable)	6	○	X	○	○	○	○	X	0

Dept.	Item No.	Description	Requested Quantity	Objective	Necessity	Technical Capability	Organization	Maintenance	Running cost	Overall Evaluation	Quantity to be provided
	PS-11	X-Ray Viewing Box	10	○	X	○	○	○	○	X	0
	PS-12	Computer with Printer	2	○	X	○	○	○	○	X	0
	PS-13	Refrigerator 18 Sft	2	○	X	○	○	○	○	X	0
	PS-14	Dressing Set	n/a	○	○	○	○	○	○	○	2
Emergencies	E-1	Electric Suction Machine(S)	2	○	○	○	○	○	○	○	2
	E-2	BP Apparatus with Stand Mercury (Pediatric Cuff)	10	○	○	○	○	○	○	○	3
	E-3	Diagnostic Set	3	○	○	○	○	○	○	○	2
	E-4	Ophthalmoscope	3	○	○	○	○	○	○	○	2
	E-5	Laryngoscope (Children Blades)	3	○	○	○	○	○	○	○	2
	E-6	Emergency Trolley	10	○	○	○	○	○	○	○	2
	E-7	Electric Water	1	○	X	○	○	○	○	X	0
	E-8	Water Filter	1	○	X	○	○	○	○	X	0
	E-9	Dressing Set	3	○	○	○	○	○	○	○	2
	E-10	Personal Computer with Printer Table & Chairs	2	X	○	○	○	○	○	X	0
	E-11	Emergency Beds	15	○	○	○	○	○	○	○	8
	E-12	Ultrasonic Nebulizer (Hospital Use)	n/a	○	○	○	○	○	○	○	2
	E-13	Defibrillator	n/a	○	○	○	○	○	○	○	1
	E-14	First Aid Kit	n/a	○	○	○	○	○	○	○	2
	E-15	ECG Machine	n/a	○	X	○	○	○	○	X	0
	E-16	Pulse Oxymeter	n/a	○	○	○	○	○	○	○	3
	E-17	Infusion Pumps	n/a	○	○	○	○	○	○	○	2
	E-18	IV Stand	n/a	○	○	○	○	○	○	○	5
	E-19	Oxygen Flow Meter, and Humidifier	n/a	○	○	○	○	○	○	○	10
	E-20	Instrument Cabinet	n/a	○	○	○	○	○	○	○	1
	E-21	Medicine Cabinet with Key (Transparent Glass)	n/a	○	○	○	○	○	○	○	1
	E-24	Glucose Meter	n/a	○	○	○	○	○	○	○	1
	E-25	Examination Couch	n/a	○	○	○	○	○	○	○	3
	E-28	Waiting Chair (for 4 persons)	n/a	○	○	○	○	○	○	○	4
	E-35	Garbage Box	n/a	○	○	○	○	○	○	○	1
	E-29	Desk for Consultation	n/a	○	○	○	○	○	○	○	1
	E-30	Chair for Doctor and Patients	n/a	○	○	○	○	○	○	○	3
	E-31	Hospital Sluice Sink	n/a	○	○	○	○	○	○	○	1
	E-32	Room Bed	n/a	○	○	○	○	○	○	○	1
	E-36	Patient Trolley	n/a	○	○	○	○	○	○	○	2
	E-34	Sanitary Box	n/a	○	○	○	○	○	○	○	4
Special OPD (Pediatrics)	OPDN-1	Baby Cots	n/a	○	○	○	○	○	○	○	1
	OPDN-2	Neonatal Height & Weight Scale	n/a	○	○	○	○	○	○	○	1
	OPDN-3	Laryngoscope (Children Blades)	n/a	○	○	○	○	○	○	○	1
	OPDN-6	BP Set (Neonatal)	n/a	○	○	○	○	○	○	○	1
	OPDP-10	Ambu Bag (Pediatrics) (1L & 2L)	n/a	○	○	○	○	○	○	○	1
	OPDP-2	Desk for Consultation	n/a	○	○	○	○	○	○	○	1
	OPDP-3	Chair for Doctor and Patients	n/a	○	○	○	○	○	○	○	3
	OPDP-4	Sanitary Box	n/a	○	○	○	○	○	○	○	1
	D-3	Autoclave (Boiling sterilizer)	n/a	○	○	○	○	○	○	○	1
	OPDP-5	Examination Lamp	n/a	○	○	○	○	○	○	○	1
	OPDPS-6	Refrigerator Pharmaceutical	n/a	○	○	○	○	○	○	○	1
	OPDP-7	Glucose Meter	n/a	○	○	○	○	○	○	○	1
	OPDP-8	Laryngoscope (Children Blades)	n/a	○	○	○	○	○	○	○	1
	OPDP-9	BP Apparatus with Stand Mercury (Pediatric Cuff)	n/a	○	○	○	○	○	○	○	1
	OPDP-6	Examination Couch	n/a	○	○	○	○	○	○	○	1
	OPDP-7	X-Ray Viewing Box	n/a	○	○	○	○	○	○	○	1
Special OPD	OPDS-12	Electric Suction Machine(S)	n/a	○	○	○	○	○	○	○	1
	OPDS-2	Sanitary Box	n/a	○	○	○	○	○	○	○	1
	OPDS-3	Desk for Consultation	n/a	○	○	○	○	○	○	○	1
	OPDS-4	Chair for Doctor and Patients	n/a	○	○	○	○	○	○	○	4
	OPDS-5	Hospital Sluice Sink	n/a	○	○	○	○	○	○	○	1
	OPDS-6	Examination Lamp	n/a	○	○	○	○	○	○	○	1
	OPDS-7	Ambu Bag (Pediatrics) (1L & 2L)	n/a	○	○	○	○	○	○	○	1
	OPDS-9	X-Ray Viewing Box	n/a	○	○	○	○	○	○	○	1

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	OPDS-10	Refrigerator Pharmaceutical	n/a	○	○	○	○	○	○	○	2
	OPDS-11	Autoclave (Boiling sterilizer)	n/a	○	○	○	○	○	○	○	1
	OPDS-17	Pulse Oxymeter	n/a	○	○	○	○	○	○	○	1
	OPDS-13	Glucose Meter	n/a	○	○	○	○	○	○	○	1
	OPDS-14	Laryngoscope (Children Blades)	n/a	○	○	○	○	○	○	○	1
	OPDS-15	BP Apparatus with Stand Mercury (Pediatric Cuff)	n/a	○	○	○	○	○	○	○	1
	OPDS-16	Examination Couch	n/a	○	○	○	○	○	○	○	1
Daycare	OPD-1	Day Care Beds	10	○	X	○	○	○	○	X	0
	OPD-2	Bed Side Locker	10	○	X	○	○	○	○	X	0
	OPD-3	Over Bed Table	10	○	X	○	○	○	○	X	0
Special OPD (Eye & ENT)	OPD-4	BP Apparatus with Stand Mercury (Pediatric Cuff)	10	○	○	○	○	○	○	○	1
	OPD-5	Diagnostic Set	4	○	○	○	○	○	○	○	1
	OPD-23	Desk for Consultation	n/a	○	○	○	○	○	○	○	2
	OPD-24	Chair for Doctor and Patients	n/a	○	○	○	○	○	○	○	4
	OPD-6	Ambu Bag (Pediatrics)	5	○	X	○	○	○	○	X	0
	OPD-7	Trolley for Patients	5	○	X	○	○	○	○	X	0
	OPD-8	Wheel Chairs	2	○	X	○	○	○	○	X	0
	OPD-9	Refrigerator	2	○	X	○	○	○	○	X	0
	OPD-10	Infusion Pumps	5	X	X	○	○	○	○	X	0
	OPD-11	Suction Machine	5	○	X	○	○	○	○	X	0
	OPD-12	CO2 Monitor	2	X	X	○	○	○	○	X	0
	OPD-13	Pulse Oxymeter	5	○	X	○	○	○	○	X	0
	OPD-14	ABG Analyzer	3	○	X	○	○	○	○	X	0
	OPD-15	ECG Machine	2	○	X	○	○	○	○	X	0
	OPD-16	Ophthalmoscope	n/a	○	○	○	○	○	○	○	1
	OPD-17	Slit Lamp	n/a	○	○	○	○	○	○	○	1
	OPD-18	Refraction Set	n/a	○	○	○	○	○	○	○	1
	OPD-19	Retinoscope	n/a	○	○	○	○	○	○	○	1
	OPD-20	Indirect Laryngoscope	n/a	○	○	○	○	○	○	○	1
	OPD-21	ENT Unit (Audiometer)	2	○	○	○	○	○	○	○	1
	OPD-22	Minor Instrument for ENT Examination	n/a	○	○	○	○	○	○	○	1
	OPD-27	Sanitary Box	n/a	○	○	○	○	○	○	○	2
Burn unit	B-1	Skin Grafting Knifes	2	X	X	○	○	○	○	X	0
	B-2	Skin graft mesher carrier free mesher	2	X	X	○	○	○	○	X	0
	B-3	Pneumatic Dermatome Compete	2	X	X	○	○	○	○	X	0
	B-4	Autoclave (400 L)	1	X	X	○	○	○	○	X	0
	B-5	Surgical Drum	22	X	X	○	○	○	○	X	0
	B-6	Oxygen Cylinder	10	X	X	○	○	○	○	X	0
	B-7	Oxygen Flow Meter	10	X	X	○	○	○	○	X	0
	B-8	Split Air Conditioner with Stabilizer	7	X	X	○	○	○	○	X	0
	B-9	Diathermy Bipolar	1	X	X	○	○	○	○	X	0
	B-10	Suction Machine	8	X	X	○	○	○	○	X	0
	B-11	Basic Instruments Set	10	X	X	○	○	○	○	X	0
	B-12	Micro Surgical Instruments Set	5	X	X	○	○	○	○	X	0
	B-13	Anesthesia Machine with Ventilator	1	X	X	○	○	○	○	X	0
	B-14	Ceiling OT Light	1	X	X	○	○	○	○	X	0
	B-15	Laryngoscope	2	X	X	○	○	○	○	X	0
	B-16	Infusion Pumps	4	X	X	○	○	○	○	X	0
	B-17	Multi para meter for OT	1	X	X	○	○	○	○	X	0
	B-18	Central Monitoring System	1	X	X	○	○	○	○	X	0
	B-19	Central Oxygen Supply	1	X	X	○	○	○	○	X	0
	B-20	Defibrillator	1	X	X	○	○	○	○	X	0
	B-21	Ventilator Pediatrics	4	X	X	○	○	○	○	X	0
	B-22	Hospital Beds with Mattress	10	X	X	○	○	○	○	X	0
	B-23	Bed Sid Lockers	10	X	X	○	○	○	○	X	0
EPI	O&E-1	Refrigerator for vaccine (Ice line Refrigerator)	2	○	X	○	○	○	○	X	0
	O&E-2	ORT Utensils	10	X	○	○	○	○	○	X	0
	O&E-3	Baby Toys	50	X	○	○	○	○	○	X	0
Special OPD	O&E-4	Baby Cots (Normal Chair with Arms)	10	○	○	○	○	○	○	○	5

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(Daycare)	D-1	Baby Cots	10	○	X	○	○	○	○	X	0
	D-2	Hospital Beds	4	○	X	○	○	○	○	X	0
Rehabilitation	P-1	Baby Cots	5	○	X	○	○	○	○	X	0
	P-2	Ultrasound Therapy Unit	1	○	○	○	○	○	○	○	1
	P-3	Tunnel Bath	1	○	X	○	○	○	○	X	0
	P-4	Quadrille Drill	2	○	X	○	○	○	○	X	0
	P-5	Cycle (Ergometer)	5	○	○	○	○	○	○	○	1
	P-6	Weight Training	5	○	○	○	○	○	○	○	1
	P-7	Stoll Bars (Parallel Bars)	5	○	○	○	○	○	○	○	1
	P-8	Walking Support Bars with Walker	1	○	○	○	○	○	○	○	1
	P-9	Rehabilitation Chairs of Different Sizes	5	○	○	○	○	○	○	○	1
	P-10	Jumping Jacks（Trampolin)	2	○	○	○	○	○	○	○	1
	P-11	Physiotherapy Machine with All Accessories	5	○	X	○	○	○	○	X	0
	P-12	Tense(Finger Exerciser)	n/a	○	X	○	○	○	○	X	0
	P-13	Occupational Therapy Set	n/a	○	○	○	○	○	○	○	1
NCU	N-1	Baby Cots	20	○	○	○	○	○	○	○	10
	N-2	Baby Incubator	10	○	X	○	○	○	○	X	0
	N-3	ICU Incubator	10	○	X	○	○	○	○	X	0
	N-4	ICU Ventilator	8	○	○	X	○	○	○	X	0
	N-5	ICU Monitors (Patient Monitors)	8	○	○	○	○	○	○	○	4
	N-6	Electric Suction Machine(S)	4	○	○	○	○	○	○	○	1
	N-7	Phototherapy Unit	10	○	○	○	○	○	○	○	5
	N-8	Oxygen Head Box (Neonatal Size)	10	○	○	○	○	○	○	○	5
	N-9	BP Set (Neonatal)	10	○	○	○	○	○	○	○	3
	N-10	Baby Ventilators	2	○	○	X	○	○	○	X	0
	N-11	Blood Gas Machine	1	○	X	X	○	○	○	X	0
	N-12	Electrolytes Machine	1	○	X	○	○	○	○	X	0
	N-13	Pulse Oxymeter	10	○	○	○	○	○	○	○	4
	N-14	Saturation Monitor	2	X	○	○	○	○	○	X	0
	N-15	Radiant Warmer	2	○	X	○	○	○	○	X	0
	N-16	X-Ray Viewing Box	10	○	○	○	○	○	○	○	1
	N-17	Neonatal Resuscitator	4	○	X	○	○	○	○	X	0
	N-18	Jaundice Meter	2	○	X	○	○	○	○	X	0
	N-19	Infusion Pumps	10	○	X	○	○	○	○	X	0
	N-20	Syringe Pumps	5	○	○	○	○	○	○	○	4
	N-21	Overhead Warmers	10	○	○	○	○	○	○	X	0
	N-22	Computer with Printer	1	X	○	○	○	○	○	X	0
	N-23	Neonatal Resuscitation Trolley	6	○	X	○	○	○	○	X	0
	N-24	Neonatal Height & Weight Scale	n/a	○	X	○	○	○	○	X	0
	N-25	Oxygen Flow meter, and Humidifier	n/a	○	○	○	○	○	○	○	24
	N-26	Examination Lamp	n/a	○	○	○	○	○	○	○	2
	N-27	Desk for Consultation	n/a	○	○	○	○	○	○	○	2
	N-28	Chair for Doctor and Patients	n/a	○	○	○	○	○	○	○	4
	N-29	Room Bed	n/a	○	○	○	○	○	○	○	2
	N-30	Sanitary Box	n/a	○	○	○	○	○	○	○	1
	N-31	Locker	n/a	○	○	○	○	○	○	○	3
	N-32	Instrument Cabinet	n/a	○	○	○	○	○	○	○	1
	N-33	Medicine Cabinet with Key (Transparent Glass)	n/a	○	○	○	○	○	○	○	1
Blood Collection Room	BCD-1	Desk for Consultation	n/a	○	○	○	○	○	○	○	1
	BCD-2	Chair for Doctor and Patients	n/a	○	○	○	○	○	○	○	2
	BCD-3	Sanitary Box	n/a	○	○	○	○	○	○	○	1
	BCD-5	BP Apparatus with Stand Mercury (Pediatric Cuff)	n/a	○	○	○	○	○	○	○	1
Thalassaemia	T-1	Meia System (Micro Particle Enzyme Immuno Assay)	1	○	X	○	○	○	○	X	0
	T-2	HPLC-Diagnostic Equipments for Thalassaemia	1	○	X	○	○	○	○	X	0
	T-3	Cryofuge (Automated Refrigerated Centrifuge)	1	○	X	○	○	○	○	X	0
	T-4	Cryofuge (Automated Refrigerated Centrifuge)	1	○	X	○	○	○	○	X	0
	T-5	Freezer with Temp. Recorder (-70degree)	1	○	X	○	○	○	○	X	0
	T-6	Freezer with Temp. Recorder Service Centre (-20degree)	1	○	X	○	○	○	○	X	0

Dept.	Item No.	Description	Requested Quantity	Objective	Necessity	Technical Capability	Organization	Maintenance	Running cost	Overall Evaluation	Quantity to be provided
	T-7	Refrigerator (2 - 8degree)	2	○	X	○	○	○	○	X	0
	T-8	Blood Bank Refrigerator (2 to 6degree)	1	○	X	○	○	○	○	X	0
	T-9	Blood Bank Refrigerator (2 to 6degree)	1	○	X	○	○	○	○	X	0
	T-10	Store Refrigerator (2 to 6degree)	1	○	X	○	○	○	○	X	0
	T-11	ECG Machine	1	○	X	○	○	○	○	X	0
	T-12	Blood Bag Shaker	2	○	X	○	○	○	○	X	0
	T-13	Tube Sealer	2	○	X	○	○	○	○	X	0
	T-14	Laminar Flow	1	○	X	○	○	○	○	X	0
	T-15	Microscope	2	○	X	○	○	○	○	X	0
	T-16	Hemoglobin meter	1	○	X	○	○	○	○	X	0
	T-17	Blood Bag Expresser	2	○	X	○	○	○	○	X	0
	T-18	Water Bath	2	○	X	○	○	○	○	X	0
	T-19	Incubator (Sterilizer)	1	○	X	○	○	○	○	X	0
	T-20	Table Top Centrifuge	4	○	X	○	○	○	○	X	0
	T-21	Adjustable and Fix juster	4	○	X	○	○	○	○	X	0
	T-22	Gel System	1	○	X	○	○	○	○	X	0
	T-23	Central Oxygen Supply	1	○	X	○	○	○	○	X	0
	T-24	Personal Computer with Printer Table & Chairs	4	○	X	○	○	○	○	X	0
	T-25	Split Air Conditioner	3	○	X	○	○	○	○	X	0
	T-26	UPS IKVA	1	○	X	○	○	○	○	X	0
	T-27	Stabilizer	4	○	X	○	○	○	○	X	0
	T-28	TV 32"	2	○	X	○	○	○	○	X	0
	T-29	Chair Bed titled for Thalassemia Patient	8	○	X	○	○	○	○	X	0
	T-30	Transfusion Chairs	8	○	X	○	○	○	○	X	0
Pathology	PA-1	Laboratory Incubator Large Size	1	○	X	○	○	○	○	X	0
	PA-2	Laboratory Incubator Small Size	2	○	X	○	○	○	○	X	0
	PA-3	Autoclave	1	○	○	○	○	○	○	X	0
Central Laboratory	PA-16	Laboratory Central Table Set	n/a	○	○	○	○	○	○	○	1
	PA-4	Hot Air Oven	1	○	○	○	○	○	○	○	1
	PA-5	Elisa (Plate reader) with printer	1	○	○	○	○	○	○	X	0
	PA-6	Laminator Flow (cabinet)	1	○	X	○	○	○	○	X	0
	PA-7	Centrifuge Bench Type	3	○	X	○	○	○	○	X	0
	PA-8	Binocular Microscope	3	○	X	○	○	○	○	X	0
	PA-9	Anaerobic Jar	1	○	X	○	○	○	○	X	0
	PA-10	Deionizer	1	○	X	○	○	○	○	X	0
	H-27	Distillation Plant (Water Distiller)	1	○	○	○	○	○	○	○	1
	PA-12	Refrigerator Pharmaceutical	3	○	○	○	○	○	○	○	1
	PA-15	Laboratory Side Table Set (1500W)	n/a	○	X	○	○	○	○	○	0
	PA-15	Laboratory Side Table Set (1800W)	n/a	○	X	○	○	○	○	○	0
	PA-13	Electronic Weighing Balance	1	○	○	○	○	○	○	○	1
	PA-20	Chair for Doctor and Patients	n/a	○	○	○	○	○	○	○	8
	PA-14	Computer with Printer	2	X	○	○	○	○	○	X	0
Biochemistry	C-4	Laboratory Side Table Set (1500W)	n/a	○	○	○	○	○	○	○	1
	C-1	Photometer	1	○	○	○	○	○	○	○	1
	C-2	Automated Chemistry Analyzer	1	○	○	○	○	○	○	○	1
Pathology	C-3	Color meter	3	○	○	○	○	○	○	○	1
	C-4	Centrifuge Machine Bench Type	3	○	X	○	○	○	○	X	0
		Hot Air Oven	1	○	X	○	○	○	○	X	0
	C-6	Chair for Doctor and Patients	n/a	○	○	○	○	○	○	○	3
	C-6	Refrigerators 12 cubic feet	3	○	X	○	○	○	○	○	0
	C-7	Electrolyte Analyzer	1	○	○	○	○	○	○	X	0
	C-8	Chemo Immunolecent (for hormone & tumor markers)	1	○	X	○	○	○	○	X	0
	C-9	Computer with Printer	1	○	X	○	○	○	○	X	0
	C-10	Miscellaneous Disposable, Glass ware etc.	n/a	○	X	○	○	○	○	X	0
Hematology	H-1	Hematology Analyzer 03 parts differential	2	○	○	○	○	○	○	○	1
	H-2	Hematology Analyzer 06 parts differential	1	○	X	X	○	○	○	X	0
	H-3	PCR Machine with Accessories	1	○	X	X	○	○	○	X	0
	H-4	ESR System (Blood Sedimentation Set)	1	○	○	○	○	○	○	○	1
	H-5	Flow Cytometer	1	○	X	X	○	○	○	X	0

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	H-6	Binocular Microscope	4	○	○	○	○	○	○	○	1
	H-7	Water Bath	2	○	○	○	○	○	○	○	1
	H-8	Laboratory Incubator Small Size	1	○	○	○	○	○	○	○	1
	H-9	Hot Air Oven	1	○	X	○	○	○	○	X	0
	H-10	Hemoglobin Electrophoresis Apparatus	1	○	X	X	○	○	○	X	0
	H-11	Power Supply	1	○	X	○	○	○	○	X	0
	H-12	Densitometer	1	○	X	○	○	○	○	X	0
	H-13	Coagulation Analyzer	1	○	○	○	○	○	○	○	1
	H-14	Centrifuge Machine Bench Type	2	○	X	○	○	○	○	○	0
	H-15	Sample Mixer (Roller)	1	○	○	○	○	○	○	○	1
	H-16	Platelets Aggregometer	1	○	X	○	○	○	○	X	0
	H-17	Platelet with Incubator Agitator	1	○	X	○	○	○	○	X	0
	H-18	Bone Marrow Aspiration Needles	10	X	○	○	○	○	○	X	0
	H-19	Bone Marrow Trephine Biopsy Needles	10	X	○	○	○	○	○	X	0
	H-20	Autoclave	1	○	○	○	○	○	○	X	0
	H-21	DLC Manual Counter	5	○	○	○	○	○	○	○	1
	H-28	Hematocrit Centrifuge	n/a	○	○	○	○	○	○	○	1
	H-31	Chair for Doctor and Patients	n/a	○	○	○	○	○	○	○	1
	H-29	Laboratory Side Table Set (1500W)	n/a	○	○	○	○	○	○	○	1
	H-22	Slide Storage Cabinets	1	○	X	○	○	○	○	X	0
	H-23	Computer with Printer	2	X	○	○	○	○	○	X	0
	H-24	Domestic Refrigerator 18 cubic feet	2	○	X	○	○	○	○	X	0
	H-25	Beds with mattress	10	○	X	○	○	○	○	X	0
	H-26	Fowler Bed Single crank with mattress	10	○	X	○	○	○	○	X	0
	H-27	Distillation Plant	1	○	X	○	○	○	○	X	0
Blood Transfusion Unit	BB-12	Binocular Microscope	2	○	○	○	○	○	○	○	1
	BB-15	Desk for Consultation	n/a	○	○	○	○	○	○	○	1
	BB-16	Chair for Doctor and Patients	n/a	○	○	○	○	○	○	○	3
	PA-17	Laboratory Side Table Set (1500W)	n/a	○	○	○	○	○	○	○	1
	BB-18	Weighing Scale for Adult	n/a	○	○	○	○	○	○	○	1
	BB-19	Hemoglobin Meter with Centrifuge	n/a	○	○	○	○	○	○	○	1
	BB-20	BP Apparatus(Adult Cuff)	n/a	○	○	○	○	○	○	○	1
	BB-13	Blood Donor Bed	n/a	○	○	○	○	○	○	○	2
	BB-21	Bag Shaker	n/a	○	○	○	○	○	○	○	2
	BB-2	Centrifuge for Blood Wash	2	○	○	○	○	○	○	○	1
	BB-27	Thawing Water Bath	n/a	○	○	○	○	○	○	○	1
	BB-22	Micro Pipette Set	n/a	○	○	○	○	○	○	○	1
	BB-3	Water Bath	1	○	○	○	○	○	○	○	1
	BB-4	Hot Air Oven	1	○	X	○	○	○	○	X	0
	BB-5	Product Preparation	1	○	X	○	○	○	○	X	0
	BB-6	Elisa Micro Plate Reader and Automated Washer	1	○	○	○	○	○	○	○	1
	BB-7	Domestic Refrigerator	2	○	X	○	○	○	○	X	0
	BB- 2 8	Blood Bank Refrigerator	2	○	○	○	○	○	○	○	1
	BB-9	Refrigerated Centrifuge for Blood Bags (Cryofuge)	3	○	○	○	○	○	○	○	1
	BB-23	Deep Freezer Domestic	n/a	○	○	○	○	○	○	○	1
	BB-24	Platelets Incubator with Agitator	1	○	○	○	○	○	○	○	1
		Cell separator (Aphaeresis apparatus)	1	○	X	X	○	○	○	X	0
	BB-25	Tube Sealer for Blood Bag	n/a	○	○	○	○	○	○	○	1
	BB-26	Sanitary Box	n/a	○	○	○	○	○	○	○	1
	BB-11	Manual Plasma Extractor	n/a	○	○	○	○	○	○	○	1
	BB-12	Clinical Microscopes	2	○	X	○	○	○	○	X	0
	BB-14	Computer with Printer	2	X	○	○	○	○	○	X	0
Histopathology	HI-1	Microscope Binocular	4	○	○	○	○	○	○	X	0
	HI-2	Tissue Processor with Fume Hood	1	○	X	○	○	○	○	X	0
	HI-3	Microtone with Disposables Blades and Convention Knife	1	○	X	○	○	○	○	X	0
	HI-4	Cytospin	1	○	X	○	○	○	○	X	0
	HI-5	Wax Dispenser	1	○	X	○	○	○	○	X	0
	HI-6	Tissue Floating Bath	2	○	X	○	○	○	○	X	0
	HI-7	Slide Warmer	1	○	X	○	○	○	○	X	0

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	HI-8	Cryostat	1	○	X	○	○	○	○	X	0
	HI-9	Frozen Section Microtome	1	○	X	○	○	○	○	X	0
	HI-10	Bone Cutting Saw	1	○	X	○	○	○	○	X	0
	HI-11	Block Storage Cabinet	1	○	X	○	○	○	○	X	0
	HI-12	Slide Storage Cabinet	1	○	X	○	○	○	○	X	0
	HI-13	Computer + Printer	2	○	X	○	○	○	○	X	0
	HI-14	Refrigerator 18 cubic feet	2	○	X	○	○	○	○	X	0
	HI-15	Centrifuge Machine	2	○	X	○	○	○	○	X	0
	HI-16	Hot Air Oven	2	○	X	○	○	○	○	X	0
	HI-17	Laboratory Incubator	2	○	X	○	○	○	○	X	0
	HI-18	Miscellaneous/Glass ware Set	n/a	○	X	○	○	○	○	X	0
Cold Storage	CS-1	Refrigerator 12 cubic feet	2	○	X	○	○	○	○	X	0
	CS-2	Deep Freezer Domestic	2	○	X	○	○	○	○	X	0
	CS-3	Computer Networking software	1	X	○	○	○	○	○	X	0
	CS-4	Server	1	X	○	○	○	○	○	X	0
Image Diagnostics	R-1	M.R.I	1	○	X	○	○	○	○	X	0
	R-2	C.T. Scanner Machine	1	○	X	○	○	○	○	X	0
	R-3	X-Ray Unit 500 mA	1	○	○	○	○	○	○	○	1
	R-4	Ultrasound Machine General Purpose	2	○	○	○	○	○	○	○	1
	R-5	Radiology Accessories (sets)	2	○	○	○	○	○	○	○	1
	R-6	Image Printer for X-ray	1	○	○	○	○	○	○	○	1
	R-7	Portable X-Ray Plant 300 mA	1	○	○	○	○	○	○	○	1
	R-8	Color Doppler Ultrasound Machine	1	○	○	○	○	○	○	○	1
	R-9	Computer with Printer	2	○	X	○	○	○	○	X	0
	R-10	Portable Ultrasound Machine	n/a	○	X	○	○	○	○	X	0
	R-11	EEG	n/a	○	○	○	○	○	○	○	1
	R-12	EMG/ Nerve Conduction Velocity Testing (NCV) Machine	n/a	○	○	○	○	○	○	○	1
	R-13	Bera	n/a	○	X	○	○	○	○	X	0
	R-20	Examination Couch	n/a	○	○	○	○	○	○	○	4
	R-22	Waiting Chair (for 4 persons)	n/a	○	○	○	○	○	○	○	2
	R-23	Desk for Consultation	n/a	○	○	○	○	○	○	○	3
	R-24	Chair for Doctor and Patients	n/a	○	○	○	○	○	○	○	8
	R-25	Instrument Cabinet	n/a	○	○	○	○	○	○	○	4
OT	OT-1	Operation Tables with Stool	2	○	○	○	○	○	○	○	2
	OT-2	OT Lights (Ceiling) Large	1	○	○	○	○	○	○	○	1
	OT-2	Mobile OT Light with Battery	1	○	○	○	○	○	○	○	1
	OT-3	Halothane and Gas Monitor	2	○	X	○	○	○	○	X	0
	OT-4	Electric Suction Machine(L)	4	○	○	○	○	○	○	○	2
	OT-5	Under Water Curtain	2	○	○	○	○	○	○	X	0
	OT-6	X-Ray Viewing Box	2	○	○	○	○	○	○	○	2
	OT-7	Instrument Trolley	4	○	○	○	○	○	○	○	3
	OT-8	Infusion Pumps	4	○	○	○	○	○	○	○	1
	OT-9	BP Apparatus with Stand Mercury (Pediatric Cuff)	4	○	○	○	○	○	○	○	1
	OT-10	Instrument Cabinet	8	○	○	○	○	○	○	○	3
	OT-11	CSSD Sterilization System	1	○	○	○	○	○	○	○	2
	OT-12	Major Operation Sets	4	○	○	○	○	○	○	○	2
	OT-13	Minor Operation Sets	4	○	○	○	○	○	○	○	2
	OT-14	Patient Trolley	4	○	○	○	○	○	○	○	2
	OT-15	ICU Beds for Recovery Room	4	○	○	○	○	○	○	○	2
	OT-16	Capnograph for Each OT	2	○	○	○	○	○	○	○	2
	OT-17	Laryngoscope (Children Blades)	4	○	○	○	○	○	○	○	2
	OT-18	Laryngoscope (with 4 blades)	4	○	○	○	○	○	○	X	0
	OT-19	Esophageal Stethoscope	4	○	X	○	○	○	○	X	0
	OT-20	Peripheral Nerve Simulator	2	○	○	○	○	○	○	○	1
	OT-21	Glucose meter	2	○	X	○	○	○	○	X	0
	OT-22	Blood Warner	2	○	○	○	○	○	○	○	1
	OT-60	Hospital Sluice Sink	1	○	○	○	○	○	○	○	1
	OT-23	Fiberoptic Laryngoscope	2	○	○	○	○	○	○	○	1

Dept.	Item No.	Description	Requested Quantity	Objective	Necessity	Technical Capability	Organization	Maintenance	Running cost	Overall Evaluation	Quantity to be provided
	OT-24	Diathermy Unit	2	○	○	○	○	○	○	○	1
	OT-25	Core Body Temperature Monitor	2	○	X	○	○	○	○	X	0
	OT-26	Mobile Light	2	○	X	○	○	○	○	X	0
	OT-27	Ambu Bag (Pediatrics) (1L & 2L)	20	○	○	○	○	○	○	○	2
	OT-28	Ambu Bag 2L (rubber reusable)	20	○	X	○	○	○	○	X	0
	OT-29	Ambu Bag 3L (rubber reusable)	20	○	X	○	○	○	○	X	0
	OT-30	Patient Trolley	4	○	X	○	○	○	○	X	0
	OT-31	Stretcher Trolley	4	○	X	○	○	○	○	X	0
	OT-32	Minor O.T. Table	2	○	X	○	○	○	○	X	0
	OT-33	Minor O.T. Lights	2	○	X	○	○	○	○	X	0
	OT-34	Minor O.T. Instrument	n/a	○	X	○	○	○	○	X	0
	OT-35	Autoclave	2	○	X	○	○	○	○	X	0
	OT-37	IV Stand	n/a	○	○	○	○	○	○	○	3
	OT-39	Mayo Instrument Stand	n/a	○	○	○	○	○	○	○	2
	OT-40	Wash Basin Stand, Double Basin	n/a	○	○	○	○	○	○	○	2
	OT-41	Kick Bucket	n/a	○	○	○	○	○	○	○	2
	OT-42	Foot Step	n/a	○	○	○	○	○	○	○	2
	OT-43	Room Bed	n/a	○	○	○	○	○	○	○	1
	OT-44	Desk for Consultation	n/a	○	○	○	○	○	○	○	2
	OT-45	Chair for Doctor and Patients	n/a	○	○	○	○	○	○	○	4
	OT-46	Examination Couch	n/a	○	○	○	○	○	○	○	1
	OT-47	Examination Lamp	n/a	○	○	○	○	○	○	○	1
	OT-48	Dressing Set	n/a	○	○	○	○	○	○	○	2
	OT-49	Locker	n/a	○	○	○	○	○	○	○	2
	OT-50	ICU Monitors (Patient Monitors)	n/a	○	○	○	○	○	○	○	1
	OT-51	Hand Scrub Unit (3 Sinks)	n/a	○	○	○	○	○	○	○	1
	PH-5	Distillation Plant (Water Distiller)	n/a	○	○	○	○	○	○	○	1
	OT-52	Cast Cart (Sterilization Trolley)	n/a	○	○	○	○	○	○	○	1
	OT-53	Laundry Cart	n/a	○	○	○	○	○	○	○	2
	OT-54	Working Table for CSSD	n/a	○	○	○	○	○	○	○	1
	OT-55	Waiting Chair (for 4 persons)	n/a	○	○	○	○	○	○	○	2
	OT-56	Garbage Box	n/a	○	○	○	○	○	○	○	1
	OT-57	Instrument Rack for CSSD	n/a	○	○	○	○	○	○	○	4
	OT-58	Sterilization Drum	n/a	○	○	○	○	○	○	○	6
Endoscopy Room	PST-1	Rigid Pediatric Sigmoidscope	2	○	○	○	○	○	○	○	1
	PST-2	Management Patient O.A.	2	○	X	○	○	○	○	X	0
	PST-3	Neonatal Resuscitation Tray	2	○	X	○	○	○	○	X	0
	PST-4	Rigid Bronchoscope	2	○	○	○	○	○	○	○	1
	PST-5	Oesophago Scope Rigid	2	○	○	○	○	○	○	○	1
	PST-6	Bronchoscope	1	○	○	X	○	○	○	X	0
	PST-7	Cystoscope	1	○	○	X	○	○	○	X	0
	PST-8	Resctoscope	1	○	○	X	○	○	○	X	0
	PST-9	Oesophagel Dilator	2	○	○	○	○	○	○	○	1
Dental unit	D-1	Dental Wilt with All Accessories	2	○	X	○	○	○	○	X	0
	D-2	X-Ray Unit Spot Type	1	○	○	○	○	○	○	○	1
	D-3	Autoclave B-cycle	1	○	X	○	○	○	○	X	0
	D-4	X-Ray Film (50 packets)	10	○	X	○	○	○	○	X	0
	D-5	Micro motor	2	○	X	○	○	○	○	X	0
	D-6	Hand Piece	10	○	X	○	○	○	○	X	0
	D-7	Surgical Instrument	2	○	○	X	○	○	○	X	0
	D-8	Dental Material	2	○	X	○	○	○	○	X	0
	D-9	Refrigerator	2	○	X	○	○	○	○	X	0
	D-10	Computer with Printer	1	X	○	○	○	○	○	X	0
Medical Education	ME-1	Infant Head for Intubation	n/a	X	○	○	○	○	○	X	0
	ME-2	Resuscitator for Baby (Cardiopulmonary Resuscitation)	n/a	○	○	○	○	○	○	○	1
	ME-3	Infant Dummy for Resuscitation	n/a	X	○	○	○	○	○	X	0
	ME-4	Child Dummy	n/a	X	○	○	○	○	○	X	0
	ME-5	Simulator for I/V access	n/a	X	○	○	○	○	○	X	0

Dept.	Item No.	Description	Requested Quantity	Objective	Necessity	Technical Capability	Organization	Maintenance	Running cost	Overall Evaluation	Quantity to be provided
	ME-6	Dummy of Body (Pelvis & Abdomen) Model	1	X	○	○	○	○	○	X	0
	ME-7	Fetus Model	1	X	○	○	○	○	○	X	0
	ME-8	Twin Model	1	X	○	○	○	○	○	X	0
	ME-9	Breech Model	1	X	○	○	○	○	○	X	0
	ME-10	Placenta Model	1	X	○	○	○	○	○	X	0
	ME-11	Bony Pelvic Model	1	X	○	○	○	○	○	X	0
	ME-12	Computer with Printer	2	X	○	○	○	○	○	X	0
	ME-13	Examination Couch	2	X	○	○	○	○	○	X	0
	ME-14	X-Ray Illuminator	2	X	○	○	○	○	○	X	0
	ME-15	Overhead Projector with Screen	1	X	○	○	○	○	○	X	0
	ME-16	Slide Projector	1	X	○	○	○	○	○	X	0
	ME-17	Multimedia with Screen	1	X	○	○	○	○	○	X	0
Lecture Room	A-1	Easy Chair	200	X	○	○	○	○	○	X	0
	A-2	Computer with Printer	1	X	○	○	○	○	○	X	0
	A-3	Overhead Projector with Screen	1	X	○	○	○	○	○	X	0
	A-4	Slide Projector	1	X	○	○	○	○	○	X	0
	A-5	Multimedia with Screen	1	X	○	○	○	○	○	X	0
	A-6	Speaker System	1	X	○	○	○	○	○	X	0
	A-7	Dice for speakers	2	X	○	○	○	○	○	X	0
	A-8	V.C.R	1	X	○	○	○	○	○	X	0
	A-9	D.V.D	1	X	○	○	○	○	○	X	0
	A-10	TV 32"	1	X	○	○	○	○	○	X	0
Reception	RE-1	Reception Glass Counter	1	○	x	○	○	○	○	X	0
	RE-2	Computer with Printer	2	X	○	○	○	○	○	X	0
Facilities	H-1	Generator 100 KVA	2	○	X	○	○	○	○	X	0
	H-2	Sewerage Treatment Plant	1	○	X	○	○	○	○	X	0
	H-3	House Keeping Equipments	1	X	○	○	○	○	○	X	0
	H-4	Ambulances	4	○	X	○	○	○	○	X	0
	H-5	Incinerator	1	○	X	○	○	○	○	X	0
Dormitory for Nurses	NH-1	Room Bed	25	X	○	○	○	○	○	X	0
	NH-2	Room Chairs	25	X	○	○	○	○	○	X	0
	NH-3	Sui Gas Burners for Kitchen	5	X	○	○	○	○	○	X	0
	NH-4	Crocker/Utensils for Mess	1	X	○	○	○	○	○	X	0
	NH-5	Electric Water Fitter	1	X	○	○	○	○	○	X	0
	NH-6	Electric Water Cooler	2	X	○	○	○	○	○	X	0
	NH-7	Reading Table	25	X	○	○	○	○	○	X	0
Dormitory for Drs.	DH-1	Room Bed	25	X	○	○	○	○	○	X	0
	DH-2	Room Chairs	25	X	○	○	○	○	○	X	0
	DH-3	Sui Gas Burners for Kitchen	5	X	○	○	○	○	○	X	0
	DH-4	Crocker/Utensils for Mess	1	X	○	○	○	○	○	X	0
	DH-5	Electric Water Fitter	1	X	○	○	○	○	○	X	0
	DH-6	Electric Water Cooler	2	X	○	○	○	○	○	X	0
	DH-7	Reading Table	25	X	○	○	○	○	○	X	0
Pray area	P-1	Carpets for Prayers	30	X	○	○	○	○	○	X	0
	P-2	Pesh Imam Membur	1	X	○	○	○	○	○	X	0
	P-3	Gas Geyser	2	X	○	○	○	○	○	X	0
	P-4	Electric Water Cooler	2	X	○	○	○	○	○	X	0
	P-5	Public Address System	1	X	○	○	○	○	○	X	0
CCU	CCU-1	E.C.G Machine	2	X	○	○	○	○	○	X	0
	CCU-2	C.C.U Beds with mattress	20	X	○	○	○	○	○	X	0
	CCU-3	Patients Trolley	20	X	○	○	○	○	○	X	0
	CCU-4	Wheel Chairs	2	X	○	○	○	○	○	X	0
	CCU-5	Stretcher Trolley	2	X	○	○	○	○	○	X	0
	CCU-6	Bed Side Locker	10	X	○	○	○	○	○	X	0
	CCU-7	Overhead Bed Tables	20	X	○	○	○	○	○	X	0
	CCU-8	Echo Cardiograph Machine with Color Doppler	1	X	○	○	○	○	○	X	0
	CCU-9	Angiocardiography Machine	2	X	○	○	○	○	○	X	0
	CCU-10	Monitors	20	X	○	○	○	○	○	X	0
	CCU-11	ECG Machine	2	X	○	○	○	○	○	X	0

Dept.	Item No.	Description	Requested Quantity	Objective	Necessity	Technical Capability	Organization	Maintenance	Running cost	Overall Evaluation	Quantity to be provided
	CCU-12	Ambu Bags for Neonatal	2	X	○	○	○	○	○	X	0
	CCU-13	Ambu Bags for Infant	2	X	○	○	○	○	○	X	0
	CCU-14	Ambu Bags for Child	2	X	○	○	○	○	○	X	0
	CCU-15	Langoscope	2	X	○	○	○	○	○	X	0
	CCU-16	BP Apparatus	10	X	○	○	○	○	○	X	0
Library	L-1	Book Shelves	20	X	○	○	○	○	○	X	0
	L-2	File Ranks	5	X	○	○	○	○	○	X	0
	L-3	Iron Almirah for Books	10	X	○	○	○	○	○	X	0
	L-4	Office Table	2	X	○	○	○	○	○	X	0
	L-5	Office Chairs	10	X	○	○	○	○	○	X	0
	L-6	Revolving Chairs	2	X	○	○	○	○	○	X	0
	L-7	Computer with Printer	4	X	○	○	○	○	○	X	0
	L-8	Chairs for Readers	20	X	○	○	○	○	○	X	0
	L-9	Oval Table for Readers	1	X	○	○	○	○	○	X	0
	L-10	Books/Perdiocals	n/a	X	○	○	○	○	○	X	0
Pharmacy	PH-1	Racks Iron	10	○	○	○	○	○	○	○	11
	PH-2	Refrigerator Pharmaceutical	6	○	○	○	○	○	○	○	1
	PH-4	Medicine Cabinet with Key (Transparent Glass)	n/a	○	○	○	○	○	○	○	1
	PH-3	Iron Almerah	4	○	○	○	○	○	○	X	0
	PH-4	Computer with Printer	2	X	○	○	○	○	○	X	0
Kitchen	K-1	Sui Gas burners	4	X	○	○	○	○	○	X	0
	K-2	Utensils and Wares (Crockrey)	500	X	○	○	○	○	○	X	0
	K-3	Refrigerator	2	X	○	○	○	○	○	X	0
	K-4	Water Cooler Electric	1	X	○	○	○	○	○	X	0
	K-5	Canteen Chairs	50	X	○	○	○	○	○	X	0
	K-6	Canteen Tables	15	X	○	○	○	○	○	X	0
Other Equipment (Common)	AD-12	File Ranks for Medical Record	4	○	○	○	○	○	○	○	1
	AD-1	Meeting Table and Chairs	n/a	○	○	○	○	○	○	○	1
	AD-2	Presentation Apparatus (Projector)	n/a	○	○	○	○	○	○	○	1
	AD-3	Book Rack	n/a	○	○	○	○	○	○	○	1
	AD-11	Meeting Table Set	n/a	○	○	○	○	○	○	○	6
	AD-9	Waiting Chair (for 4 persons)	n/a	○	○	○	○	○	○	○	36
	RC-2	Computer with Printer	2	X	○	○	○	○	○	X	0
	RC-3	Officer Chairs	6	X	○	○	○	○	○	X	0
	RCH-1	Reception Glass Counter	1	X	○	○	○	○	○	X	0
	RCH-2	Computer with Printer	2	X	○	○	○	○	○	X	0
	RCH-3	Patients Waiting Chairs	20	X	○	○	○	○	○	X	0

2. Study of Equipment in Each Department

- Ward (Internal Medicine)

  Equipment necessary to provide the medical services is to be allocated in General Ward (50 beds), Diarrhea Ward (20 beds), Special OPD (20 beds), Infectious Ward (five beds) and High-care Unit (six beds) totally 101 beds and treatment rooms on each floor. In addition, portable equipment for common use is to be planned on each floor.

  - A hospital bed and a bedside locker are to be provided for Bed Rooms.
  - Six sets of oxygen humidifier and flow meter are to be allocated in Infectious Ward and High-care Unit due to the needs of oxygen inhalation.
  - One unit of examination couch, one set of dressing and one unit of instrument trolley are to be equipped in treatment rooms.

Common Equipment

- One unit of IV (Intra Venous) pole is equipped for every two to three beds.
- A electric suction machine, laryngoscope sets, a BP (Blood Pressure) apparatus, an ultrasonic nebulizer, an infusion pump, a pulse oxymeter, a patient monitor, an instrument trolley, a pharmaceutical refrigerator and wheel chairs are to be provided on each floor because Internal Medicine Ward is divided into two floors.

PICU

This is to provide seriously-ill pediatric patients with intensive care, and equipment necessary for the purpose is to be provided for planned eight beds.

- ICU patient beds, ICU monitors (one unit for two beds), a pulse oxymeter, and a defibrillator

- Operation Theater (including Preparation and Recovery) and Surgical Ward

Equipment is to be supplied to new OT department in order to perform elective operations such as inguinal hernia, gut perforation, and acute abdomen, emergency operations such as accidental ingestion, and traffic accidents, and endoscopic diagnosis and treatment under general anesthesia in addition to minor operations (80 to 100 cases per month) which are already performed at the existing facilities such as circumcision, abscess, rectal bleeding and acute abdominal pain.

OT department consists of two operation rooms, one of which is for elective (OT1) and another is for emergency (OT2). Equipment is to be provided also in supporting facilities such as Recovery, Preparation and other relevant rooms. Equipment is to be provided in Surgical Ward which consists of five rooms including one High-care Unit, totally 20 beds.

OT1 / OT2 / Preparation / Recovery

- Shadow-less lamp , Mobile shadow-less lamp with battery, Oil-hydraulic OT table, Anesthesia apparatus with ventilator and Operation Monitor (with EtCO2:End-Tidal Carbon Dioxide parameter) are to be equipped in OT1 and OT2.
- In OT2, a rigid bronchoscope to remove accidental ingestion, a fiber optic laryngoscope, a sigmoid scope and an esophagus scope are to be equipped.
- In OT1, a blood infusion warmer is to be equipped for emergency whole blood transfusion.
- A hand scrub unit for three persons is to be installed in Scrub/Pray.
- In Preparation, two units of sterilizer whose capacity is 150 to 200 liter are to be installed according to the increased number of operations and hospital beds. It is a gas driven type which is same as it is used in the existing facilities.
- Two recovery beds, one unit of infusion pump, two sets of oxygen flow meter and humidifier, one set of resuscitation bag, two units of IV pole, and one unit of BP apparatus are to be installed in Recovery.

Surgical Ward

- A hospital bed (two crank type) and bedside locker are to be equipped for each general Bed Rooms.
- Four units of ICU bed (X-ray transparency), two units of patient monitor, a bedside locker, an oxygen flow meter and four sets of humidifier are to be installed in High-care Unit.

- Emergencies

  This department is to operate for 24 hours a day in order to treat patients of ARI, febrile convulsion and serious diarrhea, and to provide medical services such as nebulizing, oxygen inhalation, and infusion after diagnosis. This department consists of totally 10 beds including two beds for infectious patients in order to avoid nosocomial infection, and to supply necessary equipment for emergency medical services.

  - A hospital bed and a bedside locker are to be equipped for each Isolation Emergency Room.
  - For diagnosis and treatment, an ultrasonic nebulizer, a BP apparatus, a defibrillator, a diagnostic set, a suction unit, a glucose meter, a first aid kit, an infusion pump, an instrument cabinet, a patient trolley, and a pulse oxymeter are to be installed.

- Special OPD

  This department is to re-diagnose patients who need special diagnosis. Seven rooms are to be allocated, one room for surgical clinic, one room for surgical treatment, one room for ENT, one room for ophthalmology clinic, one room for internal medicine clinic and two rooms for neurology, nephrology, endocrinology and asthma. In addition, equipment to diagnose outpatients is also to be provided.

  - Consultation desks and chairs for doctors and patients, examination couches, resuscitation bag sets, boiling sterilizers, X-ray illuminators, BP apparatus, electric suction units, glucose meters and laryngoscope sets are installed.

- Physiotherapy & Rehabilitation Unit

  At present, neurological clinic opens once a week, and 50 to 70 patients/per clinic such as neuropathy, myopathy and cerebral paralysis are consulted. In order to minimize development disorders and promote participation in social activity, it is necessary to provide these patients with rehabilitation training. At the construction of the new facilities, it is planned to provide equipment in physiotherapy and an occupational therapy room located in the existing facilities in order to rehabilitate patients who are diagnosed to need such therapies.

  - An ultrasound therapy unit, a cycle(ergometer), chairs and stands for cerebral palsy (CP) child, balance balls, a peg board and exercise mattresses are to be equipped.

- NCU

  This department is to treat premature and seriously-ill neonates, and relocate the existing

infant incubators and phototherapy units from the existing facilities by the Pakistani side, and additionally to provide newly procured equipment under the Project. Patients who are recovered by treatment in NCU are to be shifted to Mother Treatment NCU where mothers care their own babies like a nurse. Equipment is to be procured also for Mother Treatment NCU.

- Eight infant incubators and two phototherapy units which are installed in the existing facilities are to be relocated in NCU.
- Eight sets of an oxygen flow meter and a humidifier, additional two phototherapy units, five sets of oxygen head box are to be newly installed .
- Ten sets of a baby cot and a couch for mother, three phototherapy units etc. are to be installed in Mother Treatment NCU.

- Laboratories

  This department is to be divided into two parts, Laboratories and Blood Transfusion Units. Laboratories consist of Central / Pathology, Hematology and Biochemistry. Blood Transfusion Units for emergency whole blood transfusion during operations and safety blood components production prepared for neonates consists of two rooms, one for blood collection and another for blood screening.

  Central / Pathology

  - One unit of blood gas analyzer and one unit of electrolyte analyzer are to be relocated from the existing facilities.
  - A hematology analyzer, a coagulation analyzer, a laboratory central table with a sink, a laboratory side table, a hot air oven, a distillation plant, and a pharmaceutical refrigerator are to be installed.
  - A blood gas analyzer and an electrolyte analyzer which are highly required for PICU and NCU patients are to be relocated by the Pakistani side.
  - A hematology analyzer and a coagulation analyzer, which are used frequently and pharmaceutical refrigerator which are used in common with other rooms are to be installed.

  Hematology

  - One unit of water bath, one unit of Incubator and one unit of hematocrit centrifuge are to be installed.

  Biochemistry

  - One unit of automated biochemistry analyzer, one unit of color meter and one unit of clinical photometer are to be equipped.

  Blood Transfusion Unit

  It is planned to prepare whole blood production for emergency patients while operations, and blood components production such as platelets, and fresh frozen plasma for neonates.

Necessary equipment is to be supplied. Among two rooms, one is for blood collection and blood group testing, and another is for screening and storage of blood production.

- Blood Collection:
  - Two blood donor beds and two units of blood bag shaker are to be installed.
- Blood Screening and Storage
  - A deep freezer for platelets and a plasma, blood bag refrigerator, a Elisa micro plate reader, a centrifuge for blood wash, a water bath, a thawing water bath, a platelets incubator with agitator and a refrigerated centrifuge for blood bag are to be installed .

- Image Diagnostics

  Equipment is to be provided for X-Ray, Operator, two Ultrasounds, EEG, EMG/Audiometry Room and two Doctor Rooms where image diagnostics are performed to patients etc.

  - One digital X-ray unit is to be installed to investigate general chest X-ray for pneumonia, contrast media for pathology suspected patients and fluoroscopic X-ray picture for accidental ingested patients.
  - For Operator, a remote console, a mobile x-ray unit and an image printer for digital X-ray are to be installed.
  - For two Ultrasounds, a color doppler machine (one unit), a ordinary ultrasound machine (one unit), a examination couch and chair for the medical staff are to be equipped.
  - For EEG, an examination couch, a chair for the medical staff and an EEG unit are to be equipped.
  - For EMG/Audiometry room, an examination couch, a chair for the medical staff, an EMG/NCV unit, and audiometer for neonates are to be equipped.

- Pharmacy

  Pharmacy in the new facilities is to manage and store medicines for prescription given after diagnosis and treatment in the new facilities, and equipment necessary for Pharmacy is to be provided. Bulk of medicine storage place is basically located at the existing facilities so that minimum quantity of equipment is planned to be provided.

  - An iron rack cabinet (11 units), a pharmaceutical refrigerator(one unit),a medicine cabinet (one unit) are to be equipped.

- Other Equipment

  Waiting Area

  - Waiting bench (four persons x 44 units =176 persons)

  Administration

  In order to discuss and study clinical cases, operation methods and effect of treatment for the improvement of medical services, necessary equipment is to be provided.

  - Meeting table sets, a projector and a book shelf etc.

- Spare Parts and Consumables

  Advanced equipment such as image diagnostic apparatus and clinical laboratory equipment regularly require spare parts and consumables. In Karachi city, there are lots of local agents of Japanese origin and third country origin, which have ample experiences of sale and have stocks in some extent. However, it often takes couple of months until delivery after placing order to agents. In the Project, procurement of consumables which require replacement in three months after delivery is to be included.

  The grading of equipment procured under the Project is subject to be considered the improvement/advancement of technology of equipment, Information technology and protection of local environment.

(4) Major Equipment Planning

Based on the above-mentioned study, major equipment to be procured under the Project is as the following table.

Table 2-19 : List of Major Equipment

Equipment	Main Specification	Q'ty	Purpose of Use
Digital X-ray Unit	・General and Fluoroscopic Function ・Digital、FPD type ・R/F table ・X-ray Tube Unit ・X-ray Generator ・Collimator ・FPD(Flat Panel Detector) ・Remote and Local Console ・LED Monitor	1	To take general X-ray picture for pneumonia, bone fracture, TB (tuberculosis), malnutrition, and respiratory disease, and urinal track infection, urinal stone patients. Fluoroscopic function will apply for neonatal congenital problem, foreign body ingestion, pyloric stenosis, hypolasia of lung, gastritis, and pathology suspected cases (chest hernia, abdominal surgery, chest abscesses) by contrast media before operation. For neonate and pediatric inpatients, this unit will be used to confirm volume of urine by fluoroscopic function.
Mobile X-ray Unit	・Digital、FPD type ・Electric Motor Driven ・X-ray Tube Voltage：40－130kV or wider	1	To take chest, abdominal and other part of X-ray pictures of pneumonia and TB patients at Internal Medicine and Emergency department.
Color Doppler Ultrasound Machine	・Display mode : B, B/B, M, B/M, B/D, CFM(B)/PWD, THI, Power ・Electric convex, Electric linear, Electric sector ・Monitor: 15 inch or more, LCD monitor ・Zoom function: available	1	To diagnose neonatal disease, congenital heart diseases, and soft tissue. Also used for continuous monitoring the amount of iron possession at heart muscle of thalassemia patients this may cause heart failure.
Ultrasound Machine General Purpose	・Scan mode: Electric convex, Electric linear ・Depth: 3 to 20 cm or wider	1	To diagnose and treat chest, gastrointestinal tract, kidney and urinal track infection.
Image Printer for X-ray	・Printing method：direct print from thermal head ・Film type: Thermal film for medical use ・Tray：26x36, 25x30, 20x25 (3 tray) ・Resolution: 12 bit (4096 gradation)	1	To print digital image into films taken by Digital X-ray Machine or Mobile X-ray Unit.
Diathermy Unit	・Mode: monopolar and bipolar ・Power input: 1200VA ・Electric shock protection : Class I, CF type ・Mix ：200W or more	1	To minimize blood breezing by cutting and coagulation of tissues of patients.

Equipment	Main Specification	Q'ty	Purpose of Use
Esophagus Scope (Upper Gastrointestinal Scope)	・Field of view：120° or more ・Working length：1,050mm or more ・Xenon or Halogen light source	1	To perform routine examination from esophagus to gastrointestinal tract, screening tests of upper gastrointestinal part up to duodenum.
Hand Scrub Unit (three persons)	・Sterilization method ：Filtering ・Type: wall hanging installation ・Filter & case: 1μor less x 1 pc ・Sterilization tank: stainless steel	1	To clean and sterilize hands and fingers of surgeon and their assistants before operation.
High Pressure Steam Sterilizer	・Type ：Gas steam or electric driven method ・Pressure & Temp.control: by microprocessor ・Chamber capacity ：within 150-200L	2	To sterilize surgical instruments, gown and caps by high pressure steam whose temperature is from 121°up to 134°.
Refrigerated Centrifuge for Blood Bags	・Rotor：three pcs of connected 500ml blood bag x8 or more ・Max. speed ：4000rpm or more	1	To separate blood components such as RBC, platelet and plasma by high speed centrifuge of measured /collected blood bags
Platelets Incubator and Agitator	・Temp. control: 22°+/-1° ・Electric control: warming and chilling system	1	Just before blood transfusion, it is used to agitate platelets blolod products, and to keep its temperature nearly around 36 degrees.
Hematology Analyzer	・Non-Cyanmenthemoglobin, Full-automated type ・Measuring parameters:18 parameters or more ・Throughput: Min.50 samples/hr. or more ・Sample volume: Less than 50 micro-liter for whole blood cell	1	To confirm pediatric internal medicine diseases such as asthma, neonatal disease, and respiratory disease. Also used for disease condition of patients by measuring hemoglobin etc. before surgical operation.
Automated Biochemistry Analyzer	・300 tests/hr. or more ・Open reagent type ・Random access、floor stand type ・Sample capacity ：40 pcs or more	1	To confirm neonatal jaundice by measuring bilirubin figure, glucose measurement for endocrinological patients, overall measurement for confirmation of internal medicine diseases.
Operation Tables with Stool	・Elevation type: oil-hydraulic foot pump ・Table top dimensions: 1900 x 500mm or more ・Elevation range: 770-950mm or wider ・Trendelenburg: 12°or more	2	To keep patient at appropriate position for operation or endoscopic insertion and treatment.
OT Lights (Ceiling)	・Ceiling type ・LED method ・Main light intensity: 120,000 lux or more ・Sub light intensity: 85,000 lux or more	1	To have proper view of surgical point for surgeon by lighting surgical areas during operation. Light should have appropriate brightness, color temperature and non heating. With having main and sub light, it is possible to light from two different directions for appropriate depth of surgical area.
Anesthesia Apparatus with Ventilator	・Halothane and Isoflurane vaporizer ・ Ventilator (Tidal volume : 100-1200ml or wider) ・Ventilator ・Air compressor for ventilator ・N2O bottle	1	To apply gaseous anesthesia to patients for deep sleep in order to operate without any pain. Common cases are removal of foreign body ingestion under bronchoscope, sigmoido scope treatment for rectum patients, acute gastroenteritis, acute appendicitis, acute abdomen, traffic accident under general anesthesia.
Patient Monitor for OT	・Measuring parameters: ECG, HR, Respiration, SpO2, Temp., NIBP, EtCO2 ・Display size: 10.4 inch or more	2	To monitor condition of patients during operation by measuring 7 parameters such as ECG,Resp., and EtCO2.
ICU Monitor	・Measuring parameters: ECG,HR,Respiration,SpO2,Temp.,NIBP or more ・Display size: 10.4 inch or more ・Number of display waveform: 4 traces or more	11	To monitor condition of serious patients by measuring parameters such as ECG,Resp., and SpO2 etc.

Equipment	Main Specification	Q'ty	Purpose of Use
EEG (Electroencephalograph)	・No. of channel：36ch. or more ・System: Paperless, Digital ・Input Impedance: 10MΩ or more ・Record keeping method: CD-R/RW, DVD-R/RW	1	To confirm brain waves of neurological patient, CP patients.
EMG (Electromyograph)	・Measuring parameters： AEP :Auditory Evoked Potential (including ABR: Auditory Brain-stem Response) NCV: Nerve Conduction Velocity testing EMG or more ・No. of channel：four ch. or more	1	To measure movement of muscle activities of myopathy and neuropathy patients for rehabilitation treatment planning.
Bedside Locker	・Material : Stainless Steel ・Upper part : protection rail on three sides except front	129	To store private staff of patient and their family in order to keep floor clean.
Hospital Bed with Mattress	・No. of crank ：two pcs. or more ・Urethane form mattress	117	To keep pediatric patients at appropriate position by raising head or leg parts with two cranks.

2-2-3 Outline Design Drawing

2-2-3-1 Site Plan

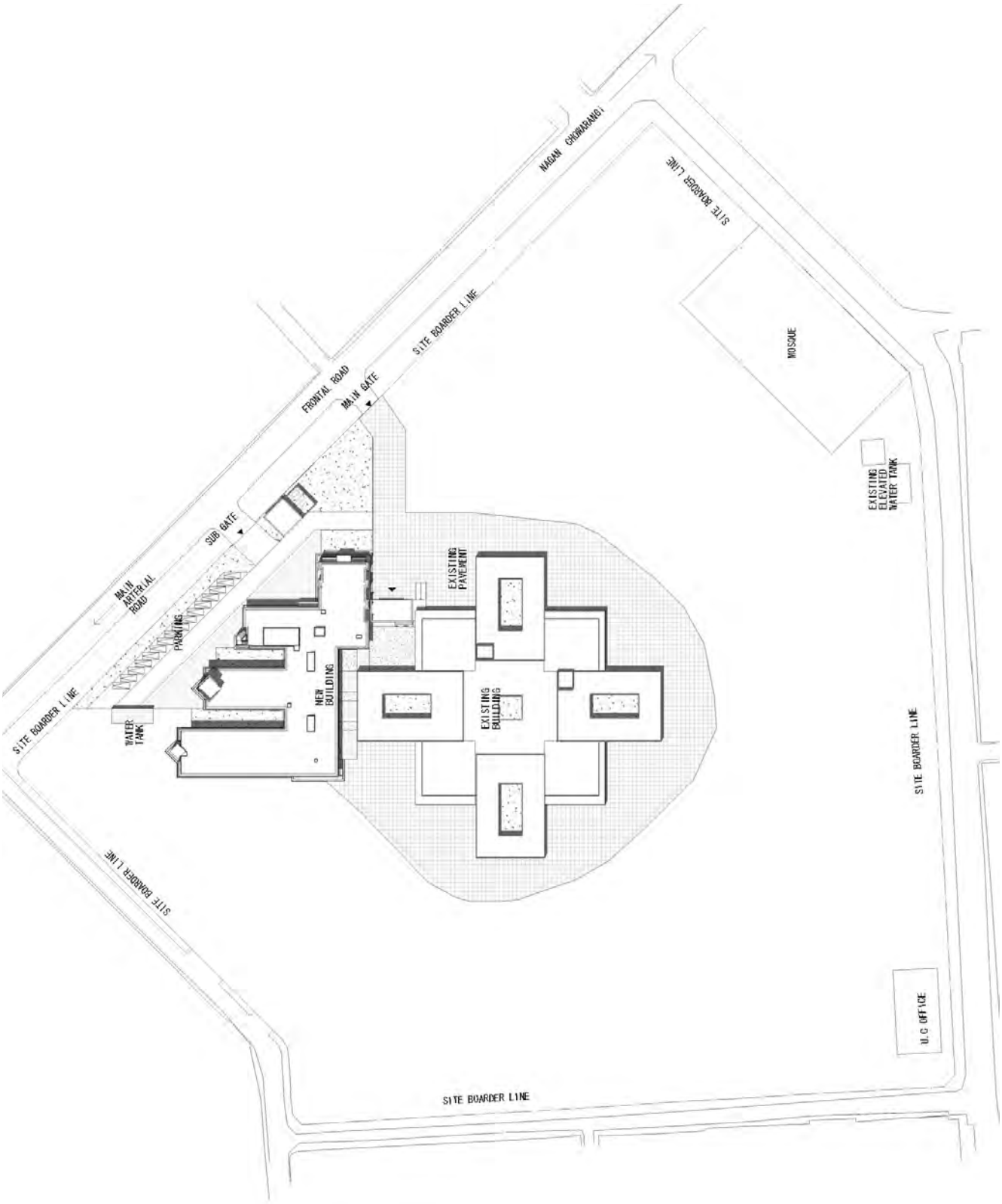


Fig.2-11 : Site Plan

2-2-3-2 Floor Plans

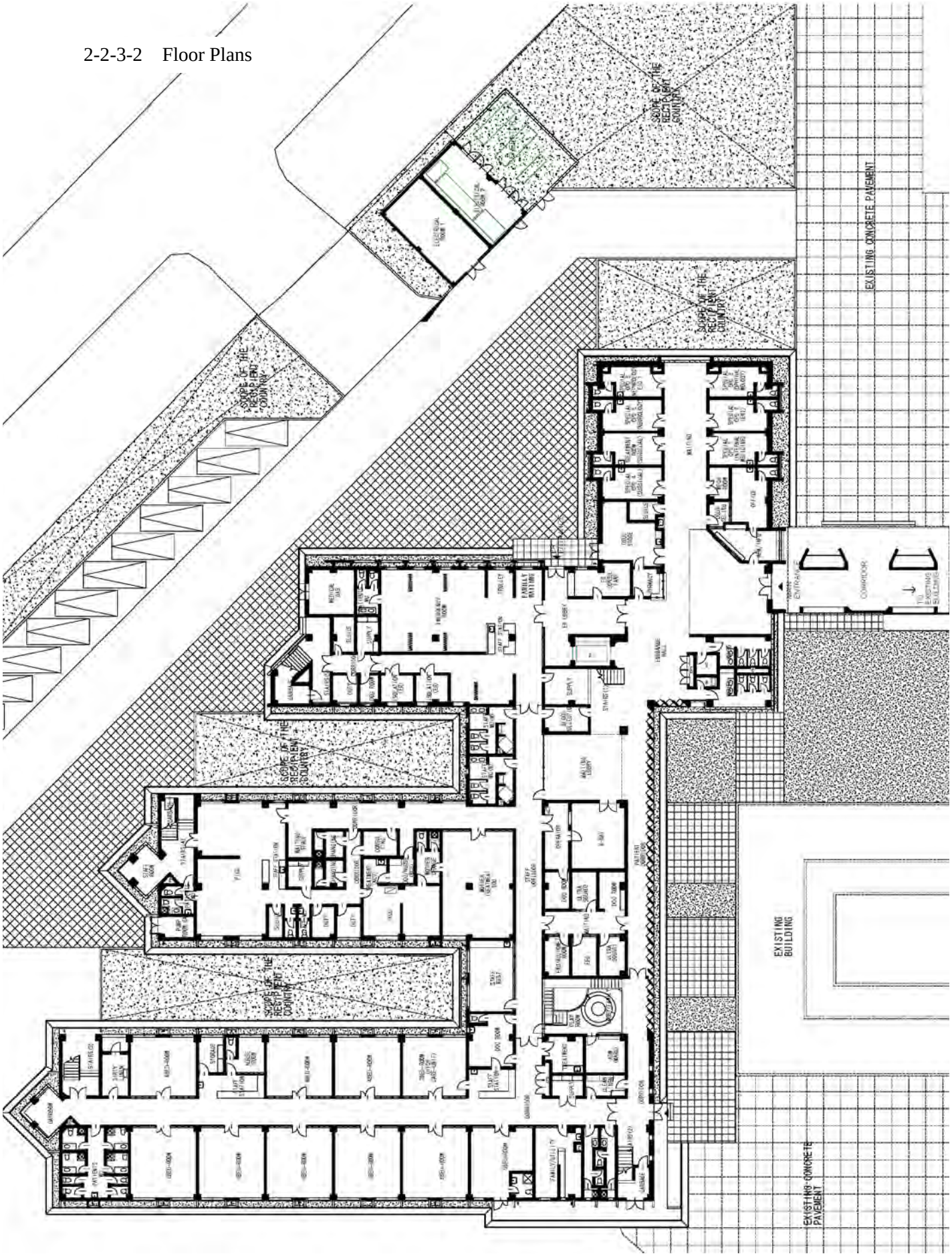


Fig.2-12 : Plan GF

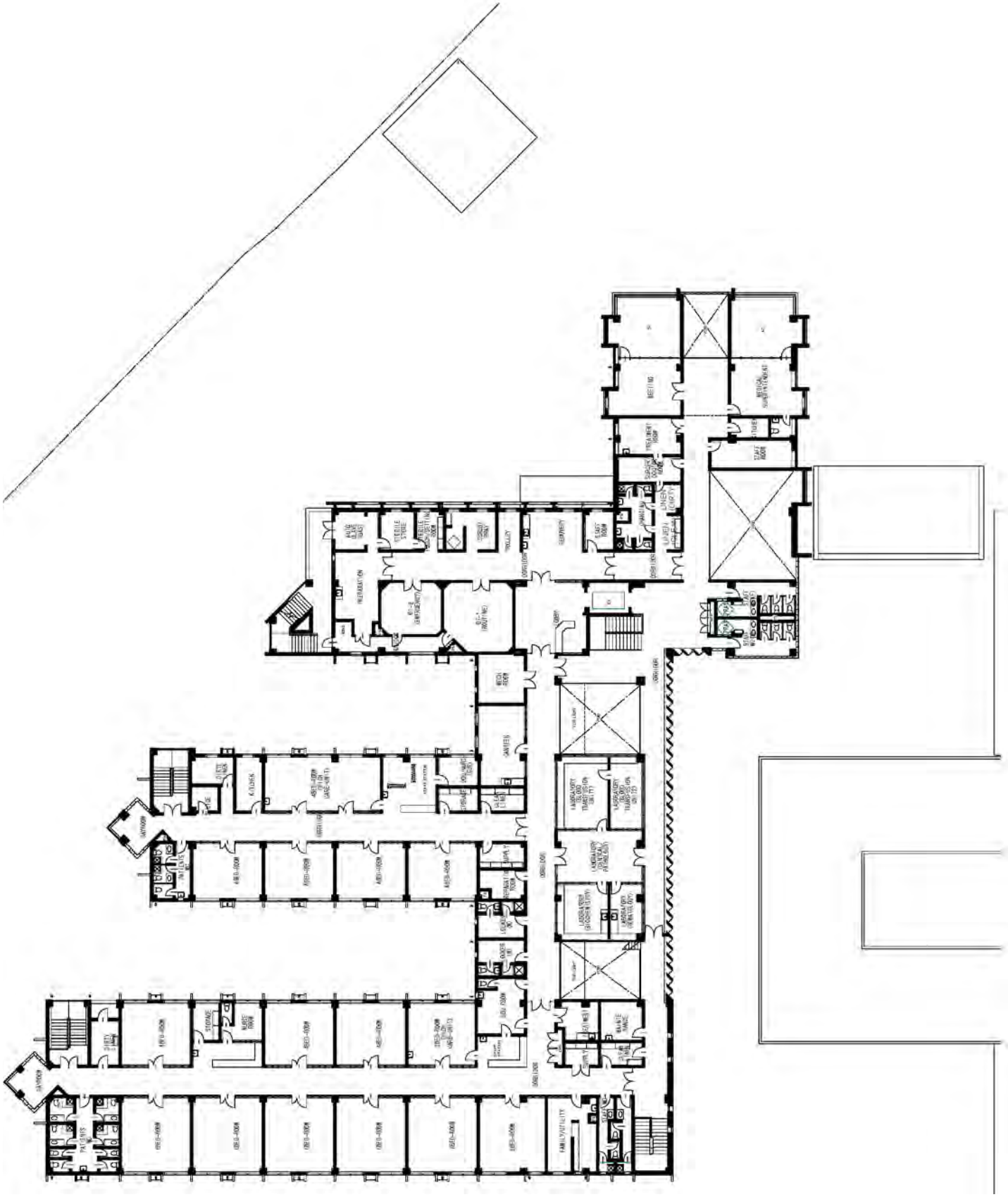


Fig.2-13 : Plan 1F

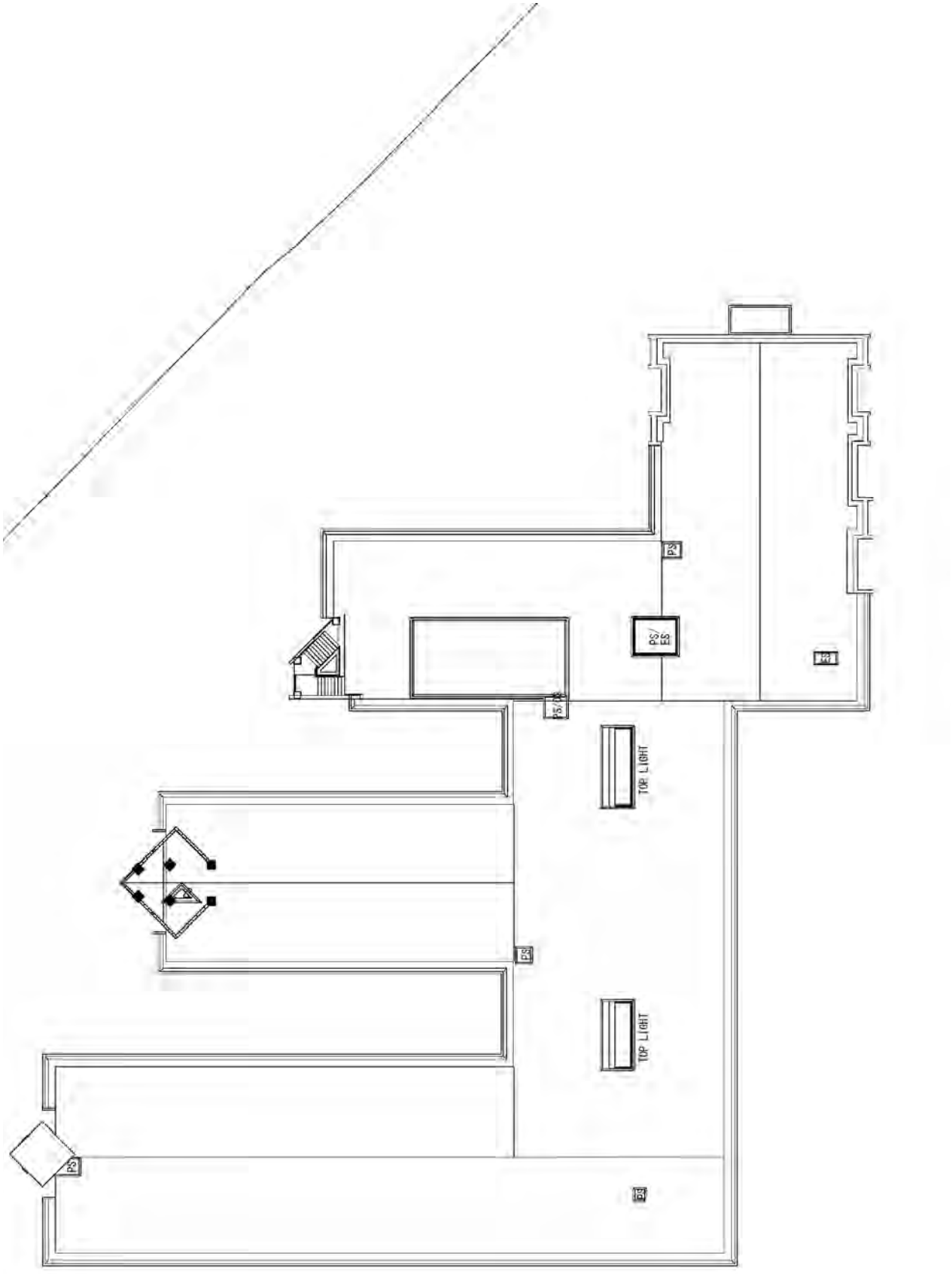


Fig.2-14 : Plan RF

2-2-3-3 Elevations

Fig.2-15 : Elevations

2-2-3-4 Sections

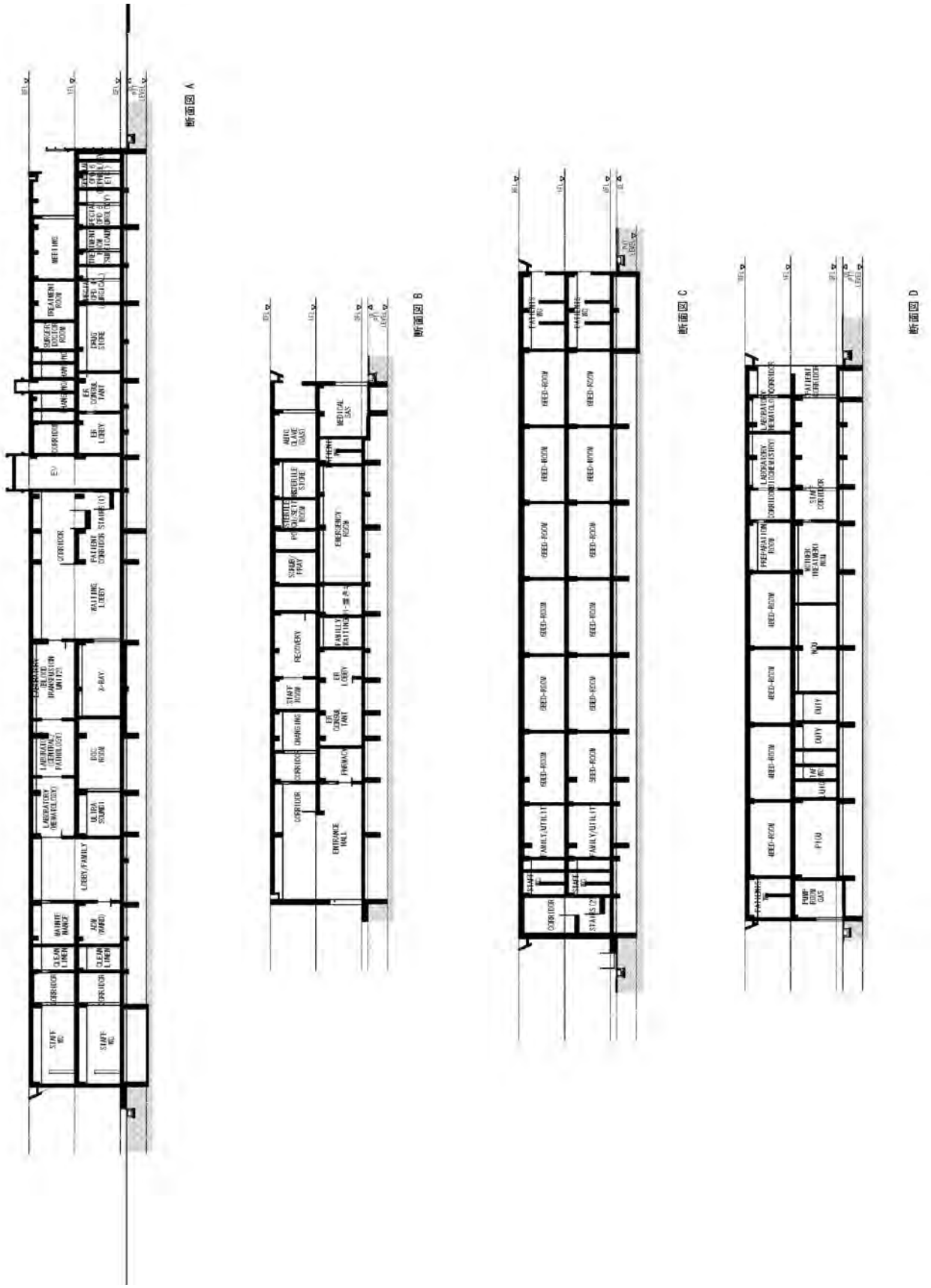


Fig.2-16 : Sections

2-2-4 Implementation Plan

2-2-4-1 Implementation Policy

This project consists of construction works of hospital facilities and procurement and installation works of equipment. The scope of Japan's cooperation is to be carried out within the framework of the Grant Aid scheme of the GOJ.

After the Project is approved by the Cabinet of Japan, the Exchange of Notes (hereinafter referred to as "E/N") will be signed between the GOJ and the GOP, which is followed by the conclusion of Grant Agreement (hereinafter referred to as "G/A") between JICA and the GOP. After the signing of G/A, the GOP will conclude a consulting services agreement for the Project with a consultant in Japan, and the consultant will start the detailed design and preparation of tender documents for the Project. Upon completion of tender documents, tender procedure will take place for selection of a construction contractor and an equipment supplier, who are Japanese companies juridical persons. The respective contractors will execute construction of facilities and procurement and installation of equipment.

Agreement with the consultant and the contract with the construction contractor and the equipment supplier shall be verified by JICA to be eligible for the Grant Aid.

(1) Implementing Organization

The responsible organization of the GOP for the Project is HDGS, who will be a signatory of agreements and contracts. SGCH, who is going to make use of the facilities/equipment, will be in charge of overall coordination of works during implementation of the Project.

(2) Contract Package

The works for the Project consist of construction works and equipment works. It will be appropriate to contract them separately, given that the two categories of works are not closely related to each other, and that the construction companies that will be responsible for the construction works are generally not familiar with the procurement, installation and test run of medical equipment.

(3) Consultant

After the signing of E/N and G/A, HDGS will conclude a consulting services agreement for detailed design and supervision of the Project with a consultant in Japan and obtain verification of JICA in accordance with Japan's Grand Aid scheme. The consultant will prepare detailed design documents and tender documents based on the Preparatory Survey Report (hereinafter referred to as "the Report"), and obtain approval of HDGS.

In implementing tenders and construction works, the consultant is to assist tendering procedure of

facilities and to supervise the construction works based on detailed design documents and tender documents. Also in the equipment works, the consultant is to assist tendering procedure and supervise procurement, installation and operation training works.

1. Detailed Design

The services are to design facilities in detail and to review equipment plan based on the Report, and prepare tender documents including drawings, specifications, instructions to tenderers and draft contracts for construction works and equipment works. They also include cost estimation for construction works and equipment works.

2. Assistance of Tendering

The services are to assist tendering by the implementing agency to select a construction contractor and an equipment supplier and conclude the contracts, and to assist reporting the result to the GOP and JICA.

3. Supervision

The services are to confirm whether or not the construction contractor and the equipment supplier are carrying out their respective works in accordance with the provision of the relevant contracts, respectively, and to ensure that the contracted obligations are properly fulfilled. In addition, the consultant is to give the contractor and the equipment supplier instructions and advices and to coordinate their works for smooth implementation of the Project on the stance of fairness. Details of supervision services are as follows,

- Examining and confirming the implementation plan, shop drawings, specifications of equipment and the other relevant documents submitted by the contractor and the supplier.
- Examining and confirming the construction materials and quality and performance of equipment delivered.
- Examining building services and medical equipment for delivery, installation and instruction for operation of equipment.
- Observing the progress of the construction works and equipment works
- Inspecting completed facilities and installed equipment

In addition to the services mentioned above, the consultant is to report the progress of the Project, procedure of payment, handover after completion and etc. to the relevant agencies of the GOP and JICA.

(4) The Construction Contractor and the Equipment Supplier

The construction contractor and the equipment supplier are to be selected by the open tender intended for Japanese firms. HDGS will conclude a construction works contract and the equipment

works contract with the lowest tenderers as a general rule of the Japan's Grand Aid scheme. The construction contractor and the equipment supplier are to construct facilities, procure and install equipment and provide operation training of equipment to the Pakistani side in accordance with the contracts.

(5) JICA

JICA provides necessary services for execution of the Project as the implementing agency of the GOJ for the Grant Aid in accordance with the Japan's Grant Aid scheme.

(6) Local Consultants and Local Construction Companies

It is assumed that the working time and the working area of the supervisor of the Japanese consultant are limited if the unstable security situation of Karachi city lasts from now on. Local consultants will be utilized in order to cover the issue. Local major construction companies have enough capability and man power, and are expected to work on the Project as subcontractors of the Japanese construction contractor.

2-2-4-2 Implementation Conditions

(1) Construction Conditions

The construction conditions in Pakistan are basically as follows,

- Contractors in Pakistan have proper technical capabilities in the local markets.
- Most of construction materials are manufactured in Pakistan and imported materials are also widely available in the local markets. Therefore, these materials can be procured without difficulties in Pakistan.
- Numbers of skilled workers can be recruited in each category of construction works.
- The building permission for facilities belonging to the GOS such as the facilities of the Project will be obtained with approval by the Works and Services Department, the GOS. In this connection, it is expected to be obtained in about one month by the GOS.

(2) Points to be Considered on Construction

1. Schedule Control

The schedule of construction will be influenced by a decrease of working efficiently for one month during Ramazan and two week no-business days after Ramazan. In addition, it will also be influenced because the foundation work will be accompanied by draining the ground water and the construction works will be often done only in the morning and in the evening to the night in order to avoid severely hot afternoon.

The annual precipitation in Karachi city is as little as 150mm to 300mm, which does not

constrain the construction much. However, on 13th September 2011 during the Second Field Survey of the Project, most roads were flooded and citizens could not go out and transportation of goods were halted due to heavy rainfall of 65mm per day. These years this kind of heavy rain has occurred and lasted a few days once or twice a year, which is supposed to interfere with transportation of construction machinery and materials and securing workers.

It is necessary to have regular meetings with relevant agencies of the GOP, consultants and contractors and control the implementation schedule in consideration of the above mentioned constrains in order to complete the Project on schedule.

2. Security Control

The Project site is inside the hospital site, and the new facilities is planned to be constructed adjacent to the existing facilities at the northern west. Although the construction works will be done next to the existing facilities which offers daily medical services, it will not interfere with the services by providing an independent gate for the Project site and enclosing the site with temporary fences. In addition, security guards will be arranged at the gate from the road facing the north to the Project site, and guide vehicles and workers coming into the site for the safety of outpatients. It is necessary to make adjustments among relevant personnel of SGCH, consultants and contractors for the security control during the Project implementation period in advance of the construction works.

3. Security Measures

The security situation in Karachi city is unstable because of longlasting political antagonism. This situation is supposed not to cease in the near future, and consequently the following measures need to be taken.

- Security Guard of Japanese Relevant Personnel

  The police convoy is to escort Japanese relevant personnel from their staying places to the Project site. It will be made a rule that they come back before the sunset.

- Security in the Site

  A team composed of a few armed security guards is to work for security of around the clock on two to three shifts system.

- Night Work and Inspection outside the Site

  Capable local engineers/technicians will be hired and substitute inspections and etc. in order to secure the quality of works regarding to night works and inspections outside the Project site which Japanese consultants have difficulties to fulfill.

(3) Points to be Considered on Procurement of Equipment

The following items of equipment are complicated and their installation requires coordination with

construction works. Therefore, it is necessary to control the schedule of procurement and installation in close coordination with consultants and building contractors.

- Laboratory tables
- X-Ray units
- OT lights, etc.

2-2-4-3 Scope of Works

The Project will be implemented through mutual cooperation between the GOP and the GOJ. In the case that the Project will be implemented under Japan's Grant Aid, the works borne by each government are as follows,

(1) Works Borne by the Grant Aid from the GOJ

Consulting services, construction of facilities and procurement and installation of equipment as follows are borne by the GOJ.

1. Consulting Services
    - Preparation of detail design documents and tender documents of the facilities and equipment
    - Assistance for selection and contracting with a contractor and an equipment supplier
    - Supervision of construction of facilities and procurement, installation and operation training of equipment.

2. Construction of Facilities and Procurement and Installation of Equipment
    - Construction of the facilities
    - Procurement, transportation to the Project site and installation equipment
    - Trial operations and adjustment of equipment
    - Explanation and instruction of operation and maintenance of equipment

(2) Works Borne by the GOP

1. Related to Construction
    - Provision of the Project site
    - Planting the gardens in the Project site after completion of the facilities
    - Obtaining the building permission
    - Infrastructure connecting works
    - Rerouting the existing sewer line in the Project site
    - Relocate furniture, equipment and fittings in the existing facilities to the new facilities, and renovate the existing facilities for Physiotherapy & Rehabilitation Unit

2. Related to Hospital Operation

- Procurement and installation of general furniture, equipment and fittings, etc. not borne by Japan's Grant Aid
- Procurement of spare parts and consumables necessary for the proper maintenance
- Appropriate and effective operation of the facilities and equipment

3. Related to Procedures

- Costs related to Banking Arrangement (B/A) and Authorization to Pay (A/P)
- Applying for building permission
- Obtaining relevant permissions, licenses and other authorizations as may be necessary for the Project
- Prompt execution of unloading, customs clearance, tax exemption and inland transportation of equipment and materials
- Exemption of Japanese nationals from custom duties, internal taxes and fiscal levies
- According Japanese nationals with such facilities for their entry into Pakistan and stay therein
- Bearing all expenses, other than those borne by Japan's Grant Aid, necessary for the implementation of the Project
- Securing the safety of the members engaged in the Project

2-2-4-4 Consultant Supervision

(1) Supervision Policy

In accordance with the grant aid scheme of the GOJ, the consultant is to form a project team to ensure smooth implementation of the Project based on the Report. The policies for supervision of construction works and equipment works are stated below.

- To keep close contacts with the officials in charge of the Project of both governments to ensure completion of construction of the facilities and procurement of the equipment without delay
- To give prompt and proper instructions and advices with justice to the building contractor, the equipment supplier and other concerned parties.
- To give proper instructions and advices on operation and maintenance of the facilities and the equipment after handover. To confirm the completion of construction works and equipment works in compliance with contents of the contract, to witness handover of the facilities and the equipment, and to conclude the consulting services by obtaining the consent of HDGS.

(2) Supervision Plan

In view of the complexity of the Project, the consultant is to dispatch a qualified engineer to the Project site throughout the Project implementation period and to send the following engineers to the Project site as needed from time to time.

- Chief Consultant / Deputy Chief Consultant : Overall supervision
- Architectural Design : Check of design Intent, shop drawings and material specifications
- Structural Design : Check of bearing capacity of soil
- Mechanical Design : Midterm and final inspection of pluming works and air conditioning works
- Electrical Design : Midterm and final inspection of wiring works and power receiving and transforming facilities
- Equipment Planning : Instruction of equipment installation, coordination with construction works, witness of numerical examination, check of operation training, operation and maintenance manuals etc.

(3) Construction Supervisor by the Building Contractor

In order to complete the facilities within the scheduled period in comformity with the contract documents, the building contractor needs to coordinate the local contractors and manage the construction works. Moreover, resident supervisors need to be familiar with the local construction conditions in order to complete the Project in the required quality.

Judged from the contents and scale of the new facilities, the necessary Japanese resident supervisors will be as follows,

- One Project Manager: Overall management
- One Building Engineer : Instruction of construction, schedule control, quality control and instruction of shop drawings
- One Mechanical/Electrical Engineer : Schedule control, quality control, installation and trial run of building equipment and instruction
- One Administrator: Administration and labor control, procedure of import

(4) Equipment Installation Works

- Installation, trial run, quantity inspection, instruction of equipment operation
- Preparation of the parts of main equipment which are subject to trouble and handover the list to HDGS

2-2-4-5 Quality Control Plan

According to the meteorogical data of Karachi city in 2010, it is with high temperature and humid as the average yearly maximum temperature is 33.0 degree Celsius, the minimum is 21.9 and average yearly humidity is 62.1 percent. Precipitation is as little as 300 mm a year concentrating on June and September. Concrete which is expected to be the main materials are to be hot-weather concrete for yearly high temperature, and require appropriate control of the temperature. A batcher plant is located approximately 30 minutes away from the Project site, and will control the quality of concrete.

The supporting layer of the ground has plenty of ground water, consequently the foundation works need to be done with pumping up water, which needs to be controlled with the construction execution plan to keep the quality of the construction works.

The quality control plan of the main construction works is as followed,

Table 2-20 : Quality Control Plan

Work Type	Control Parameter	Control Value	Test Method	Quality Standards	Frequency of Measurement	Analysis of Results
Earth work	Bearing capacity of ground	Ra=127kN/m^2 or more (long-term)	Plate bearing test	BS	2 locations or more	Test report
	Slope angle	Within planned range	Gauge, visual	JIS	As needed	Photos, documents
	Bedding accuracy	Within +0～ -5cm	Level, visual	〃	〃	〃
	Foundation work height	Within +0～ -3cm	〃	〃	〃	〃
	Thickness of replaced soil	+5cm～0	〃	〃	〃	〃
Reinforcement bars	Reinforcement cover thickness	Places not in contact with soil: 30m/m	Visual, measurement	Specifications	As needed	Photos, documents
		Places in contact with soil:	〃	〃	〃	〃
		Footing 60m/m	〃	〃	〃	〃
		Other 40m/m	〃	〃	〃	〃
	Processing accuracy	Stirrup, hoop ±5m/m	〃	〃	〃	〃
		Other ±10m/m	〃	〃	〃	〃
	Tensile test	Standard strength or more	On-site sampling or sampling at shipping	BS	1 test on 3 test pieces per 300t of steel bars with given diameter*	Test result report
Concrete work (mixing plant)	Compressive strength	Designed strength 24N/mm^2 or more	Attending at test site (any time)	BS、ASTM	3 or more test pieces for each placing and per 50m^3	Test result report
	Slump value	15cm±2.5cm	Attending at work site	〃	For each placing	Photos, documents
	Chloride content	0.3kg/m^3 or less	Test pieces, attending at work site	〃	〃	〃
	Air content	45% ±1.5%	Attending at work site	〃	For each placing	〃
	Concrete temperature	35 deg. or less	Attending at work site	〃	For each placing	〃
	Performance accuracy	10mm per 1m or less	Measuring	JIS	After form removal	〃
Masonry	Compressive strength of concrete blocks	700PSI or more	Attending at test site after selection of manufacturer		Once before shipment from factory	Test result report

Work Type	Control Parameter	Control Value	Test Method	Quality Standards	Frequency of Measurement	Analysis of Results
Plastering Painting Roof waterproofing Fixtures	Materials, storage methods, work methods, mixing, coating thickness, curing, work accuracy	According to separate specifications	Same as left	Same as left	As needed	Photos, documents
Water supply & drainage	Water supply pipes Drainage pipes	Leaking 〃	Water pressure test(1.75MPa for 60 min.) Water filling test	BS, JIS 〃	On completion of pipe laying, for each system 〃	Test result report 〃
Electrical work	Cables	Within planned range	Insulation test Conductivity test	BS, JIS	〃	〃

2-2-4-6 Procurement Plan

(1) Building Materials

1. Procurement Policy

Most of the building materials can be procured locally. This is favorable for maintenance after completion of the Project.

The building materials which cannot be procured locally or need to have specified quality for the facilities functioning will be imported from Japan or third countries.

2. Procurement Plan

- Building Frame Works
  The local materials can be procured for reinforcing bars, concrete material and formworks, etc. and concrete blocks for partition walls can be procured locally.

- Interior and Exterior Works
  Materials for the interior and the exterior can be procured in the local markets easily, including imported products, such as aluminum sashes, wood, tiles, cement roof tiles, paint and glasses, etc.

- Air-conditioning and Sanitary Works
  Air conditioning equipment, exhaust fans, pumps and sanitary wares, etc. can be procured in the local markets, including imported products.

- Electrical Works
  Lighting fixtures, power panels, cables/wires, conduit/pipes, telephone equipment, fire alarms and power generators, etc. can be procured locally, however their types are limited. Import from Japan or third countries will be studied if necessary.

- Elevator Works

  Import from Japan or third countries will be studied to secure necessary quality for the new facilities.

Table 2-21 : Procurement Plan of Major Construction Materials

Architectural Work mainly BS products

Item	Procurement Plan			Remarks
	Local	Japan	Third Country	
Temporary Work				
Scaffold	○			Owned by middle class local contractors or bigger
Temporary Fence	○			Steel plate painted zinc is popular
Temporary Office	○			Prefabricated type is widely used
Concrete Work				
Portland Cement	○			Can be procured locally
Sulfate Resisting Portland Cement	○			Can be procured locally
Sand	○			Can be procured locally
Gravel	○			Can be procured locally
Reinforcing bar	○			BS product can be procured locally
Veneer Form	○			Can be procured locally
Ready Mixed	○			Plant located in the 30 min. distance from the Project site
Concrete Block Work				
Concrete Block	○			3 local types: 10, 15, 20 cm thick
Screen Block	○			Can be procured locally, types limited
Masonry	○			Can be procured locally
Waterproofing Work				
Waterproofing	○			Products made in Middle East and EU can be procured locally
Tile Work				
Terrazzo Block	○			Many types can be procured locally.
Ceramic Tile	○			Many types, including imports, can be
Wood Work				
Timber	○			Many types can be procured locally
Stone Work				
Marble	○			Many types can be procured locally at cheap price.
Granite	○			Can be procured locally although more expensive than marble
Roof Work				
Rendered Insulated Block	○			Can be procured locally Can be used as roof insulation
Fixture Work				
Aluminum Door/Window	○			Can be procured locally including powder coated finish
Steel Door	○			Can be procured locally
Wooden Door	○			Can be procured locally including
Fitting for Fixture (Lock / Pull Tab)	○			Can be procured locally
Metal Work				
Steel Louver	○			Can be procured locally custom-made
Aluminum Lattice	○			Can be procured locally custom-made
Glass Work				
Glass	○			Can be procured locally
Lead Glass	○			Can be procured locally
Glass Block	○			Can be procured locally
Seals				
Polysulfide Seal	○			Can be procured locally
Silicon Seal	○			Can be procured locally
Finishes				
Continuous Vinyl	○			3mm thick can be procured locally
Vinyl Skirting	○			Can be procured locally

Architectural Work mainly BS products

Item	Procurement Plan			Remarks
	Local	Japan	Third Country	
Gypsum Board	○			Can be procured locally
T Bar / Mineral Acoustic	○			Can be procured locally
Vinyl Paint	○			Can be procured locally
AEP	○			Can be procured locally
Epoxy Paint	○			Can be procured locally

Mechanical/Electrical mainly BS products

Item	Procurement Plan			Remarks
	Local	Japan	Third Country	
Air Conditioning Works				
Air Conditioning				
Packaged	○			Mainly imported from Thailand or Malaysia
Wall Mounted	○			
Exhaust Fan	○			Can be procured locally
Ceiling Fan	○			Can be procured locally
Sanitary Works				
FRP Water Tank	○			Can be procured locally
Pump	○			Can be procured locally
Pipe	○			Can be procured locally
Sanitary Ware	○			Mainly imported from China and Thailan
Gas Water Boiler	○			Can be procured locally
Solar Water Boiler	○			Parts from China assembled locally
Water Purifier	○			Import can be procured locally
Electrical Works				
Distribution Panel	○			Produced by Siemens locally
Switch / Outlet	○			Can be procured locally
Wire / Cable	○			Can be procured locally
Conduit Pipe	○			Local product (PVC etc.) can be used
Lighting Fixtures	○			Can be procured locally
Fire Detector	○			Can be procured locally
Telephone System	○			Produced by Siemens locally Japanese product needs to be imported
Public Address	○			Can be procured locally
Television Antenna	○			Can be procured locally
Condenser Lightning Arrester	○			Can be procured locally
Special Works				
Elevator	○			Agents for Mitsubishi, LG, OTIS
Medical Gas		○		
Power Generator	○			Can be procured locally
Landscaping Works				
Interlocking	○			Can be procured locally
Solar Outdoor Light		○		Light imported from Japan Batteries can be procured locally
Infrastructure Works				
Deep Well	○			Approx. 250m deep Local equipment can be utilized

(2) Equipment

Equipment borne by the Project is to be procured from Japan, Pakistan and third countries (Germany, UK and USA, etc.) in consideration of sales records to public medical facilities, stock amount of parts and consumables and availability of trained technical service staff from local agencies.

Procurement of medical furniture and operation instrument sets in the local market is to be limited to those which are certified as high quality by CE mark for export to European markets.

In addition, sophisticated medical equipment (image diagnostic apparatus and laboratory equipment, etc.) regularly requires spare parts and consumables.

When the GOS procures those sophisticated equipment, procurement condition requires five year warranty in principal although warranty and guarantee period of medical equipment is in general one year. In the Japan's Grant Aid scheme, warranty and guarantee period shall be put for one year after handing-over so that HDGS needs to prepare maintenance contract cost with local agents.

(3) Transportation Plan

Building materials is basically to be packed in wood-frame or containers, and equipment is also to be packed in containers, and shipped mainly to the Karachi port. Regular mixed loading liner service is available from Japan to the Karachi port. After custom clearance at the bond warehouses of the Karachi port, they will transported to the Project site on trailers by the building contractor and equipment supplier. The roads from the Karachi port to the Project site are well developed, which puts no problem on inland transportation.

	Ocean Transportation		Inland Transportation	
Japan (Third Countries)	→	Karachi Port	→	Project Site

It takes approximately one and half month from Japan from shipping to arrival at the Project site, including custom clearances. Equipment from third countries is also to be packed in containers and discharged at the Karachi port basically.

2-2-4-7 Operation Guidance Plan

Equipment operation training is divided into three groups, for image diagnostic appratus for laboratory equipment and for the other equipment.

Table 2-22 : Initiated operational and management instruction (draft)

Trainer	Description	Contents of instruction	Necessary Days
Engineer/technician of local agent	Digital X-ray machine, Mobile X-ray unit, Ultrasound machine, EEG and EMG/NCV	Operational method Usage of application Daily check method	5 days
Local agent Equipment engineer/technician of Lab.	Automated biochemistry analyzer, Elisa micro plate reader, Hematology analyzer	Operational method Daily check method	3 days
Local agent Equipment engineer/technician	Other small equipment (patient monitor, defibrillator, suction unit etc.)	Operational method Daily check method	6 days

Short operation manual and daily check-up manual should be translated into Urdu language, especially manuals for laboratory equipment.

2-2-4-8 Implementation Schedule

When the Project is implemented by the Japan's Grant Aid, the implementation schedule until the commencement of construction works is as followed.

- E/N is signed between the GOP and the GOJ, and G/A is signed between the GOP and JICA.
- JICA recommends a Japanese consultant to the GOP.
- The agreement of consulting services for the Project is concluded between HDGS and the consultant.
- The construction work is commenced after the detailed design, tender in Japan and conclusion of the contract with the construction contractor.

After signing of E/N and G/A, the implementing agency of Pakistani side is HDGS.

(1) Detailed Design Phase

The consultant prepares the detailed design document and the tender document based on the Report, which consist of detailed design drawings, specification, calculation, and tender documents, etc. The consultant has close talks and meetings with HDGS and SGCH at the beginning and the end of the detailed design phase, and completes the detailed design after submission of the final deliverables.

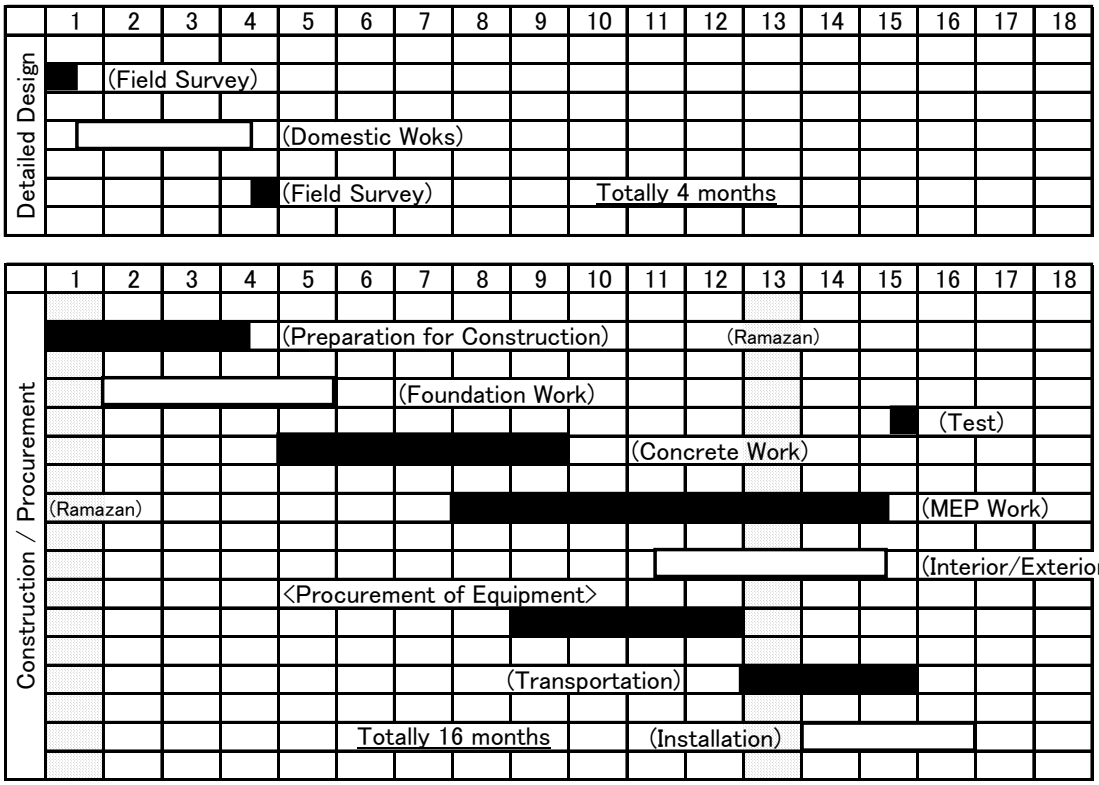
(2) Tender Assistant / Supervision Phase

After detailed design phase, the prequalification (P/Q) of the facilities construction tender will be announced in Japan. According to the result of evaluation of P/Q, HDGS will invite construction contractors. The equipment suppliers will be tendered separately from the construction tender, and HDGS will invite equipment suppliers who declare the intent to participate. Then HDGS will conduct the tenders respectively in the presence of persons involved, and the tenderers who bid the lowest prices will make contracts as the winning bidders with HDGS respectively.

(3) Construction / Equipment Procurement

The construction contractor and the equipment suppler will be verified by JICA and commence the construction work and the equipment work respectively. They will take totally approximately 16 months judged from the scale of the Project and the situation of the local construction conditions, realization of which needs smooth procurement of building materials and equipment, prompt execution of relevant procedures by the Pakistani side and implementation of the scope of works borne by the Pakistani side.

Table 2-23 : Implementation Schedule



2-3 Obligations of Recipient Country

(1) Related to Construction

- To provide the Project site
  - To remove the existing pavement and level/clear the land prior to the tender of the Japanese construction works
  - To cut down the existing shrubs and trees and level/clear the land prior to the commencement of the Japanese construction works
- To plant the gardens in the Project site after completion of the facilities as needed
- To obtain the building permission (approval by the Works and Services Department, the GOS) prior to the commencement of the construction
- To connect the infrastructure (electricity, telephone line, city water, sewer, city gas)
- To reroute the existing sewer line in the Project site
- To relocate furniture, equipment and fittings in the existing facilities to the new facilities, and renovate the existing facilities for Physiotherapy & Rehabilitation Unit

(2) Related to Operation and Maintenance

- To procure and install general furniture, equipment and fittings, etc. not borne by Japan's Grant Aid (including to relocate those of the existing facilities)
- To procure spare parts and consumables necessary for the proper maintenance of the facilities and equipment
- To operate the facilities and equipment appropriately and effectively

(3) Related to Procedures

- To bear commissions, namely advising commissions of A/P and payment commissions to a Japanese Bank for the banking services based on B/A
- To apply for building permission (reviewed by the Works and Services Department, the GOS)
- To obtain relevant permissions, licenses and other authorization as maybe necessary for the implementation of the Project
- To ensure prompt unloading, customs clearance, tax exemption and to assist inland transportation of equipment and materials imported from Japan and/or other third countries based on the verified contracts

- To exempt Japanese nationals engaged in the implementation of the Project from custom duties, internal taxes and other fiscal levies which may be imposed in Pakistan based on verified contracts

- To accord Japanese nationals engaged in the implementation of the Project with such facilities for their entry into Pakistan and stay therein

- To bear all the expenses, other than those borne by Japan's Grant Aid, necessary for the implementation of the Project

- To secure the safety of the members engaged in the Project

  -To arrange convoy whenever the Japanese side requests to protect the members of the Projects during their movement between accommodation and the Project site as well as during construction at site by the Japanese side

2-4 Project Operation Plan

2-4-1 Maintenance Plan

At present, SGCH requests outside construction contractors for repairing works of the facilities and outsources maintenance/repair of equipment to manufacturer's agents.

After the completion of the Project, the maintenance of the new facilities will be outsourced in the same way as the existing facilities. Therefore, mechanical / electrical equipment of the new facilities are planned based on equipment or systems which are available in Karachi.

Engineers of the maintenance section of Karachi District Health Department are only for electrical engineering. In addition, since medical equipment is upgraded and parts are diversified in recent years, the increasing number of medical equipment needs specialized maintenance by the manufacturer's agents. Therefore, after completion of the Project, the maintenance of sophisticated medical equipment will be outsourced to the external manufacturer's agents. Therefore, those items of medical equipment are planned to be specified and procured so that the local agents can maintain.

2-4-2 Operation Plan

(1) Facilities

Daily cleaning and repair of attrition, break and aging are important on maintenance of facilities. Cleaned facilities make patients and staff take good care of facilities

Repair is mainly for finishes of the interior and the exterior which protect the structure of the facilities. In the case of Japan, refurbishment is expected necessary every 10 years for maintaining the facilities function.

Items for periodical inspection and repair which affect the life-span of the facilities will be shown on the Maintenance Manuals submitted by the construction contractor at the handover of the new facilities, which explains methods of inspection and regular cleaning. In general, the outline of the periodical inspection of the facilities is as follows,

Table 2-24 : Outline of Periodical Inspection (Facilities)

	Contents of Inspection	Numbers of Inspection
Exterior	・ Repair/ repaint of exterior walls	Repaint once/5 years, Repair once/3 years
	・ Inspection and repair of roofs	Inspection once/3 years, Repair once/10 years
	・ Regular cleaning of drainpipes	Once/1 year
	・ Inspection and repair of sealing of exterior fittings	Once/1 year
	・ Regular inspection and cleaning of gutters and manholes	Once/1 year
Interior	・ Review of the interior	As needed
	・ Repair / repaint of partition walls	As needed
	・ Renewal of ceiling materials	As needed
	・ Adjustment of doors and windows	Once/1 year
	・ Exchange of fixtures of fittings	As needed

(2) Facility equipment

Facility equipment needs preventive maintenance on the daily basis before repair of breaks and exchange of parts. The life-span of equipment can be extended by normal operation and daily inspection/fueling/cleaning/repair etc. in addition to operating hour. These daily inspections can prevent accidents happening and expanding.

The emergency generator and pumps, etc require periodical maintenance, and it is needed for once a year periodical inspection by outside private companies. The life-spans of main equipment are as follows,

Table 2-25 : Life-span of Equipment

	Equipment	Life-span
Electrical	・Distribution Frame	20 - 30 years
	・Fluorescent Lamp	5,000 - 10,000 hours
	・Incandescent Lamp	1,000 - 1,500 hours
	・ Emergency Generator	30 years
Plumbing	・Pump, Pipe	15 years
	・Tank	20 years
	・Sanitary Ware	25 - 30 years
Air-conditioning	・Pipe	15 years
	・Exhaust Fan	20 years
	・Air Conditioning Equipment	10 years

(3) Medical Equipment

For effective use of medical equipment, it is necessary to conduct periodical inspection, maintenance, washing and cleaning after use. In addition, the operation manual should be strictly

followed, and should be used only for its intended purpose.

Table 2-26 : Outline of Periodical Inspection (Equipment)

	Equipment	Number of Inspection
Image Diagnostics	・Digital X-Ray Unit ・Color Doppler Ultrasound Machine ・Ultrasound Machine General Purpose ・Mobile X-Ray Unit	6 month and 1year 1year 1year 1year
Laboratories	・Automated Chemistry Analyzer ・Hematology Analyzer	1year 1year
OT	・Anesthesia machine with Ventilator ・Diathermy Unit ・OT Shadow less Light Ceiling type	1year 1year 1year

2-5 Project Cost Estimation

2-5-1 Initial Cost Estimation

The project cost to be borne by the Pakistani side is estimated as followed,

Table 2-27 : Estimated Project Cost to be borne by the Pakistani Side : 20,659,600 Rs

Items borne by the Pakistani side	Estimated Cost (Rs)
(1) Related to Construction	
Demolition of pavement and clearing of the Project site	3,800,000
Clearing of the temporary yard adjacent to the Project site	6,000,000
Planting of the Project site as needed	2,600,000
Infrastructure connection work	
- Power	2,000,000
- Telephone line	50,000
- City water	150,000
- Sewer	200,000
- Gas	500,000
Rerouting of the existing sewer lines of the Project site	120,000
(2) Related to Operation and maintenance	
Procurement of general furniture, equipment and fittings	550,000
(3) Related to Procedures	
Commissions of A/P and B/A	540,000
Securing safety of Japanese	1,300,000
Subtotal	17,810,000
Sales Tax (16%)	2,849,600
Total	20,659,600

2-5-2 Operation and Maintenance Cost

(1) Estimated Operation and Maintenance Cost

The following is the operation and maintenance cost estimated for the whole hospital after completion of the Project.

Table 2-28 : Operation and Maintenance Cost of the Whole Hospital

Item	2010-2011	After completion of the Project
	Expenses(Rs)	Expenses(Rs)
(1) Operation Cost		
1) Personnel Expenses	34,032,616	60,874,576
2) Medical Care Activities		
①Transportation	224,762	361,282
②Drugs/Consumables/Meals	15,149,371	24,351,080
3) Utilities/Communication	296,546	13,616,074
(2) Maintenance Cost		
1)Maintenance(Facilities/Equipment)	337,100	4,317,100
Total	50,040,395	103,520,112

(2) Conditions of Calculation

1. Personnel Expenses

As SGCH is improved to be the secondary medical facilities in the Project, the number of staff will be increased from 149 of 2010-2011 (57 doctors, nine nurses, 46 paramedics and 37 administrative staff) to 222 (69 doctors, 24 nurses, 53 paramedics and 76 administrative staff). The personnel expense is calculated in consideration of the increased number of staff and the expected inflation rate of 41 percent(up to 2015). The contribution to the salary is assumed half of the expected inflation rate.

34,032,616 Rs x 222 / 149 x 1.2 = 60,874,576 Rs

2. Medical Care Activities Cost

As the primary medical care activities are improved to be the primary plus secondary and the number of beds is increased, the cost will be increased for transportation of staff/goods relevant to the activities and for drugs/consumables/meals etc. The cost is calculated in consideration of the increased number of outpatients and expected inflation rate of 41 percent.

- Transportation

224,762 x 365,030 / 320,202 x 1.41 = 361,282 Rs

- Drugs / Consumables / Meals

  15,149,371 × 365,030 / 320,202 × 1.41 = 24,351,080 Rs

The above-mentioned cost includes the following cost for consumables necessary for operation of newly procured equipment.

Table 2-29 : Operation Cost of Main Equipment

	Unit Price	Quantity	Total (Rs)
Barium for fluoroscopy (infants)	375	1,200	450,000
X-ray film	170	15,000	2,550,000
Gel for Ultrasound scanning	30	4,000	120,000
Recording paper for Ultrasound diagnosis	150	2,000	300,000
Reagents for biochemistry tests	15	15,000	225,000
Dilution for blood cell counter	30	8,235	247,050
Reagents for Elisa tests	25	700	17,500
Reagents for detection of blood type	45	700	31,500
Reagents for cross matching	50	700	35,000
Reagents for coagulation tests	20	600	12,000
		Total	3,988,050

3. Utilities and Communication Cost

The utilities and communication cost for the new facilities is estimated as follows. The utilities and communication cost for the existing facilities after completion of the Project is estimated as much as the present utilities and communication cost.

Table 2-30 : Utilities and Communication Cost

Item	Cost (Rs)
(a) Electricity	1,717,200
(b) Emergency Generator Fuel	10,061,028
(c) Communication	180,900
(d) City Water	135,500
(e) City Gas	180,900
(f) Medical Gas	1,044,000
Subtotal (New Facilities)	13,319,528
(g) Existing Facilities	296,546
Total (New + Existing)	13,616,074

(a) Electricity Charge

- Assumption of the consumption of electricity
  Week day : 300kW×0.3(average demand rate)×5hours×25days=11,250kWh/month
  Week end : 300kW×0.1(average demand rate)×5hours×5days=750kWh/month

- Assumed electricity charge
  Base rate (fixed) : 240kVA×59Rs/kVA month×12months=169,920Rs/year ····· (a)
  Metered rate : 12,000kWh/month×9.1Rs/kWh×12months=1,310,400Rs/year ····· (b)
  (a ＋ b) × Tax16% = 1,717,200 Rs/year

(b) Fuel Cost for Emergency Generator

- Emergency generators : 100 kVA (Fuel consumption 24 L/h) × 1 machine
  150 kVA (Fuel consumption 39L/h) × 1 machine
  The power failure is expected three hours in the daytime and three hours in the night, and two generators are operated in the daytime and one generator (100 kVA) in the night.

- Assumed fuel cost of emergency generators
  Daytime : (24＋39)L/h×3hours×30days×12months×92.5Rs/L=6,293,700Rs/year ····· (a)
  Night : 24L/h×3hours×30days×12months×92.5Rs/L=2,397,600Rs/year ····· (b)
  (a ＋ b) × Tax16% = 10,061,028 Rs/year

(c) Communication Cost (Pakistan Telecommunication Company Limited (PTCL))

(c-1) Telephone Charge

- Number of subscriber lines : four newly installed lines
  Assumed number of outside calls per subscriber : 10 times per day
  Length of call : five minutes/time
  10 times/day × 5 minutes/time × 30 day = 1,500 minutes/month line

- Assumption on call charge
  PTCL Business Budget : 1,999 Rs/month (up to 3,000 minutes)
  1,999 Rs/month line × 4 lines × 12 months = 95,952 Rs/month ····· (a)
  (a) × Tax16% = 111,300 Rs/year

(c-2) Internet Charge

- Number of subscriber lines : one newly installed line
- Assumption on internet charge (medium speed)
  PTCL DSL Package : 4,999 Rs/month (6MB)
  4,999 Rs/month line × 1 line × 12 months = 59,988 Rs/year ····· (b)
  (b) × Tax16% = 69,600 Rs/year

(d) City Water Charge

- Assumed consumption of city water

  The water supply is mainly based on well water. 20 cubic meters per day of city water is assumed for back-up.

  20 m^3/day ÷ 0.0045 gallons/m^3 × 30 days = 133,333 gallons/month

- Assumed city water charge

  133,333 gallons/month × 0.073 Rs/gallon × 12 months = 116,800 Rs/tear ····· (a)

  (a) + Tax16% = 135,500 Rs/year

(e) City Gas Charge

- Assumed consumption of city gas

Table 2-31 : Assumed Consumption of City Gas

Item	Capacity	Consumption of Gas	Quantity
Flash Water Heater	10 kW	1.0 m3/h	16
Stove Burner	13 kW	1.3 m3/h	21
Autoclave	30 kW	3.1 m3/h	2
Total			49.5 m3/h

49.5 m^3/h × 0.1 (concurrent use rate) × 6 hours × 30 days = 891 m3/month

- Assumed city gas charge

  891m^3/month÷29.85m^3/MMBTU×435.37Rs/MMBTU×12months=155,946Rs/year····· (a)

  (a) + Tax16% = 180,900 Rs/year

(f) Medical Gas Charge

- Assumed consumption of oxygen cylinders : 5cylinders/day × 30 days = 150 cylinders/month

- Assumed medical gas charge

  150 cylinders/month × 500 Rs/cylinders × 12 months = 900,000 Rs/year ····· (a)

  (a) + Tax16% = 1,044,000 Rs/month

(g) Utilities and Communication Cost for the Existing Facilities

296,546 (expenses on 2010-2011) × 1 = 296,546 Rs

(3) Maintenance Cost (Facilities/Equipment): 4,317,100 Rs

1. Facilities Maintenance Cost : 1,390,000Rs

- Facilities repair cost

  Although the facilities repair cost varies year by year, the average for 10 years after completion of the Project is assumed to be 0.1 percent of the direct construction cost.

  500,000 JPY (Approx. 560,000 Rs)

- Equipment repair cost

  The equipment repair cost will be small for the first five years after the completion of the Project. However, after that period exchange of parts or equipment itself will be necessary. The average cost of equipment repair for first 10 years is assumed approximately 0.2 percent of the direct construction cost of equipment.

  600,000 JPY (Approx. 670,000 Rs)

- Maintenance cost of the elevator

  The yearly maintenance cost by manufacturers' agents is expected as follows.

  160,000 Rs/year

2. Equipment Maintenance Cost : 2,927,100 Rs

- Equipment of the existing facilities

  The cost of equipment maintenance is expected as much as that of the existing facilities.

  337,100 (expenses on 2010-2011) × 1 = 337,100 Rs

- Newly installed equipment

  The annual maintenance cost of equipment newly installed by the Project is expected to be 2,590,000 Rs.

Table 2-32 : Annual Maintenance Cost of Newly Installed Equipment

Item	Annual Maintenance Cost (Rs)
General/Fluoroscopic X-Ray Unit	1540,000
Portable X-ray Machine	370,000
Color Doppler Ultrasound Machine	280,000
Ultrasound Machine General Purpose	200,000
Automated Chemistry Analyzer	150,000
Hematology Analyzer	50,000
Total	2,590,000

(4) Expected Budgetary Balance after completion of the Project

Since SGCH is under the control of the POS, SGCH is operated based on subsidies from HDGS and the charge of the medical care. The operation and maintenance cost of SGCH after completion of the Project is estimated 103,520,112 Rs, which is approximately twice as much as that of 2010-2011, 50,040,395 Rs. The expenses of SGCH is increased for approximately 36 percent for two years from 2008-2009 to 2010-2011, and the budget of 2011-2012 is increased for 45 percent from 2010-2011 due to the decentralization.

In addition, HDGS has committed to deliver the subsidies for operation and maintenance cost which is necessary to operate SGCH. Therefore, the operation and maintenance cost is expected to be secured.

Table 2-33 : Budget/Expense of SGCH

(Rs)

Year	2008-2009		2009-2010		2010-2011		2011-2012
	Budget	Expense	Budget	Expense	Budget	Expense	Budget
Total Amount	32,568,264	36,682,440	36,682,440	36,362,459	44,777,638	50,040,395	68,743,988

Table 2-34 : Budget/Expense of HDGS

(Rs)

Year	2008-2009		2009-2010		2010-2011		2011-2012
	Budget	Expense	Budget	Expense	Budget	Expense	Budget
Development Budget	4,533,481	4,386,506	4,957,530	3,651,849	3,416,857	3,349,238	6,300,000
Ordinary Budget	7,937,629	7,461,371	8,846,660	8,404,327	10,314,942	10,005,494	13,563,265
Total Amount	12,471,110	11,722,843	13,804,190	12,056,176	13,731,799	13,354,732	19,863,265

Chapter 3 Project Evaluation

3-1 Preconditions

In implementing the Project, the followings components need to be done by the Pakistani side.

- To approve PC-1 prior to the Japanese Cabinet on October, 2012
- To remove the existing pavement, shrubs and trees and level/clear the Project site prior to the tender of the Japanese construction works
- To obtain the building permission (approval by the Works and Services Department, the GOS) prior to the commencement of the Japanese construction works
- To relocate the existing sewer lines in the Project site prior to the commencement of the Japanese construction works

3-2 Necessary Inputs by Recipient Country

In order to realize and maintain the effect of the Project, the following inputs need to be implemented by the Pakistani side.

- To allocate 69 doctors (including one ENT doctor, one ophthalmologist and one anesthetist), 24 nurses, 53 paramedical (including one biomedical technician) and 76 general staff in SGCH prior to the completion of the installation of equipment (including the existing staff).
- To allocate the budget which is necessary for operation and maintenance of SGCH after the completion of the Project
- To connect the necessary infrastructure to the new facilities, such as electricity, telephone, water, sewage water, gas, etc.
- To relocate furniture, equipment and fittings in the existing facilities to the new facilities, and use the existing facilities for Physiotherapy & Rehabilitation Unit
- To procure and install general furniture, equipment and fittings, etc. not covered by Japan's Grant Aid (including to relocate those of the existing facilities), and to procure spare parts and consumables necessary for the proper maintenance of the facilities and equipment

3-3 Important Assumptions

In order to realize and maintain the effect of the Project, the following assumptions need to be fulfilled.

- The local security conditions need to be stable. It is assumed that the Japanese nationals relevant to the Project are not subject to the restrictions of behavior during the Project and the local people who need the medical care are not prevented from accessing to SGCH after the completion of the Project.
- SGCH is planned to transfer from the jurisdiction of the District of Karachi to that of the POS.

The transfer needs to be implemented promptly and the budget and human resources of SGCH needs to be secured.

- In Karachi city, supply of electricity, city water, etc. is unreliable. The new facilities is to be equipped with generators for electricity and purification unit for well water, and cover the demand of emergency. The public infrastructure is expected to be improved in order to reduce the operation cost.

3-4 Project Evaluation

3-4-1 Relevance

The Project is relevant as Japan's Grant Aid in light of the following points.

(1) Appropriateness of the Project

SGCH receives pediatric patients from all over the northern Karachi city, whose population is approximately 4.16 million and that of children under 12, beneficiary group of the Project, is approximately 1.77 million. In the area, the ratio of the poor is the higher in Karachi city and the growth rate of population is also high.

The Project provides appropriate medical services to an enormous number of poor children, who are forecasted to be increased hereafter, and has great effect on the beneficiary group.

(2) Necessity

The existing facilities of SGCH can provide only limited medical services due to the lack of equipment, etc. and patients who require the advanced medical care are referred to the tertiary medical facilities, such as NICH. Therefore, SGCH provides only the primary medical services at present. Furthermore, NICH is obliged to provide even primary medical services of vaccination, etc. Consequently, a lot of patients concentrate on NICH and patients in serious conditions cannot receive sufficient medical services. After the completion of the Project, the improvement of pediatric medical services of SGCH contributes to the provision of the tertiary medical services to severely-ill patients appropriately, as well as to improvement of the primary and the secondary medical services.

(3) Priority

The contribution of the Project to the improvement of the pediatric medical services agrees with the Poverty Reduction Strategic Paper of Pakistan, the National Health Policy and the Health Policy of the POS. In addition, the Project falls under the Development Issue "Ensuring Primary Health Care Services" in the Priority Area "Ensuring Human Security and Human Development" of the rolling plan for Pakistan of Japan's ODA, and has the high priority.

3-4-2 Effectiveness

The output of the implementation of the Project is as followed, and the effectiveness of the Project is expected.

Table 3-1 : Quantative Indexes

	Indexes	Base Value (2011)	Target Value (2018)
1	Number of Inpatients (NCU excluded)	2,276	4,100
2	Number of NCU inpatients	0	190
3	Number of Biochemistry Tests	851	2,100

Table 3-2 : Qualitative Indexes

1	Prompt diagnose and treatment will be enabled because of the room layout considering medical staff flow. The effectiveness of medical care will be enhanced by improving the working environment.
2	Clear demarcation of clean and dirty zone will contribute to easy control of cleanliness and prevent from in-hospital infection.
3	SGCH will provide the appropriate medical services also to patients who cannot receive proper medical care now, such as NCU, and it will contribute to the improvement of the referral system in the catchment area.

[Appendices]

1 Member List of the Study Team

2 Study Schedule

3 List of Parties Concerned in the Recipient Country

4 Minutes of Discussions

5 Equipment List

1 Member List of the Study Team

1 Member List of the Study Team

(1) First Field Survey (4th July - 24th July, 2011)

Name	Section	Period of Stay	Position
Dr. Mitsuhiro USHO	Team Leader	9th July – 16th July	Executive Technical Advisor to the Director General Human Development Dept., JICA
Mr. Yoshitaka INAGAKI	Cooperation Planning		Staff, Health Division 4, Human Development Dept., JICA
Dr. Kenzo TAKAHASHI	Technical Advisor	4th July – 16th July	National Center for Global Health and Medicine
Mr. Mineo NAGAOKA	Chief Consultant / Architectural Planning	9th July – 16th July	Yamashita Sekkei Inc.
Mr. Tadayoshi TSUMOTO	Deputy Chief Consultant / Architectural Planning	4th July – 24th July	Yamashita Sekkei Inc.
Mr. Yusuke MORI	Architectural Design		Yamashita Sekkei Inc.
Ms. Yasuko ASANUMA	Equipment Planning		Binko International Ltd.
Mr. Shigeru YASUMATSU	Construction Planning / Cost Estimate	11th July – 24th July	Yamashita Sekkei Inc.
Ms. Kazue NISHIKI	Equipment Procurement / Cost Estimate	4th July – 17th July	Binko International Ltd.
Mr. Tadashi OGASAWARA	Medical & Health Planner	4th July – 24th July	Binko International Ltd.

(2) Second Field Survey (10th September – 30th September, 2011)

Name	Section	Period of Stay	Position
Mr. Hideo EGUCHI	Team Leader	13th Sep. – 23rd Sep.	Deputy Director General for Planning and Coordination, Human Development Dept., JICA
Mr. Yoshitaka INAGAKI	Cooperation Planning	13th Sep. – 21st Sep.	Staff, Health Division 4, Human Development Dept., JICA
Dr. Tomomi MIZUNO	Technical Advisor	10th Sep. – 21st Sep.	National Center for Global Health and Medicine
Mr. Tadayoshi TSUMOTO	Deputy Chief Consultant / Architectural Planning	10th Sep. – 30th Sep.	Yamashita Sekkei Inc.
Mr. Yusuke MORI	Architectural Design		Yamashita Sekkei Inc.
Mr. Masaki TOKUNO	Mechanical Design		Yamashita Sekkei Inc.
Ms. Yasuko ASANUMA	Equipment Planning		Binko International Ltd.
Mr. Shigeru YASUMATSU	Construction Planning / Cost Estimate		Yamashita Sekkei Inc.
Mr. Tadashi OGASAWARA	Medical & Health Planner		Binko International Ltd.

(3) Explanation of Draft Final Report (17th February – 26th February, 2012)

Name	Section	Period of Stay	Position
Dr. Mitsuhiro USHO	Team Leader	18th Feb. – 25th Feb.	Executive Technical Advisor to the Director General Human Development Dept., JICA
Mr. Yoshitaka INAGAKI	Cooperation Planning		Staff, Health Division 4, Human Development Dept., JICA
Mr. Mineo NAGAOKA	Chief Consultant / Architectural Planning	17th Feb. – 26th Feb.	Yamashita Sekkei Inc.
Mr. Tadayoshi TSUMOTO	Deputy Chief Consultant / Architectural Planning		Yamashita Sekkei Inc.
Mr. Yusuke MORI	Architectural Design		Yamashita Sekkei Inc.計
Ms. Yasuko ASANUMA	Equipment Planning		Binko International Ltd.

2 Study Schedule

2 Study Schedule

(1) First Field Survey

	Date		JICA Official		1	2	3	4	5	6	7
			Team Leader/ Cooperation Planner	Technical Advisor	Chief Consultant/ Architectural Planning	Deputy Chief Consultant/ Architectural Planning	Architectural Design	Equipment Planning	Construction Planning/ Cost Estimate	Equipment Procurement/Cost Estimate	Medical & Health Planner
1	4-Jul	Mon		same as 2		Arrival at Karachi				same as 2	
2	5-Jul	Tue		same as 2		Courtesy Call/Discussion with HDGS Courtesy Call/Survey at SGCH				same as 2	
3	6-Jul	Wed		same as 2		Survey at SGCH				same as 2	
4	7-Jul	Thu		Survey at NICH		Survey at NICH Discussion with WSDS		same as 6		Survey at NICH Discussion with HDGS	
5	8-Jul	Fri		same as 2		Discussion with HDGS/SGCH Survey at SGCH				same as 2	
6	9-Jul	Sat	Arrival at Karachi	same as 2	Arrival at Karachi	Team Meeting		Survey at Local Agent		same as 4	same as 2
7	10-Jul	Sun	Team Meeting							same as 2	
8	11-Jul	Mon	Courtesy Call to PDDS Discussion with HDGS/SGCH (Explanation of Inception Report)					Discussion with HDGS	Arrival at Karachi	same as 4	
9	12-Jul	Tue	Discussion with HDGS/SGCH				Topographic Test	same as 2	same as 3	same as 2	
10	13-Jul	Wed	Discussion/Survey at SGCH								Survey at HDGS
11	14-Jul	Thu	Sign of MOD Karachi -> Islamabad				Discussion with HDGS				
12	15-Jul	Mon	Report to JICA Office / EOJ Departure from Islamabad				Survey at SGCH	same as 6	same as 3	Survey at Blood Bank	Discussion with HDGS
13	16-Jul	Sat	Arrival at Tokyo			Survey at PIMS	Topographic Test	same as 6	same as 3	Survey at Blood Bank	Study on Collected Data
14	17-Jul	Sun				Islamabad -> Karachi	Team Meeting			Departure from Karachi	same as 3
15	18-Jul	Mon				Study of Facility Layout		Survey at NICH / UNICEF	Survey at NICH		same as 4
16	19-Jul	Tue				Discussion with SGCH / WSDS		Survey at SGCH / NICH	same as 3		same as 4
17	20-Jul	Wed				Discussion with KWSB		Survey at NICH	same as 3		same as 4
18	21-Jul	Thu				Study of Facility Layout		Survey at NICH	same as 4		same as 4
19	22-Jul	Fri				Discussion with HDGS/SGCH					same as 4
20	23-Jul	Sat				Study of Facility Layout		Survey at SGCH	same as 3		same as 4
21	24-Jul	Sun				Departure from Karachi					same as 2

(2) Second Field Survey

	Date		JICA Official		1	2	3	4	5	6
			Team Leader/ Cooperation Planner	Technical Advisor	Deputy Chief Consultant/ Architectural Planning	Architectural Design	Mechanical Design	Equipment Planning	Construction Planning/ Cost Estimate	Medical & Health Planner
1	10-Sep	Sat		Arrival at Karachi						
2	11-Sep	Sun		Team Meeting Preparation for Survey	Data Collection	Topographic Test	same as 1		same as 2	same as 1
3	12-Sep	Mon		Discussion with HDGS/SGCH			Survey at SGCH	same as 1	same as 3	same as 3
4	13-Sep	Tue	Arrival at Karachi		Survey at SGCH			Team Meeting	same as 1	same as 4
5	14-Sep	Wed		Team Meeting Courtesy Call to HDGS			Survey of Waste	Survey at Blood Bank	same as 3	Survey at Other Hospitals
6	15-Sep	Thu		Discussion with HDGS/SGCH			Survey of Infra	same as 1	same as 3	Survey at Other Hospitals
7	16-Sep	Fri		Discussion with HDGS/SGCH			Survey of Infra	Survey at SGCH	same as 3	same as 4
8	17-Sep	Sat		Team Meeting Survey at SGCH		Survey at Dow University Hospital/JPMC				
9	18-Sep	Sun		Team Meeting						
10	19-Sep	Mon		Sign of MOD Karachi -> Islamabad		Survey of Infra Karachi -> Islamabad		Survey at NICH	same as 3	same as 4
11	20-Sep	Tue		Sign of MOD Report to JICA Office/EOJ Departure from Islamabad		Survey of Construction Materials		Survey at SGCH	same as 3	same as 4
12	21-Sep	Wed		Arrival at Tokyo	Survey of Construction Material Discussion with GIZ			Survey at SGCH	same as 1	same as 4
13	22-Sep	Thu	Departure from Islamabad (Team Leader)		Islamabad -> Karachi Survey of Construction Material			Survey at SGCH	same as 1	same as 4
14	23-Sep	Fri	Arrival at Tokyo (Team Leader)		Study of Facility Layout		Survey of Local Agent	Survey at SGCH	same as 1	Survey of Local Market
15	24-Sep	Sat			Discussion with WSDS Study of Facility Layout			Survey of Local Market		Collection of Data at HDGS
16	25-Sep	Sun			Team Meeting					
17	26-Sep	Mon			Study of Facility Layout		Study of Mechanical Planning	Survey of Local Market	Survey of Other Donors	
18	27-Sep	Tue			Discussion with HDGS/SGCH					
19	28-Sep	Wed			Study of Facility Layout		Study of Mechanical Planning	Study of Equipment	Study of Construction	Collection of Data
20	29-Sep	Thu			Study of Facility Layout		Survey of Local Market			
					Departure from Karachi					
21	30-Sep	Fri			Arrival at Tokyo					

(3) Explanation of Draft Final Report

	Date		JICA Official	1	2	3	4
			Team Leader, Coordination Planning	Chief Consultant / Architectural Planning	Deputy Chief Consultant / Architectural Planning	Architectural Design	Equipment Planning
1	17-Feb	Fri		Arrival at Karachi			
2	18-Feb	Sat	Arrival at Karachi	Joint Discussion with HDGS & SGCH			
3	19-Feb	Sun	Team Meeting				
4	20-Feb	Mon	Courtesy call at PDDS, Courtesy call and Discussion at HDGS Joint Discussion with HDGS & SGCH (Draft Final Report)				
5	21-Feb	Tue	Joint Discussion with SGCH (Draft Final Report)				
6	22-Feb	Wed	Joint Discussion with HDGS & SGCH (Draft Minutes)				
7	23-Feb	Thu	Sign of Minutes, Karachi -> Islamabad			Survey at SGCH	
8	24-Feb	Fri	Report to JICA Office and EOJ Departure from Islamabad	Islamabad -> Karachi		Survey of Material/Equipment/Procurement	
9	25-Feb	Sat		Survey of Material/Equipment/Procurement			
10	26-Feb	Sun		Departure from Karachi			

3 List of Parties Concerned in the Recipient Counrty

3 List of Parties Concerned in the Recipient Country

Organization	Name	Position
Economic Affairs Division		
	Munir Ahmad Chaudhary	Joint Secretary (ADB/Japan)
	Jamil Anwar	Joint Secretary (ADB/Japan)
Government of Sindh		
Health Department	Rizwan Ahmed	Secretary of Health
	Syed Hashim Raza Zaidi	Secretary of Health
	Dr. Suresh Kumar	Special Secretary (Public Health)
	Dr. Capt. Sikandar Ali Panhwar	Special Secretary (Public Health)
	Dr. Khalid Hussain Shaikh	Additional Secretary (Admin)
	Dr. Khalid Qureshi	Additional Secretary
	Mohsin A. Saikh	Additional Director Dev-II
	Ubedllah Memon	Additional Director Dev-II
	Shaista Mubarak	Additional Director (DEV.)
	Mr. Ghulam Ali	Deputy Secretary
	Dr. Jamaluddin Sheikh	Deputy Secretary
	Mr. Qhulam Ali Brahmani	Deputy Secretary
	Dr. Abdul Rashid Shaikh	Deputy Director
	Dr. Sikander	Section Officer
	Dr.Qazi	MER/PH
	Mr. Mushitoba	HR in charge for federal
	Dr.(Ms.)Dur-e-Shahmar	WFP programme in charge
Works of Services Department	Ghulam Qadir Laghari	Superintending Engineer
	Prem Talreja	Superintending Engineer
	M. Yousuf	Executive Engineer
	Salahulli Ahmed	Assistant Engineer
Planning & Development Department	Engr. Khalid Waheed Khan	Special Secretary
	Muhammad Ishaque Lashari	Additional Chief Secretary (Dev.)
	Abbas Ali	Incharge Chief (Foreign Aid)
	Dr. Qazi Masood Ahmed	Chief Economat
	Dr. Fawad Shaikh	Chief (Health)
	Iffat Malik	Chief (Foreign Aid)
	M. Nasim Ilham	P.O. (Foreign Aid)
	M. Nasir	P.O. (Foreign Aid)
	Shahnaz Sidohgn	Assistant Chief
	Dr. Saimq Mushtaque	Planning Office
	Morsin Chdnqus	
	Muhammad Nasir	
Finance Department	Asif Ikram	Deputy Secretary
Karachi Division	Mr. ali Hassan Abro (Mr.)	Project Director, Director of Health, Karachi
	Dr. Aslam Pervaiz	Health Officer, focul person of infectious
	Dr. Harid Masood	Health Officer, Karachi Division
	Dr. Nasir Javeed	Director Health, Karachi Division
Sindh Bureau of Statistics	Afsar Ali Danwar	Statistics Officer/DDO (MICS)
GAMBAT Institute of Medical Science	Dr. Rahim Bux Bhatti	Director
Population Welfare Department	Mr. Ashafaq Shah	Additional Secretory
Maintenance section	Mr. Zulfiqar	B.M.E
District of Karachi		
	Dr.Nasir Ahmed	Executive District Officer
	Dr.Zafar Ijaz	District Officer (DO)
North Karachi Town		
	Dr. Syed Mazhar-ud-din	Town Health Officer
Karachi Water & Sewage Board		
Hub Pumping & Filter	Syed Manzoor Yamin	Superintendent Engineer, Mechanical Engineer
Water & Sewage	Fahim Akhter Laidi	Chief Engineer Zone III-A

Organization	Name	Position
Sindh Blood transfusion authority		
	Dr. Zahid Hasan Ansari	Prov. Project director/ secretary
	Dr. Kulsoom	Monitoring officer
	Dr. Ismail Memon	Deputy program manager
	Dr. Shah Mohammad	Assistant project manager
Pakistan Medical Association		
	Dr.M.Ismail Memon	Honorary Joint Secretary
Municipal Services Group of Offices		
	Najeeb Ahmed	District Officer Works/SWM
Sindh Govt. Children Hospital North Nazimad Town Karachi		
	Dr. Asif Zaman Khan	Medical Superintendent
Emergency	Dr. Shaheen Aijaz	R.M.O
Emergency	Dr. Naveed Ahmed	C.M.O
Emergency	Ms.Shaheen Anjum	Staff nurse
Emergency	Habib -Ur-Rehan	Dresser
X-ray room	Dr. Inam UI HAQUE	Radiologist
X-ray room	Mr. Sajjad Khan	Sr. x-ray technician
Female OPD	Dr. Ragia	W.M.O
Female OPD	Dr. Shama Nashi	W.M.O
Female OPD	Dr. Punita	W.M.O
Female OPD	Dr. Alia	W.M.O
Female OPD	Dr. Rukusaman	W.M.O
Laboratory	Mr. Syed Mateen Ahmed	Sr. Clerk
Laboratory	Mr.Muhammad Ali	Labo technician
Laboratory	Ansar Ajider	Medical technologist
Nutrition OPD	Dr. Safia	Dr. WMO
Nutrition OPD	Dr. Hasan Khalid Zuberi	Sr. Pediatrician
Nutrition OPD	Dr. Nasreen Anwar	Sr. WMO
Therapeutic Feeding Center	Dr. Fazna Adel	WMO
Therapeutic Feeding Center	Muhammed Zubain	Ward Servant
Therapeutic Feeding Center	Arifa BANO	Staff nurse
Therapeutic Feeding Center	Sultana Sajid	Health Technician
IV room	Farman Ali	Staff nurse
Operation Theatre	Dr.Wajeeh Uddin	Pediatric Surgeon(Consultant)
Operation Theatre	Mr.Muhammad Owais Khan	O.T.technician
Operation Theatre	Mr.Atif	O.T.technician
OPD	Dr. Abid Hussain	M.O
Ultrasound room	Dr.Kouser Fatima	Sr.W.M.O
Ultrasound room	Dr. Sabina Nizan	Sr.W.M.O
Male OPD	Dr.Muhammad Irfan	Medical Officer
	Dr.Sabina Nizam	
Ward -B	Dr. Qamarunnissa	Sr. WMO
Dental	Nazakat Ullah	Sr. Dental Hygienist
Dental	Dr. Taqui	Dental Surgeon
Dental	Dr. Mumpaz	Head of Dental Dept.
Dental	Dr. Arzoo	Dentist
Phisiotherapy room	Asif Sharif (Mr)	Physiotherapist
Pharmacy	Abdul Majeed	Dispenser
Pharmacy	Muhammed Ejaz	Ward in charge
Family Planning Room	Mrs. Rubina	Family welfare worker
Family Planning Room	Mrs. Sonia	Family welfare worker assistant
Family Planning Room	Mrs.Zaitoon Bibi	Ward survant
Family Planning Room	Mr. Atifali	Male family welrare worker assistant
Family Planning Room		Lady Health Worker
National Institute of Children Hospital		

Organization	Name	Position
	Prof. Jamal Raza	Director
	Dr. Yasir	Reserch Fellow of Endocrinology
Pediatric Surgery	Dr. Naima	Qualified Pediatric Surgeon
Pediatric Surgery	Dr. Jamshed Akhtar	Security in charge
BME Section	Mr. Majid Ali Memon	Medical engineer
BME Section	Mr. Wasim	Equipment supervisor
ICU	Dr. Fareed	Pedaitrician
NICU	Dr. Narish	Postgraduate Intern
NICU	Syed Mansoon Shah	Security in charge
NICU	Dr. Shafaq	postgraduate trainee
NICU	dr. Manshal Khan	Associate prof.
Burn Unit	Dr. Kishore Kuma	MO
OT	Mr. Ali	OT technician
CSSD	Mr. Faisail	Autoclaver
OT	Dr. Raji Kumar	Pediatric Anesthesist
Pathology	Dr. Furqur	Pathologist
Histopathology, Blood bank	Dr. Rudbb	Histopathologist
Fluorescent Microscopy	Tasavar Iqbal	Medical Technologist
OPD Nephrology	Dr. Khem Chand .N.Moorani	MO
Administration	Dr. Arshad	Deputy Director
OPD	Dr. Shazia	MO
Dark room	Gholan Mustafa	Dark Room Assistant
Radiology	Dr. Anil	Radiologist
Radiology	Ramesh Kumar	Radiographer
Emergency	Shanim Shama	Head Nurse
Dow University of Health Science		
Institute of Physical medical and	Dr.Syed Imran Ahmed	MBBS./F.C.P.S, Assistant Professor
	Dr.Shahida	Assistant Director, Occupational therapy
The AGA KHAN University Hospital		
	Afifa Batool	Senior Assistant Manager
Women & Children Health	Dr. Safdar Kasazwala	Manager
Abbasi Shaheed Hospital		
	Dr. Nadeem Ahmed Rajput	Medical superintendent , MBBS,R.M.P.DLG
	Dr. Sultan	Professor of Pediatric Dept. (H.O.D)
	Dr. Ebrahim	Associate Prof. of Pediatric Dept.
New Karachi Hospital		
	Dr. Hasan aldin	Dean
	Dr. Aisha	Sr. R.M.O
	Dr. Jameel Rafail	O.P.D Pediatrician
	Dr. Navshkba	Pathologist
Civil Hospital , Karachi		
	Dr. Saeed Clureshi	Medical Superintendent
	Dr.Rustam Zaman	Deputy medical superintendent
	Dr. Humaira Ghuos	Hematologist at blood bank
	Dr. Ammarah	Associate prof. pediatrician
Jinnah Postgraduate Medical Centre		
	Prof. Tasnim Ahsan	Executive Director
	Dr. Alyscia Cheema	Consultant Eye Specialist Surgeon
	Dr. Ghulam Mahboob	Professor & Chief of Orthopaedic Surgery
UHC 5C-S		
	Dr. S.Ahmed	M.O.
	Dr. Khurshid	Dean
	Mrs. Shaheen	Sonographist

Organization	Name	Position
	Dr. Ashed	M.O in ECG room
	Dr. Abdraf	Deputy Medical Superintendent
	Dr. Atal	Additional Medical Superintendent
AMAN Foundation		
	Dr. Zeorh Khan	E.M.O
	Dr. Sidiqque	New Karachi branch manager
UNICEF, Karachi		
	Dr.Asif Aslam	MBBS(Dow), MPH(Harvard), Health specialist
	Dr. Shoukat Ali	Health Officer(PEI)
Husaini Blood Bank (NGO)		
Donor Area	Mr. Ajaz	Clerk
Laboratory	Ms. Sadia	Labo Technician
Husaini Blood Bank (HQ)		
	Dr.Asad Ali	Chief Executive
	Dr.Saeed Ahmed	Head of Blood Bank Division
	Dr.S.Safaraz H.Jafry	Administrator
	Dr. Shaikh Zulfiqar Ali Hashmi	Chief Financial Officer
Pakistan Institute of Medical Sciences (PIMS)		
Children Hospital	Dr. Zahid Larik	Director
	Dr. Farhana Zareef	Assistant Professor, Physiology
MCH Center	Dr. Riffat Kamal	Deputy Director
Children Hospital & MCH Center	Rafaqat Ali Butt	Civil Engineer
Embassy of Japan		
	Naru Otsuka	First Secretary
	Akira Goto	Second Secretary
JICA Pakistan Office		
	Toshiya Sato	Senior Representative
	Yohei Ishiguro	Project Formulation Advisor (Health)
	Sohail Ahmed	Senior Programme Officer
	Qutaibah Saleem	Security Advisor (Karachi)
GFA / GIZ		
	Paul Kohorst	Team Leader
	Rabia Jadoon	Technical Expert
	Usman Waheed	Technical Advisor
EPOS Health Management	Zahid Mahmood	National Team Leader
Electricity Power Supply		
Karachi Electric Supply Company		
	Syed Mujeeb Ur Rehman	General Manager, New Connection
Telephone Line Supply		
Pakistan Telecommunication Company		
	Jamal Abudul Nasir	Regional General Manager-III
Gas Supply		
Sui Southern Gas Company Ltd.:		
	Mohammad Ahmed Siddiqui	Actg. General Manager (Sales)

4 Minutes of Discussion

4 Minutes of Discussion

(1) First Field Survey

Minutes of Discussions

Preparatory Survey on the Project for

Improvement of Child Health Institute in Karachi

In the Islamic Republic of Pakistan

In response to a request from the Government of the Islamic Republic of Pakistan (hereinafter referred to as "the Pakistan"), the Government of Japan decided to conduct a Preparatory Survey on the Project for Improvement of Child Health Institute in Karachi (hereinafter referred to as "the Project") and entrusted the study to the Japan International Cooperation Agency (hereinafter referred to as "JICA") .

JICA dispatched the Preparatory Survey Team (hereinafter referred to as "the Team") to Pakistan, which is headed by Dr. Mitsuhiro Ushio, Executive Technical Advisor to the Director General, Human Development Department, JICA, and is scheduled to stay in the country from July 4 to July 24, 2011.

The Team held discussions with the officials concerned of the Government of Sindh, collected basic information and conducted a field survey at the study area.

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

Karachi, July 15, 2011

Dr. Mitsuhiro Ushio
Leader
Preparatory Survey Team
Japan International Cooperation Agency

Mr. Rizwan Ahmed
Secretary
Health Department
Government of Sindh
The Islamic Republic of Pakistan

Dr. Qazi Masood Ahmed
Chief Economist
Planning & Development Department
Government of Sindh
The Islamic Republic of Pakistan

Chief Economist,
Government of Sindh,
Planning & Development Department

Mr. Munir Ahmad Chaudhary
Joint Secretary (ADB/Japan)
Economic Affair Division
The Islamic Republic of Pakistan

ATTACHMENT

1. Objective of the Project

The objective of the Project is to strengthen the services of the Child Health Institute in Karachi by improving its facilities and equipment.

2. Project site

The site of the Project is located in Karachi city in province of Sindh.

3. Responsible and Implementing Agency

3-1. The Responsible Agency is Health Department, Government of Sindh.

3-2. Implementing Agency is Health Department, Government of Sindh.

4. Items requested by the Government of Pakistan.

After discussions with the Team, the items described in Annex 2 and 3 were requested by the Pakistani side on the assumption that function of the Child Health Institute in Karachi will focus on general medical services excluding high level medical services. JICA will assess the appropriateness of the request and will recommend to the Government of Japan for its approval.

5. Japan's Grant Aid Scheme

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

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

6. Schedule of the Survey

6-1. The consultants will proceed to conduct further survey in Pakistan until July 24, 2011.

6-2. JICA will dispatch preparatory survey again to Pakistan around September 2011 to prepare basic design of the Project through researching and discussing the overall plan of the Project with the Government of Sindh.

6-3. JICA will prepare the summary of draft report in English which describes the basic design of the Project, and will dispatch a mission in order to explain its contents in February, 2012.

6-4. In case the basic design is accepted in principle by the Government of Pakistan, JICA will submit the appraisal document to the Government of Japan for the Project appraisal. Through the appraisal, the Japanese Cabinet will make a final decision for the implementation of the Project.

6-5. If the Project is approved by the Japanese Cabinet, the final report (the Preparatory Survey Report) will be sent to the Government of Pakistan by September, 2012.

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

Rajwa Ahmed

GOVT. OF SINDH
HEALTH DEPARTMENT

Chief Economist
Government of Sindh
Planning & Development Department

7. Other relevant issues

7-1. The Pakistani side agreed to secure and allocate sufficient permanent staff and enough budgets to operate and maintain the improved health institute and procured equipment provided by the Project properly and effectively, as a condition for the Project to be implemented. Meanwhile, the Pakistani side has also agreed to include these budgets into PC-1.

7-2. The Team explained that security measures are indispensable for effective implementation of the Project. The Pakistani side agreed to take all necessary measures to secure the safety of the members of the Project.

7-3. The Pakistani side agreed to formulate PC-1 with referring to information of the Project from Japanese side. The Pakistani side also agreed on key actions with timetable as follows. The JICA Team reiterated that timely implementation of these actions were crucial for Japanese Government to make a commitment of grant for the Project. The Pakistani side agreed to monitor and expedite the progress with reference to the plan.

December 20, 2011	Development of PC-I (Draft) by Pakistani side
Beginning of February, 2012	Provision of necessary information by Japanese side
February 10, 2012	Development of PC-I (Final) by Pakistani side
March 20, 2012	Approval by Provincial Development Working Party (PDWP)
April 20, 2012	Approval by Central Development Working Party (CDWP)
June 20, 2012	Approval by Executive Committee of National Economic Council (ECNEC) (If it is required)

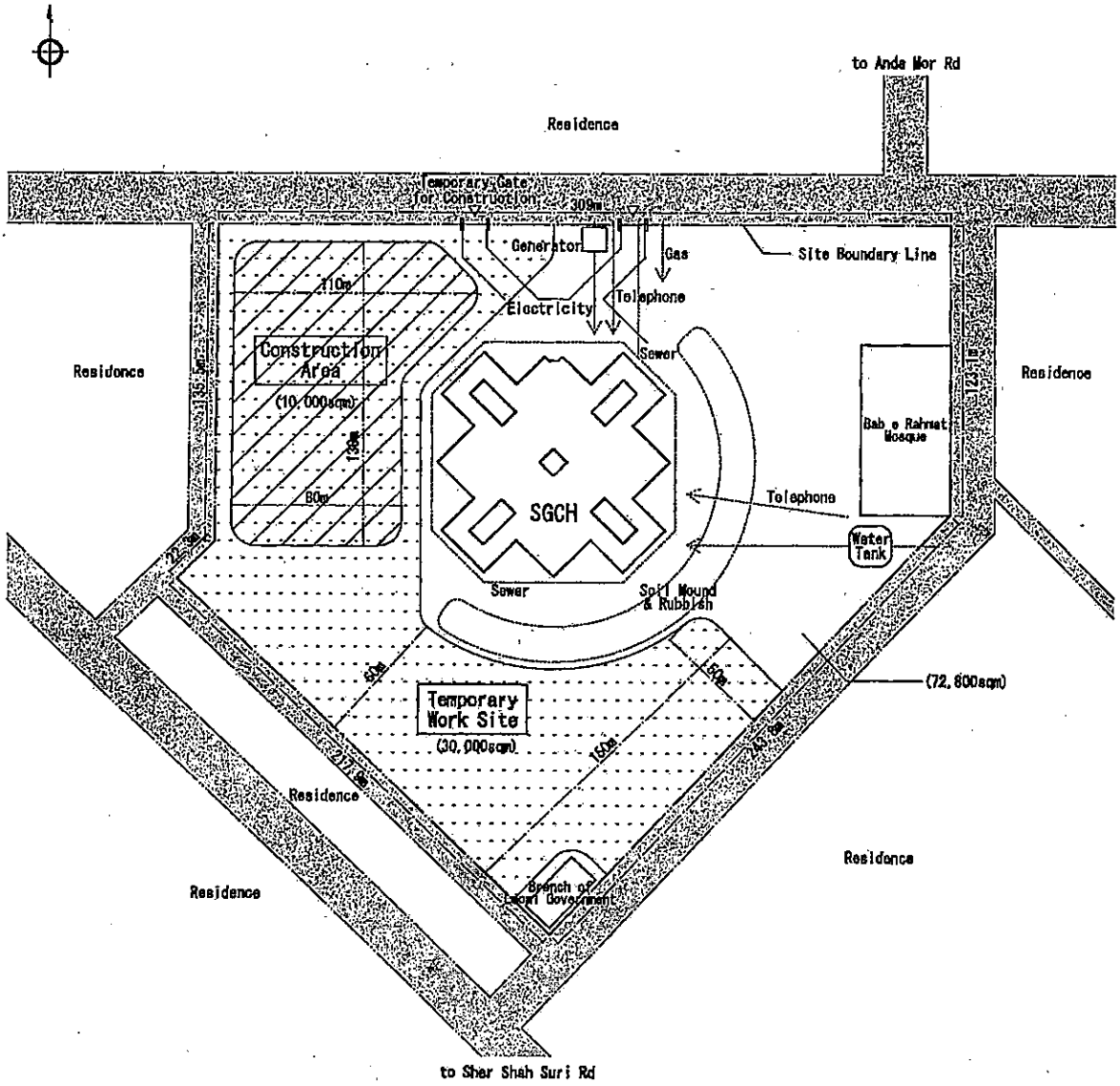
Annex-1 Location of the Project site
Annex-2 Equipment List
Annex-3 Components of Facilities
Annex-4 Japan's Grant Aid
Annex-5 Flow Chart of Japan's Grant Aid Procedures
Annex-6 Major Undertakings by Each Government
Annex-7 Minute of Meeting with the representative of JICA regarding "Child Healthcare Institute at Karachi" Held on 9th July, 2010 at 10:30 AM under the Chairmanship of the Secretary Health Department, Government of Sindh

GOVT. OF SINDH
HEALTH DEPARTMENT

Chief Economist
Government of Sindh
Planning & Development Department

Location of the Project Site

Address : St-18 Sector 14-B Opposite Maria Homes,
Near Nagan Chowrangi, North Karachi



GOVT. OF SINDH
HEALTH DEPARTMENT

Chief Economist
Government of Sindh
Planning & Development Department

Equipment List

Department		No.	Name of Item	Priority
Pediatric Medicine	1	PM-1	Hospital Beds with mattress	A
Pediatric Medicine	2	PM-2	Bed Sid Lockers	A
Pediatric Medicine	3	PM-3	Over Bed Table	A
Pediatric Medicine	4	PM-4	Electric Suction Machine(S)	A
Pediatric Medicine	5	PM-5	Glucometer	A
Pediatric Medicine	6	PM-6	Laryngoscope (Children Blades)	A
Pediatric Medicine	7	PM-7	Diagnostic Set (ENT)	A
Pediatric Medicine	8	PM-8	Ophthalmoscope	A
Pediatric Medicine	9	PM-9	Pleural aspiration Set (children)	C
Pediatric Medicine	10	PM-10	BP Apparasut with stand mercury (paed Cuff)	A
Pediatric Medicine	11	PM-11	Ambu Bag (with different size masks)	A
Pediatric Medicine	12	PM-12	Ultrasonic Nebulizer (Hospital Usc)	A
Pediatric Medicine	13	PM-13	Infusion pumps	A
Pediatric Medicine	14	PM-14	Pulse Oxymeter	A
Pediatric Medicine	15	PM-15	Saturation monitor(Patient monitor)	A
Pediatric Medicine	16	PM-16	Oxygen Concentrator	A
Pediatric Medicine	17	PM-17	Patient Trolly	A
Pediatric Medicine	18	PM-18	Portable X-RAY machine 300 MA	C
Pediatric Medicine	19	PM-19	ECG Machine one channel	B
Pediatric Medicine	20	PM-20	Refrigerator 18 Sft	A
Pediatric Medicine	21	PM-21	X-Ray viewing box	A
Pediatric Medicine (PICU)	22	PM-22	Defibrillator	A
Pediatric Medicine	23	PM-23	Pediatric Upper GI endoscope	C
Pediatric Medicine (PICU)	24	PM-24	Central oxygen system	facility
Pediatric Medicine	25	PM-25	CO2 monitor	C
Pediatric Medicine	26	PM-26	Electric Water Filter	facility
Pediatric Medicine	27	PM-27	Ward Screen 4 fold	A
Pediatric Medicine	28	PM-28	Dialysis units	C
Pediatric Surgery	29	PS-1	Anesthesia machine with Ventilator	A
Pediatric Surgery	30	PS-2	Laparoscope	C
Pediatric Surgery	31	PS-3	Instrument Trolly	A
Pediatric Surgery	32	PS-4	Diathermy Machine	C
Pediatric Surgery	33	PS-5	Auto clave	C
Pediatric Surgery	34	PS-6	Sterilizer (Boiling sterilizer)	A
Pediatric Surgery	35	PS-7	Patients Trolley(ward to OT)	B
Pediatric Surgery	36	PS-8	Ambo Bag One litter (rubber reusable)for paed.	A
Pediatric Surgery	37	PS-9	Ambo Bag Two litter (rubber reusable)	A
Pediatric Surgery	38	PS-10	Ambo Bag Three litter (rubber reusable)	C
Pediatric Surgery	39	PS-11	X-Ray viewing box (for viewing 2 X-Rays, Standard Size)	A
Pediatric Surgery	40	PS-12	Computer P4 with laser printer Table & Chair	C
Pediatric Surgery	41	PS-13	Refrigerator 18 Sft	A
Emergency	42	E-1	Electric Suction Machine(S)	A
Emergency	43	E-2	BP Apparasut with stand mercury	A
Emergency	44	E-3	Diagnostic Set (ENT)	A
Emergency	45	E-4	Ophthalmoscope (Keeler)	A
Emergency	46	E-5	Laryngoscope (Peads)	A
Emergency	47	E-6	Instrument Trolly	A
Emergency	48	E-7	Electric Water	facility
Emergency	49	E-8	Water Filter	facility
Emergency	50	E-9	Minor Instrument for dressing	A
Emergency	51	E-10	Personel Computer with Printer Table & Chairs	C
Emergency	52	E-11	Emergency Beds	A
Emergency	New	E-12	Ultrasonic Nebulizer (Hospital Use)	A
Emergency	New	E-13	Defibrillator	A
Emergency	New	E-14	First aid kit	A
Emergency	New	E-15	ECG machine	A
Emergency	New	E-16	Pulse Oxymeter	A
Emergency	New	E-17	Infusion pumps	A
OPD(ENT,Eye)	53	OPD-1	Day care beds	C
OPD(ENT,Eye)	54	OPD-2	Bed Side Locker	C
OPD(ENT,Eye)	55	OPD-3	Over Bed Table	C
OPD(ENT,Eye)	56	OPD-4	BP Apparatus Mercury with Stands (peads)	A
OPD(ENT,Eye)	57	OPD-5	Diagnostic Set (ENT)	A
OPD(ENT,Eye)	58	OPD-6	Ambu Bag (peads)	A
OPD(ENT,Eye)	59	OPD-7	Trollery for Patients	A
OPD(ENT,Eye)	60	OPD-8	Wheel Chairs	A

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Chief Economist
Government of Sindh
Planning & Development Department

Equipment List

Department		No.	Name of Item	Priority
OPD(ENT,Eye)	61	OPD-9	Refrigerator	A
OPD(ENT,Eye)	62	OPD-10	Infusion pumps	C
OPD(ENT,Eye)	63	OPD-11	Suction Machine(S)	B
OPD(ENT,Eye)	64	OPD-12	CO2 monitor	C
OPD(ENT,Eye)	65	OPD-13	Pulse Oxymeter	B
OPD(ENT,Eye)	66	OPD-14	ABG Analyzer	C
OPD(ENT,Eye)	67	OPD-15	ECG Machine	C
OPD(ENT,Eye)	68	OPD-16	Ophthamoscope	B
OPD(ENT,Eye)	69	OPD-17	Slit lamp	B
OPD(ENT,Eye)	70	OPD-18	Refraction Set	B
OPD(ENT,Eye)	71	OPD-19	Retinoscope	B
OPD(ENT,Eye)	72	OPD-20	Indirect Laryngoscope	B
OPD(ENT,Eye)	73	OPD-21	ENT Set	B
OPD(ENT,Eye)	74	OPD-22	Minor Instrument for ENT examination	B
Burn unit	75	B-1	Skin Grafting Kinfes	C
Burn unit	76	B-2	Kkin graft mesher carrier free mesher	C
Burn unit	77	B-3	Pneumatic demotome compete with hand piece case 4	C
Burn unit	78	B-4	Auto clave (400 lit)	C
Burn unit	79	B-5	Surgical Drum	C
Burn unit	80	B-6	Oxygen cylinder	C
Burn unit	81	B-7	Oxygen flow meter	C
Burn unit	82	B-8	Split air conditioner with stablixer	C
Burn unit	83	B-9	Diathermy bipolar	C
Burn unit	84	B-10	Suction Machine	C
Burn unit	85	B-11	Basic Instruments Set	C
Burn unit	86	B-12	Micro Surgical instruments set	C
Burn unit	87	B-13	Anesthesia machine with vent	C
Burn unit	88	B-14	Ceiling ot light	C
Burn unit	89	B-15	Laryngoscope	C
Burn unit	90	B-16	Infusion pumps	C
Burn unit	91	B-17	Multi para meter for ot	C
Burn unit	92	B-18	Central monitoring system	C
Burn unit	93	B-19	Central Oxygen supply	C
Burn unit	94	B-20	Defibrillator	C
Burn unit	95	B-21	Ventilator paeds	C
Burn unit -	96	B-22	Hospital Beds with mattress	C
Burn unit	97	B-23	Bed Sid Lockers	C
ORT & EPI	98	O&E-1	Refrigerator for vaccice (Ice line Refrigerator)	A
ORT & EPI	99	O&E-2	ORT Uternsils	C
ORT & EPI	100	O&E-3	Baby Toys	C
ORT & EPI	101	O&E-4	Baby Cots(normal chair with arms)	A
Day care center	102	D-1	Baby Cots	C
Day care center	103	D-2	Hospital Beds	C
Phisiotherapy	104	P-1	Baby Cots	C
Phisiotherapy	105	P-2	Ultrasound therapy unit	B
Phisiotherapy	106	P-3	Tunnel bath	C
Phisiotherapy	107	P-4	Quadrilep Drill	C
Phisiotherapy	108	P-5	Cycle	A
Phisiotherapy	109	P-6	Weight Training	A
Phisiotherapy	110	P-7	Stoll bars(parallel bars)	A
Phisiotherapy	111	P-8	Walking support bards with walker(walking support bar)	A
Phisiotherapy	112	P-9	Rehabilitation chairs of defferent sizes	A
Phisiotherapy	113	P-10	Jumping jacks(tranpolin)	A
Phisiotherapy	114	P-11	Physiotherapy Machine with all accessories	C
Phisiotherapy	115	P-12	Tense(fiinger execiser)	B
Phisiotherapy	New	P-13	occupational therapy set	A
Neonatal care unit	116	N-1	Baby Cots	A
Neonatal care unit	117	N-2	Baby Incubator	B
Neonatal care unit	118	N-3	ICU Incubator	C
Neonatal care unit	119	N-4	ICU Vantilator	C
Neonatal care unit	120	N-5	ICU Monitors(patient monitors)	A
Neonatal care unit	121	N-6	Electric Sunction Machine(S)	A
Neonatal care unit	122	N-7	Phototherapy Unit	A
Neonatal care unit	123	N-8	Oxygen Head Box (Neonatal Size)	A
Neonatal care unit	124	N-9	BP Set (Neonatal)	A
Neonatal care unit	125	N-10	Baby Ventilators	C
Neonatal care unit	126	N-11	Blood Gas Machine(installed at Labo)	A

Rizwan Ahmed
GOVE... 2/7 ...SINDH,
HEAL... AGENCY

Chief Economist,
Government of Sind,
Planning & Development Depart

Equipment List

Department		No.	Name of Item	Priority
Neonatal care unit	127	N-12	Electrolytes Machine(Na,K,Cl,HCO3)(installed at Labo)	A
Neonatal care unit	128	N-13	Pulse Oxymeter	A
Neonatal care unit	129	N-14	Saturation monitor	C
Neonatal care unit	130	N-15	Radiant Warmer	C
Neonatal care unit	131	N-16	X-Ray viewing box	A
Neonatal care unit	132	N-17	Neonatal Resuscitate	C
Neonatal care unit	133	N-18	Icterometer (Janundice Meter)	C
Neonatal care unit	134	N-19	Infusion pumps	A
Neonatal care unit	135	N-20	Syringe Pumps	A
Neonatal care unit	136	N-21	Overhead Warmers	C
Neonatal care unit	137	N-22	Computer P4 with laser printer Table & Chair	C
Neonatal care unit	138	N-23	Neonatal rescitaten Trolley(baby stretcher with warming &O2bottle)	A
Neonatal care unit	New	N-24	Neonatal height & weight scale	A
Thalassemia	139	T-1	Meia System (Micro Particle Emzyme Immuno Assay)	C
Thalassemia	140	T-2	HPLC-Diagnostic Equipments for Thalassaemia	C
Thalassemia	141	T-3	Cryofuge (Automated Refrigerated Centrifuge)	C
Thalassemia	142	T-4	Cryofuge (Automated Refrigerated Centrifuge)	C
Thalassemia	143	T-5	Frezeer with Temp. Recorder (-70C)	C
Thalassemia	144	T-6	Frezeer with Temp. Recorder Service Centre (-20C)	C
Thalassemia	145	T-7	Refrigertor (2C - 8C)	C
Thalassemia	146	T-8	Blood Bank Refrigerator (2C to 6C)	C
Thalassemia	147	T-9	Blood Bank Refrigerator (2C to 6C)	C
Thalassemia	148	T-10	Store Refrigerator (2C to 6C)	C
Thalassemia	149	T-11	ECG machine	C
Thalassemia	150	T-12	Blood Bag Shaker	C
Thalassemia	151	T-13	Tube Sealer	C
Thalassemia	152	T-14	Laminar Flow	C
Thalassemia	153	T-15	Microscope	C
Thalassemia	154	T-16	Haemoglobino meter	C
Thalassemia	155	T-17	Blood Bag Expressor	C
Thalassemia	156	T-18	Water bath	C
Thalassemia	157	T-19	Incubator (Serlizer)	C
Thalassemia	158	T-20	Table Top Centrifuge	C
Thalassemia	159	T-21	Adjustable and Fix juster	C
Thalassemia	160	T-22	Gel System	C
Thalassemia	161	T-23	Central oxygen supply	C
Thalassemia	162	T-24	Personel Computer with Printer Table & Chairs	C
Thalassemia	163	T-25	Split air conditioner	C
Thalassemia	164	T-26	UPS IKVA	C
Thalassemia	165	T-27	Stablizzer	C
Thalassemia	166	T-28	TV 32"	C
Thalassemia	167	T-29	Chari bed titled for thalassemia Patient	C
Thalassemia	168	T-30	Transfusion Chairs	C
Pathology	169	PA-1	Lab incubator Large Size	A
Pathology	170	PA-2	Lab incubator Small Size	A
Pathology	171	PA-3	Auto Clave	A
Pathology	172	PA-4	Hot Air Oven	A
Pathology	173	PA-5	Elisa (Plate reader) with printer	C
Pathology	174	PA-6	Laminator flow (cabinet)	C
Pathology	175	PA-7	Centrifuge bench type	A
Pathology	176	PA-8	Binocular Microscope	A
Pathology	177	PA-9	Anaerobic jar	C
Pathology	178	PA-10	Deinizer(Deionizer)	C
Pathology	179	PA-11	Distillation plant	facility
Pathology	180	PA-12	Domestic Regrigerator 12 CFT	A
Pathology	181	PA-13	Electronic weighning balance	A
Pathology	182	PA-14	Computer with printer	C
Pathology	New	PA-15	Laboratory side table set	A
Pathology	New	PA-16	Laboratory central table set	A
Chemistry	183	C-1	Photometer	A
Chemistry	184	C-2	Automated Chemistry Analyzer	B
Chemistry	185	C-3	Color meter	B
Chemistry	186	C-4	Centrifuge Machine bench type	C
Chemistry	187	C-5	Hot Air Oven	C
Chemistry	188	C-6	Refrigerators 12 CFT	C
Chemistry	189	C-7	Electrolyte Analyzer	C
Chemistry	190	C-8	Chemo Immunolecent (for hormone & tumor markers)	C

Equipment List

Department		No.	Name of Item	Priority
Chemistry	191	C-9	Computer with printer	C
Chemistry	192	C-10	Miscellaneous Disposable, Glass ware etc	C
Hematology	193	H-1	Hematology Analyzer 03 parts differential	A
Hematology	194	H-2	Hematology Analyzer 06 parts differential	C
Hematology	195	H-3	PCR Machine with accessories	C
Hematology	196	H-4	ESR system(blood sedimentation set)	A
Hematology	197	H-5	Flow Cytometer	C
Hematology	198	H-6	Binocular microscope	B
Hematology	199	H-7	Water bath	B
Hematology	200	H-8	Lab incubator Small Size	B
Hematology	201	H-9	Hot Air Oven	B
Hematology	202	H-10	Hemoglobin Electrophoresis apparatus	C
Hematology	203	H-11	Power supply	facility
Hematology	204	H-12	Densitometer	C
Hematology	205	H-13	Coagulation analyzer	A
Hematology	206	H-14	Centrifuge Machine bench type	C
Hematology	207	H-15	Sample mixer (roller)	A
Hematology	208	H-16	Platelets Aggregometer	C
Hematology	209	H-17	Platelet with incubator agitator	C
Hematology	210	H-18	Bone marrow aspiration needles	C
Hematology	211	H-19	Bone marrow trephine biopsy needles	C
Hematology	212	H-20	Autoclave	C
Hematology	213	H-21	DLC manual counter	A
Hematology	214	H-22	Slide sorage cabinets	A
Hematology	215	H-23	Computer with printer	C
Hematology	216	H-24	Domestic Regrigerator 18 CFT	B
Hematology	217	H-25	Beds with mattress	C
Hematology	218	H-26	Fowler Bed Single crank with mattress	C
Hematology	219	H-27	Distillation plant(water distiller)	A
Blood bank	220	BB-1	Microscope binocular	Pending
Blood bank	221	BB-2	Clinical Centrifuge Machine 8000 rpm	Pending
Blood bank	222	BB-3	Water bath	Pending
Blood bank	223	BB-4	Hot Air Oven	Pending
Blood bank	224	BB-5	product preparation	Pending
Blood bank	225	BB-6	Elisa (Plate reader) with printer & automated washer	Pending
Blood bank	226	BB-7	Domestic Refrigerator	Pending
Blood bank	227	BB-8	Blood bank refrigerator with 4+2C	Pending
Blood bank	228	BB-9	Refrigerator centrifuge for blood bags	Pending
Blood bank	229	BB-10	Platelets incubator with agitator	Pending
Blood bank	230	BB-11	Cell separator (Aphaeresis apparatus)	Pending
Blood bank	231	BB-12	Clinical microscopes	Pending
Blood bank	232	BB-13	Blood Donor bed (SS)	Pending
Blood bank	233	BB-14	Computer with printer	Pending
Histopathology	234	HI-1	Microscope binocular	C
Histopathology	235	HI-2	Tissue processor with fume hood	C
Histopathology	236	HI-3	Microtone with diposable blades and convential knife	C
Histopathology	237	HI-4	Cytospin	C
Histopathology	238	HI-5	Wax dispenser	C
Histopathology	239	HI-6	Tissue floating bath	C
Histopathology	240	HI-7	Slide warmer	C
Histopathology	241	HI-8	Cryostat	C
Histopathology	242	HI-9	Frozen section microtone	C
Histopathology	243	HI-10	Bone cutting saw	C
Histopathology	244	HI-11	Block Storage cainet	C
Histopathology	245	HI-12	Slide Storage cabinet	C
Histopathology	246	HI-13	Computer + printer	C
Histopathology	247	HI-14	Refrigerator 18 CFT	C
Histopathology	248	HI-15	Centrifuge Machine	C
Histopathology	249	HI-16	Hot Air Oven	C
Histopathology	250	HI-17	Lab incubator	C
Histopathology	251	HI-18	Miscellaneous/Glass ware	C
Cold storage	252	CS-1	Refrigerator 12 CFT	A
Cold storage	253	CS-2	Deep Freezer Domestic	A
Cold storage	254	CS-3	Computer Networking software	C
Cold storage	255	CS-4	Server	C
Radiology	256	R-1	M.R.I	C
Radiology	257	R-2	C.T. Scanner Machine	C

GOVT. OF SINDH
HEALTH DEPARTMENT

Equipment List

Department		No.	Name of Item	Priority
Radiology	258	R-3	X-Ray Unit 500 MA (with fluoroscopy function)	A
Radiology	259	R-4	Ultrasound Machine General Purpose	A
Radiology	260	R-5	Radiology Accessories (sets)	A
Radiology	261	R-6	Daylight Film Processor	A
Radiology	262	R-7	Portable X-Ray Plant 300 MA	A
Radiology	263	R-8	Colour Doppler Ultrasound Machine	A
Radiology	264	R-9	Computer with Laser Printer and Accessories	C
Radiology	265	R-10	Portable Ultracooound	A
Radiology	266	R-11	EEG	B
Radiology	267	R-12	EMG/NCV Machine	B
Radiology	268	R-13	Bera(function of bera is incorporated with EMG machine)	C
OT	269	OT-1	Operation Tables	A
OT	270	OT-2	OT Lights (Ceiling) Large	A
OT	271	OT-3	Halothance) and Gas Monitor	A
OT	272	OT-4	Electric Suction Machine(L)	A
OT	273	OT-5	Under Water Cuttin)	facility
OT	274	OT-6	X-Ray Viewing Box	A
OT	275	OT-7	Instrument Trolly	A
OT	276	OT-8	Infusion pumps	A
OT	277	OT-9	BP Apparatus with stand (maercury)	A
OT	278	OT-10	Instrument Cabinet (7ft x 3ft x 2ft with two portion)	A
OT	279	OT-11	CSSD Sterlization System A. Washing and Scrubbing B. Disinfector Machine C. Autoclave. Further more store department area for keeping instrument, Air Line, Ethylene Oxide, tub for washing, cleaner for instrument and ultrasonic are also part of CSSD System	A
OT	280	OT-12	Major Operation Sets	B
OT	281	OT-13	Minor Operation Sets	A
OT	282	OT-14	Recovery Trolley's	A
OT	283	OT-15	ICU Beds for Recovery Room	A
OT	284	OT-16	Capnograph for Each OT(multipara monitor incl.Co2)	A
OT	285	OT-17	Laryngoscope (all 4 blades)	A
OT	286	OT-18	Laryngoscope (maglia with all 4 blades)	C
OT	287	OT-19	Esophageal Stethoscope	C
OT	288	OT-20	Peripheral Nerve Simulator	B
OT	289	OT-21	Glucometer	A
OT	290	OT-22	Blood Warmer	A
OT	291	OT-23	Fibercoptic Laryngroscope	B
OT	292	OT-24	Diathemy Unit	A
OT	293	OT-25	Core Body Temperature Monitor	C
OT	294	OT-26	Mobile Light (rechargable with 5 bulbs)with battery backup	A
OT	295	OT-27	Ambo Bag One litter (rubber reusable)for paed.	A
OT	296	OT-28	Ambo Bag Two litter (rubber reusable)for adrescent child	A
OT	297	OT-29	Ambo Bag Three litter (rubber reusable)	C
OT	298	OT-30	Patient Trolly	C
OT	299	OT-31	Strechers with Trolly	C
OT	300	OT-32	Minor O.T. Table	A
OT	301	OT-33	Minor O.T. Lights	A
OT	302	OT-34	Minor O.T. Instrument set for paed	C
OT	303	OT-35	Auto Clave(boiling sterilizer)	A
PS Theater complex	304	PST-1	Rigid Pediatric Sigmoidscope	A
PS Theater complex	305	PST-2	Management Patient O.A.	C
PS Theater complex	306	PST-3	Neonatal resuscitation trrolley	A
PS Theater complex	307	PST-4	Rigid Bronchoscope	A
PS Theater complex	308	PST-5	Oesophago Scope wigid	B
PS Theater complex	309	PST-6	Bronchoscope	C
PS Theater complex	310	PST-7	Cystoscope	C
PS Theater complex	311	PST-8	Resctoscope	C
PS Theater complex	312	PST-9	Oesophagel Dilator	B
Dental surgery	313	D-1	Dentel Wlit with all accessories	C
Dental surgery	314	D-2	X-Ray unit (belmond)spot type	A
Dental surgery	315	D-3	Autoclave B-cycle(boiling sterilizer)	A
Dental surgery	316	D-4	X-Ray film (50 packets)	C
Dental surgery	317	D-5	Micro motor	C
Dental surgery	318	D-6	Hand piece	C
Dental surgery	319	D-7	Surgical instrument	C
Dental surgery	320	D-8	Dental Material	
Dental surgery	321	D-9	Refrigerator	

Chief Economist, Govt. of Sind, P&D Department

Equipment List

Department		No.	Name of Item	Priority
Dental surgery	322	D-10	Computer P-4 with Laser Printer	C
Medical Education	323	ME-1	Infanto head for intubation	C
Medical Education	324	ME-2	Resusci baby for cardiopulmonary resuscitation)	B
Medical Education	325	ME-3	Infant dummy for resuscitation	C
Medical Education	326	ME-4	Child dummy	C
Medical Education	327	ME-5	Simulator for I/V access	C
Medical Education	328	ME-6	Dummy of Body (Pelvis & Abdomen) Model	C
Medical Education	329	ME-7	Fetus Model	C
Medical Education	330	ME-8	Twin Model	C
Medical Education	331	ME-9	Breech Model	C
Medical Education	332	ME-10	Placenta Model	C
Medical Education	333	ME-11	Bony Pelvic Model	C
Medical Education	334	ME-12	Computer P-4 with Laser Printer	C
Medical Education	335	ME-13	Examination Couch	C
Medical Education	336	ME-14	X-Ray Illuminator	C
Medical Education	337	ME-15	Overhead Projector with Screen	C
Medical Education	338	ME-16	Slide Projector	C
Medical Education	339	ME-17	Multimedia with Screen	C
Auditorium	340	A-1	Easy chair	C
Auditorium	341	A-2	Computer P-4 with Laser Printer	C
Auditorium	342	A-3	Overhead Projector with Screen	C
Auditorium	343	A-4	Slide Projector	C
Auditorium	344	A-5	Multimedia with Screen	C
Auditorium	345	A-6	Speaker System	C
Auditorium	346	A-7	Dice for speakers	C
Auditorium	347	A-8	V.C.R	C
Auditorium	348	A-9	D.V.D	C
Auditorium	349	A-10	TV 32"	C
Reception	350	RE-1	Reception Glass Counter	facility
Reception	351	RE-2	Computer P-4 with Laser Printer	C
Hospital	352	H-1	Generator 100 KVA	facility
Hospital	353	H-2	Sewerage Treatment Plant	facility
Hospital	354	H-3	House Keeping Equipments	C
Hospital	355	H-4	Ambulances	B
Hospital	356	H-5	Incinerator	A
Nursing hostel	357	NH-1	Room Bed	C
Nursing hostel	358	NH-2	Room Chairs	C
Nursing hostel	359	NH-3	Sui Gas burners for kitchen	C
Nursing hostel	360	NH-4	Crocker/utensils for mess	C
Nursing hostel	361	NH-5	Electric Water Fitter	C
Nursing hostel	362	NH-6	Electric Water Cooler	C
Nursing hostel	363	NH-7	Reading Table	C
Doctor hostel	364	DH-1	Room Bed	C
Doctor hostel	365	DH-2	Room Chairs	C
Doctor hostel	366	DH-3	Sui Gas burners for kitchen	C
Doctor hostel	367	DH-4	Crocker/utensils for mess	C
Doctor hostel	368	DH-5	Electric Water Fitter	C
Doctor hostel	369	DH-6	Electric Water Cooler	C
Doctor hostel	370	DH-7	Reading Table	C
Pray area	371	P-1	Carpets for Prayers	C
Pray area	372	P-2	Pesh Imam membur	C
Pray area	373	P-3	Gas Geyzer	C
Pray area	374	P-4	Electric Water Cooler	C
Pray area	375	P-5	Public Address System	C
CCU	376	CCU-1	E.C.G Machine	C
CCU	377	CCU-2	C.C.U Beds with mattress	C
CCU	378	CCU-3	Patients Trolley	C
CCU	379	CCU-4	Wheel Chairs	C
CCU	380	CCU-5	Strechers with Trolly	C
CCU	381	CCU-6	Bed Side Locker	C
CCU	382	CCU-7	Overhead Bed Tables	C
CCU	383	CCU-8	Echo Cardiography Machine with colour dopler	C
CCU	384	CCU-9	Angiocardiography Machine	C
CCU	385	CCU-10	Monitors	C
CCU	386	CCU-11	ECG Machine	C
CCU	387	CCU-12	Ambu Bags Neonatal	C
CCU	388	CCU-13	Infant	C
CCU	389	CCU-14	Child	C

Rizwan Ahmed
SECRETARY
GOVERNMENT OF SINDH
HEALTH DEPARTMENT

Chief Economist
Government of Sindh
Planning & Development Department

Equipment List

Department		No.	Name of Item	Priority
CCU	390	CCU-15	Langoscope	C
CCU	391	CCU-16	BP Apparatus	C
Library	392	L-1	Book shelves	C
Library	393	L-2	File Ranks	C
Library	394	L-3	Iron Almirah for Books	C
Library	395	L-4	Office Table	C
Library	396	L-5	Office Chairs	C
Library	397	L-6	Revolving Chairs	C
Library	398	L-7	Computer P-4 with Laser Printer	C
Library	399	L-8	Chairs for readers	C
Library	400	L-9	Oval table for readers	C
Library	401	L-10	Books/Perdiocals	C
Pharmacy	402	PH-1	Racks Iron	A
Pharmacy	403	PH-2	Refrigerator	A
Pharmacy	404	PH-3	Iron Almerah	A
Pharmacy	405	PH-4	Computer P-4 with Laser Printer	C
Kitchen	406	K-1	Sui Gas burners	C
Kitchen	407	K-2	Utensils and wares (Crockrey)	C
Kitchen	408	K-3	Refgerators	C
Kitchen	409	K-4	Water Cooler Electric	C
Kitchen	410	K-5	Canteen Chairs	C
Kitchen	411	K-6	Canteen Tables	C
Registration counters	412	RC-1	File Ranks	A
Registration counters	413	RC-2	Computer P-4 with Laser Printer	C
Registration counters	414	RC-3	Officer Chairs	facility
Registration counters hall	415	RCH-1	Reception Glass Counter	facility
Registration counters hall	416	RCH-2	Computer P-4 with Laser Printer	C
Registration counters hall	417	RCH-3	Patients Waiting Chairs	facility

Remarks

Facility : The components will be finalized subject to further survey and assessment in Japan.
Quantity : To be finalized after further field survey, discussion and domestic analysis
A : Understood the necessity, and subject to be procured under this grant
B : Understood the necessity, but need further domestic analysis for finalization
C : Not to be considered under this grant

Rajwan Ahmed
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HEALTH DEPARTMENT

Components of Facilities

1. **Components of New Buildings under Japan's Grant Aid**
   - Special Out Patient Clinic
   - Surgery Department including Surgical Clinic and Operation Theater
   - Emergency Department
   - Pediatric Medical Wards including TFC(Therapeutic Feeding Center) and Play Area
   - Image Diagnostics Department
   - Laboratory Department
   - ICU
   - NICU
   - Camp Office for Superintendent
   - Secondary Pharmacy
   - Incidental Facilities for New Buildings
   - Connecting Corridors to the Existing Building

2. **Components of Existing Building arranged by Pakistani Side**
   - Administration Office
   - General Out Patient Clinic including E.N.T and Dermatology
   - Well Baby Clinic
   - Malnutrition Clinic & Day Care Unit
   - Infectious Disease Clinic & Surveillance Room
   - EPI
   - DOTS and TB clinic
   - Pharmacy
   - X-ray (existing unit)
   - Dental Department
   - Laboratory (existing unit)
   - Physiotherapy & Rehabilitation
   - Workshop
   - Medical Education Department
   - Kitchen
   - Storage
   - Play area

Note: The above components will be finalized subject to further survey and assessment in Japan.

ANNEX-4 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 :

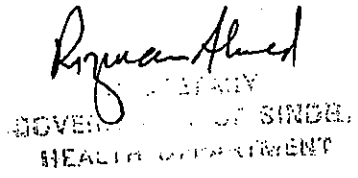
- Preparatory Survey
  - The Survey conducted by JICA
- Appraisal &Approval
  - -Appraisal by the GOJ and JICA, and Approval by the Japanese Cabinet
- Authority for Determining Implementation
  - -The Notes exchanged between the GOJ and a recipient country
- Grant Agreement (hercinafter referred to as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

2. Preparatory Survey

(1) Contents of the Survey

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

- Confirmation of the background, objectives, and benefits of the Project and also institutional capacity of relevant agencies of the recipient country necessary for the implementation of the Project.
- Evaluation of the appropriateness of the Project to be implemented under the Grant Aid Scheme from a technical, financial, social and economic point of view.
- Confirmation of items agreed between both parties concerning the basic concept of the Project.
- Preparation of an outline design of the Project.
- Estimation of costs of the Project.



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

JICA requests the Government of the recipient country to take whatever measures necessary to achieve its self-reliance in the implementation of the Project. Such measures must be guaranteed even though they may fall outside of the jurisdiction of the organization of the recipient country which actually implements the Project. Therefore, the implementation of the Project is confirmed by all relevant organizations of the recipient country based on the Minutes of Discussions.

(2) Selection of Consultants

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

(3) Result of the Survey

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

3. Japan's Grant Aid Scheme

(1) The E/N and the G/A

After the Project is approved by the Cabinet of Japan, the Exchange of Notes(hereinafter referred to as "the E/N") will be singed between the GOJ and the Government of the recipient country to make a pledge for assistance, which is followed by the conclusion of the G/A between JICA and the Government of the recipient country to define the necessary articles 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.

GOVT. OF SINDH
HEALTH DEPARTMENT

Chief Economist,
Government of Sind,
Planning & Development Dept.

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.

(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.

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HEALTH DEPARTMENT

Government of Sindh
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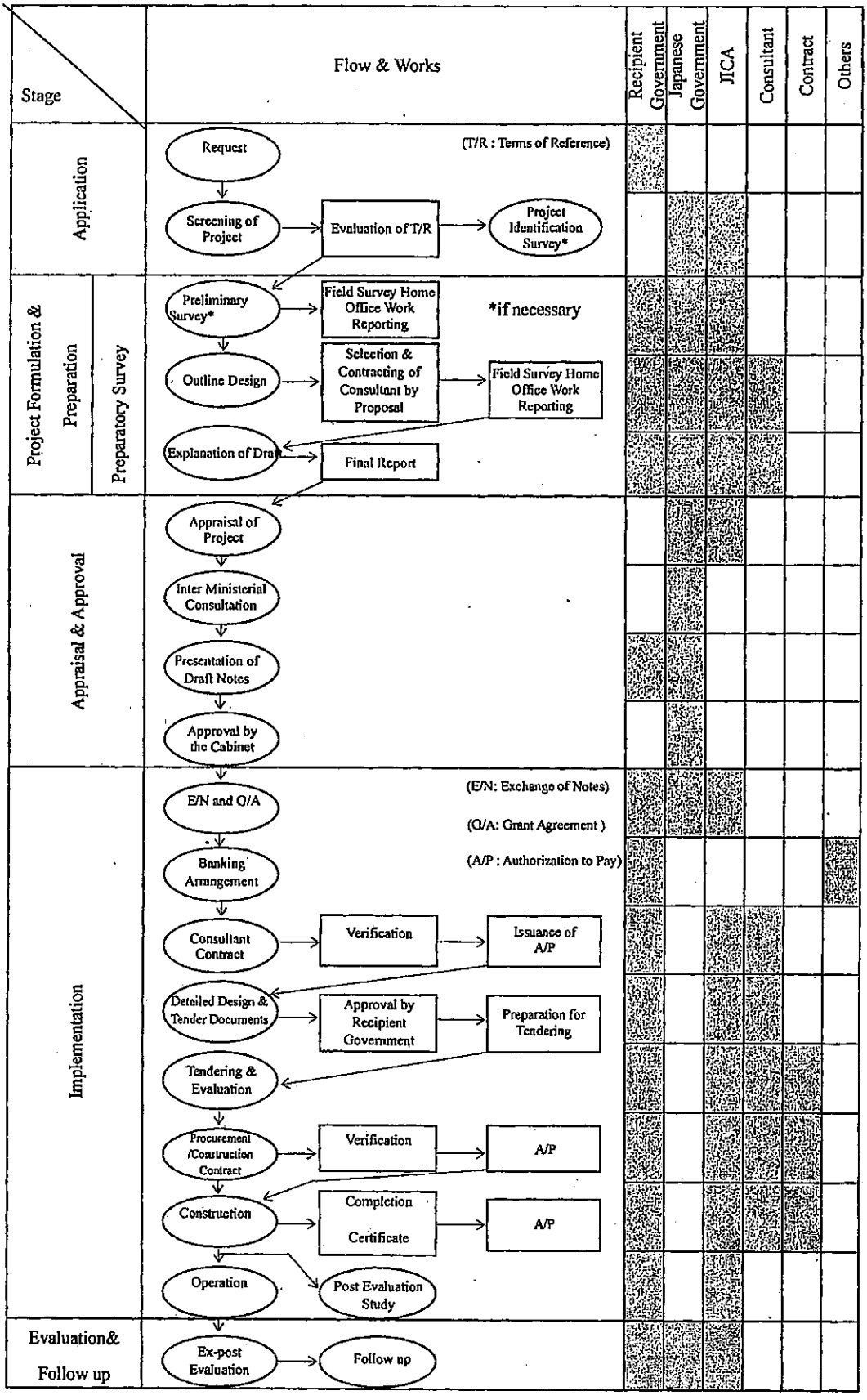
ANNEX-5 FLOW CHART OF JAPAN's GRANT AID PROCEDURES



ANNEX-6 Major Undertakings to be taken by Each Government

No.	Items	To be covered by Grant Aid	To be covered by Recipient Side
1	to secure a lot of land necessary for the implementation of the Project and to clear the site		●
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 site		
	1) Electricity		
	a. The distributing power line to the site		●
	b. The drop wiring and internal wiring within the site	●	
	c. The main circuit breaker and transformer	●	
	2) Water Supply		
	a. The city water distribution main to the site		●
	b. The supply system within the site (receiving and elevated tanks)	●	
	3) Drainage		
	a. The city drainage main (for storm sewer and others to the site)		●
	b. The drainage system (for toilet sewer, common waste, storm drainage and others) within the site	●	
	4) Gas Supply		
	a. The city gas main to the site		●
	b. The gas supply system within the site	●	
	5) Telephone System		
	a. The telephone trunk line to the main distribution frame/panel (MDF) of the building		●
	b. The MDF and the extension after the frame/panel	●	
	6) Furniture and Equipment		
	a. General furniture		●
	b. Project equipment	●	
4	To ensure prompt unloading and customs clearance of the products at ports of disembarkation in the recipient country and to assist internal transportation of the products		
	1) Marine (Air) transportation of the Products from Japan to the recipient country	●	
	2) 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 Islamic Republic of Pakistan with respect to the purchase of the products and the services be exempted (With regard to the internal taxes, the total percentage of rates of Sales Tax imposed on the said supply shall be zero percent (0%) or Sales Tax imposed on the said supply shall 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		●
(B/A : Banking Arrangement, A/P : Authorization to pay)			

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Government of Sindh
Planning & Development

Annex-I

FROM : FAX NO. : 5 Jul. 2011 10:30PM P1

Attention: Sohail Sb.

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GOVERNMENT OF SINDH
Health Department

MINUTES OF MEETING WITH THE REPRESENTATIVES OF JICA REGARDING "CHILD HEALTHCARE INSTITUTE AT KARACHI" HELD ON 9TH JULY, 2010 AT 10:30 AM UNDER THE CHAIRMANSHIP OF THE SECRETARY HEALTH DEPARTMENT, GOVERNMENT OF SINDH.

(LIST OF PARTICIPANTS ATTACHED)

The worthy Secretary Health welcomed the JICA delegation headed by Mr. Takemoto Keiichi seconded by Mr. Sohail Ahmed and appreciated JICA for extending help in establishment of Child Health institute Karachi.

The JICA representative asked for details of proposed human resource and it's availability and capacity to run this institute. The Secretary Health responded that infact our aim is to have in place an institute of high class Japanese Standard and as regards the availability of human resources, we have stream of specialist available and as regards other support staff, they do require commensurate trainings. He added that either with JICA assistance or locally we would arrange for pertinent training of technical staff, both medics and paramedics. The distinguished JICA representative responded that economy of Japan is not in much boom and due to this Japan would not support in training, at present. The worthy Secretary Health assured that Health Department had enough number of trained Specialists, doctors, nurses, paramedics and other technical people available at Karachi and any shortfall would be met from imparting local trainings to required numbers. On quarry, the Secretary Health stated that there were established modes of the recruitment through Public Services Commission, transfer and posting and hiring from open market.

Responding to the quarry of JICA representative, the worthy Secretary Health clarified that Government budget salaried and non-salaried were being financed through government annual budget and no fee being charged in public sector facilities for both diagnostic and treatment. The shortfalls for treatment had been met from the grants received from local philanthropists, Government Zakat fund (charity) and technical assistances from the donors like trainings (UNICEF, UNFPA etc). Regarding the budget allocation of both human resources and hospital, the Secretary Health informed that initial phase for budgeting of operational and human resource would be processed through submission S.N.E. with PC-IV i.e. project completion report to Planning & Development Department, Government of Sindh for issuance of No Objection Certificate and subsequently to Finance Department. For notifying Child Health Institute on regular/ non-development budget books, we would process it as special case. He added that in accordance to project requirements budget could be got approved even before the completion of project. On request of JICA representative photo copies of budget for tertiary care facilities and tentative human resource details of proposed Child Health institute Karachi were shared with them as directed by the Secretary Health.

Regarding the approval mechanism, worthy Secretary Health informed JICA delegation that after acceptance of Concept Proposal and Request to donors, if project happened to be mega and complex, a PC-II is prepared for approval of competent forum for hiring consultants for preparation of feasibility and PC-1 with estimates. The worthy Secretary Health pointed out that detail implementation strategy could be had with donors even without PC-1. The JICA

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representative stated that with PC-I in place we could work out all roles and responsibilities as well as implementation details neatly. The Secretary Health agreed.

Finally the representative of JICA requested for allocation of funds for revamping and renovation of existing structure with erection of new building, the worthy Secretary Health assured of all counterpart support including thorough revamping and renovation of existing structure of Children Hospital North Karachi. The worthy Secretary Health again thanked the visiting delegation of JICA.

Chief Economist
Government of Sind,
Planning & Development Depar

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LIST OF PARTICIPANTS OF THE MEETING WITH SECRETARY HEALTH WITH JICA REPRESENTATIVES ON 9TH JULY 2010

Sr. No.	Name & Designation	
	Health Department, Government of Sindh	
1	Syed Hashim Raza Zaidi, Secretary Health	In Chair
2	Dr. Abdul Majid, Special Secretary (PH)	
3	Dr. Khalid Hussain Shaikh, Additional Secretary (Dev.)	
4	Mohsin Ahmed Shaikh, Additional Director Dev. (PH)	
5	Dr. Bina , Planning Officer	
	JICA (Japanese International Cooperation Agency)	
1	Mr. Keiichi Takemoto JICA Representative	
2	Mr. Sohail Ahmed, JICA Representative	

Chief Economist,
Government of Sind,
Planning & Development De

(2) Second Field Survey

MINUTES OF DISCUSSIONS

PREPARATORY SURVEY (FIELD SURVEY II)

ON THE PROJECT FOR IMPROVEMENT OF CHILD HEALTH INSTITUTE IN KARACHI

IN THE ISLAMIC REPUBLIC OF PAKISTAN

In response to a request from the Government of the Islamic Republic of Pakistan (hereinafter referred to as "the Pakistan"), the Government of Japan decided to conduct a Preparatory Survey on the Project for Improvement of Child Health Institute in Karachi (hereinafter referred to as "the Project") and entrusted the study to the Japan International Cooperation Agency (hereinafter referred to as "JICA") .

JICA dispatched the Preparatory Survey (Field Survey II) Team (hereinafter referred to as "the Team") to Pakistan, which is headed by Mr. Hideo Eguchi, Deputy Director General, Planning and Coordination, Human Development Department, JICA, and is scheduled to stay in the country from September 10 to September 29, 2011.

The Team held discussions with the officials concerned of the Government of Sindh, collected basic information and conducted a field survey at the study area.

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

Karachi, September 19, 2011

Mr. Hideo Eguchi
Leader
Preparatory Survey Team
Japan International Cooperation Agency

Mr. Rizwan Ahmed
Secretary
Health Department
Government of Sindh
The Islamic Republic of Pakistan

SECRETARY
GOVERNMENT OF SINDH
HEALTH DEPARTMENT

Dr. Qazi Masood Ahmed
Chief Economist
Planning & Development Department
Government of Sindh
The Islamic Republic of Pakistan

Chief Economist,
Government of Sind,
Planning & Development Department

Mr. Jamil Anwar
Joint Secretary (ADB/Japan)
Economic Affair Division
The Islamic Republic of Pakistan

ATTACHMENT

1. Objective of the Project

The objective of the Project is to strengthen the services of the Child Health Institute in Karachi by improving its facilities and equipment.

2. Responsible and Implementing Agency

2-1. The Responsible Agency is Health Department, Government of Sindh.

2-2. Implementing Agency is Health Department, Government of Sindh.

3. Items requested by the Government of Pakistan.

3-1. After discussions between the Team and the Pakistani side, the items described in Annex-1, Annex-2, Annex-3, and Annex-4 were finally consented by both sides. JICA will assess the appropriateness of those requested items and will recommend to the Government of Japan for its approval.

3-2. Both sides agreed on the number of beds for new building as approximately 125 beds for inward, 8 incubators for NCU (Neonatal Care Unit), 10 cots for mother treatment, and 10 to 15 for ER(Emergency Room) treatment described in Annex-3.

3-3. Both sides agreed that 8 incubators in stock at the existing building shall be installed in NCU room at the new building.

3-4. Both sides agreed on the importance of professional staff assignment for newly established components at the Institute, especially anesthesia, ophthalmology, and ENT (Ear, Nose and Throat). The Pakistani side committed for staff assignment as Annex-6. The Pakistani side shall also provide recruitment plan and details regarding professional of anesthesia, ophthalmology, and ENT in Sindh to JICA by December 31, 2011.

3-5. Both sides agreed that medical waste management and the necessity of incinerator at the Institute shall be determined after the survey on the feasibility to utilize the waste management system under the Karachi city government.

4. Staffing for the Project

4-1. The Pakistani side agreed to secure and allocate sufficient permanent staff described in Annex-5 and enough budgets to operate and maintain the improved health institute and procured equipment provided by the Project properly and effectively, as a condition for the Project to be implemented. Meanwhile, the Pakistani side has also agreed to include these staff described in Annex-5 and budgets into PC-1.

4-2. The Pakistani side agreed that it shall implement in-service training for paramedics in charge of NCU after allocating them, and ensure workable referral system from maternal clinics, outreach workers, and so on to function NCU.

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Government of Sind,
Planning & Development Department

5. Proper Maintenance of Equipment

The Pakistani side agreed that equipment maintenance shall be managed properly according to the nature of equipment as follows;

i) Using capacity of electro medical directorate under the provincial health department,

ii) Assignment of biomedical engineer and/or biomedical technician at the Institute, and

iii) Regular maintenance contract with local agency/supplier for the equipment which the Team recommends.

6. Schedule of the Survey

6-1. The consultants will proceed to conduct further survey in Pakistan until September 29, 2011.

6-2. JICA will prepare the summary of draft report in English which describes the basic design of the Project, and will dispatch a mission in order to explain its contents in February, 2012.

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

6-4. If the Project is approved by the Japanese Cabinet, the final report (the Preparatory Survey Report) will be sent to the Government of Pakistan by September, 2012.

6-5. The above schedule is tentative and subject to change.

7. Other relevant issues

7-1. Both sides reconfirmed timetable of key actions for PC-1 as follows;

December 20, 2011	Development of PC-I (Draft) by Pakistani side
Beginning of February, 2012	Provision of necessary information by Japanese side
February 10, 2012	Development of PC-I (Final) by Pakistani side
March 20, 2012	Approval by Provincial Development Working Party (PDWP)
April 20, 2012	Approval by Central Development Working Party (CDWP)
June 20, 2012	Approval by Executive Committee of National Economic Council (ECNEC) (If it is required)

7-2. Both sides reconfirmed that the Pakistani side take all necessary steps to secure the safety of the members of the Project. Specifically, the Pakistani side will arrange convoy, whenever the Japanese side requests, to protect the members of the Project during their movement between accommodation and the Project site as well as during construction at site by the Japanese side.

7-3. Both sides reconfirmed that the Pakistani side shall renovate the existing facility if necessary.

Annex-1 Equipment List

Annex-2 Components of Facilities

Annex-3 Tentative Bed Distribution

Annex-4 Building Plan

Annex-5 Human Resource Allocation

Annex-6 Letter from the Government of Sindh

Chief Economist,
Government of Sind,
Planning & Development Department

Equipment List

Department		New No.	Name of Item	Q'ty	*
Pediatric Medicine	1	PM-1	Hospital Beds with mattress	●	
Pediatric Medicine	2	PM-2	Bed Side Lockers	●	
Pediatric Medicine	3	PM-29	IV Stand	●	
Pediatric Medicine	4	PM-30	Oxygen flow meter, Humidifier and Regulator	●	
Pediatric Medicine	5	PM-4	Electric Suction Machine (S)	4	
Pediatric Medicine	6	PM-6	Laryngoscope (Children Blades)	2	
Pediatric Medicine	7	PM-10	BP Apparatus Mercury with Stands (peads)	6	
Pediatric Medicine	8	PM-12	Ultrasonic Nebulizer (Hospital Use)	4	
Pediatric Medicine	9	PM-13	Infusion Pumps	8	
Pediatric Medicine	10	PM-14	Pulse Oxymeter	6	
Pediatric Medicine	11	PM-15	Saturation Monitor (Patient monitor)	8	
Pediatric Medicine	12	PM-31	Instrument Trolley	2	
Pediatric Medicine	13	PM-32	Desk for consultation	●	
Pediatric Medicine	14	PM-33	Chair for Dr. and Patients	●	
Pediatric Medicine	15	PM-20	Refrigerator Pharmaceutical	2	
Pediatric Medicine	16	PM-35	Examination Couch	●	
Pediatric Medicine	17	PM-36	Dressing Set	2	
Pediatric Medicine	18	PM-37	Wheel Chairs	4	
Pediatric Medicine	19	PM-38	Room Bed	●	
Pediatric Medicine	20	PM-39	Medicine Cabinet with Key (Transparent Glass)	●	
Pediatric Medicine	21	PM-40	Instrument Cabinet (7ft x 3ft x 2ft with two portion)	2	
Pediatric Medicine	22	PM-42	Landry Cart	●	
Pediatric Medicine	23	PM-44	Hospital Sluice Sink	●	
Pediatric Medicine	24	PM-45	Garbage Box	1	
Pediatric Medicine	25	PM-21	X-Ray Viewing Box	4	
Pediatric Medicine (PICU)	26	PICU-1	Defibrillator	1	
Pediatric Medicine (PICU)	27	PICU-2	ICU Beds for Recovery Room	●	
Pediatric Medicine (PICU)	28	PICU-3	Bed Side Lockers	●	
Pediatric Medicine (PICU)	29	PICU-4	IV stand	●	
Pediatric Medicine (PICU)	30	PICU-5	ICU Monitors (Patient Monitors)	4	
Pediatric Medicine (PICU)	31	PICU-6	Pulse Oxymeter	2	
Pediatric Medicine (PICU)	32	PICU-7	Diagnostic Set	1	
Pediatric Medicine (PICU)	33	PICU-9	BP Apparatus Mercury with Stands (peads)	4	
Pediatric Medicine (PICU)	34	PICU-10	Hospital Sluice Sink	●	
Pediatric Medicine (PICU)	35	PICU-13	Medicine Cabinet with Key (Transparent Glass)	●	
Pediatric Medicine (PICU)	36	PICU-12	Room Bed	●	
OPD (Pediatric Surgery)	37	OPDPS-1	Auto Clave (Boiling sterilizer)	1	
OPD (Pediatric Surgery)	38	OPDPS-2	Electric Suction Machine (S)	1	
OPD (Pediatric Surgery)	39	OPDS-10	Chair for Dr. and Patients	2	
OPD (Pediatric Surgery)	40	OPDS-11	Desk for consultation	1	
OPD (Pediatric Surgery)	41	OPDPS-4	Waste Pot	1	
OPD (Pediatric Surgery)	42	OPDPS-5	Examination Lamp	1	
OPD (Pediatric Surgery)	43	OPDPS-6	Refrigerator Pharmaceutical	1	
OPD (Pediatric Surgery)	44	OPDPS-7	Ambu Bag (peads) (1L & 2L)	1	
OPD (Pediatric Surgery)	45	OPDPS-9	X-Ray Viewing Box	1	
Pediatric Surgery	46	PS-1	Hospital Beds with mattress	20	
Pediatric Surgery	47	PS-2	ICU Beds for Recovery Room	●	
Pediatric Surgery	48	PS-3	Bed Side Lockers	●	
Pediatric Surgery	49	PS-4	IV stand	●	
Pediatric Surgery	50	PS-5	Oxygen flow meter, Humidifier and Rregulator	●	
Pediatric Surgery	51	PS-6	ICU Monitors (Patient Monitors)	2	
Pediatric Surgery	52	PS-7	Syringe Pump	2	
Pediatric Surgery	53	PS-8	Infusion Pumps	2	
Pediatric Surgery	54	PS-10	Instrument Trolley	2	
Pediatric Surgery	55	PS-11	Instrument Cabinet (7ft x 3ft x 2ft with two portion)	2	
Pediatric Surgery	56	PS-12	Medicine Cabinet with Key (Transparent Glass)	2	
Pediatric Surgery	57	PS-13	Waste Pot	2	
Pediatric Surgery	58	PS-14	Room Bed	●	
Pediatric Surgery	59	PS-15	Locker	●	
Pediatric Surgery	60	PS-16	Desk for consultation	●	
Pediatric Surgery	61	PS-19	Hospital Sluice Sink	1	
Pediatric Surgery	62	PS-17	Chair for Dr. and Patients	●	
Pediatric Surgery	63	PS-18	Landry Cart	●	
Emergency	64	E-1	Electric Suction Machine (S)	2	
Emergency	65	E-2	BP Apparatus Mercury with Stands (peads)	3	
Emergency	66	E-3	Diagnostic Set	2	
Emergency	67	E-4	Ophthalmoscope	2	

Note : The above components will be finalized subject to further survey and assessment in Japan

Equipment List

Department		New No.	Name of Item	Q'ty	*
Emergency	68	E-5	Laryngoscope (Children Blades)	2	
Emergency	69	E-6	Emergency Trolley	2	
Emergency	70	E-9	Dressing Set	2	
Emergency	71	E-11	Emergency Beds	●	
Emergency	72	E-12	Ultrasonic Nebulizer (Hospital Use)	2	
Emergency	73	E-13	Defibrillator	1	
Emergency	74	E-14	First Aid Kit	2	
Emergency	75	E-16	Pulse Oxymeter	3	
Emergency	76	E-17	Infusion Pumps	2	
Emergency	77	E-18	IV stand	●	
Emergency	78	E-19	Oxygen flow meter, Humidifier and Regulator	●	
Emergency	79	E-20	Instrument Cabinet (7ft x 3ft x 2ft with two portion)	1	
Emergency	80	E-21	Medicine Cabinet with Key (Transparent Glass)	●	
Emergency	81	E-24	Glucometer	1	
Emergency	82	E-25	Examination Couch	●	
Emergency	83	E-28	Waiting Chair (for 4 persons)	4	
Emergency	84	E-35	Garbage Box	1	
Emergency	85	E-29	Desk for consultation	●	
Emergency	86	E-30	Chair for Dr. and Patients	●	
Emergency	87	E-31	Hospital Sluice Sink	●	
Emergency	88	E-32	Room Bed	●	
Emergency	89	E-36	Patient Trolley	2	
Emergency	90	E-34	Waste Pot	4	
OPD (Pediatrics)	91	OPDN-1	Baby Cots	1	
OPD (Pediatrics)	92	OPDN-2	Neonatal Height & Weight Scale	1	
OPD (Pediatrics)	93	OPDN-3	Laryngoscope (Children Blades)	1	
OPD (Pediatrics)	94	OPDN-6	BP Set (Neonatal)	1	
OPD (Pediatrics)	95	OPDP-10	Ambu Bag (peads) (1L & 2L)	1	
OPD (Pediatrics)	96	OPDP-2	Desk for consultation	●	
OPD (Pediatrics)	97	OPDP-3	Chair for Dr. and Patients	●	
OPD (Pediatrics)	98	OPDP-4	Waste Pot	1	
OPD (Pediatrics)	99	D-3	Auto Clave (Boiling Sterilizer)	1	
OPD (Pediatrics)	100	OPDP-5	Examination Lamp	1	
OPD (Pediatrics)	101	OPDP-6	Refrigerator for ward	1	
OPD (Pediatrics)	102	OPDP-7	Glucometer	1	
OPD (Pediatrics)	103	OPDP-8	Laryngoscope (Children Blades)	1	
OPD (Pediatrics)	104	OPDP-9	BP Apparatus Mercury with Stands (peads)	1	
OPD (Pediatrics)	105	OPDP-6	Examination Couch	1	
OPD (Pediatrics)	106	OPDP-7	X-ray vewing box	1	
OPD (Special)	107	OPDS-12	Electric Suction Machine (S)	1	
OPD (Special)	108	OPDS-2	Waste Pot	1	
OPD (Special)	109	OPDS-3	Desk for consultation	●	
OPD (Special)	110	OPDS-4	Chair for Dr. and Patients	●	
OPD (Special)	111	OPDS-5	Hospital Sluice Sink	1	
OPD (Special)	112	OPDS-6	Examination Lamp	1	
OPD (Special)	113	OPDS-7	Ambu Bag (peads) (1L & 2L)	1	
OPD (Special)	114	OPDS-9	X-Ray Viewing Box	1	
OPD (Special)	115	OPDS-10	Refrigerator Pharmaceutical	1	
OPD (Special)	116	OPDS-11	Auto Clave (boiling sterilizer)	1	
OPD (Special)	117	OPDS-17	Pulse Oxymeter	1	
OPD (Special)	118	OPDS-13	Glucometer	1	
OPD (Special)	119	OPDS-14	Laryngoscope (Children Blades)	1	
OPD (Special)	120	OPDS-15	BP Apparatus Mercury with Stands (peads)	1	
OPD(ENT, Eye)	121	OPD-4	BP Apparatus Mercury with Stands (peads)	1	*
OPD(ENT, Eye)	122	OPD-5	Diagnostic Set	1	*
OPD(ENT, Eye)	123	OPD-23	Desk for consultation	●	*
OPD(ENT, Eye)	124	OPD-24	Chair for Dr. and Patients	●	*
OPD(ENT, Eye)	125	OPD-16	Ophthalmoscope	1	*
OPD(ENT, Eye)	126	OPD-17	Slit Lamp	1	*
OPD(ENT, Eye)	127	OPD-18	Refraction Set	1	*
OPD(ENT, Eye)	128	OPD-19	Retinoscope	1	*
OPD(ENT, Eye)	129	OPD-20	Indirect Laryngoscope	1	*
OPD(ENT, Eye)	130	OPD-21	ENT Unit	1	*
OPD(ENT, Eye)	131	OPD-22	Minor Instrument for ENT examination	1	*
OPD(ENT, Eye)	132	OPD-27	Waste Pot	2	*
Physiotherapy	133	P-2	Ultrasound Therapy Unit	1	
Physiotherapy	134	P-5	Cycle	1	
Physiotherapy	135	P-6	Weight Training	1	

Note : The above components will be finalized subject to further survey and assessment in Japan

Equipment List

Department		New No.	Name of Item	Q'ty	*
Physiotherapy	136	P-7	Stoll Bars (parallel bars)	1	
Physiotherapy	137	P-8	Walking Support Bards with walker (walking support bar)	1	
Physiotherapy	138	P-9	Rehabilitation Chairs of different sizes	1	
Physiotherapy	139	P-10	Jumping Jacks (Trampoline)	1	
Physiotherapy	140	P-13	Occupational Therapy Set	1	
Neonatal care unit	141	N-1	Baby Cots	10	
Neonatal care unit	142	N-5	ICU Monitors (Patient Monitors)	4	
Neonatal care unit	143	N-6	Electric Suction Machine (S)	1	
Neonatal care unit	144	N-7	Phototherapy Unit	5	
Neonatal care unit	145	N-8	Oxygen Head Box (Neonatal Size)	5	
Neonatal care unit	146	N-9	BP Set (Neonatal)	3	
Neonatal care unit	147	N-13	Pulse Oxymeter	4	
Neonatal care unit	148	N-16	X-Ray Viewing Box	1	
Neonatal care unit	149	N-20	Syringe Pump	4	
Neonatal care unit	150	N-25	Oxygen flow meter, Humidifier and Regulator	●	
Neonatal care unit	151	N-26	Examination Lamp	2	
ORT	152	O&E-4	Baby Cots (normal chair with arms)	5	
Neonatal care unit	153	N-27	Desk for consultation	●	
Neonatal care unit	154	N-28	Chair for Dr. and Patients	●	
Neonatal care unit	155	N-29	Room Bed	●	
Neonatal care unit	156	N-30	Waste Pot	1	
Neonatal care unit	157	N-31	Locker	●	
Medical Education	158	ME-2	Resuscitator Baby (for cardiopulmonary resuscitation)	1	
Blood Collection Room	159	BCD-1	Desk for consultation	●	
Blood Collection Room	160	BCD-2	Chair for Dr. and Patients	●	
Blood Collection Room	161	BCD-3	Waste Pot	1	
Blood Collection Room	162	BCD-5	BP Apparatus Mercury with Stands (peads)	1	
Laboratory (Central)	163	PA-16	Laboratory Central Table Set	1	
Laboratory (Central)	164	PA-4	Hot Air Oven	1	
Laboratory (Central)	165	PA-12	Refrigerator Pharmaceutical	1	
Laboratory (Central)	166	PA-17	Laboratory Side Table Set (1500W)	2	
Laboratory (Central)	167	PA-18	Laboratory Side Table Set (1800W)	2	
Laboratory (Central)	168	H-27	Distillation Plant (water distiller)	1	
Laboratory (Central)	169	PA-13	Electronic Weighing Balance	1	
Laboratory (Central)	170	PA-20	Chair for Dr. and Patients	●	
Pathology	171	PA-19	Desk for consultation	●	
Pathology	172	PA-20	Chair for Dr. and Patients	●	
Pathology	173	PA-17	Laboratory Side Table Set (1500W)	3	
Chemistry	174	C-4	Laboratory Side Table Set (1500W)	3	
Chemistry	175	C-1	Photometer	1	
Chemistry	176	C-2	Automated Chemistry Analyzer	1	
Chemistry	177	C-3	Color Meter	1	
Chemistry	178	C-5	Desk for consultation	●	
Chemistry	179	C-6	Chair for Dr. and Patients	●	
Hematology	180	H-1	Hematology Analyzer 03 parts differential	1	
Hematology	181	H-4	ESR system (blood sedimentation set)	1	
Hematology	182	H-6	Binocular Microscope	1	
Hematology	183	H-7	Water Bath	1	
Hematology	184	H-8	Laboratory Incubator Small Size	1	
Hematology	185	H-13	Coagulation Analyzer	1	
Hematology	186	H-15	Sample Mixer (roller)	1	
Hematology	187	H-21	DLC Manual Counter	1	
Hematology	188	H-28	Clinical Centrifuge Machine 8000rpm	1	
Hematology	189	H-29	Laboratory Side Table Set (1500W)	3	
Hematology	190	H-30	Desk for consultation	●	
Hematology	191	H-31	Chair for Dr. and Patients	●	
Blood Transfusion Unit	192	BB-15	Desk for consultation	1	
Blood Transfusion Unit	193	PA-17	Laboratory Side Table Set (1500W)	3	
Blood Transfusion Unit	194	BB-16	Chair for Dr. and Patients	3	
Blood Transfusion Unit	195	BB-18	Weighing Scale for adult	1	
Blood Transfusion Unit	196	BB-19	Hemoglobin Meter with Centrifuge	1	
Blood Transfusion Unit	197	BB-20	BP Apparatus (adult cuff)	1	
Blood Transfusion Unit	198	BB-13	Blood Donor Beds	2	
Blood Transfusion Unit	199	BB-21	Bag Shaker	2	
Blood Transfusion Unit	200	BB-2	Centrifuge for Blood Washer (8000rpm)	1	
Blood Transfusion Unit	201	BB-22	Micro Pipettes Set	1	
Blood Transfusion Unit	202	BB-6	Elisa (Plate reader) with printer & automated washer	1	

Note : The above components will be finalized subject to further survey and assessment in Japan

Equipment List

Department		New No.	Name of Item	Q'ty	*
Blood Transfusion Unit	203	BB-9	Refrigerator Centrifuge for Blood Bags (Cryofuge)	1	
Blood Transfusion Unit	204	BB-23	Deep Freezer Domestic (-53° (138L))	1	
Blood Transfusion Unit	205	BB-24	Platelets Incubator with Agitator	1	
Blood Transfusion Unit	206	BB-3	Water Bath	1	
Blood Transfusion Unit	207	BB-11	Manual Plasma Extractor	1	
Blood Transfusion Unit	208	BB-12	Binocular Microscopes	1	
Blood Transfusion Unit	209	BB-25	Tube Sealer	1	
Blood Transfusion Unit	210	BB-26	Waste Pot	1	
Radiology	211	R-3	X-Ray Unit 500 MA	1	
Radiology	212	R-4	Ultrasound Machine General Purpose	1	
Radiology	213	R-5	Radiology Accessories (sets)	1	
Radiology	214	R-6	Image Printer for X-ray	1	
Radiology	215	R-7	Portable X-Ray Plant 300 MA	1	
Radiology	216	R-8	Colour Doppler Ultrasound Machine	1	
Radiology	217	R-11	EEG	1	
Radiology	218	R-12	EMG/NCV Machine	1	
Radiology	219	R-20	Examination Couch	●	
Radiology	220	R-21	Waiting Chair (for 5 persons)	●	
Radiology	221	R-22	Waiting Chair (for 4 persons)	●	
Radiology(Dental)	222	D-2	X-Ray Unit (spot type)	1	
Radiology	223	R-23	Desk for consultation	●	
Radiology	224	R-24	Chair for Dr. and Patients	●	
OT	225	OT-1	Operation Tables with Stool	2	
OT	226	OT-2	OT Lights (Ceiling) Large	2	
OT	227	OT-4	Electric Suction Machine (L)	2	
OT	228	OT-6	X-Ray Viewing Box	2	
OT	229	OT-7	Instrument Trolley	3	
OT	230	OT-8	Infusion Pumps	1	
OT	231	OT-9	BP Apparatus Mercury with Stands (peads)	1	
OT	232	OT-10	Instrument Cabinet (7ft x 3ft x 2ft with two portion)	2	
OT	233	OT-11	CSSD Sterilization System	2	
OT	234	OT-12	Major Operation Sets	2	
OT	235	OT-13	Minor Operation Sets	2	
OT	236	OT-14	Patient Trolley	2	
OT	237	OT-15	ICU Beds for Recovery Room	2	
OT	238	OT-16	Capnograph for Each OT (multiparameter monitor incl.Co2)	2	
OT	239	OT-17	Laryngoscope (Children Blades)	2	
OT	240	OT-20	Peripheral Nerve Simulator	1	
OT	241	OT-22	Blood Warmer	1	
OT	242	OT-23	Fiber Optic Laryngoscope	1	
OT	243	OT-24	Diathermy Unit	1	
OT	244	OT-27	Ambu Bag (peads) (1L & 2L)	2	
OT	245	PST-1	Rigid Pediatric Sigmoidscope	1	
OT	246	PST-4	Rigid Bronchoscope	1	
OT	247	PST-5	Oesophago Scope Rigid	1	
OT	248	PST-9	Oesophagel Dilator	1	
OT	249	OT-36	Anesthesia Machine with Ventilator	2	*
OT	250	OT-37	IV Stand	3	
OT	251	OT-39	Mayor Instrument Stand	2	
OT	252	OT-40	Wash Basin Stand, Double Basin	2	
OT	253	OT-41	Kick Bucket	2	
OT	254	OT-42	Foot Step	2	
OT	255	OT-43	Room Bed	●	
OT	256	OT-44	Desk for consultation	●	
OT	257	OT-45	Chair for Dr.	●	
OT	258	OT-46	Examination Couch	●	
OT	259	OT-47	Examination Lamp	●	
OT	260	OT-48	Dressing Set	2	
OT	261	OT-49	Locker	●	
OT	262	OT-50	ICU Monitors (Patient monitors)	1	
OT	263	OT-51	Hand Scrub Unit (3 Sinks)	1	
OT	264	H-27	Distillation Plant (water distiller)	1	
OT	265	OT-52	Cast Cart (Sterilization Trolley)	1	
OT	266	OT-53	Landry Cart	2	
OT	267	OT-54	Working Table for CSSD (Stainless Steel)	1	
OT	268	OT-55	Waiting Chair (for 4 persons)	12	

Note : The above components will be finalized subject to further survey and assessment in Japan

Equipment List

Department		New No.	Name of Item	Q'ty	*
OT	269	OT-56	Garbage Box	1	
OT	270	OT-57	Instrument Rack (steel rack for CSSD)	4	
OT	271	OT-58	Sterilization Drum	6	
Pharmacy	272	PH-1	Racks Iron	2	
Pharmacy	273	PH-2	Refrigerator for ward	1	
Pharmacy	274	PH-4	Medicine Cabinet with Key (Transparent Glass)	1	
Commonn	275	AD-1	Meeting Table and Chairs	1	
Commonn	276	AD-2	Presentation Apparatus (Projector)	1	
Commonn	277	AD-3	Book Rack	1	
Commonn	278	AD-11	Meeting Table Set	6	
Commonn	279	AD-12	File Rack for medical record	1	
Commonn	280	AD-9	Waiting Chair (for 4 persons)	●	
Commonn	281	AD-10	Waiting Chair (for 5 persons)	●	

● Subject to decide based on lay out plan

* Procurement depends unon the securement of Dr.

Chief Economist,
Government of Sind,
Planning & Development Department

Note : The above components will be finalized subject to further survey and assessment in Japan

Components of Facilities

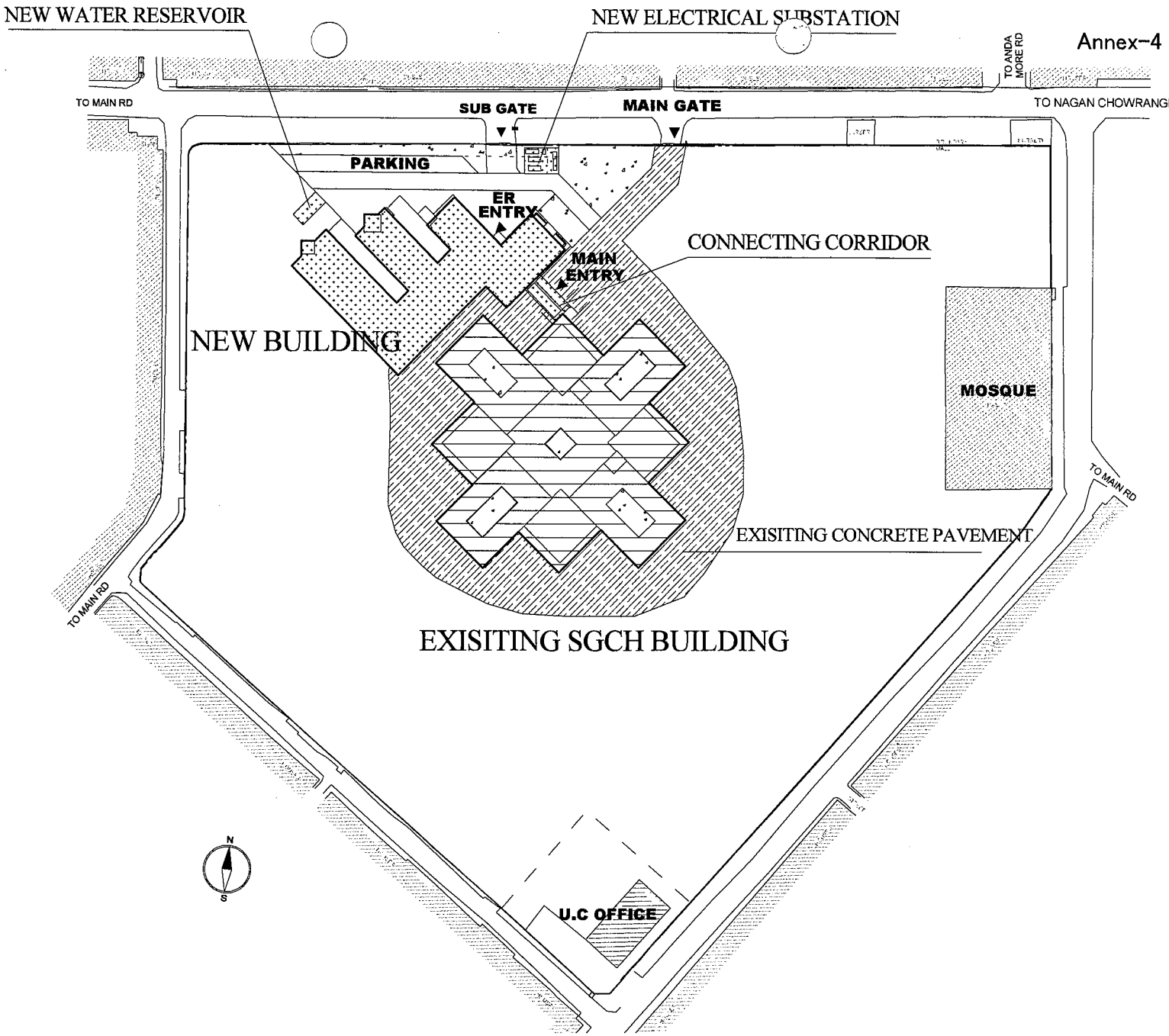
Department	Room	No. of Room	Remark
Special Out Patient Clinic	Reception	1	
	Office	1	
	Counseling Room	1	
	Special Outpatient Clinic	5	Treatment Room included
	Eye Clinic	1	
	ENT Clinic	1	
	Drug Store	1	
Surgery Department including Surgical Clinic and Operation Theater	Changing Room	2	
	Surgery Doctor Room	1	
	Endoscopy Room	1	
	Staff Room	1	
	Recovery	1	2 beds
	Autoclave(Gas)	1	
	Preparation	1	
	Operation Theater	2	
	Lobby	1	
	Clean Linen	1	
	Dirty Linen	1	
	Doctor/Nurse Room	1	
	Surgical Ward (High Care Unit)	2	2 beds/Room
	Surgical Ward	4	4 beds/Room
Emergency Department	Reception	1	
	Triage Consultant	1	
	Emergency lobby	1	
	Emergency Room	1	10 Bays
	Emergency Isolation Room	2	
	Doctor Room	1	
	Duty Room	1	
Pediatric Medical Wards including Therapeutic Feeding Center and Play Area	Reception	1	
	Clean Linen	2	
	Dirty Linen	2	
	Treatment	2	
	Doctor Room	2	
	Staff Rest	1	
	Nurse Room	2	
	Medical Ward	8	4 beds/Room
	Medical Ward	9	6 beds/Room
	Infection Ward	1	5 beds/Room
	Play Area	1	
Image Diagnostic Department	Xray Room	1	
	Operator Room	1	Mobile X-ray Unit
	Doctor Room	2	
	Ultrasound Room	2	
	Waiting Lobby (X-ray)	1	
	Waiting Lobby (Ultrasound, EEG, EMG/ECG)	1	
	EEG room	1	
	EMG/ECG room	1	
Laboratory Department	Blood Bank	2	
	Central Laboratory / Pathology	1	
	Chemistry	1	
	Hematology	1	
	Sample Collection Room	1	
PICU	Pediatric Intensive Care Unit	1	8 beds
	High Care Unit	2	4 beds/Room
	Duty Room	1	
NCU	Neonatal Care Unit	1	8 incubators
	Doctor/Nurse Room	1	
	Consulting Room	1	
	Baby Treatment Room	1	
	Change Room	2	
	Duty Room	1	
	Mother Change room	1	10 baby cots
	Mother Treatment Room	1	
Camp Office for Superintendent	Medical Superintendent Room	1	
	Staff Room	1	
Secondary Pharmacy	Pharmacy & Drug Store	1	
Incidental Facilities for New Building	Canteen	1	
	Locker	4	
	Staff Room	2	
Connecting Corridors to the Existing Building	Connecting Corridor	1	

Note 1 : The above components will be finalized subject to further survey and assessment in Japan.
Note 2 : Installation of power backup generator, air conditioning system and oxygen supply system will be considered and subject to further discussion by Pakistani side and Japanese side.

Tentative Bed Distribution for New Building

GENERAL MEDICAL WARD		46 beds
DIARRHEA WARD		20 beds
SPECIAL PEDIATRIC OPD WARD		20 beds
INFECTION WARD		5 beds
SURGICAL WARD		16 beds
	(HIGH CARE UNIT)	4 beds
PICU	(PEDIATRIC INTENSIVE CARE UNIT)	8 beds
	(PEDIATRIC HIGH CARE UNIT)	8 beds
NCU	(NEONATAL CARE UNIT)	8 incubators
TFC	(THERAPEUTIC FEEDING CENTRE)	0 beds
TOTAL		127 beds
		8 incubators
ER TREATMENT BED		10 beds
Mother Treatment Room at NCU		10 cots
OT recovery beds		2 beds

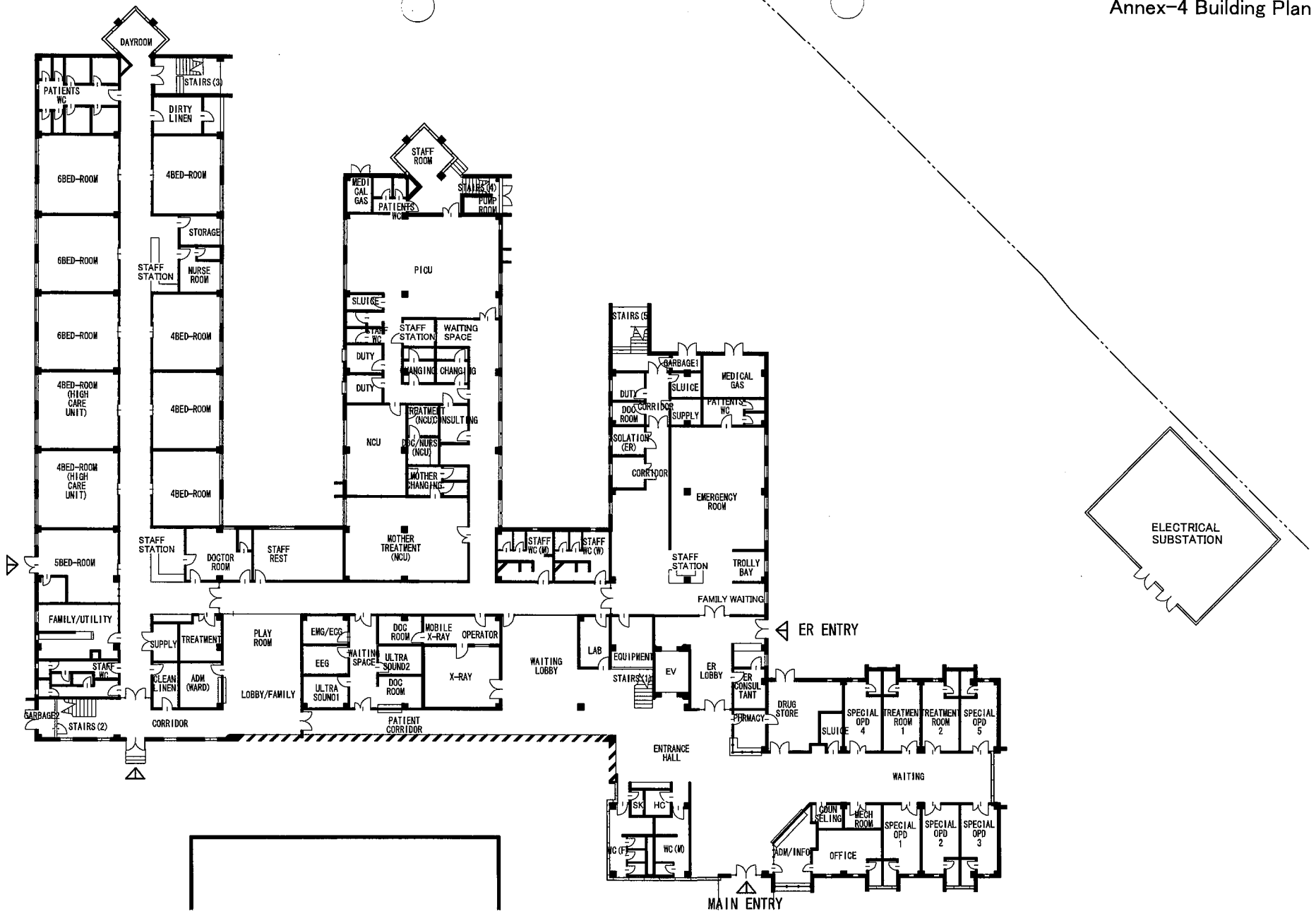
Note : The above components will be finalized subject to further survey and assessment in Japan



THE PROJECT FOR THE IMPROVEMENT OF CHILD HEALTH INSTITUTE IN KARACHI IN THE ISLAMIC REPUBLIC OF PAKISTAN

SITE PLAN 1/2000

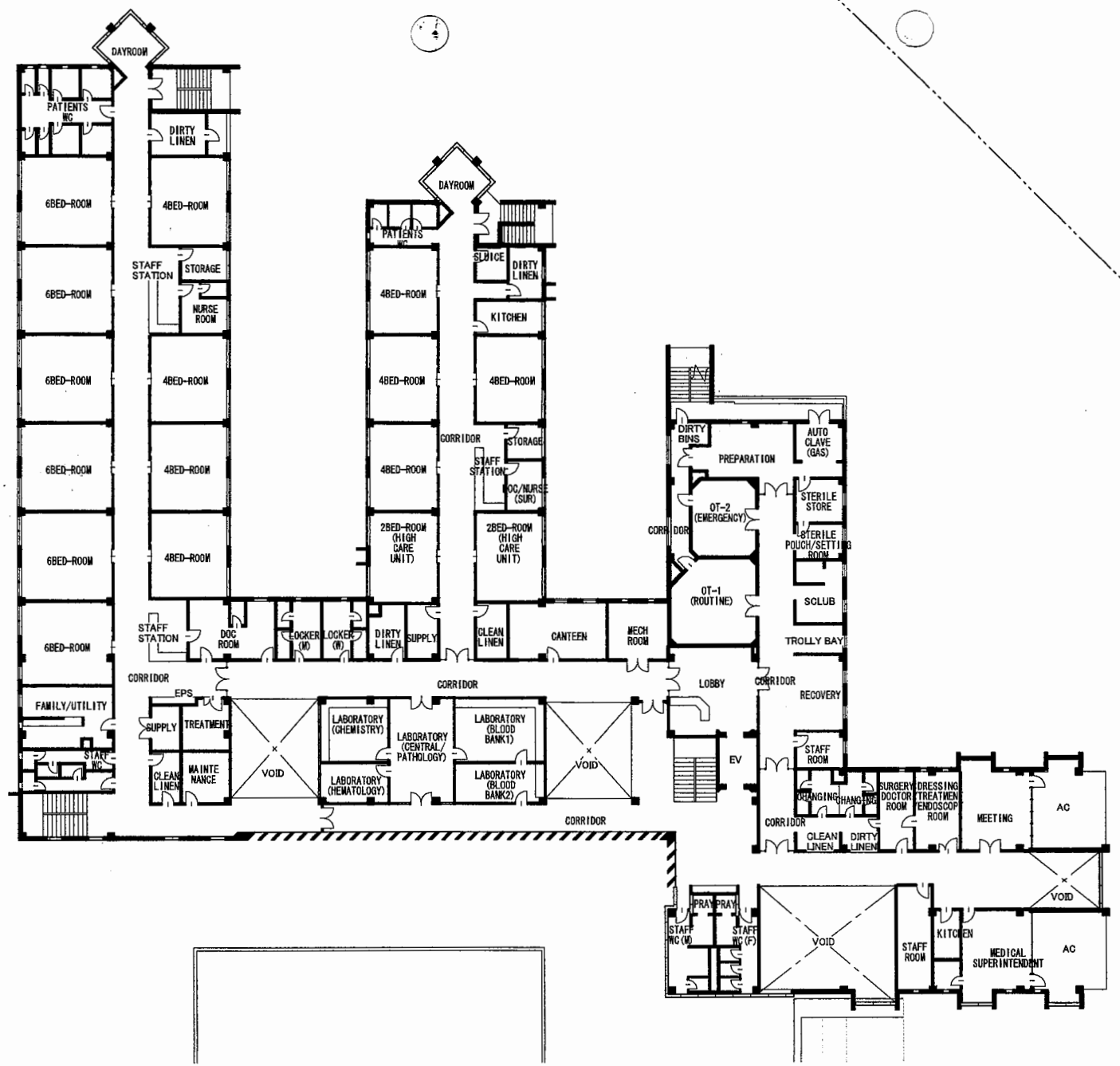
Note : The above building plan will be finalized subject to further survey and assessment in Japan



THE PROJECT FOR THE IMPROVEMENT OF CHILD HEALTH INSTITUTE IN KARACHI IN THE ISLAMIC REPUBLIC OF PAKISTAN

PLAN GFL 1/400

Note : The above building plan will be finalized subject to further survey and assessment in Japan



THE PROJECT FOR THE IMPROVEMENT OF CHILD HEALTH INSTITUTE IN KARACHI IN THE ISLAMIC REPUBLIC OF PAKISTAN

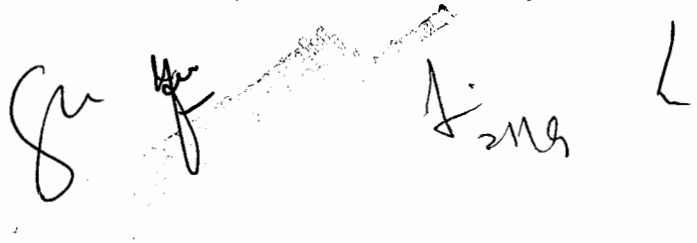
PLAN 1FL 1/400

Note : The above building plan will be finalized subject to further survey and assessment in Japan

Human Resource Allocation

Title		Minimum Total Staff for PC-1 Proposal
Doctor		**64**
The above 64 doctors shall include:	20 Ward Doctors	
	One ENT Doctor	
	One Ophthalmologist	
	One Anesthetist	
Paramedical (Nurse)		**24**
Paramedical (Others)		**53**
	One Biomedical Engineer shall be included	
Management Staff		**76**
	Total	**217**

Note : The above components will be finalized subject to further survey and assessment in Japan



Annex - 6

PS/SPL-SEC(PH)/JICA/2011.
GOVERNMENT OF SINDH
HEALTH DEPARTMENT
Karachi, dated the 17th September, 2011.

To,

Mr. Hideo Eguchi,
Deputy Director General
Planning & Coordination,
Human Development Department,
J.I.C.A..

SUBJECT : STRENGTHEN THE SERVICES OF THE CHILD HEALTH INSTITUTE IN KARACHI.

With reference to discussion with JICA team, Health Department committed to create the posts through the PC-I followed by SN.E. 2012-2013 for the posts mentioned in Annexure-VI and specially and specifically, and to assign these professional by the inauguration of the Institute.

1. Anesthetist.
2. Ophthalmologist.
3. ENT Specialist.
4. Bio-Medical Technician.

(DR. SIKANDAR ALI PANHWER)
SPECIAL SECRETARY(PH)

(3) Technical Memorandum (Second Field Survey)

TECHNICAL MEMORANDUM

PREPARATORY SURVEY (FIELD SURVEY II)

ON THE PROJECT FOR IMPROVEMENT OF CHILD HEALTH INSTITUTE IN KARACHI

IN THE ISLAMIC REPUBLIC OF PAKISTAN

Subsequent to Minutes of Discussions signed on September 19, 2011 between Japan International Cooperation Agency and the Government of Sindh, the Preparatory Survey (Field Survey II) Team (hereinafter referred to as "the Team") conducted a field survey at the study area and held discussions with the officials concerned of the Government of Sindh. Through the field survey and the discussions, the Pakistani side and the Team confirmed the following items described in the attached sheets and ensured to consider them in Japan.

Attachment-1 **Human Resource Allocation**	(Comments from Health Department)
With regard to human resource allocation plan for the Project, the Team confirmed the followings: 1. With reference to Attachment 3-4 of the Minutes of Discussions signed on September 19, 2011 between Japan International Cooperation Agency and the Government of Sindh, the attached letter regarding details regarding professional of anesthesia, ophthalmology, and ENT in Sindh are submitted from the Government of Sindh. The recruitment plan of the above professional shall be submitted to JICA by December 31, 2011. 2. As of September 26, 2011, the newly recruited five doctors are already started working at the Sindh Government Children Hospital (hereinafter referred to as "SGCH"). As of September 28, 2011, the five additional staff for NICU is under the final recruitment process of interview.	The recruitment plan has been discussed between the special secretary Public Health and Mission People on 26th September 2011 The copy of information regarding the professionals of Anesthesia, Opthelmology and ENT in Sindh, the position paper is attached. As recruitment plan, PC-1 Draft for the project is to be provided by 31st December 2011. The process is going on at Sindh Government Children Hospital.

Attachment-2 Building Plan

With regard to building plan for the Project, the Team confirmed the followings:

1. Ward Layout

With reference to "the annex-4 Building Plan" of the Minutes of Discussions signed on September 19, 2011 between Japan International Cooperation Agency and the Government of Sindh, the following minor amendments are to be considered;

- Two surgical ICU rooms are to be combined to one big room.
- Two 4-bed room in medical ward are to be replaced with two medical high care unit rooms with 3 beds, and two 4-bed medical high care unit rooms are to be replaced with 6-bed room.

Discussed in wrap-up meeting

Discussed in Wrap-up Meeting

2. Special Out Patient Department

Room distribution of special outpatient department is confirmed as follows;

Room No.	Clinical services in new Special OPD
Room 1	Surgical Clinic
Room 2	Surgical Treatment Room
Room 3	ENT (ear, nose and throat) Clinic
Room 4	Ophthalmology Clinic
Room 5	Internal Medicine Clinic by Senior Consultants
Room 6	To be shared by the current Neurology,
Room 7	Nephrology, Endocrinology, Asthma Clinic and other new sub-specialties.

Attachment-3 Equipment List

Discussed in Wrap-up Meeting as attached.

Attachment-4 Medical Waste Management	
With reference to Attachment 3-5 of the Minutes of Discussions signed on September 19, 2011 between Japan International Cooperation Agency and the Government of Sindh, the waste management system under the Karachi City Government was surveyed and confirmed by the Team as follows: 1. Incineration service by the Karachi City Government The Karachi City Government owns two incinerators which were installed on 1998 and can incinerate one ton of wastes per hour at 1,400 degrees Celsius at the maximum. They incinerate from six to seven tons of wastes every day, and still have enough capacity left to spare. Medical wastes are segregated, packed in plastic bags and collected by vehicles. 2. Operating private company and fare The Karachi City Government commissions a private company to collect wastes and operate the incinerators. A hospital with 101 to 200 beds can use the service at the fare of 31,460 Rs/month and 377,520Rs/year, which is equivalent to 0.8% of expenditure of SGCH, 2010-2011, and 2.4% of expenditure excluding labor cost. 3. Other hospitals which use the service 175 hospitals out of about 1,000 in Karachi City use the service, including NICH. The Pakistani side requested SGCH essentially requires the medical waste management system which JICA may consider.	Team Visited the Site District Officer Env: informed the team the unit has completed the economic life. There are 1000 Hospital functioning in the city and the city District Government is incineration facilities to 175 Hospital Approximately, on reasonable charges. Discussed in wrap-up meeting. Sindh Government Children Hospital needed hospital waste management system which should be environmental friendly. The children hospital essential require the incineration facility for which the JICA may consider it.

Attachment:

1. Human Resource Allocation
2. Equipment List

Karachi, September 27th. 2011

津本正芳

Tadayoshi TSUMOTO
Deputy Chief Consultant
Preparatory Survey Team
For Japan International Cooperation Agency
Japan

Dr. Capt. Sikandar Ali Panhwar
Special Secretary (Public Health)
Health Department
Government of Sindh
The Islamic Republic of Pakistan