

Although the chargeable treatment situation varies depending on the hospital, it is estimated to be around 10% of the total medical services and rapidly expanding. This system helps to revitalize facilities by allowing the earned income to be used for repairs and supply purchases urgently needed.

2.3.3 Outline of Proposed Facilities

Except for Qena Hospital, which is being reconstructed based on a relatively organized plan, the hospitals proposed for renovations or additional constructions have proceeded without any basic design. In many cases, a lack of design consideration is preventing the patients and medical staff from flowing smoothly within the facilities.

These hospitals treat mainly common diseases and usually refer patients with complicated conditions to University Hospitals in the adjacent Governorate. Although some specialized doctors at certain hospitals treat complicated cases occasionally, the quality of medical services of these hospitals are almost the same level.

Since each hospital uses a different statistical method, it is difficult to correlate data. However, most patients suffer from the same respiratory and gastrointestinal diseases, pregnancy complications and diabetes and its complications, most of which can be prevented with better hygiene, promotion of preventive medicine and improved medical care for common diseases. Also, there are many cases of bilharzia or associated urogenital diseases common to this region.

Most of the medical equipment at these hospitals are long overdue for replacement. Obsolete equipment and a shortage thereof are causing the hospitals to struggle to provide minimal treatment for common diseases. Most of the existing equipment/instruments are from Western and Eastern Europe, the United States and China, and a few from Japan. The outline of each facility is described below.

(1) Luxor Hospital

1) Outline of facilities

The hospital is located in the central area of Luxor City, facing the main street along the Nile River. There are nine small and

large buildings centering around a three-story reinforced concrete building constructed in 1900 for diagnosis and treatment. These buildings include a street-side building with administrative offices on the first floor with paying inpatients' rooms on the second floor; a two-story inpatient's ward and an internal medicine ward; a one-story bacteriology laboratory; a two-story radiology ward and clinical examination ward. In an adjacent site, there are seven buildings including a chest hospital and fever hospital. The total site area is about 14,300 square meters.

Parts of some buildings are quite antiquated with damaged doors and windows along with stained or peeled ceiling and wall paint, it appears that no maintenance or repair work has been done for a long time.

Electricity is supplied to the main building through a transformer with a receptor capacity of 500kVA and to the chest and fever hospitals through 200kVA transformers. Each is equipped with 11kVA or 3kVA emergency generator. Water is supplied from the city's main water line. Electricity and water are adequately supplied. The waste water is not treated on the premises. It is carried through drain pipes to the city's treatment facility and discharged as sewage after treatment. Air-conditioners are installed only in the operating rooms and some of the laboratories. There is no central air-conditioning system for the entire facility.

The outpatients' ward is situated in another location within the city about one kilometer from the main site, offering medical services to only outpatients. The building is relatively new and the interior is currently being remodeled.

2) Medical services

The Luxor Hospital provides medical services to the 157,000 residents in and around the Luxor City and tourists visiting the area. It has 86 beds for inpatients, 87 doctors, 51 assistant doctors, 53 nurses, 15 radiologists and eight paramedical staff. They served a total of 86,963 outpatients and 18,585 inpatients in 1992. Main diseases suffered by the outpatients are skin infection,

hypertension, otitis media, pneumonia and abscess. Major diseases for inpatients include appendicitis, gastroenteritis, hypertension, pneumonia, miscarriage, bone fracture and discoprolapse.

3) Existing equipment

Luxor Hospital has more medical equipment than any of the other proposed hospitals. A list of their existing equipment is provided in Appendix 5.

Diagnostic X-ray systems are installed at the Radiology, Emergency Reception and Chest Hospital.

The Radiology Department is equipped with an X-ray TV system and sector-scanning-type ultrasound machine for examining the abdominal area. Among the proposed hospitals, only the Luxor and Nag Hammadi Hospital have ultrasound units.

There are three operating rooms, which are currently under renovation. The additional emergency operating room is constantly used and construction of another operating room for the Otolaryngology is in the planning stage. All operating tables, ceiling lamps and other instruments are very old and need to be replaced.

Both outpatient ward dental units are severely deteriorated despite their relative newness. Although replacement is needed, proper maintenance by the department's staff should be encouraged.

(2) Qena Hospital

1) Outline of facilities

The hospital is located about one kilometer southwest of Qena City's main district. The facility area encompasses about 23,000 square meters. At the center of the site, there is a three-story building constructed in 1973 with a total floor space of 10,000 square meters. There is a three-story medical-staff training/doctor-housing building in the northern part of the site, a concrete nurse school building in the southern part, a one-story building with equipment repair room, electricity room and emergency generator room at the southwest corner and some parking spaces.

There are two 500kVA transformers and a 140kVA diesel generator made in the United States. The voltage was measured at 220V/50cycles with no variation recorded during the test. Every month, about two power outages occur lasting about one hour.

There are two main pipes that bring city water to the facility. The waste water is treated in a septic tank situated on the east side of the outpatients' ward and dispersed in the city's sewage system. Water is cooled in the machine room on the first floor, which provides air-conditioning to the operating rooms and laboratories.

2) Medical services

The hospital is situated in the Qena Governorate capital and is the largest district general hospital serving approximately 500,000 people living in and around Qena City. The number of outpatients was 67,313 in 1992 while the number of inpatients was 8,610. It is staffed with 112 doctors, 61 nurses, nine X-ray radiologists and 13 paramedics. Typical ailments experienced by the patients include acute renal failure, pneumonia, complication of diabetes, malnutrition and gastroenteritis. Because the hospital was undergoing interior renovation during the survey, many parts of the building were found to be in need of better hygiene control including the clean area of the hemodialysis room. Since the hospital has a nursing school and the Qena Governorate Medical Equipment Maintenance Center on the premises, it is expected to fulfill an exemplary hospital and medical service role.

3) Existing equipment

There are eight hemodialysis units in the hemodialysis room, which handles 24 patients a day in three shifts during the hours between 6:00 and 24:00 hours. Due to the budgetary reasons, these units were installed in three different occasions starting in 1987 from three different manufactures. However, a maintenance contract has been signed with an agency. It provides regular inspections for all units, keeping the operation rates of the units reasonably high.

The inspectors from Cairo are regularly dispatched to the hospital.

The main diagnostic X-ray machines were installed more than 20 years ago and do not always function properly thereby producing unclear X-ray images. 20 inpatient and 10 outpatient X-rays are taken daily. The portable diagnostic X-ray machine is out of order, while the dental diagnostic X-ray machine installed three years ago functions properly.

There are three general operating rooms and one for gynecological procedures. All operating tables and ceiling lamps are very old and do not operate properly. In one room, an incandescent lamp has been substituted for broken ceiling lamps.

Four portable and three stationary baby incubators were supplied by USAID.

In the ICU, there are currently four beds, which will be increased to 10 in the near future.

They have one Japanese-made fiberscope for examining digestive tracts. To strengthen examination capacity a colonofiberscope used to examine intestines is needed.

The hospital is equipped with a wide range of physical therapy equipment, including an ultra-violet, infra-red and shortwave therapy apparatus, paraffin wax bath and rehabilitation equipment, which attracts many patients from different parts of the country. However, all of these instruments /equipment were found to be obsolete.

The hospital's maintenance department operates as a Medical Equipment Maintenance Center for the Qena Governorate. However, it is equipped with only minor measuring instruments such as an oscilloscope, voltmeter and ammeter. The oscilloscope was provided five years ago but has not been used as it did not come with an instruction manual. The department primarily performs mechanical repairs; for example, replacing an ECG heat-pen, replacing a sphygmomanometer cuff or mercury, or clearing clogged autoclave pipes. To become capable of handling electrical repair work, major center improvements are needed as well as technical staff training.

(3) Nag Hammadi Hospital

1) Outline of facilities

The hospital has a site area of 8,500 square meters and is located about 1.5 kilometers west of Nag Hammadi City's main district.

A three-story building for diagnosis and treatment located in the center of the site and a three-story building for operations and an inpatients ward in the southern part of the site are connected with a roofed passage. On the west side of the operating building, there is a one-story outpatients' ward for ophthalmology, etc., and on the east side, various one-story buildings are situated i.e., an examination ward, hemodialysis ward, chest ward and blood bank. In the northern part of the site, a new three-story concrete building is under construction. The first floor has already been completed and accommodates the director's office and administrative office. The construction of the second floor has also been completed with plumbing and wiring remaining to be installed. As for the third floor, only the structural work has been completed.

The electric system is equipped with 50kVA and 300kVA transformers. An 11kVA generator was installed in 1966. They experience power outages about twice a month due to maintenance work by the local electric company, for which they receive an advance notice.

There are two supply lines that bring city water to the hospital. The waste water is treated in its own septic tank and the city collects the remaining rubbish. Currently, the city sewage system is under construction and expected to be completed by the end of 1994.

There is no central air-conditioning system, and window-type air-conditioners are used for cooling operating rooms, etc.

2) Medical services

The hospital serves as a district general hospital for 500,000 residents living in and around the city of Nag Hammadi. It has 151 inpatient beds and a total of 203 medical staff comprised of 81 doctors, 39 nurses, 15 X-ray radiologists and 10 paramedics. They

served a total of 96,448 outpatients and 4,577 inpatients in 1992. Most outpatients are treated for accident related injuries, bronchitis, bilharzasis, renal colic and gastroenteritis. Main inpatient treatment involves cardiovascular diseases, urinary tract troubles, pregnancy complications, gastroenteritis and appendicitis. The facilities are kept relatively clean and the operation rates of the equipment/instruments are high. In the Hemodialysis Department, they treat eight patients a day in two shifts using one dialysis unit, which out-performs the other departments.

3) Existing equipment

The diagnostic X-ray machine in the Radiology Department was made in the Netherlands in 1958; however, because the table tilting function dose not work, it is used as a stationary bed. It uses 1.8mm and 8mm stationary annode X-ray tubes for focusing. Such long focal distances are not preferable for obtaining optimum resolution.

The department also has a dental X-ray apparatus, but it was installed 20 years ago and the irradiation cone part is broken. The Chest department has a X-ray mirror camera system made in 1972. It uses less expensive smaller film, which is a cost-savings, but fails to produce clear images with high resolution and satisfactory contrast necessary for accurate diagnosis. As many as 70 X-ray pictures are taken each day. There is also an X-ray unit with a vertical stand. The department examines tuberculosis bacilli, but it doses not have a proper set-up for bacteriological examination.

There are three operating rooms. The 5 to 15 year-old operating tables and ceiling lamps, which are obsolete, are still being used after a series of repairs. There is a Chinese-made dental treatment unit, which functions only as a dental chair at this time. Most of the auxilliary instruments are also broken.

In the Intensive Care Unit, there are four baby incubators. These are all portable-types, which seems appropriate for this hospital as they can be used in other parts of the hospital in emergency situations. All incubators are relatively new and usage rates are high.

The Otolaryngology Department is equipped with only minimal instruments such as an examination mirror, other simple examination tools, a suction pump and heat-cutting device.

In the Hemodialysis Department, there are four hemodialysis units, which are regularly inspected by agency technicians from Cairo once every two months, therefore, their operation rates are high. The water purifier is inspected once every four months.

Like the Qena Hospital, there are many physical therapy instruments in the Physical Therapy Department and all of them are quite old.

The OB/GYN Department has a single old delivery table and other minor instruments. There is a vagina scope in the Family Planning Room.

(4) Farshut Hospital

1) Outline of facilities

The hospital is located in the central part of Farshut City with a site area of 15,300 square meters. There are several buildings on the site: a two-story concrete building for diagnosis, treatment and patient ward in the northern part, a one-story building with an X-ray room, a dentistry and a nurses dormitory are in the central part. Also, there are buildings for a canteen, laundry, family planning, clinical laboratory, electric generator ward, warehouse, dissection room and morgue.

A 200kVA transformer is installed in the electrical system. There are one 3.5kVA and one 15kVA emergency generators placed on the north side of the main building and in the southern part of the site respectively. As the 15kVA generator is broken, the 3.5kVA generator provides electricity for autoclaves, operating rooms and X-ray rooms.

A Sufficient water supply is obtained from two 50-meter deep wells. The waste water is collected in the waste water tank and carried away by a vacuum car regularly dispatched from the city.

There is no air-conditioning system. Window-type air conditioners are installed in the operating rooms and some of the examination rooms.

2) Medical services

The hospital is providing medical services for about 92,000 residents in and around the Farshut City. In 1992, they had a total of 27,587 outpatients and 2,399 inpatients. Most outpatients are treated for accident related injuries, bilharziasis, renal colic, diabetes and parasitic diseases, and inpatients primarily for accident related injuries also, as well as diabetes complications, scorpion stings, bilharziasis and dehydration. The facility is kept relatively clean and the equipment is utilized fully despite the quality.

3) Existing equipment

In the Hemodialysis Department, there are three hemodialysis units, each made by a different manufacturer. These units and a water purifier are inspected once every two months regularly by an agency with which the hospital has signed a maintenance contract.

There are two 13-year old Chinese-made operating tables in the operating room. There is one set of operating ceiling lamps used for more than 15 years. One of the five lamps is inoperable. One portable lamp was installed four years ago and is in good condition. The dry-heat autoclave and sterilizer were also acquired recently about 3 to 4 years ago. Relatively sufficient operating instruments are also in place.

In the Radiology department, there are two stationary X-ray units. One was installed 20 years ago and the other 15 years ago, and both are in poor condition. The French-made mobile-type X-ray unit is in good condition. The dental X-ray apparatus was purchased from an Italian manufacturer two years ago and is also in good condition. They also have a protective apron and film viewer.

The Dental Lab has a trimmer, finishing grinder, press machine, polishing machine and dental chair. Most of these instruments are old and over used. The dental chair is especially non-functioning because the operating motor is broken. The lamp and scaler are also missing.

In the Urology Department, there are three cysto-urethrosopes

and a light source, all of which were procured 15 years ago and are no longer serviceable. Likewise, the colonofiberscope is not used due to superannuation.

The gynecological table and portable operating lamp are both obsolete. The department has a whole set of operating instruments but most of them are quite old and need to be replaced soon. The suction pump is operated manually.

The instruments in the Ophthalmology Department, such as the ophthalmoscope, intraocular pressure meter, examination lamp and lens set are old but well maintained and fully utilized.

The Newborn Baby Room has an oxygen generator provided by UNICEF seven years ago and a newborn weighing scale procured two years ago, both of which are functioning normally.

In the Laboratory, a water distillation apparatus, blood bank refrigerator, colorimeter, centrifuge, blood analyzer, incubator, microscope, steam autoclave and others are installed. Aside from a few exceptions, most instruments are maintained well.

(5) Qift Hospital

1) Outline of facilities

The hospital is located halfway between Luxor and Qena City on the National Road along the canal. Within its 8,800 square meter site there are four buildings: a partial two-story concrete inpatient ward building, a two-story building for examinations, operations and administrative offices, an outpatient ward and a new building with a new operating room under construction on the second floor. These four buildings are connected with roofed corridors. There is a medical staff training center/doctor's dormitory in the central part of the site. The existing operating room, ICU and gynecology room are being renovated. The Emergency Center is located near the southeast corner. The hospital receives electricity, three phased 380V and single 220V, directly from the city's transformer situated about 250 meters away. There is a 13kVA diesel emergency generator, but it is not functioning.

The hospital uses city water. The waste water is collected in

the waste water tank within the premise and carried away by the city's vacuum car service. There is no air-conditioning system, only window-type air-conditioners installed in the operating rooms.

2) Medical services

The Qift hospital is offering medical services to about 250,000 residents living in and around the Qift City. They have about 9,000 outpatients and 2,350 inpatients annually, and the major diseases for outpatients include the common cold, bronchitis, gastroenteritis, bilharziasis and renal colic, and major inpatient diseases are diabetes, cardiovascular diseases, asthma, pre/postpartum bleeding and appendicitis. It has 67 inpatient beds staffed by 20 doctors, 15 nurses, 4 X-ray radiologists, 3 paramedics and others. Although it is the smallest facility among the proposed hospitals, the quality is well maintained. The number of outpatients is commensurate to the small population of Qift City.

3) Existing equipment

The Radiology Department is equipped with obsolete mobile-type diagnostic X-ray systems that uses an X-ray tube attached to the X-ray generator. They have one X-ray table, protective apron and screen but no film viewer. The department is staffed by X-ray radiologists but no radiology doctor.

There are three simple examination tables at the Emergency Reception. Other than these tables, there are only a sphygmomanometer and height/weight scales.

The Gynecology Department and the delivery room have a simple examination table and not much of anything else. There are only a few gynecological operation instruments. In the near future, some services will be offered at the gynecology outpatient ward and family planning room was set up in the medical staff training building three months ago.

In the Pediatrics Department, there are pediatric stethoscopes, a weighing scale and portable ECG.

There is one set of operating ceiling lamps in the operating

room. Protective glass for some lamps are broken and the whole set is obsolete. There is also a portable operating lamp using just one bulb. In addition, there are a suction unit, anesthesia machine, sterilizer and autoclave, some of which need repair but most are functioning.

A new operating room and ICU have been prepared. They are currently not in use due to a lack of equipment.

The Laboratory has a balance, centrifuge, blood analyzer, microscope and incubator. All are functioning although long overdue for replacement.

The Dentistry is equipped with one dental unit, a compressor and an examination lamp. The set-up seems appropriate for a small-scale hospital. The mobile-type dental X-ray apparatus was installed 1.5 years ago and operates properly. There are also a set of dental tools and an autoclave.

The Urology Department shares a room with another department. Urology care is provided twice a week.

The Ophthalmology Department has an operating room and examination room. The operating room is equipped merely with a examination table and lamp, and the examination room only with an eyesight-test chart and examination table.

The Otolaryngology Department has only an examination lamp and other minor examination tools.

Outpatient ward is equipped with an examination table, operating tables for adults and children, a sphygmomanometer and stethoscope.

The refrigerator in the Pharmacy is broken, therefore, vaccines, etc. cannot be stored properly. There are big shelves built on the walls, but they are not filled with drugs. The Pharmacy is not even equipped with a balance.

Although the hospital scale is rather small, it is maintained sanitarily without any abandoned trash in sight. If the hospital is supplied with equipment needed, it will become an excellent district hospital.

(6) Isna Hospital

1) Outline of facilities

The hospital is located about one kilometer north of the central part of Isna City, which is situated 70 kilometers from Luxor City down the national road along the Nile River. It has a total site area of 4,600 square meters. At the western side of the site, there is a concrete two-story Old Building that accommodates a diagnosis/treatment room and inpatient ward. Across the road from the Old Building, there is a two-story building for the Ophtamology Department and inpatient ward. On the east side of the Old Building, a new H-shape hospital is under construction. The building has a total floor space of 3,000 square meters with four stories including one basement. The building is about 90% complete, with some finishing work to be completed along with window installment, plumbing and wiring. Although the Ministry of Health allocated additional funds to complete the building by April 1994, more time seems to be needed.

The currently used Old Building was constructed in 1936, and not much repair or maintenance work has been done ever since. It gives an impression of an old crumbling building. The building receives 220V electricity directly from the city's electric supply system. The hospital does not have an emergency generator and experiences about seven hours of power outage each month due to maintenance work by the local electric company.

It receives a sufficient supply of water from the city's reservoir. Like the Qift Hospital, the accumulated waste water in the tank is carried away regularly by the city's vacuum car.

Only the operating rooms are cooled with window-type air-conditioners.

2) Medical services

The Isna Hospital serves as a general hospital for approximately 500,000 residents in and around Isna City. They have 28,800 outpatients and 2,350 inpatients annually. Major diseases for outpatients include bilharziasis, anemia, diabetes and urinary tract

problems. Inpatient diseases include cardiovascular diseases, urinary tract complications, pre/postpartum bleeding, gastroenteritis and cerebrovascular diseases. Isna Hospital has 122 beds, 38 doctors, 12 nurses, two X-ray radiologists, three paramedics and others. Medical services will soon be offered at a newly constructed building. However, as the current facility is operating with the minimum of equipment, the medical staff need to be retrained when new equipment is introduced.

3) Existing equipment

Both of the diagnostic X-ray systems are quite old. The tilting table (tilting-type system) does not tilt and the control device ammeter (bucky-type system) is broken. The abdominal area X-rays are taken at 80kV and 120mAs, which exposes patients to undesirably high radiological dosages.

The operating room is old and an incandescent lamp is used to compensate for the broken ceiling lamp.

The Ophthalmology Department is sparsely equipped. There is a set of lenses for eyesight examination but some lenses are missing.

The Clinical Examination Room only has an old microscope and centrifuge.

The hospital must be transferred to the new building soon and needs to also be appropriately equipped.

Fig. 2.3(1) Layout of Luxor Hospital

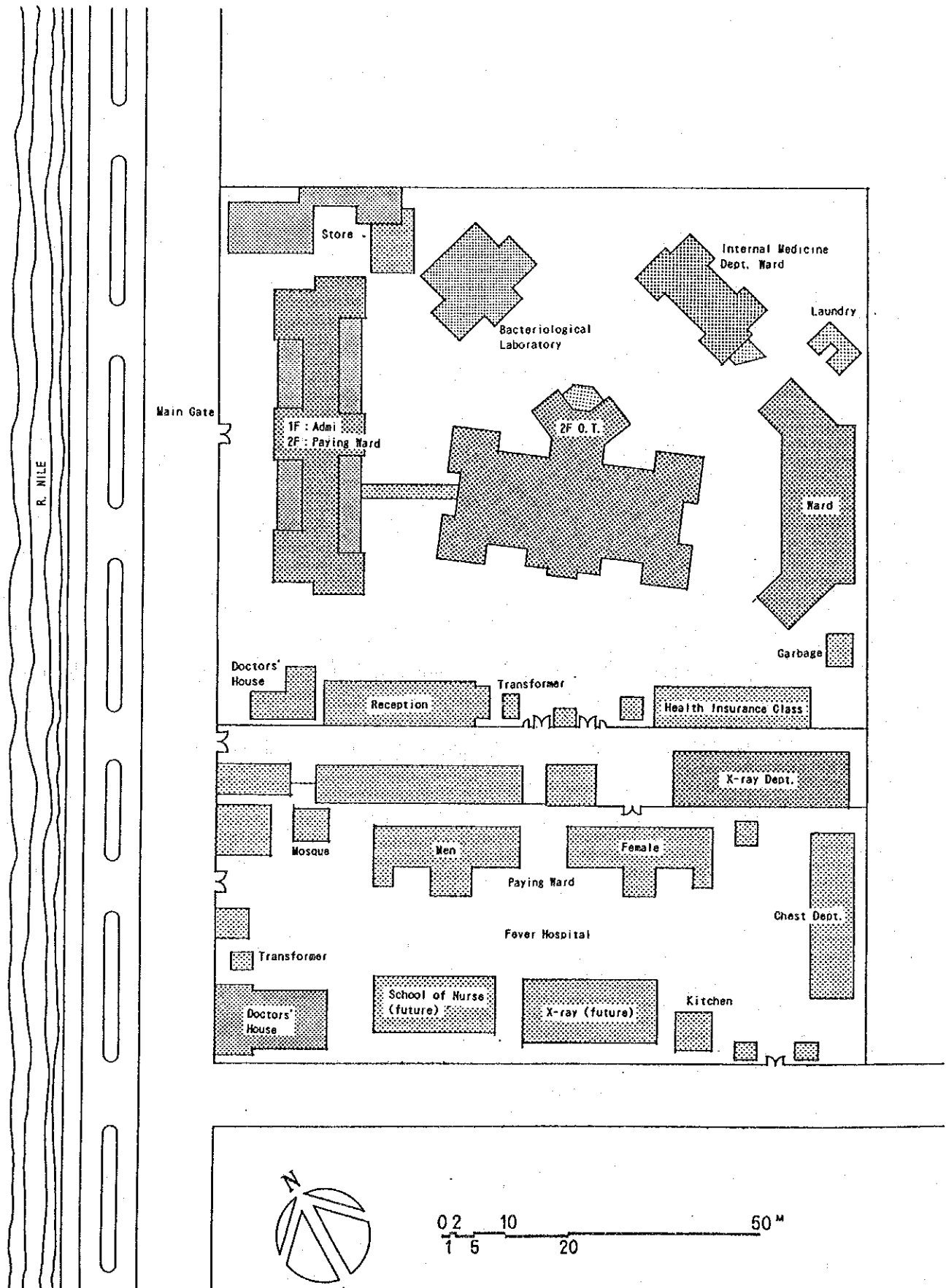


Fig. 2.3(2) Layout of Qena Hospital

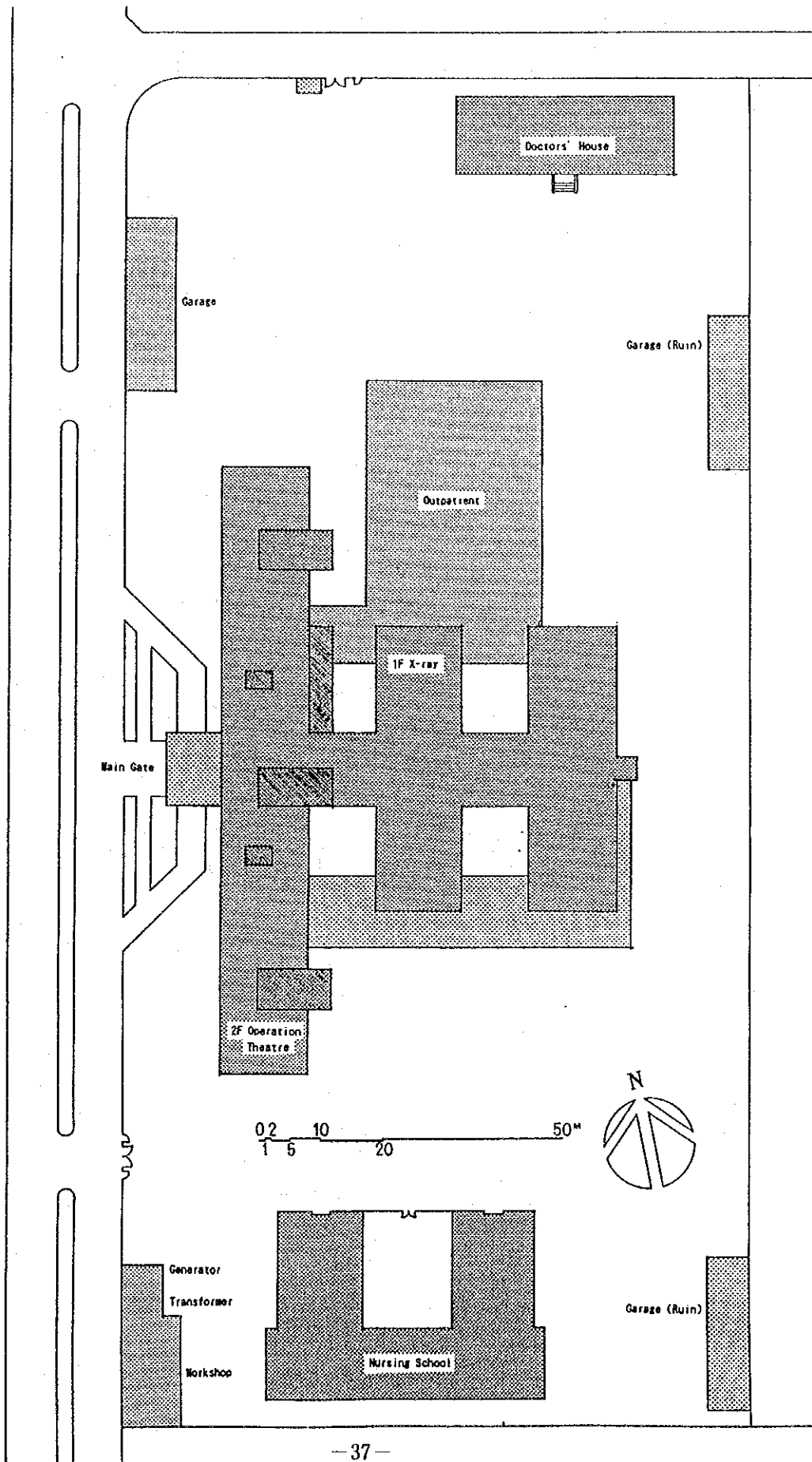
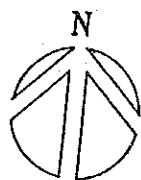
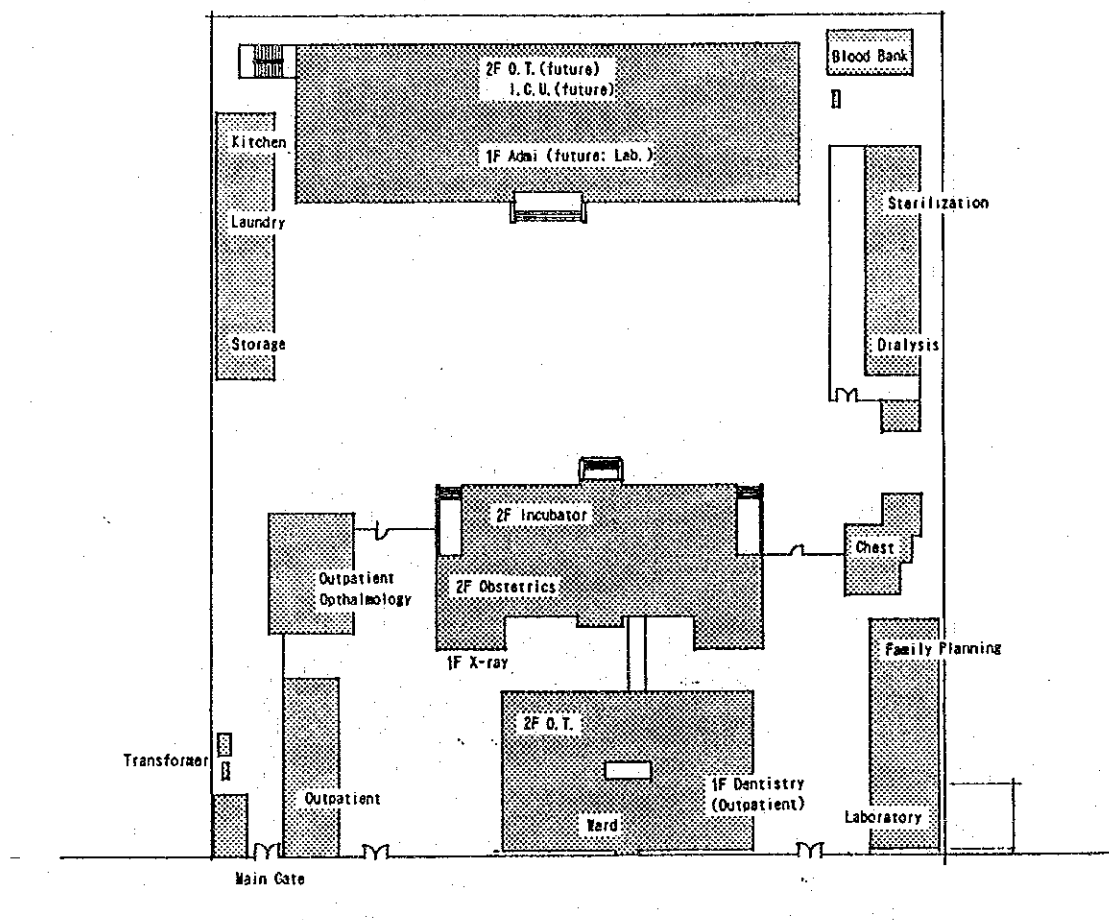


Fig. 2.3(3) Layout of Naga Hammadi Hospital



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Fig. 2.3(4) Layout of Farshut Hospital

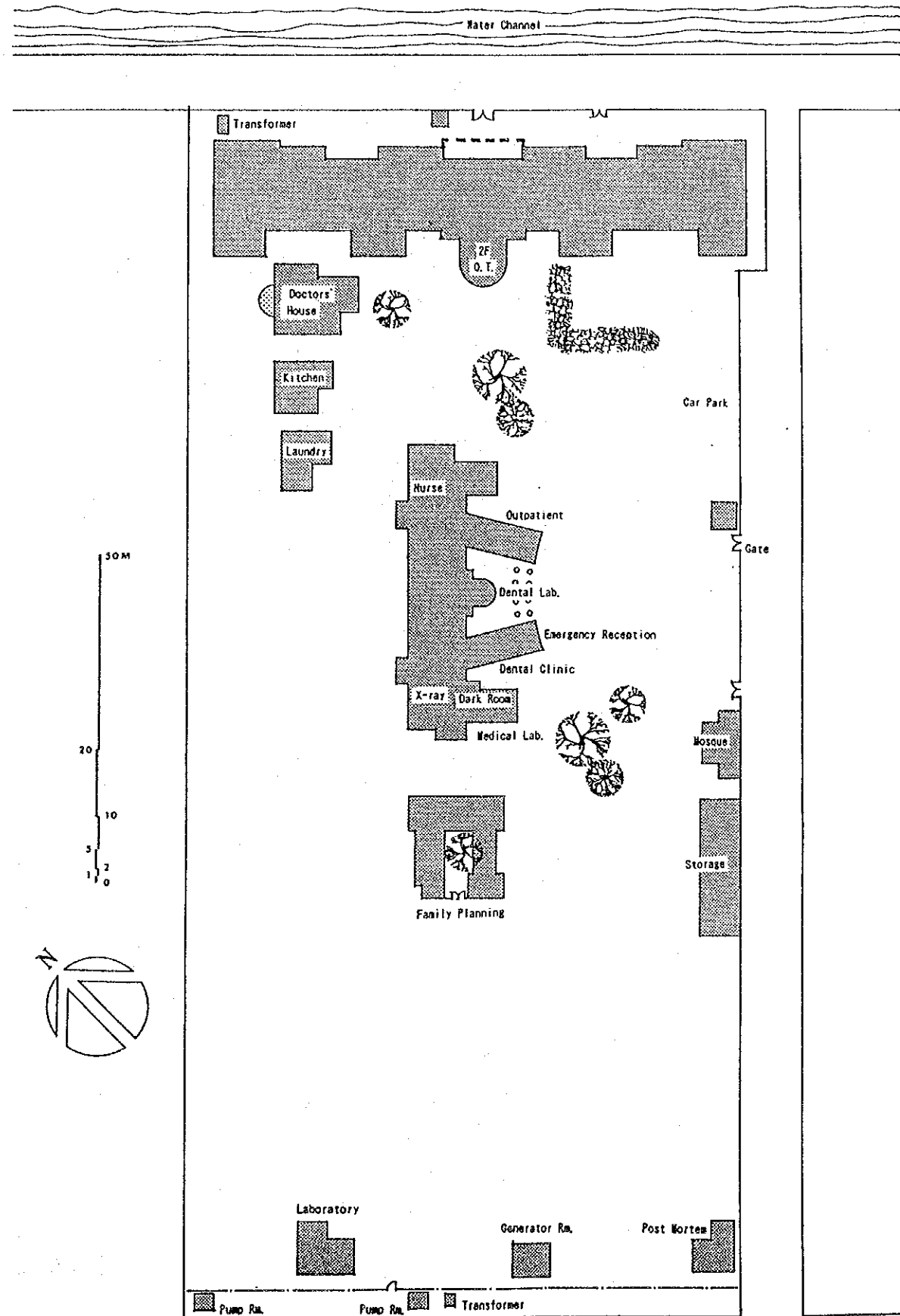


Fig. 2.3(5) Layout of Qift Hospital

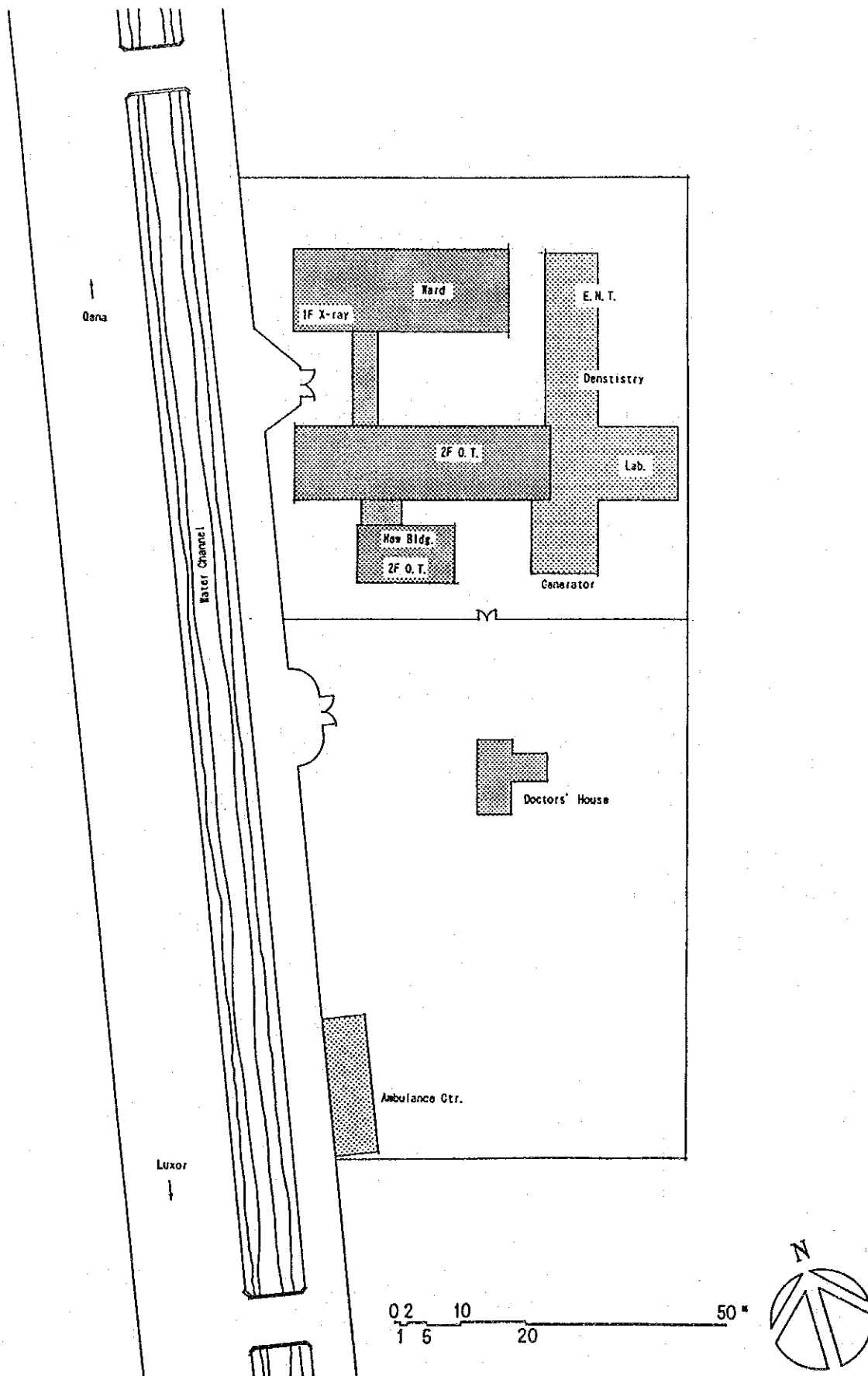


Fig. 2.3(6) Layout of Isna Hospital

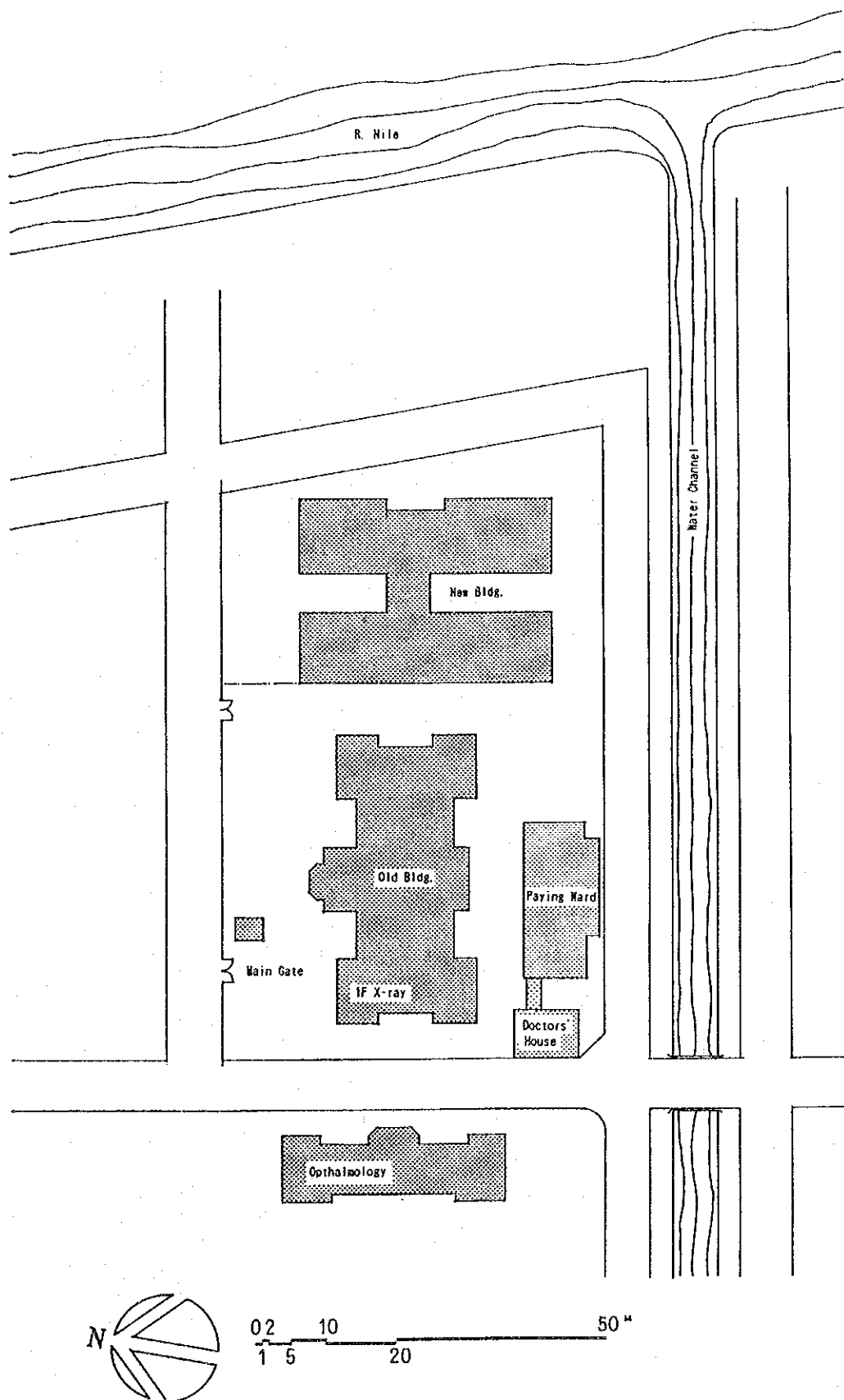


Table 2.3.3 Outline of the Proposed Hospitals

Name of Hospital	Luxor Hospital	Qena Hospital	Naga Hamadi Hospital
Status	District General Hospital	District General Hospital	District General Hospital
Location	Luxor Special Administrative City	Qena City, Qena Governorate	Naga Hamadi City, Qena Governorate
Year of Foundation	1900	1973	1936
No. of Beneficiary	156,838 people in Luxor City and surrounding 20 towns and villages	500,000 people in Qena City, 7 surrounding towns and 20 villages	800,000 people in Naga Hamadi City & surrounding 130 towns & villages
No. of Bed	186	332	151
Doctor	138	112	81
Nurse	53	61	39
Radiologist(X-Ray)	15	9	15
Paramedical	8	13	10
Others	10	36	58
No. of Outpatient	86,963	67,313	96,448
No. of Inpatient	18,585	8,610	4,577
Medical Services	Medicine, Surgery, Obstetrics & Gynecology, Pediatrics, Otolaryngology, Ophthalmology, Urology, Dermatology, Psychiatry, Dentistry, Rehabilitation, Orthopedics, Radiology, Clinical Examination, Hemodialysis, Emergency Reception	Medicine, Surgery, Obstetrics & Gynecology, Pediatrics, Otolaryngology, Ophthalmology, Orthopedics, Urology, Dentistry, Psychiatry, Rehabilitation, Physical Therapy, Hemodialysis, Radiology, Clinical Examination, Emergency Reception	Medicine, Surgery, Obstetrics & Gynecology, Pediatrics, Otolaryngology, Ophthalmology, Physical Therapy, Dermatology, Chest, Dentistry, Orthopedics, Urology, Radiology, Clinical Examination, Hemodialysis, Emergency Reception
No. of Operation	7,550	4,364	3,942
X of X-Ray Films	7,000	8,178	5,611
No. of Clinical Examination	3,812	33,640	-
Major Diseases	Outpatient(person/year) Skin Infection: 7,014 Hypertension: 5,748 Otitis Media: 3,989 Pneumonia: 3,800 Abscess: 2,000 Inpatient(person/year) Appendix & Cholecystitis: 2,190 Gastroenteritis: 1,950 Hypertension and Pneumonia: 1,502 Abortion: 1,440 Disproportion: 1,296	Outpatient & Inpatient Acute renal failure Cor pulmonale Complication of Diabetes Burn Mal Nutrition Gastroenteritis	Outpatient Accident Bronchitis Bilharziasis Renal Colic Gastroenteritis Appendix Inpatient Cardiovascular diseases Urinary tract troubles Pre and postpartum bleeding Gastroenteritis Appendix
Outline of Facilities	Large and small 9 buildings for bacteriological examination, radiology, clinical examination centering around 3 storied building for diagnosis and treatment. In the site next to the above buildings there are 7 large and small building for chest ward and fever ward. Repairing construction is going on at the operating room located at the second floor of the building for diagnosis and treatment.	Building of 3 storied high with total floor space of 10,000 sq. meter constructed in 1973. There is nursing school at the northern part of the site. There is doctors' house in the southern side of the site. There is a equipment repair centre at the south-west corner of the site. Cooling of operating rooms and parts of examination rooms are centralized.	Operating room, patient ward, outpatient ward laboratory, hemodialysis ward and blood bank centering around 3 storied building for diagnosis and treatment are scattered in the site. 3 storied new building is under construction. First floor has been completed and accommodated the management office. The second floor is planned to be used as new operating room.
Situation of Existing Major Equipment	Diagnostic X-ray system (radiodiagnosis), 1 unit, 5 yrs. Netherlands Diagnostic X-ray system (chest hospital), 1 unit, C. very old Diagnostic X-ray system (outpatient), 1 unit, C. 15 years. Germany Ultrasound machine (radiodiagnosis), 1 unit, A. Denmark Operating table (Operating theatre), 3 units, B. UK, China, W. lands Operating ceiling lamp (operating theatre), 3 units, B. Anaesthesia machine (operating theatre), 3 units, Poland Anaesthesia machine (operating theatre), 3 units, A&C, 5-10 years, U.K., Germany Patient monitor (operating theatre), 1 unit, A, 5 years Ventilator (operating theatre), 3 units, A&C, 12 years, UK, Germany Spectrophotometer (clinical lab.), 1 unit, B, 15 years, Italy	Diagnostic X-ray system (radiodiagnosis), 1 unit, C, 20 years, almost no serviceable Diagnostic X-ray (radiodiagnosis), 1 unit, C Operating table (operating theatre), 2 units, A, China, 0.3 years Operating ceiling lamp (operating theatre), 2 units, C&D Anaesthesia machine (operating theatre), 3 units, A, B, C, 2 years and others, U.K. & others Gynecological operating table (operating theatre), 2 units, B, Old Hemodialysis (Hemodialysis dept.), 8 units, A, 5-6 years, U.S.A. and others Patient monitor (ICU), 6 units, A&C, 5 years Defibrillator (ICU), 3 units, A&D, 5 years Incubator (paediatrics), 7 units, A, 0.5-1 year, U.S.A.	Diagnostic X-ray system (radiodiagnosis), 1 unit, B, Netherlands Dental X-ray apparatus (radiodiagnosis), 1 unit, B, 20 years, Czechoslovakia Hemodialysis (Hemodialysis dept.), 4 units, A, 3-4 years, U.S.A. Water distiller (Hemodialysis dept.), 1 unit, A, U.S.A. Operating ceiling lamp (operating theatre), 2 units, C Operating table (operating theatre), 1 unit, A&B, U.K. Anaesthesia machine (operating theatre), 3 units, A&B, U.K. Operating table (orthopedics), 1 unit, C, 10 years Operating ceiling lamp (orthopedics), 1 unit, B
Remarks:	Description in parenthesis shows the name of department where the equipment is installed. Alphabet(A-F) shows the condition of the equipment. A: functions normally B: functions, but need to be repaired C: functioning at present but have to be replaced D: no functioning, and can not be repaired		

Table 2.3.3 Outline of the Proposed Hospitals

Name of Hospital	Farshut Hospital	Qift Hospital	Isma Hospital																																				
Status	District General Hospital	District General Hospital	District General Hospital																																				
Location	Farshut City	Qift City, Qena Governorate	Isma City, Qena Governorate																																				
Year of Foundation	1949	1974	1936																																				
No. of Beneficiary	92,000 people in Farshut City & Surrounding 9 towns and villages	250,000 people in Qift City & surrounding 11 towns and villages	500,000 people in Isma City & surrounding towns and villages																																				
No. of Bed	76	67	122																																				
Doctor	22	20	38																																				
Nurse	19	15	12																																				
Radiologist(X-Ray)	6	4	2																																				
Paramedical	9	3	3																																				
Others	-	-	-																																				
No. of Outpatient	27,587	9,000	28,800																																				
No. of Inpatient	2,399	2,350	3,600																																				
Medical Services	Medicine, Surgery, Obstetrics & Gynecology, Pediatrics, Urology, Anesthesiology, Ophthalmology, Otolaryngology, Radiology, Dentistry, Hemodialysis, Emergency Reception	Medicine, Surgery, Obstetrics & Gynecology, Pediatrics, Ophthalmology, Orthopedics, Urology, Dentistry, Radiology, Clinical Examination, Emergency Reception	Medicine, Surgery, Obstetrics & Gynecology, Pediatrics, Otolaryngology, Ophthalmology, Orthopedics, Dentistry, Psychiatry, Urology, Anesthesiology, Clinical Examination, Emergency Reception																																				
No. of Operation	3,275	500																																					
N. of X-Ray Films	5,039	1,400																																					
No. of Clinical Examination	8,737	1,500																																					
Major Diseases	<table><tr><td>Outpatient</td><td>Inpatient</td></tr><tr><td>Accident</td><td>Accident</td></tr><tr><td>Bilharziasis</td><td>Complication of Diabetes</td></tr><tr><td>Renal Colic</td><td>Scorpion stings</td></tr><tr><td>Diabetes</td><td>Chronic bilharziasis</td></tr><tr><td>Parasite</td><td>Dehydration</td></tr></table>	Outpatient	Inpatient	Accident	Accident	Bilharziasis	Complication of Diabetes	Renal Colic	Scorpion stings	Diabetes	Chronic bilharziasis	Parasite	Dehydration	<table><tr><td>Outpatient</td><td>Inpatient</td></tr><tr><td>Common Cold</td><td>Diabetes</td></tr><tr><td>Bronchitis</td><td>Cardiovascular Diseases</td></tr><tr><td>Gastroenteritis</td><td>Asma</td></tr><tr><td>Bilharziasis</td><td>Pre and Postpartum bleeding</td></tr><tr><td>Renal Colic</td><td>Appendix</td></tr></table>	Outpatient	Inpatient	Common Cold	Diabetes	Bronchitis	Cardiovascular Diseases	Gastroenteritis	Asma	Bilharziasis	Pre and Postpartum bleeding	Renal Colic	Appendix	<table><tr><td>Outpatient</td><td>Inpatient</td></tr><tr><td>Bilharziasis</td><td>Cardiovascular diseases</td></tr><tr><td>Anemia</td><td>Urinary tract trouble</td></tr><tr><td>Diabetes</td><td>Pre and Postpartum bleeding</td></tr><tr><td>Urinary tract trouble</td><td>Gastroenteritis</td></tr><tr><td>Trachoma and conjunctivitis</td><td>Cerebrovascular diseases</td></tr></table>	Outpatient	Inpatient	Bilharziasis	Cardiovascular diseases	Anemia	Urinary tract trouble	Diabetes	Pre and Postpartum bleeding	Urinary tract trouble	Gastroenteritis	Trachoma and conjunctivitis	Cerebrovascular diseases
Outpatient	Inpatient																																						
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Renal Colic	Appendix																																						
Outpatient	Inpatient																																						
Bilharziasis	Cardiovascular diseases																																						
Anemia	Urinary tract trouble																																						
Diabetes	Pre and Postpartum bleeding																																						
Urinary tract trouble	Gastroenteritis																																						
Trachoma and conjunctivitis	Cerebrovascular diseases																																						
Outline of Facilities	There is 2 storied building for diagnosis, treatment and patient ward in the northern side of the site, and there are buildings for radiology dentistry and nurse dormitory. Besides, buildings for canteen, laundry, family planning and clinical laboratory are scattered around in the site.	2 storied buildings for operating room diagnosis, treatment and management office, other 2 storied building for radiology and patient ward, and single storied outpatient ward are connected with corridors and eaves. New operating room is under construction at the second floor of a new building which is connected with corridor. There is doctors' dormitory in the central part of the site. The Emergency centre is located at the end of south-west part of the site.	There is old building constructed in 1936 at the western side of the site which accommodates diagnosis and treatment room and patient ward. No maintenance of the building seems to have been undergone. There is the ophthalmology department in the annex building across the road. A new 3 storied building with basement of 3,000 sq. meter floor space is under construction at the site next to the old building.																																				
Situation of Existing Major Equipment	Diagnostic X-ray system (radiodiagnosis), 2 units. A&C, old. Hungary and others	Diagnosis table (emergency outpatient), 3 units. B, old. ECG (emergency outpatient), 1 unit. A, small size. Japan	Diagnostic X-ray system (radiodiagnosis), 1 unit. B, old. Netherlands																																				
Remarks:																																							
Description in parenthesis shows the name of department where the equipment is installed. Alphabet(A-D) shows the condition of the equipment. A: functions normally B: functions, but need to be repaired C: functioning at present but have to be replaced D: no functioning, and can not be repaired	Mobile X-ray (radiodiagnosis), 1 unit. A, France Operating table (operating theatre), 2 units, old. China Operating ceiling lamp (operating theatre), 1 unit, C, old. China Anaesthesia machine (operating theatre), 2 units. B, U.K. Mobile lamp (operating theatre), 1 unit. A Suction unit (obstetrics), 1 unit. C ECG(internal medicine), 1 unit. C Operating ceiling lamp (emergency outpatient), 1 unit. B, Italy Hemodialysis (Hemodialysis dept.), 3 units. A, U.S.A. and others	Operating ceiling lamp (operating theatre), 1 unit. B, old. Balance (clinical lab.), 1 unit. B, 200g Max., China Refrigerator (clinical lab.), 1 unit. B, medium size Centrifuge (clinical lab.), 1 unit. B Dental unit (dental surgery), 1 unit. B, partly nonfunction Refrigerator (pharmacy), 1 unit. D, can not preserve vaccine	Diagnostic X-ray system (radiodiagnosis), 1 unit. C, old. Centrifuge (clinical lab.), 1 unit. C Microscope (clinical lab.), 1 unit. C Anaesthesia machine (Anaesthesia dept.), 1 unit. C Sterilizer (operating theatre), 1 unit. C, old Operating ceiling lamp (operating theatre), 1 unit. C																																				

2.4 Background and Detail of Request

2.4.1 Background of the Request

The Egyptian Government has been implementing various measures called for in its Third Health and Medical 5-Year Plan to improve medical service quality and correct regional differentials in Upper Egypt by upgrading district general hospitals in Luxor City and the Qena Governorate. It has proceeded with its mandate to totally renovate Isna Hospital, partially renovate Qena, Nag Hammadi, Farshut Hospitals and to reconstruct Luxor Hospital in another location. However, due to financial difficulties, these hospitals have not been supplied with equipment needed and are struggling to provide basic medical care using obsolete equipment or dealing with the issue of inadequate outfitting of equipment. To improve this situation, the Egyptian Government has developed a Medical Equipment Supply Plan for Hospitals in Luxor City and the Qena Governorate and requested grant aid from Japan.

2.4.2 Details of the Request

(1) Proposed hospitals

Names and locations of proposed hospitals are as follows:

Luxor Hospital	: Luxor City
Qena Hospital	: Qena City, the Qena Governorate
Nag Hammadi Hospital	: Nag Hammadi City, the Qena Governorate
Farshut Hospital	: Farshut City, the Qena Governorate
Qift Hospital	: Qift City, the Qena Governorate
Isna Hospital	: Isna City, the Qena Governorate

(2) Requested equipment

The equipment requested for each hospital was confirmed based on the field survey conducted by the Basic Design Survey Team and through discussions held between the team and Egyptian parties concerned. (See Appendix 4-1.) Additional items were requested during the Technical Survey for the Luxor Hospital's outpatient division, including seven dental instruments and one X-ray TV system.

Major items requested are listed below:

List of Equipment Requested

1. Luxor Hospital

Location	Equipment Requested
Anaesthesia Dept.	Anaesthesia machine, Ventilator, Defibrillator, etc.
C.C.U.	Patient monitor, Ventilator, Mobile x-ray, etc.
Chest	X-ray mirror camera system, Steam autoclave, etc.
Endoscopy unit	Colono fiberscope, etc.
E.N.T.	Operating microscope for E.N.T. Broncoscope (rigid type), E.N.T. Examination/Treatment unit, etc.
Medical lab.	Steam autoclave, Blood gas analyzer, Flame photometer, etc.
Obstetrics	Ultrasound machine, Delivery table, etc.
Operating theatre	Operating table for general surgery, Electro-surgery unit, Laparoscope unit, etc.
Ophtalmology	Operating microscope for ophtalmology, Ophtalmic examination unit with slit lamp, Electro-surgery unit
Orthopedics	Surgical x-ray unit, Orthopedic operating table, etc.
Physiotherapy	Computerized traction unit, Tread mill for rehabilitation, Exerciser device
Radiodiagnosis	Diagnosis ultrasound machine, etc.
Theatre sterilization room	Scrub-up unit, Instrument washer, Steam autoclave
Urology	Cysto-urethroscope, Diatherong, etc.
Fever espital	X-ray machine with bucky table, Steam autoclave, etc.

2. Qena Hospital

Location	Equipment Requested
Anaesthesia Dept.	Anaesthesia machine, Ventilator, Defibrillator, etc.
C.C.U.	Patient monitor, Ventilator, Mobile x-ray, etc.
Endoscopy unit	Colono fiberscope, etc.
E.N.T.	Operating microscope for E.N.T. Examination/Treatment unit, Broncoscope, etc.

Medical lab.	Spectrophotometer, Water distiller, Steam autoclave, Blood gas analyzer, Flame photometer, etc.
Obstetrics	Ultrasound machine, etc.
Operating theatre	Operating table for general surgery, Electro-surgery unit, Laparoscope unit, Operating ceiling lamp, surgical microscope, etc.
Orthopedics	Surgical x-ray unit, Orthopedic operating table, Pneumatic drill, etc.
Physiotherapy	Computerized traction unit, Interferential therapy unit, Tread mill for rehabilitation,
Radiodiagnosis	Diagnosis ultrasound machine, Diagnostic x-ray TV system, Diagnostic stationary x-ray system, etc.
Theatre sterilization room	Scrub-up unit, Instrument washer, Steam autoclave, etc.
Urology	Cysto-urethroscope, etc.

3. Nag Hammadi Hospital

Location	Equipment Requested
Anaesthesia Dept.	Anaesthesia machine, Ventilator, Defibrillator, Patient monitor, etc.
Chest	X-ray mirror camera system, Steam autoclave, etc.
Dental surgery	Dental unit with chair, etc.
E.N.T.	Operating microscope for E.N.T., E.N.T. Examination/Treatment unit, Broncoscope, etc.
I.C.U.	Ventilator, Patient monitor
Medical lab.	Spectrophotometer, Water distiller, Automatic blood cell counter, Blood gas analyzer, Flame photometer, Elisa photometer, etc.
Obstetrics	Ultrasound machine, etc.
Operating theatre	Operating table for general surgery, Electro-surgery unit, Laparoscope unit, Operating ceiling lamp, etc.

Orthopedics	Orthopedic operating table, etc.
Physiotherapy	Computerized traction unit, Interferential therapy unit, Tread mill for rehabilitation
Radiodiagnosis	Diagnosis ultrasound machine, Diagnostic stationary x-ray system, etc.
Supportive service	Automatic electric emergency generator, etc.
Theatre sterilization room	Scrub-up unit, Steam autoclave, etc.
Urology	Cysto-urethroscope, etc.

4. Farshut Hospital

Location	Equipment Requested
Anaesthesia Dept.	Anaesthesia machine, Ventilator, etc.
I.C.U.	Ventilator, Patient monitor, Oxygen generator, I.C.U. bed, etc.
Medical lab.	Spectrophotometer, Water distiller, Blood gas analyzer, Flame photometer, Elisa photometer, etc.
Obstetrics	Ultrasound machine, Delivery table, etc.
Operating theatre	Operating table for general surgery, Electro-surgery unit, Laparoscope unit, Operating ceiling lamp, Patient monitor, Defibrillator, etc.
Radiodiagnosis	Diagnosis ultrasound machine, Diagnostic stationary x-ray system,
Supportive service	Automatic electric emergency generator, etc.
Theatre sterilization room	Steam autoclave

5. Qift Hospital

Location	Equipment Requested
Anaesthesia Dept.	Anaesthesia machine, Ventilator, Defibrillator, Patient monitor, etc.
Medical lab.	Spectrophotometer, Water distiller, Centrifuge, etc.
Obstetrics	Ultrasound machine, Delivery table, etc.

Operating theatre	Operating table for general surgery, Electro-surgery unit, Operating ceiling lamp, etc.
Ophtalmology	Ophtalmic examination unit with slit lamp, etc.
Radiodiagnosis	Diagnosis ultrasound machine, Diagnostic stationary x-ray system
Supportive service	Automatic electric emergency generator, etc.
Theatre sterilization room	Steam autoclave, etc.

6. Isna Hospital

Location	Equipment Requested
Anaesthesia Dept.	Anaesthesia machine, Ventilator, Defibrillator, Patient monitor, etc.
C.C.U.	Patient monitor, Ventilator, Mobile x-ray, etc.
Dental surgery	Dental unit with chair, etc.
Endoscopy unit	Gastroscope, Sigmoidoscope, etc.
I.C.U.	Ventilator, Patient monitor, Oxygen generator, etc.
Medical lab.	Spectrophotometer, Water distiller, Blood gas analyzer, Flame photometer, etc.
Obstetrics	Ultrasound machine, Delivery table, Operating ceiling lamp, Electro-surgery unit, etc.
Operating theatre	Operating table for general surgery, Electro-surgery unit, Orthopaedic operation table, Operating ceiling lamp, etc.
Ophtalmology	Ophtalmic examination unit with slit lamp, etc.
Radiodiagnosis	Diagnosis ultrasound machine, Diagnostic stationary x-ray system, etc.
Supportive service	Automatic electric emergency generator, etc.
Theatre sterilization room	Scrub-up unit, Instrument washer, Steam autoclave, etc.

Chapter 3 Overview of the Project

Chapter 3 Overview of the Project

3.1 Objective of the Project

As stated in 2.4.1, the Egyptian health sector is facing problems such as health service quality differentials between Upper and Lower Egypt, and increasing medical cost at private hospitals imposed upon residents. In addition, due to financial difficulties, public medical facilities in the Qena Governorate are inadequately equipped and hard to provide basic medical care.

To improve this situation, the Egyptian government has developed the Project for Improvement of Medical Services in the Hospitals in Luxor City and the Qena Governorate, and has proceeded on its own with reconstruction or renovation of the hospital buildings. However, in order to truly improve medical service qualities, these hospitals must be supplied with appropriate equipment to replace their obsolete equipment and to compensate for shortages.

The objective of this project is to develop a medical equipment supply plan for these six hospitals and provide necessary equipment to alleviate the deficiency.

3.2 Examination of the Request

3.2.1 Examination of the Necessity and Appropriateness

Although all six hospitals play important roles as district general hospitals providing medical care for local residents and patients referred by smaller hospitals and clinics, it is hard for them to provide minimum treatment for common diseases due to obsolete and deficiency of medical equipment. Also, because of the deteriorating service qualities, these hospitals are losing the trust of local residents.

To improve this situation, proper amounts of equipment must be provided to these hospitals. This project is designed to revitalize these hospitals by replacing obsolete equipment and supplying additional equipment so that they will be able to provide adequate medical care to local residents. The necessity and appropriateness of this project appears to be justified as it is likely to contribute to

the improvement of medical service qualities, especially in less developed regions, which corresponds to one of the goals of the Third Health and Medical 5-Year Plan.

3.2.2 Examination of Execution and Management

(1) Implementing the project

The project was coordinated and developed by the Ministry of Health based on the requests made by the Health Bureaus of Luxor City and the Qena Governorate and the six proposed hospitals. The project will be implemented by the Ministry of Health and the responsibility for accepting and installing equipment will be assumed by the directors of each hospital under the management of Luxor City's or the Qena Governorate's Health Bureau in accordance with the Ministry of Health's supervision. The above method is same as the usual procedure for supplying equipment to public medical facilities in Egypt.

(2) Maintenance plan after implementation

This project intends to replace obsolete equipment and supply additional equipment to accommodate the increasing number of patients. The current personnel and facility capacities explained in 2.3.3 are sufficient to properly maintain newly supplied equipment.

1) Examining personnel requirement

Table 3.1 shows medical staff personnel levels at each hospital and Table 3.2 displays the number of patients. The bed/doctor ratios are low, even for the highest ratio of 3.5 beds/doctor recorded at Farshut Hospital. Since the ratio is about 8 beds/doctor for an average Japanese hospital, the figure suggests that there are enough doctors at these hospitals. Nurses, on the other hand, are in serious shortage. At Luxor Hospital, for instance, the bed/nurse ratio is about 3.5. Considering the critical roles nurses play especially in obstetric/gynecology and pediatric departments, each hospital needs to increase the number of nurses. There are 15 X-ray radiologists at Luxor and Nag Hammadi Hospital respectively and 9 X-ray radiologist at Qena Hospital,

which are sufficient. Isna Hospital will be sufficiently staffed if such measures as transferring radiologists from other hospitals are taken.

All hospitals seem to have enough laboratory technicians to handle the amount of clinical examinations conducted daily and to maintain new equipment to be supplied under the project.

Table 3.2.2(1) Number of Personnel of the Proposed Hospital

(Unit: person)

Hospital	Doctor	Nurse	Radiologist	Paramedical	Others	Total
1. Luxor Hospital	138	53	15	8	10	224
2. Qena Hospital	112	61	9	13	36	231
3. Nag Hammadi Hospital	81	39	15	10	58	203
4. Farshut Hospital	22	19	6	9	—	56+
5. Qift Hospital	20	15	4	3	—	42+
6. Isna Hospital	38	12	2	3	—	55+

Remarks: + mark means that others shall be added to the total

Source : Data of the proposed hospitals

Table 3.2.2(2) Number of Patients of the Proposed Hospitals (1992)

Hospital	Number of Beds	(1)Bed	(2)Bed	Number of inpatients per year	Number of outpatients per year
1. Luxor Hospital	186	1.3	3.5	18,585	86,963 (290 person/day)
2. Qena Hospital	332	3.0	5.4	8,610	67,313 (224 person/day)
3. Nag Hammadi Hospital	151	1.9	3.9	4,577	96,448 (321 person/day)
4. Farshut Hospital	76	3.5	4.0	2,399	27,587 (92 person/day)
5. Qift Hospital	67	3.4	4.7	2,350	9,000 (30 person/day)
6. Isna Hospital	122	3.2	10.2	3,600	28,800 (96 person/day)
Total	934	2.3	4.7	40,121	316,111 (1,053 person/day)

Remarks: (1) is number of beds per doctor, (2) is number of beds per nurse

Source : Data of the proposed hospitals

(3) Funding plan

1) Funding for Luxor Hospital

As shown in Table 2.4.2 (1), Luxor Hospital's budget is allocated from Luxor City's health budget. In fiscal year 1992/93, the total expenditure of the city's health sector including medical supplies, facility maintenance, utility cost and purchases and repairs of medical equipment accounted for about 876,000 Egyptian pounds (approx. 28,000,000 yen). The operating budget has been increased by an average of 24% per year for the past four years. The health sector is largely subsidised by the Ministry of Health. A small amount comes from the Luxor City's health budget and fees collected at various medical facilities. In addition, the Luxor Hospital earned about 402,000 Egyptian pounds in fiscal year 1992/93 from chargeable treatments, and used the income for repairing equipment, etc. at their own discretion.

2) Funding for 5 hospitals in the Qena Governorate

As shown in Table 2.4.2 (2), the five hospitals in the Qena Governorate are funded by the Qena Governorate's health budget. The health budget for fiscal year 1992/93 was 7,365,000 Egyptian pounds (about 235,500,000 yen) an annual average increase of 13% from four years ago. The medical personnel cost in 1992/93 was 21,193,000 Egyptian pounds (about 678,000,000 yen), three time as much as the operating cost.

3) Income from chargeable treatment

In addition to the funds allocated from the governorate or city health budget, each proposed hospital earns income by providing chargeable treatment. The income expedites each hospital's operation as it is allowed to use the income to repair equipment, at its own discretion, in emergency situations.

3.2.3 Examination of the Relation with Similar Project

(1) Examination of the relation with Third 5-Year Plan

The following table shows the development project funds allocated to

the Third Medical and Health 5-year Plan concerning Luxor City and the Qena Governorate. The table shows the total cost and budget allocated from the Third 5-Year Plan for each project. These projects are primarily designed to reconstruct or renovate existing facilities and do not include the equipment supply plan, therefore, the proposed project will not duplicate these projects.

Table 3.2.3(1) Development Investment based
on the Third 5 year Health Plan (abstract)

(Unit: Thousand Egyptian pounds)

Project Name and Governorate (city)	Total Cost	Cost Expended	Budget of 5- yrs plan	Budget of '93	Distribution			
					Con- struction	Equip- ment	Instru- ment	Furni- ture
Nag Hammadi Hospital, Qena	1,268	588	400	100	100	—	—	—
Qena Hospital	1,868	922	1,300	50	50	—	—	—
Isna Hospital	1,345	605	500	100	100	—	—	—
Kous Hospital	2,000	125	2,000	100	100	—	—	—
Desna Hospital	900	—	900	50	50	—	—	—
Armant Hospital	500	—	500	50	50	—	—	—
Qena Chest Hospital	1,000	—	1,000	50	50	—	—	—
Luxor Hospital, Luxor City	11,407	8,683	1,000	200	200	—	—	—

Source: MOH data

(1 pound = 32 yen)

(2) Examination of the relation with other aid

Past international aid programs to Egypt are listed in Table 2.2.5 (1). Since many baby incubators and hemodialysis units have been supplied through America's Infant Survival Project and Schistosomiasis Control Project, the proposed project will exclude these items. Also, the "Family Planning and Mother-and-Child Health Pioneer Project for Nag Hammadi District" is currently being implemented as part of Japan's Technical Cooperation Project, which intends to promote family planning and mother-and-child health for doctorless districts. This pioneer project and the proposed project will be likely to potentiate each other in improving the medical situation in the proposed district.

3.2.4 Study on Project Components

(1) Position of each proposed hospital

All proposed hospitals serve in a similar capacity as the main general hospital for their respective districts. Looking at the scales of the hospitals, in terms of number of beds, doctors, inpatients and outpatients, Luxor and Qena Hospitals are the largest (See Table 3.2.2 (1) and 3.2.2 (2)). The importance of these two hospitals were stressed by the Egyptian parties, and the Japanese survey team also confirmed the political and geographical importance of these hospitals as well as the large population to be benefited by the improvement of these hospitals.

(2) Examining the medical service contents

Although there are slight variations depending on the hospital, all hospitals accommodate departments/wards for internal medicine, surgery, obstetrics/gynecology, pediatrics, otolaryngology, dentistry, urology, orthopedics, I.C.U., emergency reception, radiology and clinical examination. Some hospitals have comprehensive psychiatry and rehabilitation departments or provide other specialized medical services. Each hospital's operation varies depending on the size of facility, presence of specialized doctors, number of chargeable beds, etc.. However, it was confirmed through discussions with the Egyptian parties concerned that all of these hospitals mostly provided primary and secondary care for common diseases. It was also confirmed that although some tertiary care is offered at certain hospitals with specialized doctors, most patients with complicated conditions were transferred to either Asyut Hospital or Sohag Hospital, which are attached to Asyut University Medical School in the adjacent Governorate. Although hemodialysis equipment necessary for treating many bilharzia patients existing in this region was requested by the Egyptian side, the Japanese survey team pointed out the fact that the situation could be improved by having specialized doctor supervise hemodialysis treatment and by thoroughly enforcing blood quality monitoring during hemodilysis. Both parties then agreed to focus on

equipment for treating common diseases.

(3) Examining the main diseases

The major diseases for outpatients and inpatients for each hospital are provided in table 2.3.3 on page. Although each hospital has a slightly different composition, each one treats many cases of gastroenteritis, bronchitis and accident related injuries. Equipment for treating each main disease is listed in Table 3.2.4 (1) and the appropriateness of each item was confirmed.

Table 3.2.4.(1) Major Disease and Equipment needed

Major Disease	Equipment needed
Gastroenteritis	Gastroscope, Sigmoidoscope, Diagnostic X-ray system, Anaesthesia, Infusion Pump, Syringe infusion pump, Diagnostic ultrasound system
Hypertension, Peumonia, Corpulmonale, Cardiovascular disease	Patient monitor, Anaesthesia machine, Ultrasound system
Disease, skin infection, Abscesse	U. V. therapy, Dermatome for skin graft apparatus, skin mesher apparatus
Otitis media	ENT Examination/treatment unit, Operating microscope for ENT, Audiometer, Tympanometer
Appendix	Anaesthesia machine, Operating table, Operating Ceiling lamp
Pre & Postpartum bleeding	Delivery table, Gynecological operating table, Anaesthesia machine, Patient monitor, Suction unit, Ultrasound system
Acute renal failure, Urinary tract trouble, Renal colic	Anaesthesia machine, Ultrasound system
Complication of diabetes	Anaesthesia machine, Ventilator
Malnutrition	Spectrophotometer, Hemoglobin meter, etc.
Accident, Discoprolapse	Orthopedic operating table, Surgery X-ray, Pneumatic drill, Electric plaster saw, Treadmill for rehabilitation
Bronchitis, cold(including T.B.)	Diagnostic X-ray TV system, X-ray mirror camera system, Broncoscope(rigid)
Heavy Dehydration	Spectrophotometer, etc., Ultrasonic nebulizer
Tracoma and Conjunctivitis	Ophtalmic examination unit, etc.

(4) Examining the level of equipment

All proposed hospitals are equipped with standard-level equipment designed to treat common diseases. Their medical staff are accustomed to using such equipment and local agencies are able to provide maintenance or repair services. Therefore, it was decided that the project should supply standard medical equipment that could be maintained by local resources and exclude highly sophisticated medical equipment.

(5) Examining the spare parts supply

The surveys conducted at the Medical Equipment Maintenance Centers concluded that the repair capacities of these centers were limited to repairing minor mechanical problems and not sufficient for electrical work especially repairing electrical circuits.

After the discussions on this matter with the Egyptian parties, it was concluded that it would be more practical if elementary problems were handled by technicians of each hospital while obtaining assistance from the manufacturers' local agents for complicated cases. Also, it was decided that the project should supply spare parts that were in high demand but difficult to obtain.

(6) Examining procurement from third countries

The importance of maintenance capabilities and cooperation by the local agents of equipment manufacturers was discussed by the Egyptian side as highly necessary for the proper maintenance of equipment. Consequently, the survey team concluded that it would be appropriate to include equipment from third country manufacturers who have a large Egyptian market share and established reputation for providing good after-sales services.

(7) Procurement of inexpensive equipment

The survey team noted that although not included in the requested equipment list, many inexpensive items such as forceps, sphygmomanometers, stethoscopes and equipment carriers were also in serious shortage. Since the Egyptian side insisted that these items

could be obtained through its own source, it was decided to exclude these items from the project.

3.2.5 Examination of Requested Equipment

Although many highly advanced medical instruments such as CT Scanner and extracorporeal shock wave lithotripter were included in the request list before the preliminary study, they were excluded later as the Japanese survey team strongly suggested, and the Egyptian side accepted, that the project should focus on equipment for treating common diseases. Thus, the initial request list was modified substantially during the basic design study.

The survey team further analyzed the status of patients and medical services at each hospital and examined the appropriateness of each medical instrument and necessary amount for each hospital. The following table summarizes the result.

Numbers in the left column indicate the number of items requested by the Egyptian side and adjusted numbers and reasons for adjustment are shown in the right column.

As the names of medical departments followed the classification of the Ministry of Health, some department names do not correspond to the actual department names. Also, many items are shared by different departments at each hospital. The Egyptian side requested upgrading of medical equipment quantitatively and qualitatively, especially at the Luxor and Qena hospitals. Because of the operational sizes and number of personnel utilized at these two hospitals, including the amount of services offered, the Japanese side accepted the request. The Egyptian side explained that more items were requested for the Isna Hospital than for Nag Hammadi and Farshut Hospitals, because of the reconstruction expansion at the Isna facility and due to its location in southern Qena Governorate where no other medical facilities are located around Isna City. The study team fully understood the situation, however the team pointed out the fact that additional medical staff must be employed and retraining provided for the existing staff by the Egyptian side in order to fully utilize and properly maintain the newly supplied equipment. Medical instruments not

requested by the Egyptian side will not be supplied under the project in principle, except for additional items the study team deemed necessary for the effective implementation of the project. Table 3.2.5 summarizes the examination of requested equipment in terms of appropriateness within Japan's Grant Aid system, based on the analysis of various information, including the medical service quality/quantity, status of existing equipment, medical staff's level of experience in handling equipment, control of clean areas, equipment maintenance capability at each hospital.

Table 3.2.5 (1) Evaluation of Requested Equipment - LUXOR HOSPITAL

Requested equipments	Qty of Existing Equipments	Qty of Equipments under Functioning	Qty of Requested Equipments	Evaluation		from Demand	Viewpoint		from Technical		Viewpoint	Qty after Evaluation	Major Content of Evaluation
				Necessary for Diagnosis on General Disease	Necessary for Top Referral Medical Treatment		Equipments of High Priority	Operability by Existing Personnel	Possibility of Repair in Egypt	Appropriate for Grant Aid Cooperation			
[Anesthesia Dept.]													
Anesthesia machine	3	3	2	0			0	0	0	0	0	2	2 units of superannuated equipments are replaced
Ventilator for anesthesia	3	3	2	0			0	0	0	0	0	2	Ditto
Defibrillator	-	-	1	0			0	0	0	0	0	1	This is a required equipment for emergency.
Patient monitor	-	-	0	0			0	0	0	0	0	1	This is a required equipment for monitoring patients during surgery.
[Blood Bank]													
Tabletop centrifuge	-	-	0	0			0	0	0	0	0	1	This is a required equipment for general clinical examination.
Lab. incubator	-	-	0	0			0	0	0	0	0	1	Ditto
Hot air oven for sterilization	-	-	0	0			0	0	0	0	0	1	This is a required equipment for sterilisation in a lab.
Binocular microscope	2	2	0	0			0	0	0	0	0	1	Increase of the number is critical.
[Cardiology]													
ECG stress test unit with treadmill	0	-	1	0			0	0	0	0	0	1	Based on the judge that medical specialities can analyse precious CCE, one unit is introduced.
[C.C.U.]													
Patient monitor	-	-	3	0			0	0	0	0	0	2	This is considered as the equipment highly required for monitoring patients. However, reduce the number.
Ventilator	-	-	2	0			0	0	0	0	0	2	This is highly required for taking care of patients.
Volumetric infusion pump	-	-	3	0			0	0	0	0	0	2	Ditto. The number is reduced due to its low frequency.
Continuous syringe infusion apparatus	-	-	3	0			0	0	0	0	0	2	Ditto
External demand pace maker	0	-	1	0			0	0	0	0	0	1	This equipment has high requirement for taking care of serious patients.
Surgical suction unit	-	-	0	0			0	0	0	0	0	1	This equipment has highly requirement for taking care of patients.
Mobile X-ray	0	-	0	0			0	0	0	0	0	1	Ditto but with regard to sharing this equipment with other departments.
[Chem]													
X-ray mirror camera system	1	1	1	0			0	0	0	0	0	1	A superannuated equipment is replaced.
X-ray system	1	1	1	0			0	0	0	0	0	1	Ditto
Lab. incubator	0	0	1	0			0	0	0	0	0	1	With regard to prevention of infection in the hospital, this equipment is critical for reinforcing independently function of chest lab.
Hot air oven	0	0	1	0			0	0	0	0	0	1	Ditto
Centrifuge	0	0	1	0			0	0	0	0	0	1	Ditto
Steam autoclave	0	0	1	0			0	0	0	0	0	1	Ditto
Sensitivity disc dispenser	0	0	1	0			0	0	0	0	0	1	Ditto

Requested equipments	Qty of Existing Equipments	Qty of Equipments under Functioning	Qty of Requested Equipments	Evaluation		from Demand		Viewpoint		Evaluation		from Technical		Qty after Evaluation	Major Content of Evaluation
				Necessary for Diagnosis on General Disease	Necessary for Top Referral Medical Treatment	Equipments of High Priority	Operability by Existing Personnel	Possibility of Repair in Egypt	Appropriate for Grant Aid Cooperation						
[Chem]															
Colony counter	0	-	1	0		0	0	0	0	0	0	0	1	With regard to prevention of infection in the hospital, this equipment is critical for reinforcing independently function of chest lab.	
Spectrophotometer(U.V.)	0	-	1	0		0	0	0	0	0	0	0	1	Ditto	
Water distiller	0	-	1	0		0	0	0	0	0	0	0	1	Ditto	
[Dental Surgery]															
Dental unit with chair	2	0	2	0		0	0	0	0	0	0	0	2	A superannuated equipment is replaced.	
Ultrasonic scaler	0	-	1	0		0	0	0	0	0	0	0	1	This equipment is critical for diagnosis on general diseases.	
Examining light	-	-	1	0		0	0	0	0	0	0	0	1	Ditto	
Amalgamator	0	-	0	0		0	0	0	0	0	0	0	1	One unit, at least, is introduced based on the judge that this equipment is required for reinforcement of functions in dental technical room.	
Dental mixer	0	-	1	0		0	0	0	0	0	0	0	1	Ditto	
Lab. lathe	0	-	1	0		0	0	0	0	0	0	0	1	Ditto	
Sand plaster	0	-	1	0		0	0	0	0	0	0	0	1	Ditto	
Vibrator	0	-	1	0		0	0	0	0	0	0	0	1	Ditto	
Articulator	0	-	1	0		0	0	0	0	0	0	0	1	Ditto	
Micrometer	0	-	2	0		0	0	0	0	0	0	0	2	Ditto, however 2 units are introduced due to high frequency.	
Tanner	0	-	1	0		0	0	0	0	0	0	0	1	Ditto	
[Endoscopy unit]															
Colonos fibroscope	0	-	1	0		0	0	0	0	0	0	0	1	This equipment is critical for reinforcement of functions in Endoscopy unit.	
Light source	0	-	1	0		0	0	0	0	0	0	0	1	Ditto	
Fiberscope cleaning machine	0	-	1	0		0	0	0	0	0	0	0	1	Ditto	
Fiberscope cabinet	0	-	1	0		0	0	0	0	0	0	0	1	Ditto	
[ENT]															
Bronchoscope (rigid type)	0	-	1	0		0	0	0	0	0	0	0	1	This equipment is highly required for diagnosis for bronchial disease.	
Esoophagoscope	-	-	1	0		0	0	0	0	0	0	0	1	This is the equipment which should be always provided in ENT.	
Light source	-	-	1	0		0	0	0	0	0	0	0	1	This is critical for using the above equipment.	
Operating microscope for ENT	0	-	1	0		0	0	0	0	0	0	0	1	This equipment is highly required for ENT.	
Audiometer	0	-	1	0		0	0	0	0	0	0	0	1	Ditto	
Tympanometer	0	-	1	0		0	0	0	0	0	0	0	1	Ditto	
Sound proof room	0	-	1	0		0	0	0	0	0	0	0	1	Ditto	
ENT examination / treatment unit	0	-	1	0		0	0	0	0	0	0	0	1	Ditto	
[G.Y.N.]															
Hysteroscope	0	-	1	0		0	0	0	0	0	0	0	1	This equipment is critical for reinforcing functions of diagnosis in GYN.	
[Histopathology lab]															
Automatic tissue processor	0	-	1	0		0	0	0	0	0	0	0	1	This is introduced as a basically required equipment of Histopathology Lab.	

Requested equipments	Qty of Existing Equipments	Qty of Equipments under Functioning	Qty of Requested Equipments	Evaluation	from Demand	Viewpoint	Evaluation	from Technical	Viewpoint		Qty after Evaluation	Major Content of Evaluation	
									Necessary for Diagnosis on General Disease	Necessary for Top Referral Medical Treatment			Equipment of High Priority
[Histopathology lab]													
Fleecing microtome	0	-	1	0		0	0	0	0	0	1	This is introduced as a basically required equipment of Histopathology Lab.	
Binocular Microscope	0	-	1	0		0	0	0	0	0	1	Ditto	
[Internal Medicine]													
E.C.G. recorder 1 channel	1	1	2	0		0	0	0	0	0	2	Based on the judge that this is basic diagnosis equipment in Internal Medicine and that this can be shared with other departments, 2 units will be introduced additionally.	
Ultrasonic nebulizer	0	-	0	0		0	0	0	0	0	1	Based on the judge that it is a basic equipment for Internal Medicine, procurement is critical.	
[I.C.U.]													
Ventilator	0	-	0	0		0	0	0	0	0	1	Based on the judge that this equipment is critical for taking care of serious disease patients, one unit can be sufficient.	
Volumetric infusion pump	0	-	0	0		0	0	0	0	0	1	Ditto	
Syringe infusion Pump	0	-	0	0		0	0	0	0	0	1	Ditto	
Surgical suction apparatus	0	-	0	0		0	0	0	0	0	1	Ditto	
Oxygen generator	0	-	0	0		0	0	0	0	0	1	One unit must be introduced based on the judge that it is difficult to supply bomb of oxygen in upper part of Egypt.	
[Medical Lab]													
U.V. Spectrophotometer	1	1	1	0		0	0	0	0	0	1	The reason for adding one unit to the existing one is that this is critical for smooth execution of a blood test.	
Coagulometer	0	-	1	0		0	0	0	0	0	1	This is a basic equipment for reinforcing functions of Medical Lab.	
Lab. incubator	1	1	2	0		0	0	0	0	0	1	Based on the judge that it is required for germiculture, this equipment is introduced. Due to the characteristic of operation, the number of introduction should be 2.	
[Medical Lab.]													
Binocular microscope	2	2	2	0		0	0	0	0	0	2	2 more units adding to the 2 existing equipments are introduced.	
Water distilling apparatus	0	-	2	0		0	0	0	0	0	1	This is required equipment, but one unit can be sufficient for a while.	
Tabletop centrifuge	1	0	2	0		0	0	0	0	0	2	This is judged as a basic equipment in Medical Lab. With regard to sharing this equipment with other labs, 2 equipment's plan to be introduced.	
Automatic Blood cell counter	1	0	1	0		0	0	0	0	0	1	This is introduced as a basic equipment of Medical lab.	
Hot air oven	1	0	1	0		0	0	0	0	0	1	This equipment is introduced because it is critical for sterilise by heating in Medical Lab.	
Steam autoclave	1	0	1	0		0	0	0	0	0	1	This equipment is introduced because it is critical for sterilise by steam in Medical Lab.	
Blood gas analyzer	0	-	1	0		0	0	0	0	0	1	This equipment is critical for blood electrolytic examination.	

Requested equipments	Qty of Existing Equipments	Qty of Equipments under Functioning	Qty of Requested Equipments	Evaluation		from Demand		Viewpoint		from Technical		Qty after Evaluation	Major Content of Evaluation
				Necessary for Diagnosis on General Disease	Necessary for Top Referral Medical Treatment	Equipments of High Priority	Operability by Existing Personnel	Possibility of Repair in Egypt	Appropriate for Grant Aid Cooperation				
[Medical Lab.]													
Flame photometer for Na,K	0	-	1	0		0	0	0	0	0	1	1	One unit is introduced based on the judge that examination for Na and K is the base of the blood test.
Hemoglobinometer	0	-	0	0		0	0	0	0	0	1	1	This equipment is introduced based on the judge that it is basic examination equipment.
[Obstetrics]													
Vacuum extractor	0	-	1	-	-	-	-	-	-	-	0	0	Omit this equipment based on the judge that this can be procured by Egypt.
Ultrasound machine	0	-	1	0		0	0	0	0	0	1	1	Based on the judge that it can be shared between Obstetrics and G.Y.N., one unit will be introduced.
Foetal heart detector	0	-	2	0		0	0	0	0	0	1	1	This equipment is introduced based on the judge that it is a basic equipment of Obstetrics. With regard to the current requirement, one equipment is sufficient.
Delivery table	1	1	1	0		0	0	0	0	0	1	1	Because of malfunction of existing equipments, one unit is introduced.
Infant warmer unit	-	-	1	0		0	0	0	0	0	1	1	One unit is introduced for general care.
Operating table	1	1	0	0		0	0	0	0	0	1	1	One unit is introduced for making up for malfunction of existing equipments.
Operating lamp mobile type	0	-	0	0		0	0	0	0	0	1	1	One unit is introduced to execute obstetric operation.
[Operating theatre/surgery]													
Operating table for general surgery	3	3	3	0		0	0	0	0	0	2	2	2 units of the superannuated are replaced.
Surgical suction apparatus	0	-	3	0		0	0	0	0	0	3	3	It is judged as a basic equipment and with consideration of sharing this equipment with other labs, 3 units are introduced.
Electro-surgery unit 300W	1	1	2	0		0	0	0	0	0	2	2	One unit is introduced in each of operation theatre. In the first operation theatre, one high output device is introduced and shared with other theatres if necessary.
Electro-surgery unit 400W	0	-	1	0		0	0	0	0	0	1	1	One unit is introduced to the first operation theatre and shared with other theatres.
Laparoscope unit	0	-	1	0		0	0	0	0	0	1	1	This is introduced for improving the quality of ophthalmologic operation.
[Ophthalmology]													
Operating microscope for ophthalmology	0	-	1	0		0	0	0	0	0	1	1	This is introduced to perform operation around eyeball.
Electro-surgery unit	0	-	1	0		0	0	0	0	0	1	1	This is introduced to improve the quality of general ophthalmologic diagnosis.
Ophthalmic examination unit with slit lamp	0	-	1	0		0	0	0	0	0	1	1	This is introduced to make up for the function of existing equipments.
Leucometer	1	1	1	0		0	0	0	0	0	1	1	
[Orthopaedics]													
Surgical X-ray unit	0	-	1	0		0	0	0	0	0	1	1	This is introduced to raise the level of orthopaedic operation and the accuracy of other operation.

Requested equipments	Qty of Existing Equipments	Qty of Equipments under Functioning	Qty of Requested Equipments	Evaluation		from Demand	Viewpoint	Evaluation		from Technical	Viewpoint		Qty after Evaluation	Major Content of Evaluation
				Necessary for Diagnosis on General Disease	Necessary for Top Referral Medical Treatment			Operability by Existing Personnel	Possibility of Repair in Egypt		Appropriate for Grant Aid Cooperation			
[Orthopedics]														
Orthopaedic operating table	0	-	1	0			0	0	0	0	0	0	1	This is introduced to execute appropriately the operation to an injured patient.
Pneumatic drill	0	-	1	0			0	0	0	0	0	0	1	Ditto
Electric plaster saw	0	-	0	0			0	0	0	0	0	0	2	Ditto, but one unit is introduced to each of plaster room and outpatient department.
Electric air tourniquet	0	-	0	0			0	0	0	0	0	0	1	One unit is introduced to the operation theatre.
[Paediatrics]														
Baby incubator (open type)	3	3	1	-			-	-	-	-	-	-	0	Omit with regard to the possibility of the existing equipment.
Baby incubator (closed type)	1	1	1	-			-	-	-	-	-	-	0	Ditto
Bilirubinometer	0	-	0	0			0	0	0	0	0	0	1	Based on the judge that this is a basic equipment, this is introduced.
Neonatal monitor	0	-	1	0			0	0	0	0	0	0	1	Based on the judge that this is a basically required equipment for monitoring immature infants.
Oxygen analyzer	0	-	0	0			0	0	0	0	0	0	1	This is introduced based on the judge that this is a required equipment for taking care of immature infants.
Ultrasonic nebulizer	0	-	0	0			0	0	0	0	0	0	1	This is introduced based on the judge that this has high requirement for new-borns and infants to breathe easily.
[Physiotherapy]														
Paraffin wax bath	0	-	1	0			0	0	0	0	0	0	1	Based on the judge that this is a basic examination equipment, this is introduced.
Microwave therapy apparatus	0	-	1	0			0	0	0	0	0	0	1	Ditto
Computerized traction unit	0	-	1	0			0	0	0	0	0	0	1	Ditto
Treadmill for rehabilitation	0	-	0	0			0	0	0	0	0	0	1	Based on the judge that this is a basic equipment for rehabilitation, this is introduced.
[Plastic Surgery]														
Electric derothome for skin graft apparatus	0	-	1	0			0	0	0	0	0	0	1	One unit is introduced based on the judge that this is required for skin transplantation.
Skin retractor apparatus	0	-	1	0			0	0	0	0	0	0	1	Ditto
[Radiodiagnosis]														
Diagnosis ultrasound machine	1	1	1	0			0	0	0	0	0	0	1	With regard to usefulness of this equipment, one equipment is supplemented. Resulting from this addition, the diagnosis opportunity will be enlarged.
Automatic film processing machine	0	-	1	0			0	0	0	0	0	0	1	The existing equipment is operated manually. Owing to the introduction of this equipment, the accuracy of film examination will be improved.
[Skin and Venereal]														
Dermo jet intradermal injector	0	-	1	0			0	0	0	0	0	0	1	Owing to the introduction of this equipment, the technical level of diagnosis is improved.

Requested equipment	Qty of Existing Equipments	Qty of Equipments under Functioning	Qty of Requested Equipments	Evaluation	from Demand	Viewpoint	Evaluation	from Technical	Viewpoint	Qty after Evaluation	Major Content of Evaluation
				Necessary for Diagnosis on General Disease	Necessary for Top Referral Medical Treatment	Equipments of High Priority	Operability by Existing Personnel	Possibility of Repair in Egypt	Appropriate for Grant Aid Cooperation		
[Theatre sterilisation room]											
Scrub-up unit	0	-	2	0		0	0	0	0	2	Owing to the introduction of this equipment, the hand-washing can be executed and consequently the cleanliness of the operation theatre will be improved.
Instrument washer, moderate size	0	-	1	0		0	0	0	0	1	Ditto
Steam autoclave with steam generator 250 l	1	1	1	0		0	0	0	0	1	The superannuated equipment is replaced.
[Urology]											
Cysto-urethroscope for adult and child	0	-	1	0		0	0	0	0	1	The quality of the diagnosis of Urology, having number of patients will be improved.
[Milk Kitchen]											
Steam autoclave with steam generator 100 L	0	-	1	0		0	0	0	0	1	Owing to the steam sterilisation of a nursing bottle, the appropriate sanitary environment for infants will be provided.
[Luxor Fever Hospital]											
X-ray machine with bucky table	0	-	1	0		0	0	0	0	1	This equipment is required for diagnosis on patients having communicable disease who are currently provided an isolation care.
Incubator, tabletop type	0	-	1	0		0	0	0	0	1	This equipment is introduced as a basic equipment for clinical examination because of the above reason.
Hot air oven	0	-	1	0		0	0	0	0	1	Ditto
Electric tabletop centrifuge	0	-	1	0		0	0	0	0	1	Ditto
Sensitivity disc dispenser	0	-	1	0		0	0	0	0	1	Ditto
Steam autoclave with steam generator 100 l	0	-	1	0		0	0	0	0	1	Ditto
Electro photometer	0	-	1	0		0	0	0	0	1	Ditto
Binocular microscope	0	-	1	0		0	0	0	0	1	Ditto
Water stillizer	0	-	1	0		0	0	0	0	1	Ditto

Table 3.2.5 (2) Evaluation of Requested Equipment - QENA HOSPITAL

Requested equipments	Qty of Existing Equipments	Qty of Equipments under Functioning	Qty of Requested Equipments	Evaluation		Viewpoint	Evaluation		Viewpoint	Qty after Evaluation	Major Content of Evaluation
				Necessary for Diagnosis on General Disease	Necessary for Top Referral Medical Treatment		Operability by Existing Personnel	Possibility of Repair in Egypt			
[Anesthesia Dept.] Anesthesia machine	3	2	4	0		0	0	0	0	3	As 4 operating tables are provided in 3 operating theatres. Furthermore, in order to execute anaesthesia at the time of operation in one operating theatre of G.Y.N., 3 units are introduced with adding to 2 existing ones. As a result, 5 equipments, in total, will be provided.
Ventilator for anaesthesia	3	2	4	0		0	0	0	0	3	As this is incorporated in the above equipment, the same number of equipments are introduced.
Defibrillator	0	-	0	0		0	0	0	0	1	Because of no requirement for any operation, one unit is shared.
Patient monitor	0	-	4	0		0	0	0	0	2	Because of no requirement for any operation, two units are shared.
[Blood Bank] Blood bank refrigerator	2	1	2	0		0	0	0	1	1	One superannuated equipment is replaced.
Tabletop centrifuge	3	3	1	0		0	0	0	0	1	As all the 3 existing equipments are superannuated, one unit is provided.
Lab. incubator	1	1	0	0		0	0	0	0	1	The existing equipment is replaced.
Hot air oven for sterilization	1	1	0	0		0	0	0	0	1	Ditto
Binocular microscope	1	1	0	0		0	0	0	0	1	Ditto
[Cardiology] ECG stress test unit with treadmill	0	-	1	0		0	0	0	0	1	Based on the judge that the medical specialists can analyse specific ECG, one unit is introduced.
[CCU] Patient monitor	0	-	3	0		0	0	0	0	2	2 CCU beds of this room are prepared. 2 units of almost every equipment shown in the left column which are basically required for caring patients are introduced. However, as for External demand pace maker, Surgical suction unit, Mobil X-ray of which frequency is low, one unit of each is just introduced.
Ventilator	0	-	3	0		0	0	0	0	2	
Volumetric infusion pump	0	-	2	0		0	0	0	0	2	
Continuous syringe infusion apparatus	0	-	2	0		0	0	0	0	2	
External demand pace maker	0	-	0	0		0	0	0	0	1	Surgical suction unit can be borrowed by other departments and Mobil X-ray can be lent to other departments.
C.C.U. bed	0	-	3	0		0	0	0	0	2	
Surgical suction unit	0	-	0	0		0	0	0	0	1	
Mobile X-ray	0	-	0	0		0	0	0	0	1	

Requested equipments	Qty of Existing Equipments	Qty of Equipments under Functioning	Qty of Requested Equipments	Evaluation	from Demand	Viewpoint		Evaluation		from Technical	Viewpoint	Qty after Evaluation	Major Content of Evaluation
						Necessary for Diagnosis on General Disease	Necessary for Top Referral Medical Treatment	Equipments of High Priority	Operability by Existing Personnel				
[Endoscopy unit]													
Colonos fibroscope	0	-	1	0			0	0	0	0		1	Adding to the existing gastroscope, this is introduced and consequently the field of diagnosis will be enlarged.
Light source	0	-	1	0			0	0	0	0		1	This is critical as a light source.
Fibroscope cleaning machine	0	-	0	0			0	0	0	0		1	This equipment introduced for cleanliness and maintenance of fibroscope.
Fibroscope cabinet	0	-	0	0			0	0	0	0		1	Ditto
[E.N.T.]													
Bronchoscope(rigid type)	0	-	1	0			0	0	0	0		1	One unit of each equipment is introduced in order to provide basic functions such as diagnosis
Esophagoscope	0	-	1	0			0	0	0	0		1	on bronchi and esophagus and excision of foreign bodies.
Light source	0	-	1	0			0	0	0	0		1	One unit is introduced as a light source of the above.
Operating microscope for E.N.T.	0	-	1	0			0	0	0	0		1	This is supplied for diagnosis on general optic diseases such as otitis media.
Audiometer	0	-	1	0			0	0	0	0		1	This is provided for sound proof.
Tympanometer	0	-	1	0			0	0	0	0		1	This is provided for examination of tympanic membrane.
Sound proof room	0	-	1	0			0	0	0	0		1	The small room is provided for sound proof.
Sinoncope	0	-	1	-			-	-	-	-		0	Ornit this equipment because of low priority compared with other equipments.
E.N.T examination / treatment unit	0	-	1	0			0	0	0	0		1	One unit is introduced as the most important equipment in E.N.T.
[Internal Medicine]													
E.C.G recorder 1 channel	2	1	3	0			0	0	0	0		2	As one unit of the existing equipments can be functioned, 2 equipments are supplemented.
Ultrasonic nebulizer	0	-	0	0			0	0	0	0		1	This is a basic equipment of Internal Medicine which is required for patients to breathe easily.
[ICU]													
Volumetric infusion pump	0	-	2	0			0	0	0	0		1	This is introduced as a critical equipment for taking care of serious patients. However, it is judged that one unit is sufficient for the existing 4 ICU beds.
Syringe infusion pump	0	-	2	0			0	0	0	0		1	Ditto
Patient monitor	2	2	3	0			0	0	0	0		1	For the purpose of replacing the existing equipment, one unit of each equipment, in total 2 equipments, are introduced.
Patient monitor with EGC recording function	0	-	1	0			0	0	0	0		1	With regard to the requirement of this equipment, one unit is added.
Surgical suction apparatus	1	1	2	0			0	0	0	0		1	In order to respond the requirement of oxygen inhalation, one unit is introduced.
Oxygen generator	0	-	0	0			0	0	0	0		1	
[Medical Lab.]													
U.V Spectrophotometer	1	1	1	0			0	0	0	0		1	Most of the existing equipments in Medical lab. are greatly superannuated and numerical saying, the number of them is not sufficient.

Requested equipments	Qty of Existing Equipments	Qty of Equipments under Functioning	Qty of Requested Equipments	Evaluation		Viewpoint		Evaluation		Viewpoint		Qty after Evaluation	Major Content of Evaluation
				Necessary for Diagnosis on General Disease	Necessary for Top Referral Medical Treatment	Equipments of High Priority	Operability by Existing Personnel	Possibility of Repair in Egypt	Appropriate for Grant Aid Cooperation				
(Medical Lab.)													
Coagulometer	0	-	0	0		0	0	0	0			1	Therefore, in order to satisfy the basic requirement as the examination function in hospital, one unit of each equipment shown in this left column are introduced. However, regarding that Microscope and Tabletop centrifuge have requirement, the number of introducing these equipments are 2 unit of each.
Lab incubator	1	0	2	0		0	0	0	0			1	
Binocular microscope	2	2	2	0		0	0	0	0			2	
Water distilling apparatus	0	-	1	0		0	0	0	0			1	One U.V. spectrophotometer, more simplified than the existing one, is introduced to satisfy an increase of requirement of blood test.
Tabletop centrifuge	3	1	2	0		0	0	0	0			2	Resulting from the introduction of Blood gas analyzer and Flame photometer (for Na, K), the number of blood test items are increased. These are provided for an appropriate diagnosis.
Hot air oven	2	1	2	0		0	0	0	0			1	
Steam autoclave	1	0	1	0		0	0	0	0			1	
Blood gas analyzer	0	-	0	0		0	0	0	0			1	
Flame photometer for Na, K	0	-	0	0		0	0	0	0			1	
Water bath	1	-	1	0		0	0	0	0			1	
Hemoglobinometer	0	-	0	0		0	0	0	0			1	
(Obstetric)													
Vacuum extractor	1	0	1	0		0	0	0	0			0	Based on the judge that this equipment can be procured by the Egyptian side, omit this one.
Ultrasound machine	0	-	1	0		0	0	0	0			1	Based on the judge that this can be shared between Obstetrics and G.Y.N., one unit is introduced.
Foetal heart detector	0	-	1	0		0	0	0	0			1	Based on the judge that this is a basic equipment of Obstetrics.
Infant warmer unit	1	-	1	0		0	0	0	0			1	One unit is supplemented for taking care of general new-borns.
(Operating theatre/surgery)													
Operating table for general surgery	3	1	2	0		0	0	0	0			2	In addition to replacement of 2 existing superannuated equipments, 3 units in total are provided.
Surgical suction apparatus	4	0	4	0		0	0	0	0			4	All the superannuated equipments are replaced.
Electric-surgery unit 300W	0	-	4	0		0	0	0	0			2	Owing to the low frequency compared with the above surgical suction apparatus, 2 of Electro-surgery unit with 300W and 1 of one with 400W, in total 3 units, are introduced.
Electric-surgery unit 400W	0	-	0	0		0	0	0	0			1	This is introduced only to the first operation theatre.
Laparoscope unit	0	-	1	0		0	0	0	0			1	This is introduced to Orthopaedics, not to this department.
Orthopaedic operation table	0	-	1	-		-	-	-	-			0	The superannuated equipment is replaced.
Operating table for obstetric/gynaecology	1	-	1	0		0	0	0	0			1	
Emergency operating lamp with battery	2	-	4	0		0	0	0	0			2	Based on the judge that this frequency is low, 2 two units are introduced.
Operating ceiling lamp	4	1	4	0		0	0	0	0			3	Among 4 existing equipments, 3 of them are replaced.

Requested equipments	Qty of Existing Equipments	Qty of Equipments under Functioning	Qty of Requested Equipments	Evaluation		from Demand		Viewpoint		from Technical		Qty after Evaluation	Major Content of Evaluation
				Necessary for Diagnosis on General Disease	Necessary for Top Referral Medical Treatment	Equipments of High Priority	Operability by Existing Personnel	Possibility of Repair in Egypt	Appropriate for Grant Aid Cooperation				
[Operating theatre/surgery]													
Surgical microscope	0	-	1	0		0		0		0		1	This is introduced only to the first operation theatre.
[Orthopaedic]													
Surgical X-ray unit	0	-	0	0		0		0		0		1	With regard to scope of medical treatments in hospital, one unit is introduced for the purpose of improving the operating quality.
Orthopaedic operating table	1	-	1	0		0		0		0		1	The superannuated equipment is replaced.
Pneumatic drill	0	-	1	0		0		0		0		1	One unit is introduced to raise the technical level of operation.
Electric plaster saw	0	-	2	0		0		0		0		2	The efficiency of removing the plaster will be improved.
Electric air tourniquet	0	-	0	0		0		0		0		1	The level of operating technical will be raised.
[Paediatric]													
Bifurbinometer	0	-	1	0		0		0		0		1	Based on the judge that this is the basic equipment of this department, one unit is introduced.
Neonatal monitor	0	-	0	0		0		0		0		1	One unit is introduced for appropriate care of new-borns.
Oxygen analyser	0	-	0	0		0		0		0		1	One unit is introduced based on the judge that this is critical in Paediatrics.
Ultrasonic nebulizer	0	-	0	0		0		0		0		1	Ditto
[Physiotherapy]													
Shortwave therapy apparatus	0	-	1	0		0		0		0		1	Based on the judge that this equipment is critical in Physiotherapy, one unit is introduced.
Computerized traction unit	0	-	1	0		0		0		0		1	Ditto
Diodynamic apparatus	0	-	1	0		0		0		0		1	Ditto
Therapeutic ultrasound machine	1	0	1	0		0		0		0		1	As the existing equipment is superannuated, it is replaced.
Interferential therapy unit	1	0	1	0		0		0		0		1	Ditto
Treadmill for rehabilitation	0	-	1	0		0		0		0		1	Based on the judge that this equipment is critical in Physiotherapy, one unit is introduced.
[Radiodiagnosis]													
Diagnosis ultrasound machine	0	-	1	0		0		0		0		1	With regard to usefulness of this equipment, one unit is introduced.
Diagnostic X-ray TV system	0	-	1	0		0		0		0		1	With regard to big requirement of medical treatment in hospital, one unit having good quality of photographing is introduced.
Diagnostic stationary X-ray system	1	-	1	0		0		0		0		1	The superannuated equipment is replaced.
Automatic film processing machine	0	-	1	0		0		0		0		1	With regard to the number of photo films in the future, one unit of this automatic film processing machine is introduced.
Cassette pass-box	0	-	0	0		0		0		0		1	For the purpose of functioning the film transfer between the main X-ray lab and the darkroom, one unit is introduced.

Requested equipments	Qty of Existing Equipments	Qty of Equipments under Functioning	Qty of Requested Equipments	Evaluation		from Demand		Viewpoint		from Technical		Qty after Evaluation	Major Content of Evaluation	
				Necessary for Diagnosis on General Disease		Necessary for Top Referral Medical Treatment		Equipments of High Priority		Operability by Existing Personnel	Possibility of Repair in Egypt			Appropriate for Grant Aid Cooperation
[Theatre sterilisation room]														
Scrub-up unit	0	-	0	0				0		0	0	2	Resulting from the introduction of this equipment, the hand wash before operation can be executed and the cleanliness of the operating theatre will be improved.	
[Urology]														
Cysto-urethroscope for adult and child	0	-	1	0				0		0	0	1	The examination accuracy of Urology having a lot of patients will be improved.	

Table 3.2.5 (3) Evaluation of Requested Equipment - NAGHAMMADI HOSPITAL

Requested equipment	Qty of Existing Equipments	Qty of Equipments under Functioning	Qty of Requested Equipments	Evaluation	from Demand	Viewpoint		Evaluation	from Technical	Viewpoint	Qty after Evaluation	Major Content of Evaluation	
						Necessary for Diagnosis on General Disease	Necessary for Top Referral Medical Treatment						Equipments of High Priority
[Anesthesia Dept.]													
Anesthesia machine	3		3	0		0	0	0	0	0	2	Among 3 existing equipments, 2 superannuated units are replaced. Consequently in addition to the good functioning one, 3, in total, can be opened.	
Ventilator for anaesthesia	3	2	3	0		0	0	0	0	0	2	As this is incorporated with the above equipment, the same number of equipments are introduced.	
Defibrillator	0	-	1	0		0	0	0	0	0	1	One unit is shared with all the operating theatres.	
Patient monitor	0	-	3	0		0	0	0	0	0	1	Ditto	
[Blood Bank]													
Blood bank refrigerator	1	1	1	0		0	0	0	0	0	1	One unit is introduced as the supplement of the existing one.	
Tabletop centrifuge	0	-	0	0		0	0	0	0	0	1	Based on the judge that this equipment is basically required, one unit is introduced.	
Lab. incubator	0	-	1	0		0	0	0	0	0	1	Ditto	
Hot air oven for sterilisation	1	0	1	0		0	0	0	0	0	1	As the existing equipment is superannuated, it is replaced.	
Binocular microscope	1	0	1	0		0	0	0	0	0	1	As the existing equipment is superannuated, it is replaced.	
[Cardiology]													
ECG stress test unit with treadmill	0	-	1	0		0	0	0	0	0	0	Based on the judge that the medical specialists can analyse the specific ECG, one unit is introduced.	
[Chem.]													
X-ray mirror camera system	1	-	1	0		0	0	0	0	0	1	The existing superannuated equipment is replaced.	
X-ray system	1	-	1	0		0	0	0	0	0	1	Ditto	
Steam autoclave	1	0	0	0		0	0	0	0	0	1	The examination equipments basically required for managing the examination of tubercle bacillus, independent of other departments.	
Sensitivity disc dispenser	0	-	0	0		0	0	0	0	0	1		
Colony counter	0	-	0	0		0	0	0	0	0	1		
Water distiller	0	-	0	0		0	0	0	0	0	1		
[Dental Surgery]													
Dental unit with chair	1	1	1	0		0	0	0	0	0	1	As the existing equipment is greatly depressed, this is replaced.	
Ultrasonic scaler	1	-	1	0		0	0	0	0	0	1	Based on the judge that this is the basic equipment for dental examination, this is introduced.	
Amalgamator	1	-	1	0		0	0	0	0	0	1	The existing equipment is replaced.	
[ENT]													
Bronchoscope (rigid type)	0	-	1	0		0	0	0	0	0	1	One unit of each equipment are introduced in order to provide basic functions such as diagnosis on bronchi and oesophagus and excision of foreign bodies.	
Oesophagoscope	0	-	1	0		0	0	0	0	0	1	One unit is introduced as a light source of the above.	
Light source	0	-	1	0		0	0	0	0	0	1		

Requested equipments	Qty of Existing Equipments	Qty of Equipments under Functioning	Qty of Requested Equipments	Evaluation		Viewpoint	Evaluation	From Technical		Viewpoint	Qty after Evaluation	Major Content of Evaluation
				Necessary for Diagnosis on General Disease	Necessary for Top Referral Medical Treatment			Equipments of High Priority	Operability by Existing Personnel			
[E.N.T.]												
Audio meter	0	-	1	0		0	0	0	0	0	1	This is provided for sound proof.
Tympanometer	0	-	1	0		0	0	0	0	0	1	This is provided for examination of tympanic membrane.
Sound proof room	0	-	1	0		0	0	0	0	0	1	This is provided for proper execution of sound proof.
ENT examination/treatment unit	0	-	1	0		0	0	0	0	0	1	One equipment is introduced as the most important equipment in E.N.T.
[Internal medicine]												
E.C.G. recorder 1 channel	1	-	1	0		0	0	0	0	0	1	Based on the judge that this is a basic equipment of Internal Medicine, the superannuated equipment is replaced.
Ultrasonic nebulizer	0	-	0	0		0	0	0	0	0	1	Based on the judge that this is a basic equipment of Internal Medicine which is required for patients to breathe easily, one unit is introduced.
[I.C.U.]												
Ventilator	0	-	2	0		0	0	0	0	0	1	Based on the judge that functions of I.C.U. should be basically prepared, 2 units of ICU bed and one unit, at least, of each equipment shown in the left column are introduced as a basic. However, Defibrillator is omitted based on the judge that this can be shared with other departments.
Volumetric infusion pump	0	-	3	0		0	0	0	0	0	1	
Syringe infusion pump	0	-	2	0		0	0	0	0	0	1	
Patient monitor	0	-	2	0		0	0	0	0	0	1	
Patient monitor with ECG recording function	0	-	1	0		0	0	0	0	0	1	
Surgical suction apparatus	0	-	2	0		0	0	0	0	0	1	
Defibrillator	0	-	1	0		0	0	0	0	0	0	
I.C.U. bed	0	-	3	0		0	0	0	0	0	2	
Oxygen generator	0	-	0	0		0	0	0	0	0	1	
[Medical Lab.]												
U.V. Spectrophotometer	0	-	1	0		0	0	0	0	0	1	In order to prepare functions of Medical Lab., the which are critical for basic examinations but not sufficient and also the numerically lacking equipments are supplemented. As for U.V. Spectrophotometer and Coagulometer, one unit of each is introduced.
Coagulometer	0	-	1	0		0	0	0	0	0	1	As for Lab. incubator, the existing equipment is replaced. As for Binocular microscope, with regard that 2 units of the existing equipments are under functioning, 2 units are added to improve efficiency of the lab. One unit of Water distilling apparatus critical for precise lab is introduced. 2 units of superannuated Tabletop centrifuge is replaced. Owing to the introduction of Blood gas analyzer and Flame photometer etc., the function of blood analyser will be reinforced. Resulting from the introduction of Elisa photometer, immune can be executed.
Lab. incubator	1	-	1	0		0	0	0	0	0	1	
Binocular microscope	2	-	3	0		0	0	0	0	0	2	
Water distilling apparatus	0	-	0	0		0	0	0	0	0	1	
Tabletop centrifuge	2	-	2	0		0	0	0	0	0	2	
Automatic blood cell counter	0	-	1	0		0	0	0	0	0	1	
Hot air oven	1	-	1	0		0	0	0	0	0	1	
Blood gas analyzer	0	-	1	0		0	0	0	0	0	1	
Flame photometer for Na.K	0	-	1	0		0	0	0	0	0	1	
Water bath	1	-	1	0		0	0	0	0	0	1	
Elisa photometer	0	-	1	0		0	0	0	0	0	1	
Ph meter	0	-	1	0		0	0	0	0	0	1	
Haemoglobin meter	0	-	0	0		0	0	0	0	0	1	

Requested equipments	Qty of Existing Equipments	Qty of Equipments under Functioning	Qty of Requested Equipments	Evaluation	from Demanded	Viewpoint	Evaluation		from Technical	Viewpoint	Qty after Evaluation	Major Content of Evaluation
							Necessary for Diagnosis on General Disease	Necessary for Top Referral Medical Treatment				
[Obstetrics]												
Vacuum extractor	0	-	1	-	-	-	-	-	-	-	0	Own this equipment with regard to procurement by Egyptian side.
Ultrasound machine	0	-	1	0	-	0	0	0	0	0	1	One unit is introduced for general diagnosis in Obstetrics and G.Y.N.
Fetal heart detector	0	-	1	0	-	0	0	0	0	0	1	One unit is introduced as a basic diagnostic equipment of Obstetrics.
Delivery table	1	-	1	0	-	0	0	0	0	0	1	The existing superannuated equipment is replaced.
Infant warmer unit	1	1	1	0	-	0	0	0	0	0	1	One unit is supplemented for taking care of general new-borns.
[Operating theatre/surgery]												
Operating table for general surgery	3	1	3	0	-	0	0	0	0	0	2	2 units of the existing equipments are replaced.
Surgical suction apparatus	3	1	3	0	-	0	0	0	0	0	3	Ditto
Electro-surgery unit 300W	1	-	2	0	-	0	0	0	0	0	2	One unit is introduced to each of the first and the second operating theatre.
Electro-surgery unit 400W	1	-	1	0	-	0	0	0	0	0	1	One unit is introduced to the first operating theatre. Consequently, the efficiency of the grand operation will be improved.
Laparoscope unit	0	-	1	0	-	0	0	0	0	0	1	This is introduced to the first operating theatre. Consequently, the quality of operating examination will be improved.
Operating ceiling lamp	3	1	3	0	-	0	0	0	0	0	2	2 units among the existing equipments are replaced.
Patient monitor	0	-	0	-	-	-	-	-	-	-	0	Based on the judge that this can be shared with other departments, omit this equipment.
[Ophthalmology]												
Ophthalmic examination unit with slit lamp	0	-	1	0	-	0	0	0	0	0	1	Each one unit of lacking equipment among the basically required in Ophthalmology are introduced.
Ophthalmoscope, electric	0	-	2	0	-	0	0	0	0	0	1	
Ophthalmoscope fusion type	0	-	1	0	-	0	0	0	0	0	1	
Leucometer	0	-	1	0	-	0	0	0	0	0	1	
[Orthopedics]												
Orthopaedic operating table	0	-	1	0	-	0	0	0	0	0	1	This is introduced in order to execute well operation to injured patients.
Pneumatic drill	0	-	1	0	-	0	0	0	0	0	1	Ditto
Electric plaster saw	0	-	2	0	-	0	0	0	0	0	2	Ditto, but one unit is introduced to each of the plaster room and the outpatient room.
Electric air tourniquet	0	-	2	0	-	0	0	0	0	0	1	One unit is introduced to improve the effect of homeostasis.
[Paediatrics]												
Baby incubator (closed type)	4	4	2	-	-	-	-	-	-	-	0	This is omitted in order to avoid overlap with the equipment's granted by other aid organization.
Bilirubinometer	0	-	2	0	-	0	0	0	0	0	1	Based on the judge that this is a basically required equipment, one unit is introduced.
Phototherapy apparatus	0	-	1	0	-	0	0	0	0	0	2	Ditto, however because of its high frequency, 2 units are introduced.

Requested equipments	Qty of Existing Equipments	Qty of Equipments under Functioning	Qty of Requested Equipments	Evaluation	from Demand	Viewpoint	Evaluation		from Technical	Viewpoint	Qty after Evaluation	Major Content of Evaluation
							Necessary for Diagnosis on General Disease	Necessary for Top Referral Medical Treatment				
[Paediatrics]												
Neonatal monitor	0	-	2	0		0	0	0	0	0	1	One unit is introduced as a basic equipment for well monitoring new-borns.
Surgical suction apparatus	0	-	2	0		0	0	0	0	0	1	Based on the judge that this equipment is basically required for taking care of new-borns, one unit is introduced.
Volumetric infusion pump	0	-	1	0		0	0	0	0	0	1	Ditto
Resuscitator unit for infant	0	-	2	0		0	0	0	0	0	1	One unit is introduced for emergency during the care of new-borns.
Oxygen analyzer	0	-	1	0		0	0	0	0	0	1	One unit is introduced as an equipment critical for measuring the amount of oxygen in an incubator.
Ultrasonic nebulizer	0	-	0	0		0	0	0	0	0	1	Based on the judge that this is a basic equipment of Paediatrics, one unit is introduced.
[Physiotherapy]												
Shortwave therapy apparatus	2	0	2	0		0	0	0	0	0	2	The existing superannuated equipment is replaced.
Computerized traction unit	0	-	1	0		0	0	0	0	0	1	Based on the judge that this is a basic critical equipment, one unit is introduced.
Didynamic apparatus	1	-	1	0		0	0	0	0	0	1	The existing superannuated equipment is replaced.
Therapeutic ultrasound machine	1	0	1	0		0	0	0	0	0	1	Ditto
Interferential therapy unit	1	-	1	0		0	0	0	0	0	1	Ditto
Treadmill for rehabilitation	1	-	1	0		0	0	0	0	0	1	Ditto
Bicycle stationary	0	-	1	0		0	0	0	0	0	1	Based on the judge that this is a basic critical equipment, one unit is introduced.
Extensor device	1	1	1	-		-	-	-	-	-	0	This is omitted based on the judge that the existing equipment can be used.
[Radiodiagnosis]												
Diagnosis ultrasound machine	1	1	1	0		0	0	0	0	0	1	With regard to usefulness of this equipment, one unit is added to introduce.
Automatic film processing machine	0	-	1	0		0	0	0	0	0	1	In order to satisfy an increase of film processing, one unit is introduced.
Diagnostic X-ray system (w/bucky table and chest stand)	1	-	1	0		0	0	0	0	0	1	In order to satisfy the requirement of X-ray diagnosis, one unit is supplemented.
Cassette para-box	0	-	0	0		0	0	0	0	0	1	In order to improve the efficiency of exchanging films, one unit is introduced.
[Skin and Venereal]												
Ultraviolet lamp	1	0	1	0		0	0	0	0	0	1	Based on the judge that this is a basic treatment equipment, one unit is introduced.
[Supportive service]												
Automatic electric emergency generator 100KW	1	1	1	0		0	0	0	0	0	1	As the output power of the existing equipment is not big, one unit is introduced.

Requested equipments	Qty of Existing Equipments	Qty of Equipments under Functioning	Qty of Requested Equipments	Evaluation		from Demand		Viewpoint		Evaluation		from Technical		Viewpoint	Qty after Evaluation	Major Content of Evaluation
				Necessary for Diagnosis on General Disease		Necessary for Top Referral Medical Treatment		Equipments of High Priority		Operability by Existing Personnel		Possibility of Repair in Egypt		Appropriate for Grant Aid Cooperation		
[Theatre sterilisation room]																
Scrub-up unit	0	-	0	0				0		0		0		0	2	For the purpose that hand-wash before operation can be executed, 2 units are introduced.
Steam autoclave with steam generator 100 l	2	1	2	0				0		0		0		0	2	2 units are introduced as a replacement of the existing superannuated equipment.
[Urology]																
Cysto-urethroscope for adult and child	0	-	1	0				0		0		0		0	1	This is introduced because of high requirement for diagnosis in this department.
Dislberry	0	-	1	0				0		0		0		0	0	Ditto

Table 3.2.5 (4) Evaluation of Requested Equipment - FARSHUT HOSPITAL

Requested equipments	Qty of Existing	Qty of under Functioning	Qty of Requested	Evaluation		from Demand		Viewpoint		from Technical		Viewpoint	Qty after Evaluation	Major Content of Evaluation
				Necessary for Diagnosis on General Disease	Necessary for Top Referral Medical Treatment	of High Priority	Operability by Existing Personnel	Possibility of Repair in Egypt	Appropriate for Grant Aid Cooperation					
[Anesthesia Dept.]														
Anesthesia machine	2	2	2	0		0		0	0	0	0	0	2	2 units of the existing superannuated are replaced.
Ventilator for anaesthesia	2	2	2	0		0		0	0	0	0	0	2	Ditto
Surgical suction apparatus	1	1	2	0		0		0	0	0	0	0	2	The existing superannuated equipment is replaced.
[Blood Bank]														
Tabletop centrifuge	0	-	0	0		0		0	0	0	0	0	1	In order to improve the laboratory function of blood bank, one unit of each the basic lab. and sterilisation ones show in list are introduced.
Lab. incubator	0	-	0	0		0		0	0	0	0	0	1	
Hot air oven for sterilisation	0	-	0	0		0		0	0	0	0	0	1	
Binocular microscope	0	-	0	0		0		0	0	0	0	0	1	
[Dental Surgery]														
Hot air sterilising oven	0	-	1	0		0		0	0	0	0	0	1	Based on the judge that dental is sufficient to provide basic diagnosis though superannuated, one unit of hot air sterilising oven, one of the therapeutic, is introduced.
[ENT]														
Audio meter	0	-	1	0		0		0	0	0	0	0	0	This is provided for sound proof.
ENT examination/treatment unit	0	-	1	0		0		0	0	0	0	0	1	Based on the judge that this is a basic equipment of this department, one unit is introduced.
[Internal Medicine]														
E.C.G. recorder 1 channel	1	-	0	0		0		0	0	0	0	0	1	Based on the judge that this is a basic equipment of Internal medicine, the superannuated equipment is replaced.
Ultrasonic nebulizer	0	-	0	0		0		0	0	0	0	0	1	Based on the judge that this is a basic equipment of Internal Medicine which is required for patients to breathe easily, one unit is introduced.
[I.C.U.]														
Ventilator	0	-	1	0		0		0	0	0	0	0	1	In order to prepare good function of ICU critical for caring serious patients,
Volumetric infusion pump	0	-	2	0		0		0	0	0	0	0	1	2 units of ICU bed and 1 unit of each other
Syringe infusion pump	0	-	1	0		0		0	0	0	0	0	1	equipment basically required for the care are introduced.
Patient monitor	0	-	1	0		0		0	0	0	0	0	1	
Patient monitor with ECG recording function	0	-	1	0		0		0	0	0	0	0	1	However, Defibrillator is omitted based on the judge that this can be shared with an operating theatre because there are not so many inpatients.
Surgical suction apparatus	0	-	1	0		0		0	0	0	0	0	1	
Defibrillator	0	-	1	0		0		0	0	0	0	0	0	
ICU bed	0	-	2	0		0		0	0	0	0	0	2	
Oxygen generator	0	-	1	0		0		0	0	0	0	0	1	
[Laundry]														
Washing machine with dryer	2	2	2	-		-		-	-	-	-	-	0	Based on the judge that this can be procured by Egyptian side, this is omitted.

Requested equipments	Qty of Existing	Qty of under Functioning	Qty of Requested	Evaluation		Viewpoint		Evaluation		from Technical		Qty after Evaluation	Major Content of Evaluation
				Necessary for Diagnosis on General Disease	Necessary for Top Referral Medical Treatment	of High Priority	Operability by Existing Personnel	Possibility of Repair in Egypt	Appropriate for Grant Aid Cooperation				
[Medical lab.]													
U.V. spectrophotometer	0	-	1	0		0		0	0	0	1	One unit is introduced in order to improve the lab such as blood test.	
Lab incubator	1	1	1	0		0		0	0	0	1	In order to improve the function of germinant, one unit is introduced.	
Binocular microscope	2	1	0	0		0		0	0	0	1	The superannuated equipment is replaced.	
Water distilling apparatus	1	1	0	0		0		0	0	0	1	Ditto	
Tabletop centrifuge	1	1	1	0		0		0	0	0	1	The existing equipment is replaced because of its depreciation.	
Hot air oven	1	-	2	0		0		0	0	0	1	The existing superannuated equipment is replaced and only one unit is introduced.	
Blood gas analyzer	0	-	1	0		0		0	0	0	1	The blood test items will be improved as a result of its increase.	
Flame photometer for Na,K	0	-	1	0		0		0	0	0	1	Ditto	
Elisa photometer	0	-	1	0		0		0	0	0	1	Ditto (including HIV test)	
Hemoglobin meter	0	-	0	0		0		0	0	0	1	The items of blood test will be improved.	
[Obstetrics]													
Vacuum extractor	0	-	1	0		0		0	0	0	0	Based on the judge that this can be procured by Egyptian side, this is omitted.	
Ultrasound machine	0	-	1	0		0		0	0	0	1	Based on the judge that this is a critical equipment for both Obstetrics and G.Y.N., one unit is introduced.	
Fetal heart detector	0	-	1	0		0		0	0	0	1	Ditto	
Delivery table	1	1	1	0		0		0	0	0	1	The existing superannuated equipment is replaced.	
Infant warmer unit	0	-	1	0		0		0	0	0	1	One unit is introduced for taking care of general newborns.	
[Operating theatre/surgery]													
Operating table for general surgery	2	2	2	0		0		0	0	0	2	2 units of the existing superannuated equipments are replaced.	
Surgical suction apparatus	1	-	2	0		0		0	0	0	2	One unit of the existing superannuated equipment is replaced and One unit is supplemented.	
Electro-surgery unit 300W	0	-	2	0		0		0	0	0	2	One unit is introduced to each two operating theatres.	
Laparoscope unit	0	-	1	0		0		0	0	0	1	Resulting from that one unit is introduced to the first operating theatre, the accuracy and quality of operation is improved.	
Operating ceiling lamp	2	2	2	0		0		0	0	0	2	The existing superannuated equipments are replaced.	
Patient monitor	0	-	2	0		0		0	0	0	1	One unit is introduced to the first operating theatre.	
Defibrillator	0	-	1	0		0		0	0	0	1	One unit is introduced to the first operating theatre.	
Ophthalmic examination unit with slit lamp	0	-	1	0		0		0	0	0	1	Among the critical equipment of Ophthalmology, one unit of each lacking equipment is introduced as a minimum number.	
Ophthalmoscope, electric	1	-	2	0		0		0	0	0	1		

Requested equipments	Qty of Existing	Qty of under Functioning	Qty of Requested	Evaluation		Viewpoint		Evaluation from Technical		Viewpoint	Qty after Evaluation	Major Content of Evaluation
				Necessary for Diagnosis on General Disease	Necessary for Top Referral Medical Treatment	of High Priority	Operability by Existing Personnel	Possibility of Repair in Egypt	Appropriate for Grants Aid Cooperation			
[Ophthalmology]												
Ophthalmoscope fison type	0	-	1	-		-	-	-	-	-	0	However, Ophthalmoscope of Fison type is omitted based on the judge that it can be replaced to that of Electric type.
Leucometer			1	0		0	0	0	0	0	1	
[Orthopedics]												
Electric plaster saw	0	-	0	0		0	0	0	0	0	1	One unit is introduced for removing a plaster.
[Pediatrics]												
Baby incubator (closed type)	0	-	3	-		-	-	-	-	-	0	With regard to overlap with other aid project, this is omitted.
Bilirubinometer	0	-	1	0		0	0	0	0	0	1	This is introduced based on the judge that this is a basic equipment.
Phototherapy apparatus	0	-	3	0		0	0	0	0	0	2	This is introduced based on the judge that this is a basic equipment but the number of introduction is 2.
Neonatal monitor	0	-	3	0		0	0	0	0	0	1	Ditto, but the number is 1.
Surgical suction apparatus	0	-	1	0		0	0	0	0	0	1	Ditto
Volumetric infusion pump	0	-	2	0		0	0	0	0	0	1	Ditto
Resuscitator unit for infant	0	-	1	0		0	0	0	0	0	1	One unit is introduced as a basic equipment.
Oxygen analyzer	0	-	1	0		0	0	0	0	0	1	Ditto
Ultrasonic nebulizer	0	-	0	0		0	0	0	0	0	1	Ditto
[Physiotherapy]												
Paraffin wax bath	0	-	1	0		0	0	0	0	0	1	In order to prepare good functions of Physiotherapy, the minimum number of the equipments currently lacking are introduced.
Shortwave therapy apparatus	0	-	2	0		0	0	0	0	0	2	However, as for Shortwave therapy apparatus, 2 units are introduced with regard to its high frequency and as for Interferential therapy unit the existing equipment can be used.
Didynamic apparatus	0	-	0	0		0	0	0	0	0	1	
Therapeutic ultrasound machine	0	-	1	0		0	0	0	0	0	1	
Interferential therapy unit	1	1	1	0		0	0	0	0	0	0	
[Radiodiagnosis]												
Diagnosis ultrasound machine	0	-	1	0		0	0	0	0	0	1	With regard to its usefulness for diagnosis, one unit is introduced.
Diagnostic stationary X-ray system	2	1	0	0		0	0	0	0	0	1	Although Diagnostic X-ray system (with bucky table and chest stand) was requested in order to replace 2 units of existing superannuated equipments, one unit of Diagnostic X-ray system is introduced with regard to the photographing frequency and the current condition of the existing equipments.
Diagnostic X-ray system w. bucky table and chest stand)	0	-	1	0		0	0	0	0	0	0	
[Supportive service]												
Automatic electric emergency generator 100KW	2	1	1	0		0	0	0	0	0	1	Resulting from the shortage of output power of the existing small sized equipment, one unit of the generator with 100KW is introduced.

Requested equipments	Qty of Existing	Qty of under Functioning	Qty of Requested	Evaluation		Viewpoint		Evaluation		from Technical		Viewpoint	Qty after Evaluation	Major Content of Evaluation
				Necessary for Diagnosis on General Disease	Necessary for Top Referral Medical Treatment	of High Priority	Operability by Existing Personnel	Possibility of Repair in Egypt	Appropriate for Grant Aid Cooperation					
[Theatre sterilization room]														
Steam autoclave with steam generator 100 L	2	2	2	0		0	0	0	0	0	0	0	2	In order to satisfy the requirement for sterilization in 2 operating theatres and Obstetrics etc. 2 units are replaced.
Hot air sterilizing oven (big size) 100 L	1	-	1	0		0	0	0	0	0	0	0	1	One unit is replaced in order to satisfy the requirement for sterilizing instruments of operating theatres.
[Urology]														
Cysto-urethroscope for adult and child	0	-	1	0		0	0	0	0	0	0	0	1	One unit is introduced in order to satisfy the requirement for examination.
	0	-	1	0		0	0	0	0	0	0	0	0	With regard to big requirement for therapy in this department, one unit is introduced.

Table 3.2.5 (5) Evaluation of Requested Equipment - QIFT HOSPITAL

Requested equipments	Qty of Existing	Qty of under Functioning	Qty of Requested	Evaluation		from Demand		Viewpoint		from Technical		Qty after Evaluation	Major Content of Evaluation
				Necessary for Diagnosis on General Disease	Necessary for Top Referral Medical Treatment		of High Priority	Operability by Existing Personnel	Possibility of Repair in Egypt	Appropriate for Grant Aid Cooperation			
[Anesthesia Dept]													
Anesthesia machine	1	1	2	0		0		0	0	0	1	The existing superannuated equipment is replaced.	
Ventilator for anesthesia	1	1	2	0		0		0	0	0	1	Dito	
Defibrillator	0	-	0	0		0		0	0	0	1	One unit is introduced to the first operation theatre and shared with other rooms such as operation theatres.	
Patient monitor	0	-	2	0		0		0	0	0	1	Based on the judge that this equipment is required for monitoring patients during operation, one unit is introduced.	
[Blood Bank]													
Blood bank refrigerator	1	-	1	0		0		0	0	0	1	The existing superannuated equipment is replaced.	
Tabletop centrifuge	1	-	0	0		0		0	0	0	1	As the existing equipment is superannuated in spite of functioning, this is replaced.	
Lab. incubator	0	-	0	0		0		0	0	0	1	One unit is introduced based on the judge that this equipment should be always supplied for blood test.	
Hot air oven for	1	0	0	0		0		0	0	0	1	The existing superannuated equipment is replaced.	
Binocular microscope	1	0	0	0		0		0	0	0	1	The existing equipment under depression is replaced.	
[C.C.U.]													
Patient monitor	0	-	1	0		0		0	0	0	1	In order to prepare good functions of C.C.U., one unit of C.C.U. bed and one unit of each basically required equipments for caring patients such as Patient monitor, Ventilator, and	
Ventilator	0	-	1	0		0		0	0	0	1	Continuous syringe infusion apparatus are introduced. However Defibrillator is omitted based on the judge that it can be shared with other departments.	
Volumetric infusion pump	0	-	1	0		0		0	0	0	1		
Continuous syringe infusion apparatus	0	-	1	0		0		0	0	0	1		
C.C.U. bed	0	-	1	0		0		0	0	0	1		
Surgical suction unit	0	-	1	0		0		0	0	0	1		
Defibrillator	0	-	1	0		0		0	0	0	0		
[Internal Medicine]													
E.C.G. recorder 1 channel	1	1	1	0		0		0	0	0	1	One unit is supplemented based on the judge that this is basically a highly required equipment of Internal Medicine.	
Ultrasonic nebulizer	0	-	0	0		0		0	0	0	1	One unit is introduced based on the judge that this is a basic equipment for diagnosis in Internal Medicine.	
[Medical Lab]													
U.V. Spectrophotometer	1	1	1	0		0		0	0	0	1	The existing equipments of Medical lab. are superannuated. One unit of each basic equipment among them are replaced. However,	
Lab incubator	1	1	1	0		0		0	0	0	1	as for Binocular microscope, 2 units are	
Binocular microscope	1	1	2	0		0		0	0	0	2	introduced because of its highly frequency.	
Water distilling apparatus	0	-	1	0		0		0	0	0	1		
Tabletop centrifuge	1	1	2	0		0		0	0	0	1		
Hot air oven	1	1	1	0		0		0	0	0	1		

Requested equipments	Qty of Existing	Qty of under Functioning	Qty of Requested	Evaluation	from Demand	Viewpoint		Evaluation	from Technical		Viewpoint	Qty after Evaluation	Major Content of Evaluation
						Necessary for Diagnosis on General Disease	Necessary for Top Referral Medical Treatment		of High Priority	Operability by Existing Personnel			
[Medical Lab.]													
Water bath	1	1	1	0			0	0	0	0	0	1	
Hemoglobin meter	0	-	0	0			0	0	0	0	0	1	
[Obstetrics]													
Ultrasound machine	0	-	1	0			0	0	0	0	0	1	One unit is introduced for general diagnosis and it is shared between Obstetric and G.Y.N.
Fetal heart detector	0	-	1	0			0	0	0	0	0	1	One unit is introduced based on the judge that this is a basic diagnostic equipment of Obstetrics.
Delivery table	0	-	1	0			0	0	0	0	0	1	Ditto
[Operating theatre/surgery]													
Operating table for general surgery	1	1	2	0			0	0	0	0	0	1	One unit is introduced to the first operating theatre (new).
Surgical suction apparatus	1	1	2	0			0	0	0	0	0	2	One unit of the existing superannuated equipment is replaced. Additionally, in order to provide one unit to each of 2 operating theatres, one unit is supplemented.
Electro-surgery unit 300W	0	-	2	0			0	0	0	0	0	1	One unit is introduced to the first operating theatre to improve the operating efficiency.
Operating ceiling lamp	1	1	2	0			0	0	0	0	0	1	One unit of the superannuated ceiling lamps is replaced.
[Ophthalmology]													
Ophthalmic examination unit with slit lamp	0	-	1	0			0	0	0	0	0	1	Resulting from the shortage of ophthalmic equipments, one unit as minimum required number, of each equipment shown in left column are introduced to provide the condition that cataract operation and optometry can be performed.
Ophthalmoscope, electric	0	-	1	0			0	0	0	0	0	1	
Lensometer	0	-	0	0			0	0	0	0	0	1	
Operating lamp for ophthalmology	0	-	1	0			0	0	0	0	0	1	
[Orthopaedics]													
Orthopaedic operating table	0	-	1	0			0	0	0	0	0	0	Based on the judge that the frequency of operation in Orthopaedics, this is replaced to an operating table for general surgery.
Electric plaster saw	0	-	0	0			0	0	0	0	0	1	Based on the judge that this is a basic critical equipment of this department, one unit is introduced.
[Paediatrics]													
Baby incubator (automatic control type)	0	-	1	0			0	0	0	0	0	0	This is omitted to avoid overlap with other granted equipments by other aid institutions.
Bilirubinometer	0	-	1	0			0	0	0	0	0	1	Based on the judge that this is a basic equipment for diagnosis of this department, one unit is introduced.
Photo therapy apparatus	0	-	1	0			0	0	0	0	0	1	Ditto
Oxygen analyzer	0	-	1	0			0	0	0	0	0	1	One unit is introduced as a required equipment for measuring the amount of oxygen in baby incubator.
Ultrasonic nebulizer	0	-	1	0			0	0	0	0	0	1	One unit is introduced based as a basic equipment of Paediatrics.

Requested equipments	Qty of Existing	Qty of under Functioning	Qty of Requested	Evaluation		Viewpoint		Evaluation	from Technical		Viewpoint	Qty after Evaluation	Major Content of Evaluation
				Necessary for Diagnosis on General Disease	Necessary for Top Referral Medical Treatment	of High Priority	Openability by Existing Personnel		Possibility of Repair in Egypt	Appropriate for Grant Aid Cooperation			
[Radio diagnosis]													
Diagnosis ultrasound machine	0	-	1	0		0		0	0	0	0	1	One unit is introduced with regard to its usefulness for diagnosis.
Diagnostic stationary X-ray system	0	-	1	0		0		0	0	0	0	1	One unit is introduced in order to replace 2 existing superannuated equipments.
[Supportive service]													
Automatic electric emergency generator 50 kW	1	-	1	0		0		0	0	0	0	1	As the existing equipment can not be repaired, this is replaced. However, the capacity raise to 50 kW.
[Theatre sterilisation room]													
Steam autoclave with steam generator 100 L	1	-	0	0		0		0	0	0	0	1	The existing superannuated equipment is replaced.

Table 3.2.5 (6) Evaluation of Requested Equipment - ISNA HOSPITAL

Requested equipments	Qty of Existing	Qty of under Functioning	Qty of Requested	Evaluation		from Demand		Viewpoint		from Technical		Qty after Evaluation	Major Content of Evaluation
				Necessary for Diagnosis on General Disease	Necessary for Top Referral Medical Treatment	of High Priority	Operability by Existing Personnel	Possibility of Repair in Egypt	Appropriate for Grant Aid Cooperation				
[Anesthesia Dept.]													
Anesthesia machine	1	0	4	0		0	0	0	0	0	0	4	As one unit of the existing equipments can not be used, one unit is introduced to each of the following 4 rooms; 2 new operating theatres and 2 operating theatres of G.Y.N. and Obstetrics.
Ventilator for anaesthesia	0	-	4	0		0	0	0	0	0	0	4	Ditto
Defibrillator	0	-	1	0		0	0	0	0	0	0	1	One unit is introduced to the first operating theatre.
Patient monitor	0	-	2	0		0	0	0	0	0	0	2	One unit is introduced to each of the first and the second operating theatre.
[Blood Bank]													
Tabletop centrifuge	0	-	0	0		0	0	0	0	0	0	1	In order to function Blood bank, one unit of each lacking equipment shown in left column is introduced.
Lab. incubator	0	-	0	0		0	0	0	0	0	0	1	
Hot air oven for sterilisation	0	-	0	0		0	0	0	0	0	0	1	
Bioocular microscope	0	-	0	0		0	0	0	0	0	0	1	
[C.C.U.]													
Patient monitor	0	-	4	0		0	0	0	0	0	0	2	2 units of CCU bed, 2 units of Patient monitor and 2 units of Ventilator etc. which are basic equipments are introduced to CCU.
Ventilator	0	-	3	0		0	0	0	0	0	0	2	As for Mobil X-ray, one unit is introduced because it can be used not only for diagnosis to the patients of this department but also for round of visits in other departments and other general hospitals. As for Defibrillator, based on the judge that it can be shared with Anaesthesia Department, this is omitted.
Volumetric infusion pump	0	-	2	0		0	0	0	0	0	0	2	
Continuous syringe infusion apparatus	0	-	2	0		0	0	0	0	0	0	2	
C.C.U. bed	0	-	4	0		0	0	0	0	0	0	2	
Surgical suction unit	0	-	0	0		0	0	0	0	0	0	1	
Defibrillator	0	-	1	-		-	-	-	-	-	-	0	
Mobil X-ray	0	-	0	0		0	0	0	0	0	0	1	
[Dental Surgery]													
Dental unit with chair	2	-	1	0		0	0	0	0	0	0	1	One unit is introduced in order to replace 2 units of existing superannuated equipments. Based on the judge that this is a basic equipment of Dental Surgery, this is introduced.
Ultrasonic scaler	0	-	1	0		0	0	0	0	0	0	1	Ditto
Examining light	0	-	1	0		0	0	0	0	0	0	1	Based on the judge that this equipment has basic requirement, one unit is introduced.
Dental X-ray apparatus	0	-	1	0		0	0	0	0	0	0	1	Ditto
Anaesthetizer	0	-	1	0		0	0	0	0	0	0	1	
[Endoscopy unit]													
Light source	0	-	1	0		0	0	0	0	0	0	1	In order to prepare the functions of Endoscopy unit, each one unit of Gastroscopy, Sigmoidoscope, fiberoptic cleaning machine and Fiberoptic cabinet are introduced.
Fiberoptic cleaning machine	0	-	1	0		0	0	0	0	0	0	1	
Fiberoptic cabinet	0	-	1	0		0	0	0	0	0	0	1	
Gastroscopy	0	-	1	0		0	0	0	0	0	0	1	
Sigmoidoscope	0	-	1	0		0	0	0	0	0	0	1	

Requested equipments	Qty of Existing	Qty of under Functioning	Qty of Requested	Evaluation	Viewpoint		Evaluation	from Technical		Viewpoint	Qty after Evaluation	Major Content of Evaluation	
					Necessary for Diagnosis on General Disease	Necessary for Top Referral Medical Treatment		of High Priority	Appropriate for Grant Aid Cooperation				Operability by Existing Personnel
[Internal Medicine]													
E.C.G. recorder 1 channel	1	-	2	0		0	0	0	0	0	2	Based on the judge that this is a basic equipment, 2 units are introduced and will be shared with diagnosis to outpatients of Internal Medicine.	
Ultrasonic nebulizer	0	-	2	0		0	0	0	0	0	1	Based on the judge that this is a basic therapy equipment, one unit is introduced.	
[I.C.U.]													
Ventilator	0	-	3	0		0	0	0	0	0	1	In order to prepare good functions of I.C.U., 2 units of ICU bed are introduced.	
Volumetric infusion pump	0	-	2	0		0	0	0	0	0	1	Furthermore, each one unit of basic critical equipments of this department such as Ventilator, Patient monitor, Oxygen generator etc.	
Syringe infusion pump	0	-	2	0		0	0	0	0	0	1		
Patient monitor	0	-	3	0		0	0	0	0	0	1		
Patient monitor with ECG recording function	0	-	1	0		0	0	0	0	0	1		
Surgical suction apparatus	0	-	0	0		0	0	0	0	0	1		
I.C.U. bed	0	-	0	0		0	0	0	0	0	2		
Oxygen generator	0	-	0	0		0	0	0	0	0	1		
[Medical Lab]													
U.V. Spectrophotometer	0	-	1	0		0	0	0	0	0	1	In order to prepare the minimum lab. functions of Medical lab., critical equipments are introduced. Each one unit of U.V.	
Lab incubator	0	-	1	0		0	0	0	0	0	1	spectrophotometer, Coagulometer, Blood gas analyser, Flame photometer, pH meter and Haemoglobinometer is introduced as a	
Binocular microscope	2	1	2	0		0	0	0	0	0	2	examination equipments. Binocular	
Water distilling apparatus	0	-	1	0		0	0	0	0	0	1	microscope for examining bacteria is introduced	
Tabletop centrifuge	1	0	2	0		0	0	0	0	0	2	with Water distilling apparatus and	
Hot air oven	0	-	2	0		0	0	0	0	0	2	Hot air oven helping services of this	
Blood gas analyser	0	-	1	0		0	0	0	0	0	1	department.	
Flame photometer for Na, K	0	-	1	0		0	0	0	0	0	1		
Water bath	0	-	1	0		0	0	0	0	0	1		
pH meter	0	-	0	0		0	0	0	0	0	0		
Haemoglobin meter	0	-	1	0		0	0	0	0	0	1		
[Obstetrics]													
Ultrasound machine	0	-	1	0		0	0	0	0	0	1	One unit is introduced for diagnosis on general diseases and it can be shared between Obstetrics and G.Y.N.	
Fetal heart detector	0	-	1	0		0	0	0	0	0	1	Based on the judge that this is a basic diagnostic equipment of Obstetrics, one unit is introduced.	
Delivery table	0	-	1	0		0	0	0	0	0	1	One unit is introduced to the delivery room for normal delivery.	
Infant warmer	0	-	1	0		0	0	0	0	0	1	Based on the judge that this is a critical equipment for general cares of new-borns, one unit is introduced.	
Operating table	0	-	2	0		0	0	0	0	0	2	One unit is introduced to each of the first and the second operating theatre in order to operate general diseases of this department.	
Operating ceiling lamp	1	0	2	0		0	0	0	0	0	2	One unit is introduced to each of 2 operating theatres of this department.	
Electro-surgery unit	0	-	2	0		0	0	0	0	0	2	Ditto	
Surgical suction apparatus	0	-	2	0		0	0	0	0	0	2	Ditto	
Emergency operating lamp with battery	0	-	2	0		0	0	0	0	0	2	Ditto	

Requested equipments	Qty of Existing	Qty of under Functioning	Qty of Requested	Evaluation		from Demand		Viewpoint		from Technical		Qty after Evaluation	Major Content of Evaluation
				Necessary for Diagnosis on General Disease	Necessary for Top Referral Medical Treatment	of High Priority	Operability by Existing Personnel	Possibility of Repair in Egypt	Appropriate for Grant Aid Cooperation				
[Operating theatre/surgery]													
Operating table for general surgery	1	0	1	0		0	0	0	0	0	0	2	One unit is introduced to each of the first and the second operating theatre.
Surgical suction apparatus	0	-	2	0		0	0	0	0	0	0	2	Ditto
Electro-surgery unit 300W	0	-	1	0		0	0	0	0	0	0	1	One unit is introduced to the second operating theatre in order to improve operating efficiency.
Electro-surgery unit 400W	0	-	1	0		0	0	0	0	0	0	1	One unit is introduced to the first operating theatre in order to improve operating efficiency.
Orthopaedic operation table	0	-	1	0		0	0	0	0	0	0	1	One unit is introduced to the second operating theatre in order to perform operation to orthopaedic patients.
Operating table for obstetric/gynaecology	1	1	1	0		0	0	0	0	0	0	1	One unit is introduced to the delivery room as a replacement of the existing superannuated equipment for abnormal deliveries.
Emergency operating lamp with battery	1	-	2	0		0	0	0	0	0	0	2	One unit is introduced to each of the first and the second operating theatre.
Operating ceiling lamp	1	1	2	0		0	0	0	0	0	0	2	
[Ophthalmology]													
Ophthalmic examination unit with slit lamp	0	-	1	0		0	0	0	0	0	0	1	The basic equipments required for performing minimum therapy to general ophthalmic diseases are introduced.
Ophthalmoscope, electric	0	-	2	0		0	0	0	0	0	0	1	
Ophthalmoscope fusion type	0	-	1	0		0	0	0	0	0	0	1	
Lensmeter	0	-	0	0		0	0	0	0	0	0	1	
Operating lamp for ophthalmology	0	-	0	0		0	0	0	0	0	0	1	
[Orthopaedics]													
Pneumatic drill	0	-	1	0		0	0	0	0	0	0	1	One unit is introduced in order to improve operating efficiency at the orthopaedic operation.
Electric plaster saw	0	-	2	0		0	0	0	0	0	0	1	One unit is introduced for removing a plaster.
Electric air tourniquet	0	-	1	0		0	0	0	0	0	0	1	One unit is introduced in order to improve operating efficiency.
[Paediatrics]													
Baby incubator (closed type)	0	-	2	-		-	-	-	-	-	-	0	In order to avoid an overlap with granted equipments by other aid organisation, this equipment is omitted.
Baby incubator (automatic control type)	0	-	1	-		-	-	-	-	-	-	0	Ditto
Baby incubator (portable type)	0	-	1	-		-	-	-	-	-	-	0	Ditto
Bilirubinometer	0	-	1	0		0	0	0	0	0	0	1	Based on the judge that this is a basic critical equipment, 1 unit is introduced.
Photo therapy apparatus	0	-	2	0		0	0	0	0	0	0	2	Ditto, however because of its high requirement, the number of introduction is 2 units.
Neonatal monitor	0	-	1	0		0	0	0	0	0	0	1	Based on the judge that this is a basic equipment required for monitoring immature infants.
Resuscitator unit for infant	0	-	0	0		0	0	0	0	0	0	1	One unit is introduced as a critical equipment for an abnormal ventilation of immature infants.
Oxygen analyser	0	-	1	0		0	0	0	0	0	0	1	Based on the judge that this is a essential equipment for caring immature infant.
Ultrasonic nebulizer	0	-	1	0		0	0	0	0	0	0	1	Based on the judge that this equipment is highly required for new-borns and infants to breathe easily, one unit is introduced.

Requested equipments	Qty of Existing	Qty of under Functioning	Qty of Requested	Evaluation		Viewpoint		Evaluation		from Technical		Viewpoint	Qty after Evaluation	Major Content of Evaluation
				Necessary for Diagnosis on General Disease	Necessary for Top Referral Medical Treatment	of High Priority	Operability by Existing Personnel	Possibility of Repair in Egypt	Appropriate for Grant Aid Cooperation					
[Physiotherapy]														
Short-wave therapy apparatus	0	-	2	0		0	0	0	0				2	Based on the judge that this equipment is used most frequently in Physiotherapy, 2 units are introduced.
Didynamic apparatus	0	-	1	0		0	0	0	0				1	Ditto, however the number of introduction is 1 unit.
Therapeutic ultrasound machine	0	-	1	0		0	0	0	0				1	Ditto
[Radio diagnosis]														
Diagnosis ultrasound machine	0	-	1	0		0	0	0	0				1	One unit is introduced with regard to its usefulness of this equipment for diagnosis.
Diagnostic X-ray system (w/ bucky table and chest stand)	2	1	1	0		0	0	0	0				1	One unit is introduced for replacement of 2 superannuated units of the existing equipments.
Cassette paste-box	0	-	0	0		0	0	0	0				1	In order to improve efficiency of film exchange, one unit is introduced.
[Skin and Venereal]														
Dermo jet intradermal injector	0	-	1	0		0	0	0	0				1	Resulting from the introduction of this equipment, the technical level of therapy in Skin & Venereal can be raised.
[Supportive service]														
Automatic electric emergency generator 100KW	1	-	1	0		0	0	0	0				1	As the existing equipment can not be repaired, this is replaced to function sufficiently operating theatres, I.C.U. and blood bank etc. under power failure.
[Theatre sterilisation room]														
Scrub-up unit	0	-	0	0		0	0	0	0				2	This equipment is introduced to the operating theatre in order to perform maintenance of the clean area in the room.
Steam autoclave with steam generator 250 L	0	-	2	0		0	0	0	0				2	In order to satisfy the requirement for sterilisation in operating theatres etc., 2 units of this equipment with 250L and 1 unit of that with 100L are introduced. Additionally, in order to satisfy the requirement for urgent sterilisation, 2 units of Hot air oven sterilizer are introduced.
Steam autoclave with steam generator 100 L	0	-	1	0		0	0	0	0				1	
Hot air oven sterilise (big size)	1	0	3	0		0	0	0	0				2	
[Urology]														
Cysto-urethroscope for adult and child	0	-	2	0		0	0	0	0				1	This is introduced in order to improve diagnostic ability of Urology having a lot of patients.
[Milk Kitchen]														
Hot air oven steriliser (big size)	0	-	1	0		0	0	0	0				1	The steam sterilisation of nursing bottle can prevent infants from infection.
Steam autoclave with steam generator 100 L	0	-	1	0		0	0	0	0				1	Ditto

3.2.6 Necessity of Technical Cooperation

Since the requested items were mostly replacements and additions of the existing equipment, they are likely to be used and maintained properly without any technical assistance. However, for Isna Hospital, employment of additional medical staff and the retraining of current personnel by the Egyptian side is urged as the hospital is currently equipped with only a small number of items and the existing staff lack operational experience with some of the new equipment requested.

3.2.7 Basic Policy for Implementation of Cooperation

After examinations and analyses were completed the project has been confirmed potentially effective and viable. Therefore, Grant Aid for this project is deemed necessary and appropriate.

3.3 Outline of the Project

3.3.1 Executing Agency and its Management Organization

(1) Governing organization

Governing organization for the project is the Ministry of Health

(2) Executing organization

- 1) The Ministry of Health will implement the project, manage the entire equipment procurement process such as tendering, contracting and confirm the delivery of the equipment.
- 2) After the completion of the project, the responsibility for maintaining and managing the equipment will be assumed by the hospital directors who will be supervised by the Luxor City Office for Luxor Hospital and the Qena Governorate Office for the five hospitals in the Qena Governorate.

3.3.2 Plan of Operation

The equipment procured under the project will be delivered and installed in the hospitals as mentioned previously. Each hospital will utilize the equipment to improve deteriorating medical service quality caused by inadequate equipment. The outline of facility and medical

services for each hospital is explained in Section 2.3.3.

3.3.3 Outline of Equipment

The outline of main equipment/instruments to be procured under the project and the usage thereof are described in the table below:

Main Equipment	Main Usage
Anesthesia machine	Anesthetizes adult and child patients undergoing surgery
Defibrillator	Counteracts fibrillation caused by cardiac insufficiency, etc. during and after surgery. It tries to restore normal heart beat by applying strong electric impulses to the chest.
ECG test unit with tread mill	Used for making electrocardiograms to study heart functions of patients engaged in physical movement.
Patient monitor	Monitors patient heart function during and after surgery. An alarm goes off when the heart is experiencing failure.
Ventilator	Supplements air to the patient during and after surgery. Used to restore normal breathing when dyspnea is experienced.
Mobile X-ray	Can be transported to different locations to perform X-ray examinations.
Chest X-ray mirror camera system	Used primarily to detect tuberculosis of the lungs. Miniature X-ray photographs can be taken using a mirror camera.

Chest X-ray system	A Bucky-type system with a Bucky-type table used to examine the chest area, especially to detect tuberculosis.
Steam autoclave	Used to sterilize chemical fluids and instruments made of metal, ceramic, glass, paper, fabric, rubber, etc. which can withstand around 120°C of steam heat. Items to be sterilized are exposed directly to saturated vapor to kill microorganisms within them. Standard sterilization is conducted at 115°C for 3 mins., 121°C for 20 mins. or 126°C for 15 mins. Items with better heat resistance can be sterilized at 130-135 for 5-10 mins.
Spectrophotometer	Used to analyze blood and other bodily fluids for their biochemical and immune contents or other foreign substances.
Water distiller	Makes distilled water necessary for clinical examinations.
Dental unit with chair	Used for treating outpatients. Angles can be adjusted to provide comfort for the patient and ease of use by the practitioner.
Colono fiberscope	Used to examine the lower bowl extending from the sigmoid colon to the ileum and cecum.
Gastroscope	Used to examine the stomach interior.
Sigmoidoscope	Used to examine the sigmoid flexur within 25cm. from the rectum.

Operating micro-scope for E.N.T.	Used in various precision E.N.T. surgeries.
Tympanometer	Used to examine the tympanic membrane and tympanum functions.
E.N.T. examination/treatment unit	Integrates various E.N.T. instruments to provide a comprehensive diagnosis and treatment of outpatients.
Hysteroscope	Used to examine the uterine cervix canal and the uterus cavity.
Freezing microtome	Cuts frozen tissue for microscopical study.
Oxygen generator	Generates oxygen to assist patient with breathing.
Blood gas analyzer	Used to monitor and control breathing during surgery by measuring ph, Pco ₂ , and Po ₂ levels in the blood.
Flame photometer	Measures sodium and potassium values in the blood or urine to detect the imbalance of electrolytes due to hormonal imbalance, internal secretion insufficiency, diarrhea, etc.
Elisa photometer	Used to examine immune function by measuring antigen/antibody reaction. Used also for diagnosis of AIDS.
Ultrasound machine	Primarily used in OB/GYN to examine early stages of pregnancy, measure pelvis and circumference of fetus head, and detect abnormal pregnancy, myoma praevium and ovarioncus.
Operating table for general surgery	Uses hydraulic pressure and gears to adjust the positions, angles, and shapes of the operating table for various types of surgeries.

Electro-surgery unit	Used in surgeries to cut tissue while arresting escape of blood.
Laparoscope	Used to detect hepatitis, liver cirrhosis and liver mass, and examine peritoneal cavity. Also used for oviduct ligation.
Orthopedic operation table	An operating table with lower limb traction device, especially useful for operating on fractured femur or the head thereof.
Operating microscope for ophthalmology	Used in precise opthalmological surgeries.
Ophtalmic examination unit with slit lamp	Integrates various opthalmic instruments to provide a comprehensive diagnosis and treatment of outpatients.
Interferential therapy unit	A type of electrical stimulation device used in physical therapy to efficiently apply low frequency wave to the affected area.
Treadmill for rehabilitation	Used in rehabilitation process to assist patient to regain walking ability.
Diagnostic X-ray TV system	Used to observe X-ray images of head, chest and abdominal areas on TV screen. Useful for accurate and efficient diagnosis.
Diagnostic X-ray system w/ bucky table & chest chair	Functions similarly to the above system, but images cannot be observed on TV screen.
Diagnostic stationary X-ray system	Used to take X-ray pictures of head, chest, abdomen and upper and lower limbs.

Automatic film processing machine	Expedites X-ray film processing.
Automatic electric emergency generator	Supplies electricity to operating rooms, ICUs, etc. during power outage.
Scrub-up unit	Used by surgery staff for washing their hands to ensure cleanness before entering the operating room.
Cysto-urethroscope	Used to examine the interior of urethra and prostate gland for urethrostenosis, uthethritis, urethral tumor, etc..

3.3.4 Maintenance Plan

After the completion of the project, the equipment will be managed and maintained following the same maintenance procedures set by the Ministry of Health for district hospitals.

(1) Supply system for consumables

The procured equipment will need the following consumable items for continuous operation. They will be supplied to Luxor Hospital from the Luxor City Medical Supply Center and from the Qena Governorate Medical Supply Center to the other five hospitals.

Consumable items for procured equipment

Anesthesia gas (including gas cylinder filling cost)
Recording sheet for ECG, etc.
Disposable tubes for transfusion pumps
X-ray films
Film developing fluid
Recording sheet for spectrophotometer
Materials for dental crafting
Dental X-ray films
Fiberscope sterilizing fluid
Chemical reagents for blood gas analyzer and other analyzing devices
Recording sheet for ultrasonic diagnostic units

The above items are currently consumed and supplied for the operation of existing equipment. However, more of these items will be needed as the medical services are expanded with the replacement and addition of equipment. Ministry of Health statistics show that public medical facilities annually consume about 1% of the equipment cost. According to this percentage, the annual cost of consumable items is estimated to be about 1,395,000 yen (approx. 43,600 Egyptian pounds) for Luxor Hospital, and 6,975,000 yen (approx. 217,900 Egyptian pounds) for the five hospitals in the Qena Governorate.

The main consumed goods needed with equipment supplies
and the annual cost

Anesthetic gas:

14 anaesthetic machines are supplied in this project. An average use of one hour a day, 22 days a month is presumed. The annual consumption and cost are as follows.

① Oxygen gas

Consumptions:

$(3\ell \text{ in a minutes} \times 60 \text{ minutes} = 180\ell) \times 22 \text{ days/month} \times 12 \text{ months} = 47,520\ell/\text{year}$

$47,520\ell/\text{year} \div (6,000\ell / 1 \text{ cylinder}) = 8 \text{ cylinders/years}$

Costs:

(Cost per 1 cylinder gas filling: 218.75 pounds) $\times 8 \text{ cylinders} \times 14 \text{ machines} = 24,500 \text{ pounds (784,000 yen)}$

② Laughing gas

Consumption:

$(2\ell \text{ a minutes} \times 60 \text{ minutes} = 120 \text{ liters}) \times 22 \text{ days/month} \times 12 \text{ months} = 31,680\ell/\text{year}$

$31,680\ell \div (15,000\ell / 1 \text{ cylinder}) = 2 \text{ cylinders/year}$

Costs:

(Cost per 1 cylinder gas filling: 8,187.50 pounds) $\times 2 \text{ cylinders} \times 14 \text{ machines} = 229,250 \text{ pounds (7,336,000 yen)}$

Total amount: 253,750 pounds (8,120,000 yen)

Electrocardiograph recording paper:

A total of 16 electricardiographs, requiring recording paper, and patient monitoring systems are supplied in this project. The annual consumption and the cost of the recording paper are as follows.

Consumption:

(2 rolls x month/apparatus) x 12 months = 24 rolls/year

Costs:

(1 roll: 21.875 pounds) x 24 rolls x 16 apparatuses = 8,400 pounds
(268,800 yen)

Tubes for infusion, etc:

26 infusion apparatuses are supplied in this project. Expected annual consumption and the cost are as follows.

Consumption:

(Average 3 sets a day) x 22 days/month = 792 sets/year

Costs:

(1 set: 21.875 pounds) x 24 sets x 16 apparatuses = 8,400 pounds
(268,800 yen)

X-ray film:

A total of 11 X-ray units, including X-ray television equipment are supplied in this project. Expected annual consumption and the cost of X-ray film are as follows.

Consumption:

(Average 20 sheets a day) x 22 days/month x 12 months =
5,280 sheets/year

Costs:

(5,280 sheets x average unit cost of 6 pounds) x 11 units =
348,480 pounds (11,151,360 yen)

Developing solution for X-ray film:

A total of 3 automatic development units are supplied in this project. The X-ray equipment concerned is: 3 newly introduced units and 4 existing ones. Expected consumption and the cost of the developing solution are as follows.

Costs:

(5,280 sheets of photographic film per X-ray unit/year) x 7 units =
36,960 sheets

Developing cost per sheet is about 0.156 pounds x 36,960 sheets =
5,775 pounds (184,800 yen)

Reagents, etc for clinical inspection equipment:

A total of 20 clinical inspection units requiring recording paper such as spectrophotometers, are supplied in this project. Expected annual consumption and the cost of reagents are as follows.

Consumption:

(Average times of use per unit: 20 times/day) x 22 days/month x
12 months = 5,280 times

5,280 times x 20 units = 105,600 times/year

Costs:

(105,600 times x average inspection cost: 0.125 pounds) = 13,200 pounds
(422,400 yen)

Recording paper for clinical inspection equipment:

A total of 20 apparatuses requiring recording paper are supplied in this project, as same as above. Expected consumption and the cost are as follows.

Consumption:

(Average amount of use per apparatus: 1 roll a month) x 12 months =
12 rolls/year

Costs:

(1 roll: 21.875 pounds) x 12 rolls x 20 apparatuses = 13,500 pounds
(168,000 yen)

Diagnostic recording paper for ultrasonic diagnostic devices:
12 ultrasonic diagnostic devices are supplied in this project.
Expected annual consumption and the cost are as follows.

Consumption:

(Average amount of use per device: 2 rolls a month) x 12 months =
24 rolls/year

Costs:

(1 roll: 46.875 pounds) x 24 rolls x 12 devices = 13,500 pounds
(432,000 yen)

Consequently, the annual cost for necessary consumable goods is 656,755
pounds(21,016,160 yen)

(2) Maintenance and repair system of equipment

Maintenance and repair of the procured equipment will be normally handled the same as for existing equipment. Simple problems will be dealt with by the maintenance staff of each hospital; when complicated repairs are needed they will be sent to the Medical Equipment Maintenance Center of Luxor City or Qena Governorate using the budget allocated for these centers or income from chargeable treatment earned at each hospital. When problems are too complicated for the Maintenance Centers, they will get assistance from the local agent of the manufacturer. List of medical equipment manufacturers and their Egyptian agents is provided in Annex 7. According to the figures provided by the Ministry of Health, the annual maintenance/repair budget for 1992 was about 65,400 Egyptian pounds (2,029,000 yen) for Luxor Hospital, and about 326,800 Egyptian pounds (10,458,000 yen) for the five Qena Governorate hospitals. The total corresponds to 1.5% of the total equipment cost, of which 1% was funded by the budgets of Health Bureaus of Qena Governorate and Luxor City, and the remaining 0.5% was covered by the income from chargeable treatment offered at the concerned hospitals. Since main spare parts will be supplied along with the equipment under the project, the spare parts cost that

occupies a large percentage of the maintenance/repair cost will be reduced for some time.

(3) Life of equipment and replacement cost

As shown below, the lives of the main equipment/instruments to be procured under the project range from four to ten years according to the specifications under Japanese law.

Main Equipment	Lives of equipment under Japanese law
Anaesthesia machine	5 years
Ventilator for anaesthesia	5 years
Defibrillator	5 years
Patient monitor (2 channels)	5 years
Mobile X-ray	4 years
X-ray mirror camera system	4 years
X-ray system	4 years
Oven for sterilization	5 years
Blood gas analyzer	5 years
Elisa photometer (for diagnosis of AIDS)	5 years
Operating table for general surgery	10 years
Electro-surgery unit	5 years
Laparoscope unit (Co2 type)	5 years
Emergency operating lamp with battery (ceiling)	10 years
X-ray unit for ophtalmology	5 years
Orthopaedic operating table	10 years
Diagnosis ultrasound machine	8 years
Diagnostic X-ray TV system (general)	6 years
Diagnostic stationary X-ray system (with buckeye table)	5 years
Automatic film processing machine	5 years
Automatic electric emergency generator	8 years
Scrub-up unit	5 years
Operating lamp	5 years
Orthopaedic operating table	5 years
Electric tabletop centrifuge	5 years

External demand pace meter	5 years
Automatic blood cell counter	5 years
Orthopaedic operating table	10 years
Steam autoclave with steam generator	5 years

Since the replacement cost of the equipment shall be borne by the Egyptian side, a reserve fund based on the legal equipment lives or some other criteria needs to be set aside in order to ensure smooth replacement in the future. According to the calculation based on the above equipment lives, 81,407,707 yen needs to be put in reserve every year.

Chapter 4 Basic Design

Chapter 4 Basic Design

4.1 Design Policy

To accomplish the goals stated in Section 3.1, the Basic Design was prepared based on the following basic policies:

(1) Basic design policy

- Work out a plan that insures practical results benefiting the residents of Luxor city, the Qena Governorate and their environs by supplying medical equipment to the hospitals concerned.
- Give top priority to medical equipment for treating common diseases.
- Mainly provide equipment for primary and secondary care.
- Give priority to equipment that is in high demand.
- Work out a plan that is manageable for the hospitals concerned within their current capacities so that the equipment will be properly maintained.
- Work out a plan that enables the smooth flow and effective implementation of grant aid provided by the Japanese government.
- Work out an equipment plan that allows local agencies to maintain and repair the equipment.

4.2 Equipment Design Conditions

When selecting equipment, the following conditions were taken into consideration

1. The equipment can be operated by the current medical staff with their current skills and knowledge.
2. Proper maintenance services will be provided by the local agents of the manufacturers.
3. The manufacturer has a large share in Egyptian market.