

BASIC DESIGN STUDY REPORT ON THE PROJECT FOR IMPROVEMENT OF MEDICAL EQUIPMENT FOR MATERNAL AND CHILD HOSPITALS IN SAMARKAND AND NAVOI IN THE REPUBLIC OF UZBEKISTAN

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FOR MATERNAL AND CHILD HOSPITALS  
IN SAMARKAND AND NAVOI  
IN  
THE REPUBLIC OF UZBEKISTAN**

**JANUARY 1998**

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JANUARY 1998

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MINISTRY OF HEALTH  
THE REPUBLIC OF UZBEKISTAN

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## PREFACE

In response to a request from the Government of the Republic of Uzbekistan, the Government of Japan decided to conduct a basic design study on the project for Improvement of Medical Equipment for Maternal and Child Hospitals in Samarkand and Navoi and entrusted the study to the Japan International Cooperation Agency (JICA).

JICA sent to Uzbekistan a study team from September 9 to October 13, 1997.

The team held discussions with the officials concerned of the Government of Uzbekistan, and conducted a field study at the study area. After the team returned to Japan, further studies were made. Then, a mission was sent to Uzbekistan in order to discuss a draft basic design, and as this result, the present report was finalized.

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

I wish to express my sincere appreciation to the officials concerned of the Government of the Republic of Uzbekistan for their close cooperation extended to the teams.

January, 1998



Kimio Fujita

President

Japan International Cooperation Agency

January, 1998

Letter of Transmittal

We are pleased to submit to you the basic design study report on the project for Improvement of Medical Equipment for Maternal and Child Hospitals in Samarkand and Navoi in the Republic of Uzbekistan.

This study was conducted by Binko Ltd. and System Science Consultants Inc., under a contract to JICA, during the period from August 15, 1997 to February 5, 1998. In conducting the study, we have examined the feasibility and rationale of the project with due consideration to the present situation of Uzbekistan and formulated the most appropriate basic design for the project under Japan's grant aid scheme.

Finally, we hope that this report will contribute to further promotion of the project.

Very truly yours,

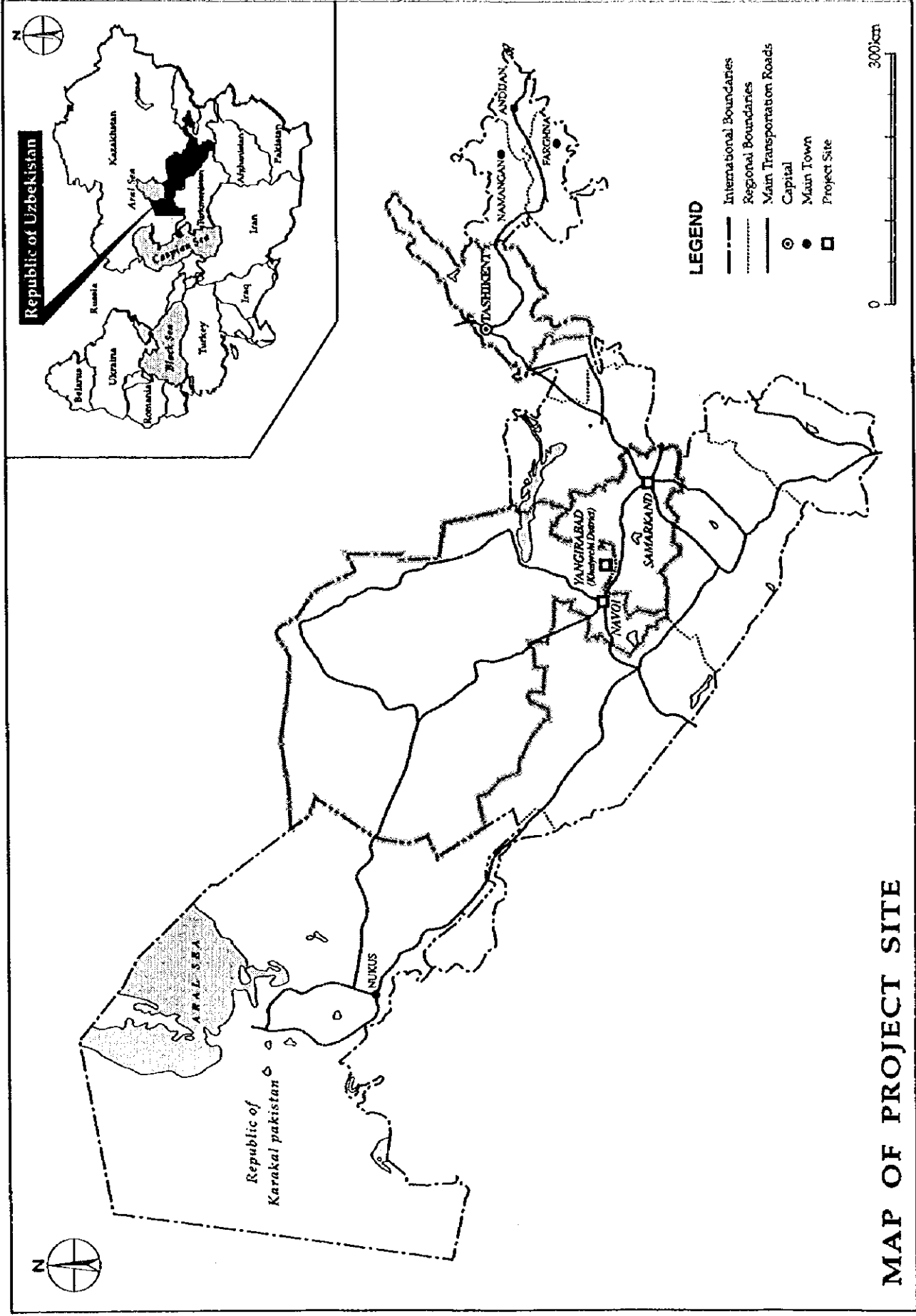


Shinichi Kimura

Project manager,

Basic design study team on  
Improvement of Medical Equipment for  
Maternal and Child Hospitals in  
Samarkand and Navoi in the Republic of  
Uzbekistan  
Binko Ltd.

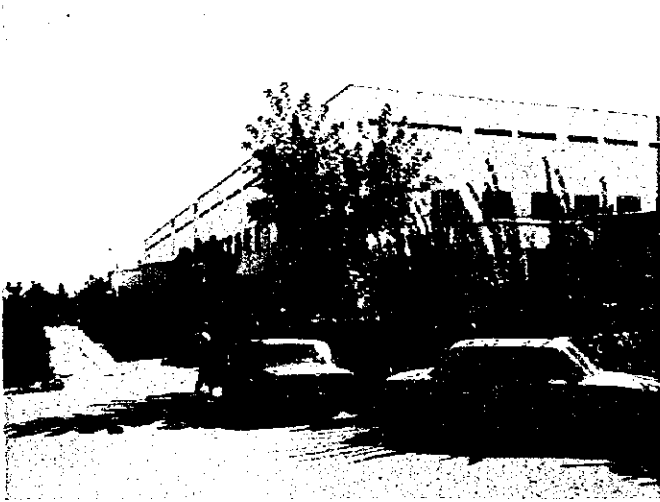




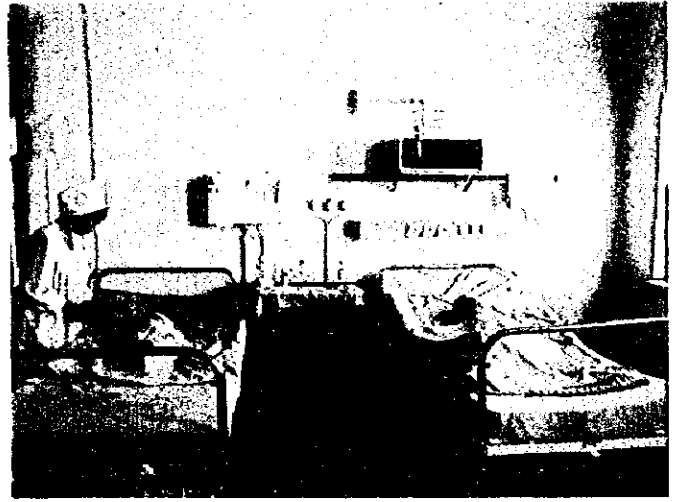
MAP OF PROJECT SITE



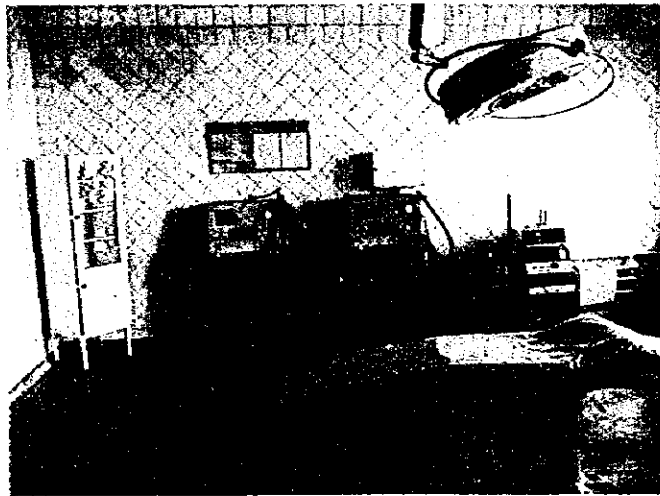
# Samarkand Regional Children Hospital



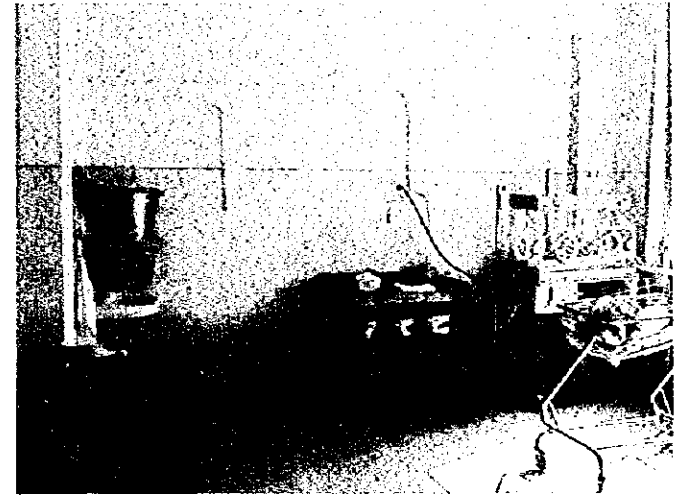
Entrance



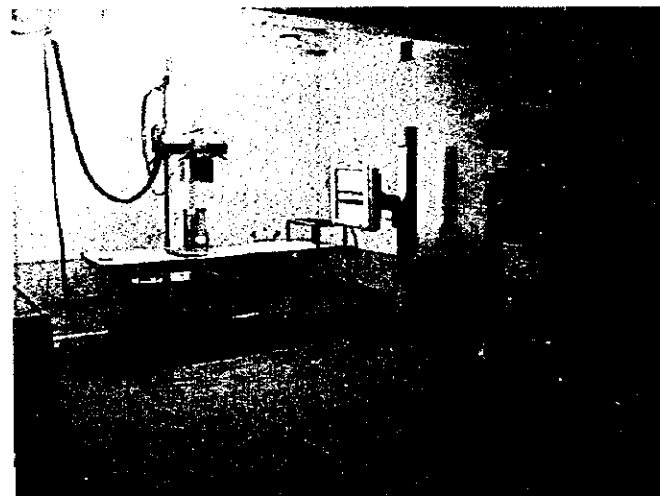
Reanimation Room



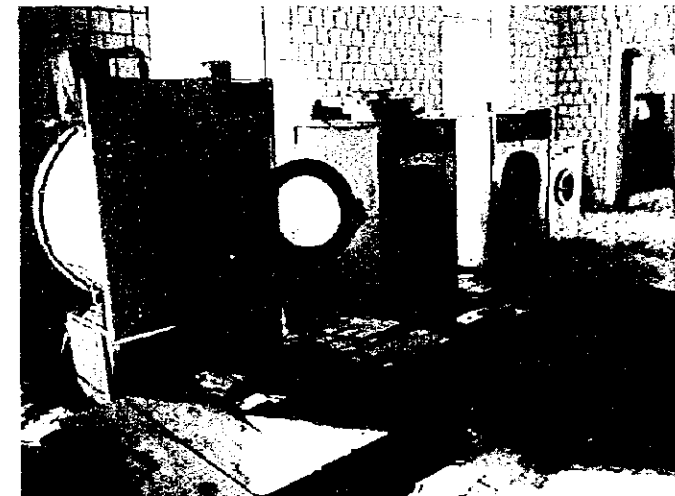
Operation Room



Newborn Baby Room



X-ray Room



Laundry

# Samarkand Regional Health Care Center for Mothers and Children



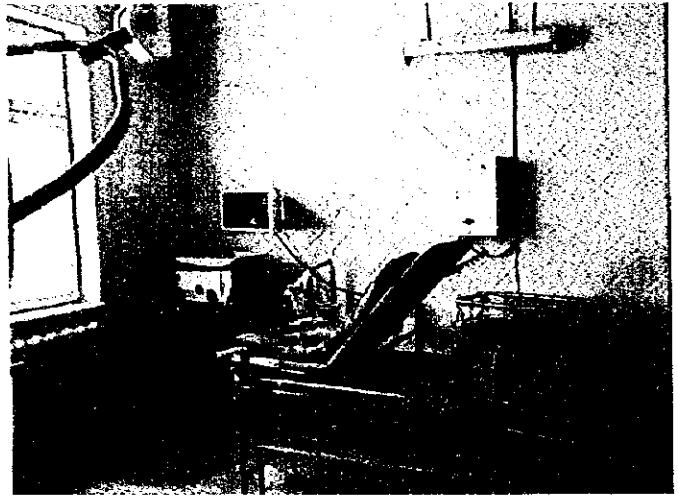
Entrance



Laboratory



Operation Room



Delivery Room



X-ray Room



Sterilization Room

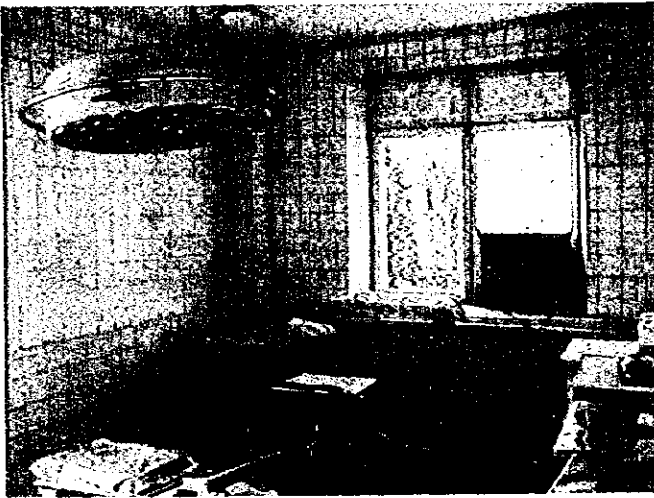
# Navoi Regional General Hospital



Entrance



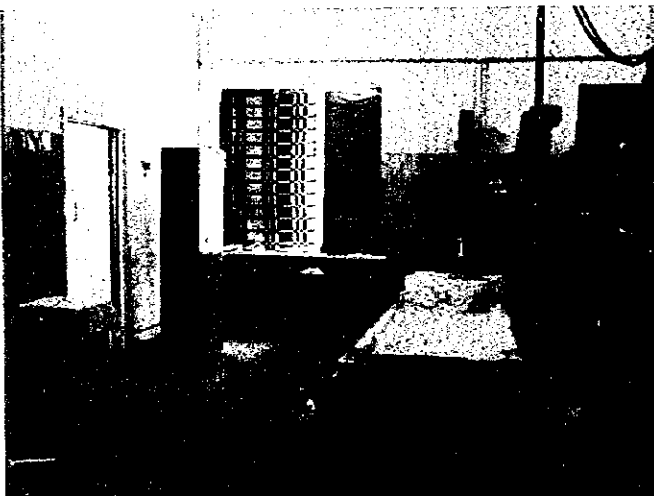
Newborn Baby Room



Operation Room



Delivery Room

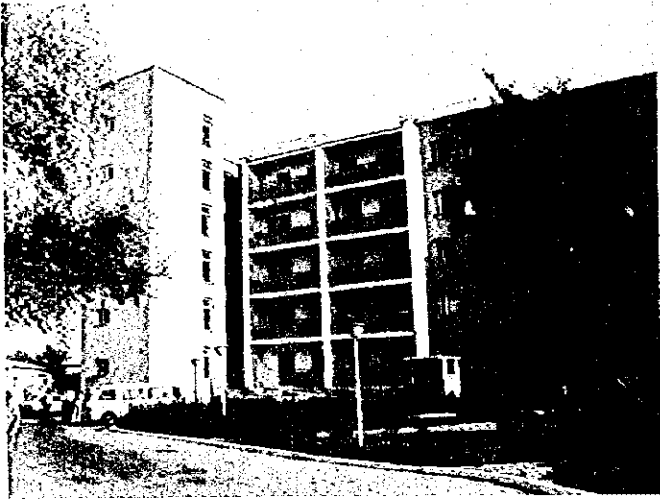


X-ray Room



Laundry

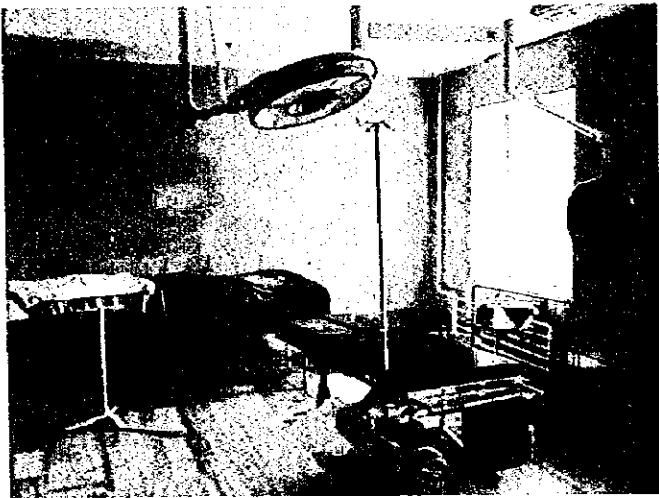
# Navoi Regional Children Hospital



Entrance



Reanimation



Operation Room



Newborn Baby Room

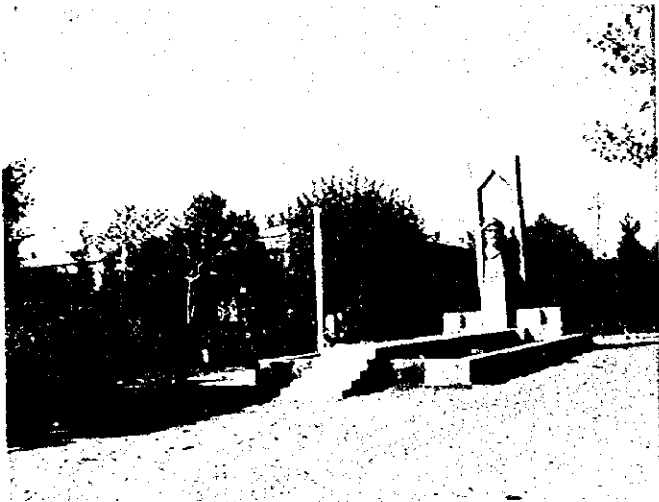


X-ray Room

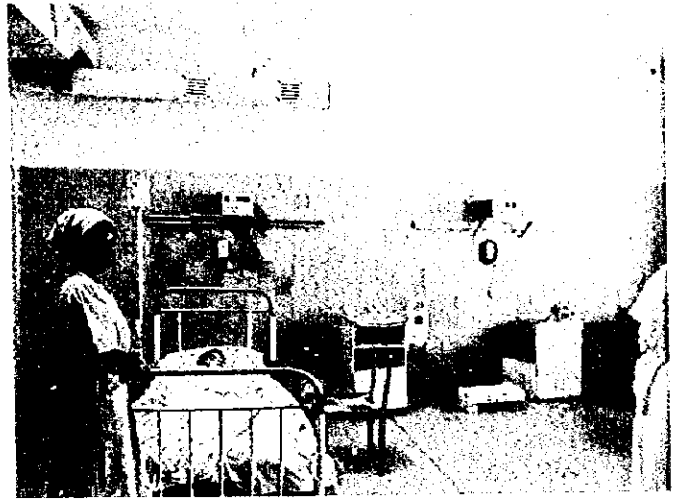


Sterilization Room

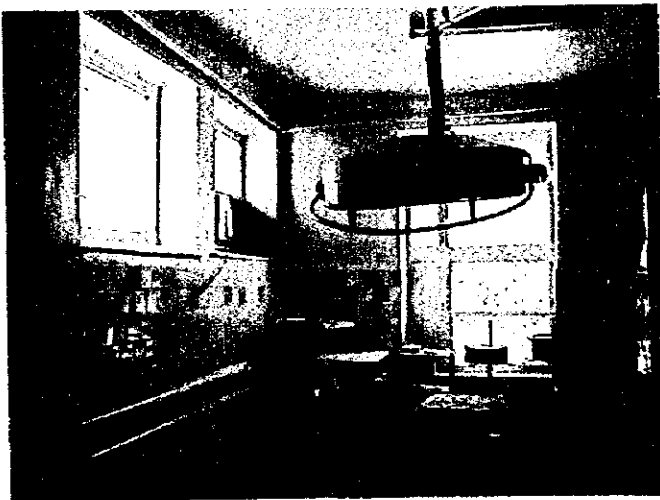
# Khatyrti District Central Hospital



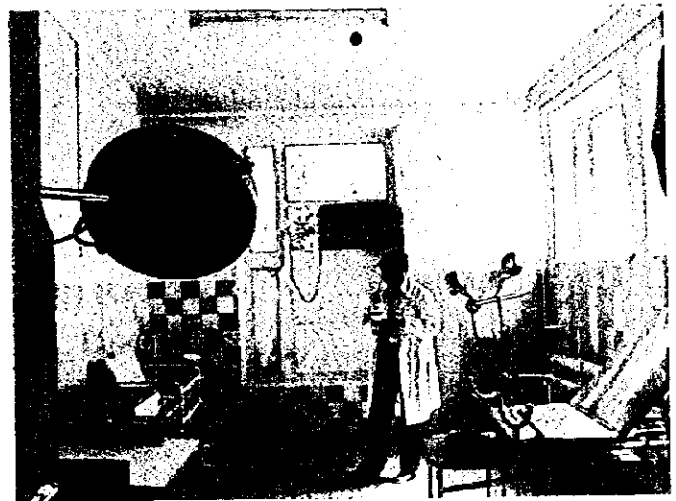
Entrance



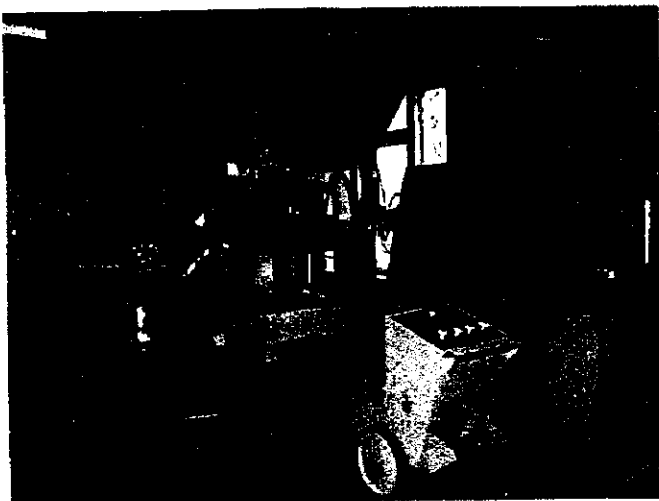
ICU / Recovery Room



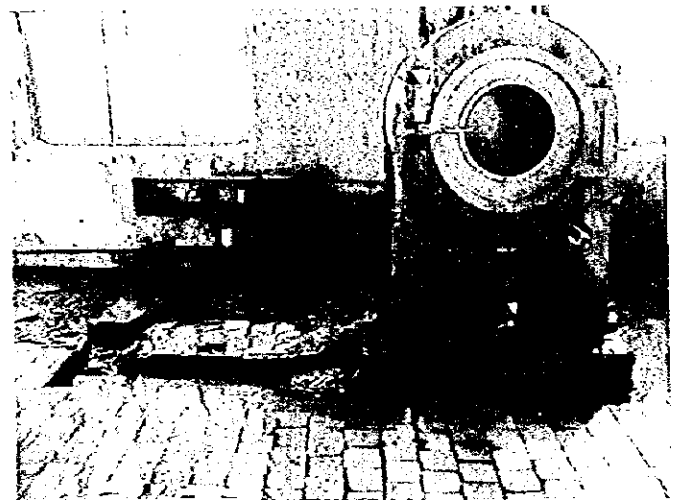
Operation Room



Delivery Room



X-ray Room



Laundry





## ABBREVIATIONS

AVR	Automatic Voltage Regulator
BHN	Basic Human Needs
E/N	Exchange of Notes
ECG	Electrocardiograph
GDP	Gross Domestic Products
GNP	Gross National Product
ICRP	International Committee of Radiation Protection
ICU	Intensive Care Unit
JICA	Japan International Cooperation Agency
PHC	Primary Health Care
USAID	United States Agency for International Development



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## **Chapter 1. Background of the Project**



## CHAPTER 1. BACKGROUND OF REQUEST

### 1.1 Details of Request

The Republic of Uzbekistan (Uzbek) has a rapid growth rate of population due to a prolific rate. Major group of the population consists of children at age of 14 or younger which accounts for 41% of the total population. Therefore, Ministry of Health of Uzbekistan has considered that it is the urgent issue to focus on improvement in health care services for mothers and children. While the Government of Uzbekistan has conducted medical reform by selecting major hospitals by region, it has eliminated excessive hospitals more than required.

The Government of Uzbekistan has been successful in reducing death rates of pregnant women and neonates. However, the mortality of neonates with 29.6 out of 1,000 newborns (1996 estimate) has not yet reached the standards of 20 per 1,000 newborns set by WHO. The major causes of high mortality of children, in particular, neonates are reported to be perinatal diseases, diseases of respiratory organs, diseases of digestive organ, and infectious diseases. These are attributable to 1) insufficient infrastructure related to public health such as drainage and water supply and 2) lacking inhabitants' awareness of significance of health care. Most of these diseases are preventable. Besides, it is less expensive to invest in prevention of diseases than in medical treatment to cure diseases, thus investment effect is huge if we invest in health care. As incipient medical treatment will contribute to reducing the death rates, the Government is also promoting "Mothers and Children's Health Improvement Plan" aiming at protecting health of women at birth-giving age and children, while conducting the medical reform.

Up to now, our major projects accomplished under the grant aid programs were "The Project for Improvement of Medical Equipment for Child Care" in

Tashkent in 1994, and "The Project for Improvement of Maternal and Child Medical Equipment in the Eastern Provinces" in Farghna Basin in 1995, for which we have emphasized the cooperation for mothers and children's health care. However, shortage of medical equipment in obstetric and gynecological hospitals and children's hospitals located in mid-west of Uzbekistan, i.e. Samarkand, Navoi and Republic of Karakalpakstan, is serious. Therefore, a medical system for mothers and children should be established immediately.

Based on the aforementioned background, the Government of Uzbekistan requested Japanese government to approve grant aid to procure medical equipment for seven hospitals in Samarkand, Navoi, and Republic of Karakalpakstan. After we have investigated the request thoroughly, it was judged that each facility needed medical equipment. However, considering difficulties in investigation and implementation of projects, e.g. accessibility and volume of information available, we decided to designate 5 hospitals: 2 hospitals in Samarkand and 3 hospitals in Navoi, excluding Republic of Karakalpakstan.

## 1.2 Summary of Request / Major Factors

### (1) Objectives of request

Uzbekistan has faced serious shortage of medical equipment in terms of quality and quantity because the existing equipment have not been renewed owing to economic turmoil and financial crisis after becoming independent from the former Soviet Union. Thus, by renewing and supplementing the existing equipment of major medical facilities for mothers and children's health in Samarkand and Navoi, functions of the major hospitals will be reinforced as well as basic medical services will be improved.

### (2) Contents of request

#### 1) Designated facilities



Five designated facilities in this project are as follows.

Table 1-1

	Name of facilities	Region	City/District
1.	Samarkand Regional Children Hospital (SCH)	Samarkand	Samarkand
2.	Samarkand Regional Health Care Center for Mother and Children (SMCH)	Samarkand	Samarkand
3.	Navoi Regional General Hospital (NGH)	Navoi	Navoi
4.	Navoi Regional Children Hospital (NCH)	Navoi	Navoi
5.	Khatyrchi District Central Hospital (NKDH)	Navoi	Khatyrchi District

## 2) Equipment

82 items of equipment are requested in the project, major items of which are as follows:

### 1. Clinical Laboratory

Bilirubinmeter, biochemical analyzer, blood gas analyzer, blood typemeter, centrifuge, coagulometer, electrolyte analyzer, electronic scale, hematology analyzer 15 parameters, hemoglobinmeter, immunological analyzer, microscope, O<sub>2</sub> analyzer, medical-use refrigerator, spectrophotometer

### 2. Central Sterilization Supply Dept.

Bottles sterilizer, high pressure steam sterilizer with generator, hot air sterilizer

### 3. Delivery Room

Anesthesia apparatus, bilirubinmeter, delivery table, Doppler fetus detector, electrosurgical unit, fetal monitor, catch bed (high grade high-low), infant incubator, infant warmer, infusion pump, operation instrument set, mobile ultrasound apparatus, ventilator

4. outpatient

Autoclave, bronchofiberscope for child, colonofiberscope, dental X-ray unit, diagnostic X-ray unit with TV system, ECG 12ch, EEG, gastrointestinal fiberoscope, sphygmomanometer, stethoscope, suction unit, general ultrasound apparatus with printer

5. Intensive Care Unit

Anesthesia apparatus, blood transfusion set, bronchofiberscope, defibrillator with trolley, disposable syringe for pump (12,000 pcs), fetal monitor, fiber-laryngoscope for child, hemodialysis apparatus, humidifier, ICU bed, ventilator

6. New-born Baby Unit

Bilirubinmeter, fetal monitor, hemoglobinmeter, infant incubator, infant warmer, infusion pump, laryngoscope, massager, nebulizer, general ultrasound apparatus

7. Operating Theater

Anesthesia apparatus, defibrillator, Doppler fetus detector, electrosurgical unit, endotracheal set, heart-lung machine, infusion pump, operation instrument set, operating light, operating table, patient monitor, urology cystoscope, ventilator

8. Others

Interferential therapy unit, low frequency therapy, microwave therapy unit, short-wave diathermy, patient delivery vehicle

## **Chapter 2. Contents of the Project**



## CHAPTER 2. CONTENTS OF THE PROJECT

### 2-1 Objectives of the Project

The Government of Uzbekistan has issued measures to promote health of children under the social and economical development plan, "National Development Plan," which aims at maintaining its social stability and building a new social and economical system. Meanwhile, the government came up with the "Mothers and Children's Health Improvement Plan" as one of medical reforms to promote health of women who are in ages of giving childbirth. In this regard, main items are sanitary education for pregnant women, technical training for nurses and reeducation for medical workers. Despite the country's effort to emphasize reinforcement of the medical system, equipment which have been used since the times of the former Soviet Union are getting too old at most of the medical facilities, which causes problems in quantity and quality. As a result, patients may not place reliance on the medical facilities. Moreover, since many sufferers are women and children at low income homes living in rural areas, they tend not to go to the hospitals and there are cases that medical treatment is fatally too late; death rates of pregnant women and children are high.

Since Uzbek economy still has been chaotic and stagnant after becoming the independent country, it becomes difficult to promote the above-mentioned policies due to delay of rebuilding of the medical facilities. The purpose of the Mothers and Children's Health Development Plan is to improve mothers and children's health indexes, and this project is aiming at supporting the Plan by arranging equipment at maternity clinics and pediatrics of five main hospitals which are considered as high-ranking referral facilities in designated areas.

### 2-2 Basic Concept of the Project

As mentioned above, the designated facilities are at the top of a hierarchy of the mothers and children's health system in the central areas of the country and are playing the key role in the mothers and children's health services. Nevertheless, most of the equipment have been getting too old and there are problems in quantity and quality because of breakdown and damage.

As also described above, death rates of pregnant women and neonates have

been decreasing even though they have not yet reached the standards set by WHO. It appears that the health indexes including this have been improved. Meanwhile, the designated facilities have been making efforts to improve the medical system as core hospitals, for example, improvement of approach to patients and training of medical workers.

Based upon the above investigation, the basic concept of this project is to attain reliability from local residents and to arrange urgently-needed equipment at the hospitals in order to decrease death rates of pregnant women and children up to the desired standards of the Mothers and Children's Health Development Plan (10 per 100,000 persons for pregnant women, 20 per 1,000 for children), and to offer high quality medical services.

#### 2-2-1 Cooperation Policies

Based on the basic concept, cooperation policies of the project are as follows:

1. To arrange equipment for examination and treatment which will be used for pregnant women and infants at age of one or under.
2. To procure necessary equipment for treatment at an incipient stage for neonates, while equipment used for serious cases like intensive care which require expensive doctor's fees are excluded.
3. To procure necessary equipment for the hospitals which suffer financial difficulties, in order to make them regain power of function.
4. Procured equipment should be necessary ones for the hospital, urgently needed or basically needed for mothers and children's medical services.
5. In principle, procurement of the equipment should be for renewal and supplement. The following equipment will be excluded.
  - High-tech equipment requiring new operation technique
  - Equipment needing a new maintenance method and a new budget plan
6. Considering size, activities, number of patients, and types of diseases of the designated medical facilities, to procure equipment which will meet requirements of each facility.

7. Considering the difficulty of getting foreign currencies in Uzbekistan, to select equipment for which consumption articles such as reagents can be procured in Cŷm, the Uzbek currency.
8. Reviewing the results of the 1993 Pediatrics Medical Equipment Arrangement Plan and the 1995 Mothers and Children's Health Medical Equipment Arrangement Plan in Eastern Areas, to decide the size of the project and the number of equipment.

#### 2-2-2 Examination of the Request

##### (1) Necessity and Relevance of the Project

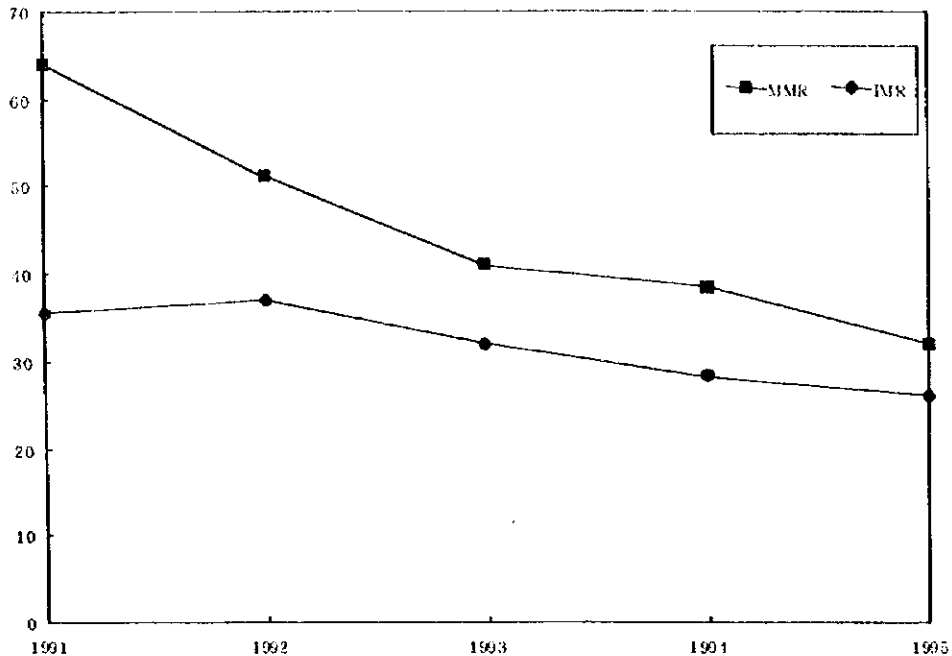
The Government of Uzbekistan, since its independence in the year of 1991, has regarded the "Medical Reform Policy" as one of the most important issues and promoted improvement of the health sector especially centering on the maternal and child health care (MCH). This is because the children under 14 years old account for 41% of the total population of the country. In addition, the group of mothers and children faces serious problems such as high growth rate of the population, high birth rate, high infant mortality rate (IMR) and maternal mortality rate (MMR), etc. As a result of the active efforts of the Government to date, both of the maternal and infant mortality rates have been decreasing (refer to Figure 2-1).

However, the IMR has not yet reached the WHO standard of 20 deaths per 1,000 live births. The deaths of the newborn babies and the infants under one year old are mainly caused by respiratory diseases, perinatal diseases, diseases of digestive organs and infectious diseases, etc. Most of these diseases are preventable and the cost for prevention is inexpensive; investment on the prevention is effective compared with the cost for medical treatment, and not a few of the deaths caused by them can be avoided by early treatment.

Considering all of the conditions mentioned above, it is very important and necessary to promote the "Program of Improvement in the Maternal and Child Health Care."

As to the designated areas of the project, it is highly required and relevant to implement the project in the Regions of Samarkand and Navoi. The population of these two Regions tends to grow according to their development as the tourist place and as the newly-industrialized province respectively. In addition, the five designated hospitals of this project can be the core of the MCH and pediatric services

in the two Regions and the surrounding areas, because these hospitals are located in the centers of two Regions, where the death rate of the urban area is higher than that of the rural area.



MMR : / 100,000 live births  
 IMR: / 1,000 live births

Figure 2-1 Transition of Maternal Mortality Rate (MMR) and Infant Mortality Rate (IMR)

(2) Role and Functions of the Project Sites

1) Samarkand Regional Children Hospital (SCH)

SCH plays a role of the core pediatric hospital in the Samarkand Region. It provides medical services for infant patients from the Regions and the neighboring areas and for patients referred by the lower level medical facilities of district hospitals, village health center or health posts.

SCH's functions should be improved centering on the medical services for the infants under 1 year old. This is because approximately 70% of the patients of SCH are infants under 1 year old and because 70% of the neonatal deaths happen during the period from 1 to 12 months old.



The admission and medical treatment of newborn babies need to be enhanced in cooperation with the maternity hospitals including Samarkand Regional Health Care Center for Mother and Children (SMCH) etc., at the same time with this project.

In addition, it is also important to maintain the system of referring the patients, whose diseases are beyond SCH's capability of medical services, to the upper-level hospitals such as Institute of Medical Science in Tashkent, etc.

## 2) Samarkand Regional Health Care Center for Mother and Children (SMCH)

As the referral hospital of obstetric/delivery services in the Samarkand Region, SMCH admits the patients referred by the lower-level hospitals as well as provides medical check-up, diagnosis, treatment, and delivery services for pregnant women and gynecology patients.

Considering these situations, it is necessary to strengthen the activities aiming at expansion of the pregnant women check-up for early detection and their health promotion as well as contributing to safe delivery and postnatal health recovery of mothers.

SMCH also provides medical services for newborn babies under 1 month old. The functions of health examination soon after childbirth, medical treatment of newborn patients, and referral/cooperation system with SCH should be improved.

## 3) Navoi Regional General Hospital (NGH)

NGH is the referral general hospital in the Navoi Region; the obstetrics and gynecology department of this hospital is the core of MCH services in the Region.

It is needed to enhance the functions of the hospital including admission of the patients referred by the lower-level hospitals, medical check-up examination of pregnant women, safe delivery, postnatal recovery of mothers, diagnosis and treatment of newborn babies, and cooperation with Navoi Regional Children Hospital (NCH).

#### 4) Navoi Regional Children Hospital (NCH)

NCH is the referral pediatric hospital in the Navoi Region. It is desirable to improve the admission system of infant patients from the Region and the neighboring areas and the patients referred by the lower-level obstetric hospitals including NGH. To strengthen the functions as the transit point to the upper-level hospitals is also required. This hospital was opened in November 1996, and human resources are efficiently provided. Therefore, it is expected to become the central medical facilities in the referral system of pediatric services of the Navoi Region in the future.

#### 5) Navoi / Khatyrchi District Central Hospital (NKH)

NKH, which is the central hospital of the Khatyrchi District in the Navoi Region, is providing the general medical services of internal medicine, surgery, pediatric and obstetric/gynecology.

NGH needs to promote the activities to improve the rural medical services in the Khatyrchi District. Especially the functions of visiting examination, guidance at district level and patient transportation to the upper-level hospitals etc. should be strengthened in order to expand the rural medical services, because it is the district referral hospital of the lower-level medical facilities including village health centers, etc.

#### (3) Equipment Requested in the Project

The purpose of this project is to support and supplement the "Program of Improvement in the MCH Care" promoted by the Ministry of Health of Uzbekistan. To be concrete, the project aims at improvement of the MCH functions of the hospitals focusing on the maternal health promotion and recovery during the pregnancy and postnatal period and early detection and treatment of neonatal and infant diseases.

Therefore, instead of targeting the new diagnosis activities including establishment of the cardiac surgery department and introduction of dialysis equipment, this project will provide the medical equipment necessary for strengthening the basic activities that the designated hospitals are currently conducting.

The examination about the necessity and the relevance of the medical equipment

requested in this project, considering the roles and functions of the designated hospitals and their current activities are described below.

#### 1) SCH

SCH provides medical services for pediatric patients from the Samarkand Regions and the neighboring areas as a children specialized hospital.

Mainly, about 70% of the patients in this hospital are infants under 1 year old with respiratory diseases (asthmatic or bronchitis diseases, etc.), digestive organ diseases (diarrhea, etc.), low birth weight baby (neonates born from 1,500g to 2,500g weight) and the neonates who needs jaundice treatment, etc.

The problems that should be solved immediately in SCH are as follows:

- a. improvement of capability of check-up examination for infants and neonates.
- b. improvement of diagnostic function for neonates
- c. advancement of capability in basic laboratory examination

##### ① Diagnostic Examination Department

The Diagnostic Examination Department conducts physiological function tests of infant outpatients and inpatients in order to examine whether being taken ill or not and to diagnose the progress of diseases.

##### -1 Ultrasound Diagnostic Unit

It enables to visualize inside of the body and to make a proper diagnosis using ultrasound method without giving bad influences to the patients; especially, it is useful for early detection and diagnostic of neonatal and infant diseases without radiation bombed like X-ray examination.

The existing equipment is relatively old and has only one probe (Convex, 5MHz) attached, which currently prohibits the accurate diagnosis of the diseases in the internal liver or the deep part of the pancreas and spleen, etc. Additionally, 6,000 patients are expected to need the ultrasound examination annually in 1996. Therefore, replacement of this equipment will be highly effective.

In order to solve these problems and to enable accurate examination and fast diagnosis, one general-purpose equipment will be planned to set up for the Outpatient and Diagnostic Examination Department and one portable/mobile-type equipment for the Ward Department will be supplemented in this project.

The general-purpose equipment will be furnished with the Doppler equipment for examining the blood flow of the patients suffering from cardiac and thyroid diseases and the 4 types of probes for coping with multi-purpose examinations. However, a color screen will not be attached to it with consideration of the frequency of operation and the cost of maintenance.

-2 ECG / EEG

ECG (electrocardiogram) is the essential for examining the circulatory functions. In addition, the need for ECG testing is very high. To introduce ECG measures is highly needed because they will become profitable when restarting the charged medical service system.

One of the existing two equipment of this hospital has had damage of the control logic board, which can not be repaired by itself. The other equipment has also been outdated with many troubles so that the hospital currently can not fully cover the needs from the daily patients.

Through replacing one ECG measure with 6 channels and one small-size mobile-type ECG measure with one hand, it will become possible to meet the needs of the patients who need the examination, diagnosis and management of disease conditions caused by various physiological functions and the ECG examination.

EEG (electroencephalograph) measures are required for the examination of circulatory, nerve, and cerebral physiological functions. Especially they enable to examine and diagnose the diseases of the central nerves including encephalitis, cerebral palsy, brain tumors etc., and the epilepsy which sometimes occurs among children through direct examination of the conditions of the brain functions.

Although this hospital does have the room for EEG examination, it is impossible to provide proper examination services due to the obsolete existing measures. One EEG with 14 channels are going to be replaced through this project in order to recover the function of examination and to improve the examination accuracy.

### -3 Fiberscope and accessories

Through inserting the fiberscope into the patient bodies, it is possible to see if there are any diseases and to check the conditions of illness of hemorrhagic ulcer, tumor or polyp, etc.

Gastro-fiberscope is inserted from the mouths of the patients in order to make an examination with the direct sight of the upper digestive organs from the esophagus and stomach to the duodenum. Colono-fiberscope is inserted from the anus of the patients in order to examine the lower digestive organs from the sigmoidal to the ileocecal region.

Diseases of the digestive organs including diarrhea always rank higher among the major infant diseases in Uzbekistan. It means the necessity and usefulness of these types of equipment are high.

Broncho-fiberscope is helpful for detecting and removing a foreign body in the bronchial tubes of children and for making an examination and diagnosis for bronchitis patients.

This hospital currently have these fiberscopes or rigid-scopes, all of which are only for the adult patients. Therefore, it is impossible to provide an examination for children under 3 years old.

It will be planned to supplement one set of gastro-fiberscope for children, one set of colono-fiberscope, and one set of broncho-fiberscope with accessories in this project.

These equipment will be operated to advance the diagnosis of the digestive organ diseases and to reform the function of examination for child patients.

Considering that this hospital is the educational hospital of the Samarkand Medical Institute, one television set will be provided for the purpose of educating medical students.

-4 Instrument Sterilizer and Steam Sterilizer

One Instrument Sterilizer (small and desk-top type) and one Steam Sterilizer (small and desk-top type) will be installed in order to disinfect the medical instruments and to keep the clean sanitary conditions in the diagnosis rooms.

-5 Diagnostic set

The diagnostic set includes the instruments used for the diagnosis such as ophthalmoscope, laryngoscope, etc. The project will provide one set for each of the Internal Medicine Division, the Surgery Division, the Otolaryngology Division and the Emergency Division of the Outpatient Department.

-6 Thermometer and Sphygmomanometer

Thermometers and Sphygmomanometers are shared among the hospital divisions. One thermometer will be provided for 10 beds and one Sphygmomanometer for 20 beds.

② Neonatology Department

The Neonatology Department, having 40 beds, observes and treats the newborn babies with diseases and the low birth weight babies (1,500g - 2,500g birth weight). The Department provide the treatments for approximately 2,000 low birth weight babies annually.

Most of the newborn babies are the ones referred by the obstetrics hospitals and suffering from the serious diseases.

The project will provide and replace the equipment necessary for treating the babies of lowbirth weight and the jaundice in order to improve the basic medical activities. The patients with the serious congenital diseases and the ones who need the treatment requiring very expensive cost and using special consumable supplies will be referred to the higher-level hospitals.

-1 Infant incubator

Currently, the hospital owns 5 sets of infant incubator, most of them are very old and have some troubles with them. 3 sets among 5 are out of order with

trouble of thermos-control device. There are 8% of the serious inpatients among 40 beds who will need the care with infant incubators. Therefore, 3 sets will be replaced.

-2 Ventilator for infant

The hospital have 2 sets of ventilator for adults. Both of them are very old and not suitable to use for newborn babies.

Therefore, the project will provide one set of ventilator for infant for treating the neonatal and infant patients through the breath control using the Infant Flow System and the PEEP method.

This ventilator will be shared with the Department of Reanimation for Infant.

-3 Neonatal monitor, Pulse oximeter

Treatment of the newborn babies is extremely difficult since they can not tell the painful conditions except through crying. The medical staffs are required to take care of them very carefully.

The project, especially for the neonatal patients with serious diseases, will provide one set of neonatal monitor and one set of pulse oximeter for monitoring their physical functions. The utilization of these equipment will make the initial step of intensive care available.

-4 Infant warmer

Infant warmers are used for keeping warmth, oxygen inhalation, treatment of slight wounds and jaundice for the newborn babies suffering from medium-level diseases. The hospital has two sets of warmer at present, but those two equipment seems to be broken in very soon. There are 8 to 12% of the inpatient who need care with this equipment are suffering from medium-level diseases, another 2 sets need to be supplemented.

-5 Phototherapy unit

The hospital has only one set of phototherapy unit, which is used for the jaundice treatment. About 10%; 200 neonatal patients need treatment by this equipment

annually. There about 50 patients are possible to treat by one equipment in a year, which means at least another three sets of phototherapy unit are required by the hospital.

#### -6 Bilirubinmeter

A bilirubinmeter, which is used for measuring serum bilirubin and diagnosing the jaundice conditions of neonates, of which present in this hospital is very old and is short of accuracy, will needs replacement.

Therefore, one set of Bilirubinmeter will be replaced, not in the Clinical Laboratory but in the Neonatology Department, because the only neonates need this examination.

### ③ Clinical Laboratory

The Clinical Laboratory of this hospital consists of the biochemical testing, blood testing, urine analysis, pathology/virus examination, and immunity testing. The Laboratory provides the services according to the requests of the doctors from each diagnosis department.

The following equipment will be considered for the improvement through the project.

#### -1 Microscope

Microscopes are very essential instruments, which are necessary for all kinds of testing/examinations. The existing microscopes are the monocular type using natural light reflection and very old for use. The Rack pinion gear is worn away, and it can not fix the focus of lens correctly.

The project will plan one microscope for each of the blood testing, the urine analysis, and the virus examination, for the advancement of manual testing.

#### -2 Spectrophotometer

A spectrophotometer is the most basic and general-purpose among the various types of analyzers. It will make a quantitative analysis with color comparison about the density of the target ingredients included in the samples of blood,



serum, urine, and other body fluids.

The existing equipment was made in Soviet Union and became very old to get correct result of testing.

Therefore, one set of spectrophotometer will be replaced for the purpose of supporting the biochemical testing and other testing, of emergency case and of educating the medical students.

#### -3 Biochemical analyzer

The hospital carries out the manual biochemical testing. Currently, about 27,000 samples are examined in a year. Improvement of the examination activities is needed because of the growth of the needs.

In order to make it possible to examine 200 samples per hour and 200 patients per day, one set of biochemical analyzer will be introduced by the project; the important seven items including GOT, GPT, Total protein, Total cholesterol, CK, C-protein, Glucose (in case of neonates; Total bilirubin, LDH, ALP will be added) will be examined for one patient.

The model of this equipment will be considered that the availability of reagents to purchase in Uzbekistan. As a result, the operation cost will be held so that the problem on expense will not come out.

#### -4 Blood gas analyzer, hematology analyzer, Coagrometer

These three types of analyzers are necessary for testing the physiology functions of the patients; however, the project will not include the provision of them because it is difficult to purchase the special reagent for them and because the project aims at improvement of the manual testing skills.

#### ④ X-ray Department

-1 X-ray diagnostic equipment with TV System and film developing equipment for darkroom

The hospital has the X-ray equipment made in the former Soviet Union, which is more than 10 years old and not suitable for effective use. Additionally,

they are not properly repaired due to the difficulty of purchasing the spare parts.

To hold the operation cost of X-ray films, X-ray equipment which is possible to fluoroscope by TV system will be planned to replace. And one set of film developing equipment for the darkroom will be also provided.

The model of X-ray equipment will be considered the availability of procurement of spare parts in Uzbekistan.

#### ⑤ Operation Department

Two operation rooms for neonatal and infant patients out of the four will be renovated in the Operation Department in order to improve the basic functions of the general pediatric surgery.

##### -1 Anesthesia apparatus with ventilator

Each of the 4 operation rooms is equipped with one anesthesia apparatus, but only one of which is available. This makes it difficult to make an operation using whole body anesthesia. Currently, general anesthesia through intravenous injections of an anesthetic is done in the hospital. Considering the method and the cost of anesthesia between intravenous injection and using anesthesia gas, it is better to use anesthesia gas for the safety of patients. The anesthesia gas is available to purchase from some agents like Dori-Darmon, Uzmedtechnica or private companies.

The project will provide two sets of anesthesia apparatus aiming at securing safer operation.

##### -2 Patient monitor

Most of the existing patient monitors do not work in the hospital at present, which makes it difficult to monitor the physical functions of the patients. Therefore, the project will replace two sets of monitors for two operation rooms and contribute to improvement of the safety of the operation.

-3 Heart lung machine

Heart lung machines require extremely high-level cardiac surgery technology, advanced facilities, and expensive consumable supplies and maintenance expenses.

Therefore, they are not included in the list of the equipment planned in the project due to the expected difficulties of the maintenance, and it is possible to refer the patients to Institute of Pediatric in Tashkent which is having this equipment.

⑥ CSSD

-1 High pressure steam sterilizer

The sterilization room of the hospital has one high pressure steam sterilizer and one vertical type sterilizer, both of which are too old and not suitable for effective use. In addition, they are made in the former Soviet Union and difficult to be fully repaired due to the difficulties of purchasing the spare parts. When this equipment stops to work, all of the functions of the hospital will be negatively influenced.

This equipment, which is not required the special consumables nor operation cost so that the problem on operation is not coming out, and is having very important function to keep up the medical services provided by the hospital. Therefore, it is very high priority to replace this equipment.

The project will prevent the accumulated functions caused by the problem of the sterilization room and support for establishing the supply system of safe and sanitary materials through replacing two sets of high pressure steam sterilizer with the current capacities.

-2 Hot air sterilizer

The hospital has two sets of hot air sterilizer, both of which are very old and difficult to repair due to the lack of spare parts of heater elements and thermometers, and highly required to be replaced.

The quantity and volume of Instruments which is to be sterilized by this

equipment is enough capacity by one set. Therefore, the project will replace one set of hot air sterilizer.

⑦ Laundry Department

-1 Washing machine and Extractor

The washing room of the hospital has 5 units of washing machine to handle 300 to 400kg of laundry materials per day. However, two of them are already out of dated, or very old and required to be replaced.

They only have one extractor and another one machine with the same capacities should be supplemented.

⑧ Vehicle

-1 Ambulance

Although the Ambulance is highly required by the hospital. However, Uzbekistan Government is planned to provide domestically manufactured ambulances to the public hospitals by their own budget. Therefore, this project is not planned to provide the ambulance.

2) SMCH

As the referral hospital of obstetric/delivery services in the Samarkand and surrounding regions, SMCH admits the patients referred by the lower-level hospitals as well as provides medical check-up, diagnosis, treatment, and delivery services for pregnant women, gynecology patients and the medical treatment of newborn babies.

In this hospital, it is requested to improve the equipment for the medical check-up for early diagnosis of diseases or pregnancy of women, safety delivery, diagnosis and treatment of neonates.

The problems that should be solved immediately in SMCH are as follows:

- a. improvement and strengthening of capability of check-up examination for women
- b. supporting for safety delivery

c. improvement of neonatal care

① Diagnostic Examination Department

This department provides gynecology examinations, periodic medical examination for pregnant women (especially during the perinatal period), as well as various kinds of physiological function test for seeing if being infected with any diseases diagnose the conditions of the diseases.

-1 Ultrasound Diagnostic Unit

This equipment is very useful for check-up of pregnancy, examination of embryo growing, and detection of gynecology diseases, etc.

The only one existing equipment has troubles with damaged monitor, logic board, probe, and can not make a proper examination, and early replacement is very much required. In such condition, 8,300 examination were done in 1996.

Therefore, one general-purpose equipment will be planned for the Outpatient and Diagnostic Examination Department, which will make it possible to cover widely for obstetric/gynecology diseases and to examine pathologic pregnancy. In addition, small-size mobile equipment planned for the Maternity Ward will contribute to early detection of abnormal deliveries.

As for the general-purpose equipment, it will be equipped with the Doppler device for testing the blood flow of the patients suffering from cardiac diseases including rheumatism and with 4 types of probes to cope with multi-purpose examinations.

The procurement of this equipment will be considered the third country product which has availability of maintenance in Uzbekistan and will request the services by the local agent.

-2 ECG

This hospital currently has only one ECG with single channel and does not make use of the ECG examination. In this condition, the number of examination is only 434 tests in 1996.

The ECG is the most essential for testing physiological functions of the human body.

Therefore, one set of ECG with 6 channels will be installed in order to support for improvement of the accuracy of the examination of in/outpatients with circulatory diseases.

#### -3 Instrument sterilizer and Steam sterilizer

One Instrument sterilizer (small and desk-top type) and one steam sterilizer (small and desk-top type) will be installed in order to disinfect the medical instruments and to keep the clean sanitary conditions in the diagnostic rooms.

#### -4 Diagnostic set

The diagnostic set includes the instruments used for the diagnosis such as ophthalmoscope, laryngoscope, etc. The project will plan one set for each of the Internal medicine division, the Surgery division, the obstetric/gynecology division and Emergency division of the Outpatient Department.

#### -5 Thermometer and Sphygmomanometer

Thermometers and Sphygmomanometers are shared among the hospital divisions. One thermometer will be provided for 10 beds and one Sphygmomanometer for 20 beds.

#### ② Obstetric/Delivery Department

The Obstetric/Delivery Department (80 beds) consists of 25 beds for delivery preparation (10 beds in the Physiology Section and 15 beds in the Pathology Section), 25 beds for communicable disease detection, and 30 beds for postnatal recovery. This hospital admits many patients referred by the lower-level obstetric and delivery hospitals.

The hospital provides medical services for approximately 2,000 inpatients for delivery, and about 70% of whom have some kind of illness such as slight anemia, etc. Therefore, enhancement of the treatment system is required.

This project recommends that the patients with serious conditions of the diseases that have no relationship with the obstetric would be referred to the upper-level hospitals.

Safe delivery will be supported by the project through improvement, replacement and provision of the basic delivery equipment which will make possible for diagnosis of patients who shall be referred to the upper-level hospitals or not shall be.

-1 Fetal monitor

During the period of pregnancy and delivery, the monitor will detect a region of suspended animation of unborn babies and a potential region of suspended animation, monitor the conditions of labor pains, and examine the change of labor pains in a miscarriage and a premature birth, according to the records of heartbeat and labor pain curb.

The monitor enables to make an early detection of abnormal deliveries and to decide to change to operation delivery.

-2 Delivery table

There are currently 50 beds for delivery preparation and 7 delivery rooms. In average, 4.5 deliveries are made per day, which is the relatively low rate of the utilization. This is because of the government ordinance which recommend 1 delivery for 2 days per delivery room of utilization, and the lack and out dated delivery equipment.

The project will rehabilitate 4 delivery rooms whose equipment and facilities are seriously old. These rooms are expected to be used twice to fourth per day and to contribute to securing safe delivery.

③ Neonatology Department

The Neonatology Department, having 28 beds in the Physiology Section and 28 beds in the Pathology Section, will provide temporal diagnosis, observation, and treatment for the newborn babies who are susceptible to some diseases when examined soon after the delivery. In addition, the newborn babies whose mothers have some illness will be observed in this Department for a couple of days.

After the certain period of observation, the babies who are in serious conditions, will be referred to SCH or the more upper-level of pediatric hospitals in Tashkent.

The project will provide and replace the equipment necessary for treating the babies of low birth weight (mainly born at 1,500g to 2,500g weight) and the jaundice in order to improve the basic medical activities. It will not consider about the special treatment.

-1 Infant incubator

There are 2,000 babies delivered in this hospital. According to the statistics by the Ministry of Health, Uzbekistan, 6.1% of new born babies are the low birth weight babies (less than 2,500g weight) in Uzbekistan. Therefore, about 120 babies are expected to need observation and care.

The hospital has 4 sets of infant incubator. However, 2 of these 4 equipment are outdated to use. Therefore, this project will plan to replace these 2 sets of infant incubators and enable to care for 120 babies in a year.

-2 Ventilator for infant

The hospital has 1 set of ventilator for adults. This equipment can not be used for newborn babies. Therefore, the projects will provide one set of ventilator for infant to make possible the treatment of neonatal patients through the breath control.

There will be no budgetary problem for the operation of this equipment, because this equipment will not require much of consumables.

-3 Neonatal monitor, Pulse oximeter

There are 66.1% of neonatal death appearing within first 6 days in Uzbekistan. This hospital needs the reform of fast and accurate diagnosis system for neonatal care.

These equipment shall be used for the observation and care of babies who fall into the serious or critical condition.



The project, especially for the neonatal patients with serious diseases, will provide one set of neonatal monitor and one set of pulse oximeter for monitoring their physical functions in order to improve the accuracy of the observation. The utilization of these equipment will make the initial step of intensive care available.

-4 Infant warmer

Infant warmer is used for keeping warmth, oxygen inhalation, treatment of slight wounds and jaundice of the newborn babies suffering from various diseases. The hospital has two sets of existing equipment, but both of them are full of rust and bad sanitary condition. To keep the sanitized care for neonates, this project will replace Two sets of Infant warmers.

-5 Phototherapy unit

The hospital has currently two sets of phototherapy units. The number of neonatal patients who need therapy are about 200 babies in a year which are 10% of newborn babies in this hospital.

According to the cases in Japanese standard for therapy period, another two sets of supplement will be needed.

④ Clinical Laboratory

The Clinical Laboratory of this hospital can not meet the current demands of the examination from pregnant women due to its limited activities, which need to be improved.

-1 Microscope

Microscopes are very essential instruments, which are necessary for all kinds of testing/examinations. The existing microscopes are the monocular type using natural light reflection and very old for use. The Rack pinion gear is worn away, and those can not fix the focus of lens correctly.

The project will provide one microscope for each of the blood testing, the urine analysis, and the virus examination for the advancement of manual testing.

## -2 Spectrophotometer

Spectrophotometer is the basic general-purpose analyzer and makes a quantitative analysis with color comparison about the density of the target ingredients included in the samples of blood, serum, urine, and other body fluids.

On this project, one set of Biochemical analyzer mentioned below will be planned to procure for this department, however, one set of spectrophotometer will be also provided for the purpose of supporting the biochemical analyzer in the night or emergency cases, and even it will be utilized as a common use for educating the medical students.

## -3 Biochemical analyzer

The hospital carries out the manual biochemical examination. Currently, about 60,000 samples are examined per year. These examinations are mainly of inpatients and it cannot cover for medical check-up of women by testing manually. Therefore, improvement of the examination activities is needed because of the growth of the needs.

In order to make it possible to examine 200 samples per hour and 200 patients per day, 60,000 women/pregnant for medical check-up, the demands in a year, one set of biochemical analyzer will be introduced by the project; the major examination items including GOT, GPT, Total protein, Total cholesterol, CK, C-protein, Glucose will be examined for one patient.

To select the equipment that can use the general reagents, the Operation cost will not become so high compared with manual testing.

## -4 Blood gas analyzer, Hematology analyzer, Coagrometer

These three kinds of analyzers are necessary for examining the physiology functions of the patients; however, the project will not include the provision of them because it is difficult to purchase the special reagent for them and because the project aims at improvement of the manual testing skills.

⑤ X-ray Department

-1 X-ray equipment with TV monitor

The hospital has the X-ray equipment made in the former Soviet Union, which is more than 10 years old and not suitable for effective use with breaking of cables and many of the broken parts. Additionally, they are not properly maintained due to the difficulties to get supporting from manufacturer or service agent.

To hold the operation cost of X-ray films, X-ray equipment which is possible to fluoroscope by TV system will be planned to replace. And one set of film developing equipment for the darkroom will be also provided.

As a result of improvement of these equipment, it can be possible the stable diagnosis. To procure the equipment whose service agent being in Uzbekistan, it will also enable to get maintenance back-up for the equipment with after sales services.

⑥ Operation Department

Two operation rooms will be improved for this hospital; one for planned operation and the other for emergency operation. The basic functions will be improved in order to secure the safe operation centering on Cesarean sections.

-1 Anesthesia apparatus with ventilator

The existing anesthesia apparatus can not be used because it is obsolete. Currently, general anesthesia through intravenous injections of an anesthetic is conducted.

The project will provide two sets of anesthesia apparatus with ventilator aiming at securing safer operation with utilizing the method to use of anesthesia gas.

-2 Patient monitor

In this hospital, most of existing patient monitors are out of order at present, which makes it difficult to monitor the physical function of the patients under

operation.

Therefore, the project will supplement two sets of monitor for each operation rooms and contribute to securing safe operation with the combination use of anesthesia apparatus.

⑦ CSSD

-1 High pressure steam sterilizer

The sterilization room of the hospital has one high pressure steam sterilizer and one vertical type sterilizer, both of which are too old and not suitable for effective use. In addition, they are made in the former Soviet Union and difficult to be fully repaired due to the difficulties of purchasing the spare parts. When this equipment stops to work, all of the functions of the hospital will be negatively influenced. Therefore, it shall be improved immediately to replace this equipment.

The project will prevent the accumulated functions caused by the problem of the sterilization room and support for establishing the supply system of safe and sanitary materials through replacing one set of high pressure steam sterilizer which is unusable condition in present.

Considering the operation and maintenance cost of this equipment, it will not increase by replacing the equipment with current capacity.

⑧ Laundry Department

-1 Washing machine and extractor

The washing room of this hospital has 2 sets of washing machine, both of which are very old and need to be replaced. In order to handle 150 - 200kg of laundry per day, it is desirable to replace one of the two machines.

In addition, the existing extractor does not function at present and one with the same capacities should be supplied.

⑨ Vehicle (Ambulance)

Although the vehicles are highly required by the hospital, however, the Uzbekistan Government is going to consider, for their future plan, utilization the Emergency Ambulance Service System (AVIA) and purchasing vehicles domestically manufactured by their own budget.

3) NGH

NGH, as a general hospital in the Navoi Region, is providing medical services for the people who living inside Navoi City and whole Navoi Region.

On this project, improvement will be targeted to the equipment for the obstetric department and related department, therefore, the equipment for the department for general and adult section will not be included in the project.

The obstetric/gynecology department is locating at separate building from main general hospital facility and is providing medical check-up, diagnosis, treatment, and delivery services for pregnant women, medical care for gynecology patients and the medical treatment of newborn babies.

In this hospital, it is necessary to improve the lacking equipment for the medical check-up for early diagnosis of diseases or pregnancy of women, safety delivery, diagnosis and treatment of neonates.

The problems that should be solved immediately in NGH are as follows:

- a. improvement and strengthening of function and capability of medical check-up examination for pregnant women
- b. supporting for safety delivery
- c. improvement of neonatal care

⑩ Diagnostic Examination Department

The Diagnostic Examination Department provides the pregnant women, especially during the perinatal period in the Navoi Region with gynecology examinations, periodic medical examination, diagnosis for the out- and inpatients, as well as various kinds of tests for seeing if being infected with any diseases and for diagnosing the conditions of the diseases.

-1 Ultrasound Diagnostic Unit

The only one existing equipment is relatively old with unclear monitor or outdated parts and it is difficult to examine patients correctly by unstable condition.

It is highly required to replace this equipment because the ultrasound examination is the indispensable examination for checking of the embryo growing and the condition of pregnant.

This project is planned that the hospital to have the capabilities of performing proper examinations for 12,000 patients per year through installing one set of general-purpose equipment for the Outpatient and Diagnostic Examination Department. In addition, one portable- mobile equipment provided for the Maternity Ward will contribute to easy examination at word.

As for the general-purpose equipment, it will be equipped with the Doppler device for examining the blood flow of the patients suffering from cardiac diseases, one of the major disease in the region, and with 4 types of probes to cope with multi-purpose examinations.

Considering the operation cost of this equipment, this hospital has been used the one in present, therefore, no additional cost will be appeared.

-2 ECG

There are more than 9,000 cases of demands for ECG examination in a year. However, the existing equipment is outdated type with low functions, the hospital can currently conduct 6,000 cases in maximum and the data is not stable.

Therefore, one set of ECG with 6 channels will be supplemented in order to support for improvement of their performance to cover the patients' demands.

-3 Instrument sterilizer, Steam sterilizer

One Instrument sterilizer (small and desk-top type) and one steam sterilizer (small and desk-top type) will be installed in order to disinfect the medical instruments and to keep the clean sanitary conditions in the diagnosis rooms.

-4 Diagnostic set

The diagnostic set includes the instruments used for the diagnosis such as ophthalmoscope, laryngoscope, etc. The project will provide one set for each of the Internal medicine division, the Surgery division, the Obstetric division and the Emergency division of the Outpatient department.

-5 Thermometer and Sphygmomanometer

Thermometers and Sphygmomanometers are shared among the hospital divisions. One thermometer will be provided for 10 beds and one Sphygmomanometer for 20 beds.

② Obstetric/Delivery Department

The Obstetric/Delivery Department has 110 beds including 60 beds for delivery preparation (30 beds in the Physiology Section and 30 beds in the Pathology Section) and 50 beds for postnatal recovery. There are about 2,000 cases of delivery in a year.

This project recommends that the patients with serious conditions of the diseases that have no relationship with the obstetric would be referred to the upper-level hospitals. Safe delivery will be supported by the project through replacement and provision of the basic equipment for delivery.

-1 Fetal monitor

During the period of pregnancy and delivery, the monitor will detect a region of suspended animation of unborn babies and a potential region of suspended animation, monitor the conditions of labor pains, and examine the change of labor pains in a miscarriage and a premature birth, according to the records of heartbeat and labor pain curb.

In order to make an early detection of abnormal deliveries and a proper decision of operational delivery, installation of one monitor will be planned.

-2 Delivery table

Hospital record shows that about 2,000 cases of delivery were conducted in

1996. Considering the status and situation of this hospital as a top referral obstetric/delivery facility in Navoi region, the referred patients from lower-level maternity hospital of district or village health center are increasing every year.

Therefore, this project will rehabilitate 5 delivery rooms whose equipment and facilities are old and insufficient, and then the utilization rate will be twice per day per room. The project will be planned in order to contribute to securing safe delivery of 2,500 cases demands in near future.

### ③ Neonatology Department

The Neonatology Department, having 30 beds, will provide temporal diagnosis, observation, and treatment for the newborn babies who are susceptible to some diseases.

In addition, the newborn babies whose mothers have some illness will be observed in this Department for a couple of days. The babies, who are in serious conditions, will be referred to NCH or the more upper-level pediatric hospitals.

The project will provide and replace the equipment necessary for treating the low birth weight babies (mainly born at 1,500g to 2,500g birth weight) and the jaundice in order to improve the basic medical activities. It will not consider about the special treatment.

#### -1 Infant incubator

The hospital has 2 sets of infant incubator, and one of which does not function at present. In this reason, 2 or more babies have to share the equipment with possibility to spread infection of diseases from one to others. From the point of view, this kind of condition is unsuitable and shall be avoided.

The project, it is supposed that assuming 8 to 12% of the neonatal inpatients against 30 beds, i.e., 3 patients per day will need the care utilizing with infant incubators. Therefore, 2 sets of infant incubator shall be installed.

#### -2 Ventilator for infant

The hospital has one set of ventilator for adults, which can not use for newborn



babies.

The project will provide one set of ventilator for infant to make possible the treatment of neonatal patients through the breath control.

-3 Neonatal monitor, Pulse oximeter

Treatment of the newborn babies is extremely difficult since they can not tell the painful conditions except through crying. The medical staffs are required to take care of them very carefully.

The some of existing equipment are located in the department, but those are already outdated and the replacement is highly required.

The project, especially for the neonatal patients with serious diseases, will provide one set of neonatal monitor for monitoring their physical functions, and one set of pulse oximeter for monitoring their percutaneous oxygen partial pressure when the care for hypoxia.

-4 Infant warmer

Infant warmer is used for keeping warmth, oxygen inhalation, treatment of slight wounds and jaundice of the newborn babies suffering from various diseases. The hospital has two sets of existing equipment, but both of them are full of rust and bad sanitary condition.

In this hospital, there are about 100 cases of operation delivery including the cesarean section among 2,000 cases of delivery in a year. To cover the treatment for above 100 babies, it will take at least 1 week of observation. Therefore, two sets of infant warmer are desirable to be replaced.

-5 Phototherapy unit

There are 20% to 30% of inpatients are jaundice in this hospital.

The hospital has two sets of phototherapy unit at present for average of 4 patients per day. In order to cover the shortage, the natural light is utilized. However, they are suffering from the shortage of the equipment because jaundice is one of the major diseases of newborn babies. It is relevant to supply two

sets in this project for 2 patients per day of average number.

#### ④ Clinical Laboratory

NGH is the general hospital, therefore, the functions of the Clinical Laboratory are shared with the other Department. However, the Laboratory plays an important role for strengthening the diagnostic functions in this project. The project will develop an equipment provision plan aiming at activation of the Laboratory activities considering periodic medical examination of pregnant women.

##### -1 Microscope

Microscopes are very essential instruments, which are necessary for all kinds of testing/examinations. The existing microscopes are the monocular type using natural light reflection and very old for use. The Rack pinion gear is worn away, and those can not fix the focus of lens correctly.

The project will provide one microscope for each of the blood testing, the urine analysis, and the virus examination for the advancement of manual testing.

##### -2 Spectrophotometer

Spectrophotometer is the basic general-purpose analyzer and makes a quantitative analysis with color comparison about the density of the target ingredients included in the samples of blood, serum, urine, and other body fluids.

The existing equipment is made in former Soviet Union and become very old with unstable accuracy.

On this project, one set of Biochemical analyzer mentioned below will be planned to procure for this department, however, one set of spectrophotometer will be also provided for the purpose of supporting the biochemical analyzer in the night or emergency cases, and even it will be utilized as a common use for educating the medical students.

### -3 Biochemical analyzer

The hospital carries out the manual biochemical examination. Currently, about 22,000 samples are examined per year. Improvement of the examination activities is needed because of the growth of the needs of pregnant.

In order to make it possible to examine 200 samples per hour and 200 patients per day, for more than 40,000 patients in total per year, one set of biochemical analyzer will be introduced by the project; the major examination items including GOT, GPT, Total protein, Total cholesterol, CK, C-protein, Glucose will be examined for one patient.

To select the equipment that can use the general reagents, the operation cost will not become so high compared with manual testing.

### -4 Blood gas analyzer, Hematology analyzer, Coagrometer

These three types of analyzers are necessary for examining the physiology functions of the patients; however, the project will not include the provision of them because it is difficult to purchase the special reagent for them and because the project aims at improvement of the manual testing skills.

### ⑤ X-ray Department

#### -1 X-ray diagnostic equipment with TV system and film developing equipment for darkroom

The hospital has the X-ray equipment made in the former Soviet Union, which is more than 10 years old and not suitable for effective use. Additionally, they are not properly repaired due to the difficulty of purchasing the spare parts.

To hold the operation cost for diagnosis, X-ray equipment which is possible to fluoroscope by TV system will be planned to replace. And one set of film developing equipment for the darkroom will be also provided.

As a result of improvement of these equipment, it can be possible the stable diagnosis. To procure the equipment whose service agent being in Uzbekistan, it will also enable to get maintenance back-up for the equipment with after

sales services.

In addition, this is the basic diagnosis equipment and utilize everyday. Therefore, it can be considered that the replacement is highly necessary.

⑥ Operation Department

Two operation rooms will be improved for this hospital; one for Planned operation and the other for emergency operation for obstetric patients. The basic functions will be improved in order to secure the safe operation centering on Cesarean sections.

-1 Anesthesia apparatus with ventilator

The existing anesthesia apparatus can not be used because it is obsolete. Currently, general anesthesia through intravenous injections of an anesthetic is conducted.

The project will plan two sets of anesthesia apparatus with ventilator for each of the operation rooms for securing safer operation.

-2 Patient monitor

In this hospital, most of existing patient monitors are out of order at present, which makes it difficult to monitor the physical function of the patients under operation.

Therefore, the project will supplement two sets of monitor for each operation rooms and contribute to securing safe operation with the combination use of anesthesia apparatus.

⑦ Reanimation Department (for mother)

The project will provide 2 beds for the intensive care and 2 beds for reanimation/recover for the mothers after operation.

-1 Patient monitor

The most of existing patient monitors are out of order at present, which makes

it difficult to monitor the physical function of the patients under intensive care and recovering after operation.

The project will plan two sets of monitors and support for effective intensive care and recovery.

-2 Ventilator for adult

Ventilator is necessary for managing the breathing of patients. The existing two equipment are very old and both can not be used.

The project will provide two sets of ventilator for adult. Utilized with the patient monitors mentioned above, the proper intensive care will be realized.

#### ⑧ Laundry Department

The hospital places a contract with the private companies for the operation of the Laundry Department. Therefore, the improvement of the department will not be included in the project.

#### 4) NCH

This hospital was established in November, 1996, as the pediatric specialized hospital through the independence of the pediatric department of NGH. The study was carried out soon after the opening of the hospital and the hospital does not have enough data about their activities. Therefore, for designing of the project size, the data during the six months from January to June, 1997 was collected and analyzed.

#### ① Diagnostic Examination Department

The Diagnostic Examination Department is planned to be provided with the equipment for conducting physiological function tests of infant outpatients and inpatients in order to examine whether being taken ill or not and to diagnose the progress of diseases.

-1 Ultrasound Diagnosis Equipment

In the Navoi Region, about 2,670 patients per year, 15 patients per day are

expected to need the ultrasound examination based on the morbidity rate.

The existing equipment was lent by the private company and the hospital has not the ownership. If in case, the company request to the hospital to return the equipment, the function of examination will be fail.

Therefore, when one general-purpose equipment is planned for the outpatient and Diagnostic Examination Department and one small-size mobile one for the Ward, these will contribute to qualitative and quantitative of the examinations for the present demands of 15 patients per day.

The general-purpose equipment will be furnished with the Doppler device for testing the blood flow of the patients suffering from cardiac and thyroid diseases and the 4 types of probes for coping with multi-purpose examinations.

Considering the operation cost of this equipment, this hospital has been used the one in present, therefore, no additional cost will be appeared.

#### -2 ECG, EEG

The only existing ECG in the hospital is the secondhand and more than six years old, which will be replaced by the Project. Through providing one ECG measure with 6 channels, it will become possible to meet the needs of the patients who need the examination, diagnosis and management of disease conditions caused by various physiological functions and the ECG examination.

Although this hospital does not conduct the EEG examination, however, considering the importance of the hospital, it should have one set of EEG. The morbidity rate of epilepsy of children is 2 to 3%, so that about 380 patients are assumed per year.

This will make it possible to examine and diagnose the diseases of infants.

#### -3 Fiberscope and accessories

The hospital started gastro-fiberscope examinations in early 1997, therefore, the number of examination performance has been still limited. There 90 cases of examination are recorded.

Additionally, the only instrument it has is for adult; it can not provide this examination for children. Therefore, through providing gastro-fiberscopes, the medical services for infant patients will be improved.

In this hospital, there is no existing Broncho-fiberscope for children. So, the patients have to be referred to the upper-level hospital.

To introduce one Broncho-fiberscope will enable to treat for the extraction of an alien substance which will sometime happen to babies, and it will be instructive for the diagnosis and treatment of the respiratory diseases.

The operation cost of this equipment will not nearly increase.

#### -4 Instrument sterilizer and Steam sterilizer

One Instrument sterilizer (small and desk-top type) and one Steam sterilizer (small and desk-top type) will be installed in order to disinfect the medical instruments and to keep the clean sanitary conditions in the diagnosis rooms.

#### -5 Diagnostic set

The diagnostic set includes the instruments used for the diagnosis such as ophthalmoscope, laryngoscope, etc. The project will provide one set for each of the Internal Medicine Division, the Surgery Division, the Otolaryngology Division and the Emergency Division of the Outpatient department.

#### -6 Thermometer and Sphygmomanometer

Thermometers and Sphygmomanometers are shared among the hospital divisions. One thermometer will be provided for 10 beds and one Sphygmomanometer for 20 beds.

#### ② Neonatology Department

The Neonatology Department, having 30 beds, observes and treats the newborn babies suffering from diseases and the babies whose weights do not reach the standard. Most of the newborn babies are the ones referred by NGH.

The project plans that the necessary equipment for the treatment of low birth

weight babies (mainly born at 1,500g to 2,500g birth weight) and jaundice are going to be renovated in order to strengthen the basic medical activities.

The patients with the serious congenital diseases and the ones who need the treatment requiring very expensive medical fee and using special consumable supplies will be referred to the higher-level hospitals.

-1 Infant incubator

Currently, the hospital has 1 set of infant incubator lent by private company. Assuming 10% of the inpatients against 30 beds, 3 patients per day will need the care with infant incubators. Therefore, at least 3 sets of equipment are required in this department. 1 set of above-mentioned equipment might be utilized in future, the project will plan to setup other 2 sets of Infant incubators.

-2 Ventilator for infant

The hospital have one set of ventilator for infant, which has not been operated due to the lack of the component since its introduction. Therefore, the project will provide one set of ventilator for infant. The equipment will be shared with the Infant Reanimation Department.

-3 Neonatal monitor, Pulse oximeter

In case of the nursing care or the treatment for low birth weight baby and neonates with serious disease, the monitoring of physical functions of cardiac rate, respiration, body temperature, etc. is very important. However, since this hospital has no existing Neonatal monitor, there are lot of difficulty for doctors and nurses.

Therefore, the improvement of monitoring system shall be required immediately by introduction of above kinds of equipment.

The project, especially for the neonatal patients with serious diseases, will provide one set of neonatal monitor for monitoring their physical functions, and one set of pulse oximeter for monitoring their percutaneous oxygen partial pressure when the care for hypoxia. Utilization of these two types of equipment will make the initial step of intensive care available.



-4 Infant warmer

Infant warmer is used for keeping warmth, oxygen inhalation, treatment of slight wounds and jaundice for the newborn babies suffering from medium-level diseases of traumatic, respiratory diseases, observation, etc.

According to the hospital record, there are 400 patients per year in this department and 65% among them are prospected to be needed this kind of treatment. The number of patients with serious case of traumatic might be 70 to 80 patients per year. Each patients needs at least 10 days for recovery in average.

Although the hospital does not have any of them, therefore, 2 sets will be provided through the project.

-5 Phototherapy unit

As jaundice is one of the major diseases of newborn babies, the demand for the unit is very high. There are 2 to 3 patients per day but the hospital has only set of phototherapy unit.

The Project will install two sets of phototherapy unit to cover the patients necessary to care.

③ Clinical Laboratory

The Clinical Laboratory of this hospital has not been well developed. Urgent improvement of the activities is very much required. The project makes a plan of equipment improvement considering the important role and functions of the hospital.

-1 Microscope

Microscopes are very essential instruments, which are necessary for all kinds of testing/examinations. The existing microscopes are the monocular type using natural light reflection and very old for use. The Rack pinion gear is worn away, and those can not fix the focus of lens correctly.

The project will provide one microscope for each of the blood testing, the

urine analysis, and the virus examination for the advancement of manual testing.

#### -2 Spectrophotometer

Spectrophotometer is the basic general-purpose analyzer and makes a quantitative analysis with color comparison about the density of the target ingredients included in the samples of blood, serum, urine, and other body fluids.

The existing equipment is made in former Soviet Union and become very old with unstable accuracy.

On this project, one set of Biochemical analyzer mentioned below will be planned to procure for this department, however, one set of spectrophotometer will be also provided for the purpose of supporting the biochemical analyzer in the night or emergency cases, and even it will be utilized as a common use for educating the medical students.

#### -3 Biochemical analyzer

The hospital carries out the manual biochemical examination. Currently, about 27,000 samples are examined per year. Improvement of the examination activities is needed because of the growth of the needs of neonatal/infant medical check-up examination.

In order to make it possible to examine 200 samples per hour and 200 patients per day, one set of biochemical analyzer will be introduced by the project; the major examination items including GOT, GPT, Total protein, Total cholesterol, CK, C-protein, Glucose, Total bilirubin, LDH, ALP will be examined.

To select the equipment that can use the general reagents, the operation cost will not become so high compared with manual testing.

#### -4 Blood gas analyzer, hematology analyzer, Coagrometer

These three types of analyzers are necessary for examining the physiology functions of the patients; however, the project will not include the provision of them because it is difficult to purchase the special reagent for them and

because the project aims at improvement of the manual testing skills.

④ X-ray Department

-1 X-ray diagnostic equipment with TV system

The hospital submitted the proposal requesting for the X-ray equipment. However, they purchased one this year of 1997. Therefore, the project will not include the provision of X-ray equipment for this hospital.

⑤ Operation Department

-1 Anesthesia apparatus with ventilator

There are 3 to 5 operations per day with utilizing the Anesthesia apparatus. However, the existing equipment is rented which is only one in the hospital at present. The equipment should be returned to the private company soon. The new one need to be purchased.

The project will provide one set of anesthesia apparatus aiming at keeping the present number of operation and securing safer operation.

-2 Patient monitor

In this hospital, most of existing patient monitors are out of order at present, which makes it difficult to monitor the physical function of the patients under operation.

Therefore, the project will plan to supplement two sets of monitor for each operation rooms and contribute to securing safe operation with the combination use of anesthesia apparatus.

-3 Laparoscope

The hospital submitted the proposal requesting for the laparoscope, which is seldom used for newborn babies and infants under one year old. The Project will not include the provision of laparoscope.

⑥ Laundry Department

The hospital has a contract with the private companies for Laundry.

Currently, they are planning and preparing to establish its own Laundry Department. The Project realizes the necessity of laundry equipment, but the concrete facility plan has not been developed yet. Therefore, the Laundry Department will not be targeted by the Project.

5) NKH

This hospital has provided the medical services targeting the population living in the Khatyrchi District, as the central hospital of the Khatyrchi Lion(district).

The Project will focus on the Obstetric, Neonatology Departments and the related Department; the project will not cover the medical services for adult patients.

① Diagnostic Examination Department

The Diagnostic Examination Department provides the pregnant women, especially during the perinatal period in the Navoi Region with obstetric/gynecology examinations, periodic medical check-up examination, diagnosis for the outpatients and inpatients, as well as various kinds of tests for seeing if being infected with any diseases and for diagnosing the conditions of the diseases.

-1 Ultrasound Diagnostic Unit

There are 8 to 10 examination per day in this hospital. The examination is mainly to check the embryo growing and the condition of pregnant.

The only one existing equipment is relatively old with damaged monitor or outdated parts and it is difficult to examine patients correctly by unstable condition.

This project is planned that the hospital to have the capabilities of performing proper examinations for 3,000 patients per year through installing one set of general-purpose equipment for the Outpatient and Diagnostic Examination

Department. In addition, one portable- mobile equipment provided for the Maternity and Neonatal Ward will contribute to easy examination at ward.

As for the general-purpose equipment, it will be equipped with the Doppler device for examining the blood flow of the patients suffering from cardiac diseases, one of the major disease in the region, and with 4 types of probes to cope with multi-purpose examinations.

Considering the operation cost of this equipment, this hospital has been used the one in present, therefore, no additional cost will be appeared.

To procure the equipment whose service agent being in Uzbekistan, it will also enable to get maintenance back-up for the equipment with after sales services.

#### -2 ECG

The hospital currently conducts more than 2,200 cases of the ECG examinations per year. ECG testing is the essential for examining the circulatory functions. In addition, the need for ECG testing is very high. To introduce ECG measures is highly needed because they will become profitable when restarting the charged medical service system.

In this hospital, only a set of ECG of single channel is installed.

One set of ECG with 6 channels will be planned in order to increase the capabilities of meeting the demands from the patients up to 3,000 examination.

#### -3 Instrument sterilizer and Steam sterilizer

One Instrument sterilizer (small and desk-top type) and one Steam sterilizer (small and desk-top type) will be installed in order to disinfect the medical instruments and to keep the clean sanitary conditions in the diagnosis rooms.

#### -4 Diagnostic set

The diagnostic set includes the instruments used for the diagnosis such as ophthalmoscope, laryngoscope, etc. The project will provide one set for each of the Internal Medicine Division, the Surgery Division, the Obstetric/Gynecology Division and the Emergency Division of the Outpatient

department.

-5 Thermometer and Sphygmomanometer

Thermometers and Sphygmomanometers are shared among the hospital divisions. One thermometer will be provided for 10 beds and one Sphygmomanometer for 20 beds.

② Obstetric/Delivery Department

The Obstetric/Delivery Department has 105 beds including 25 beds for obstetric examination, 55 beds for delivery preparation (25 beds in the Physiology section and 30 beds in the Pathology section) and 30 beds for Postnatal/Recover section. The hospital admits about 1,300 inpatients (the number of deliveries) per year.

This project recommends that the patients with serious conditions of the diseases that have no relationship with the obstetric would be referred to the upper-level hospitals. Safe delivery will be supported by the project through replacement and provision of the basic equipment for delivery.

-1 Fetal monitor

During the period of pregnancy and delivery, the monitor will detect a region of suspended animation of unborn babies and a potential region of suspended animation, monitor the conditions of labor pains, and examine the change of labor pains in a miscarriage and a premature birth, according to the records of heartbeat and labor pain curb.

In order to make an early detection of abnormal deliveries and a proper decision of operation delivery, installation of one monitor will be planned.

-2 Delivery table

There are currently 4 delivery rooms, In average, 3 to 4 delivery are made per day.

The existing delivery table is outdated and it is impossible to adjust the height or angle of table necessary for nursing.

The project will rehabilitate the 4 delivery rooms whose equipment and facilities are old and insufficient. The project will be planned in order to contribute to securing safe delivery.

③ Neonatology Department

The Neonatology Department, having 30 beds, will provide temporal diagnosis, observation, and treatment for the newborn babies who are susceptible to some diseases. In addition, the newborn babies whose mothers have some illness will be observed in this Department for a couple of days. The babies, who are in serious conditions, will be referred to the upper-level pediatric medical facilities including NCH, SCH etc.

The project will provide and replace the equipment necessary for treating the babies of low birth weight (mainly more than 1,500g) and the jaundice in order to improve the basic medical activities. It will not consider about the special treatment.

-1 Infant incubator

The hospital has 2 sets of infant incubator, both of which does not function at present.

The project, assuming 10% of the neonatal inpatients against 30 beds will need the infant incubators, therefore, 3 sets will be supplied.

-2 Ventilator for infant

The hospital has one set of ventilator for adults, which can not be used due to the obsolete equipment.

The projects will provide one set of ventilator for infant and make a plan for securing the safety. It enable to care of hypoxia, apnea, etc. of neonates.

-3 Neonatal monitor, Pulse oximeter

In case of the nursing care or the treatment for low birth weight baby and neonates with serious disease, the monitoring of physical functions of cardiac rate, respiration, body temperature, etc. is very important. However, since

this hospital has no existing Neonatal monitor, there are lot of difficulty for doctors and nurses.

Therefore, the improvement of monitoring system shall be required immediately by introduction of above kinds of equipment.

The project, especially for the neonatal patients with serious diseases, will provide one set of neonatal monitor for monitoring their physical functions, and two sets of pulse oximeter for monitoring their percutaneous oxygen partial pressure when the care for hypoxia. Utilization of these two types of equipment will make the initial step of intensive care available.

#### -4 Infant warmer

Infant warmer is used for keeping warmth, oxygen inhalation, treatment of slight wounds and jaundice for the newborn babies suffering from medium-level diseases of traumatic, respiratory diseases, observation, etc. The hospital has few sets of warmer at present, but those equipment seems to be broken in very soon. There are 8 to 12% of the inpatient who need care with this equipment are suffering from medium-level diseases, another 2 sets need to be supplemented.

#### -5 Phototherapy unit

The number of neonates who need therapy are 600 babies per year, about 3 patients per day. However, the hospital has only one set of phototherapy unit at present, which cause some problems in jaundice treatment of newborn babies.

In order to cover the above number of patients, two units will be supplied by the project.

#### ④ Clinical Laboratory

Although this hospital is the Central Hospital of the district, it mainly has the functions of the Obstetric/Delivery Hospital. The equipment improvement should be carried out focusing on the obstetric check-up examinations in the Clinical Laboratory.



#### -1 Microscope

Microscopes are very essential instruments, which are necessary for all kinds of testing/examinations. The existing microscopes are the monocular type using natural light reflection and very old for use. The Rack pinion gear is worn away, and it can not fix the focus of lens correctly.

The project will plan one microscope for each of the blood testing, the urine analysis, and the virus examination, for the advancement of manual testing.

#### -2 Spectrophotometer

Spectrophotometer is the basic general-purpose analyzer and makes a quantitative analysis with color comparison about the density of the target ingredients included in the samples of blood, serum, urine, and other body fluids.

The existing equipment is made in former Soviet Union and become very old with unstable accuracy.

Therefore, one set of spectrophotometer will be replaced for the purpose to improve the manual biochemical testing.

#### -3 Biochemical analyzer

In this hospital, the number of biochemical testing is not so many and it is possible by spectrophotometer mentioned above or manual testing. Therefore, the project will not include the provision of this equipment.

#### -4 Hematology analyzer

This analyzer is necessary for examining the physiology functions of the patients; however, the project will not include the provision of them because it is difficult to purchase the special reagent for them and because the project aims at improvement of the manual testing skills.

#### ⑤ X-ray Department

-1 X-ray diagnostic equipment with TV system and film developing equipment

for darkroom

The hospital has the X-ray equipment made in the former Soviet Union, which is more than 10 years old and not suitable for effective use. Additionally, they are not properly repaired due to the difficulty of purchasing the spare parts.

To hold the operation cost for diagnosis, X-ray equipment which is possible to fluoroscope by TV system will be planned to replace. And one set of film developing equipment for the darkroom will be also provided.

As a result of improvement of these equipment, it can be possible the stable diagnosis. To procure the equipment whose service agent being in Uzbekistan, it will also enable to get maintenance back-up for the equipment with after sales services.

In addition, this is the basic diagnosis equipment and utilize everyday. Therefore, it can be considered that the replacement is highly needed.

#### ⑥ Operation Department

The number of operation related to the obstetric patients conducted in this hospital are 4 to 6 cases per day with 2 operation rooms; one for planned and the other for emergency operation. However, all the equipment located in the operation room are already outdated and it is difficult to take response to the rapid action for operation.

Two operation rooms will be renovated by this project, the basic functions will be improved in order to secure the safe operation centering on Cesarean sections.

#### -1 Anesthesia apparatus with ventilator

The existing anesthesia apparatus can not be used because it is obsolete. Currently, general anesthesia through intravenous injections of an anesthetic is conducted unavoidably.

The project will provide two sets of anesthesia apparatus aiming at securing safer operation with utilizing the method of anesthesia gas. The anesthesia

gas is available to purchase from some agents like Dori-Darmon, Uzmedtechnica agency or private companies.

-2 Patient monitor

In this hospital, most of existing patient monitors are out of order at present, which makes it difficult to monitor the physical function of the patients under operation.

Therefore, the project will supplement two sets of monitor for each operation rooms and contribute to securing safe operation.

#### ⑦ Laundry Department

-1 Washing machine and Extractor

The washing room of the hospital has 3 sets of washing machine, all of which are very old and need to be replaced. In order to handle 200 - 300kg of laundry per day, it is desirable to replace the two machines of 30kg capacity.

Neither of the existing two extractors function at present, therefore, they should be replaced with the new two machines with the same capacities.

#### (4) Implementation period of the project

The project will be implemented in 1998 because 1) most equipment to be procured will be renewed from the existing equipment, 2) only five medical facilities in two provinces will be targeted and 3) since these hospitals are currently being operated, they are ready to arrange all the equipment to be procured.

#### (5) Necessity of technological cooperation

Procured equipment can be easily handled by medical workers since most of them are renewed from the existing equipment or supplemented. As for equipment requiring higher level operating methods such as electric knives, anesthesia machines and X-ray machines, an instruction seminar will be held for Uzbekistan medical engineers at the time of procurement and after the project starts. Therefore, it does not need technological cooperation for the project. For the instruction seminar, Uzbek engineers who have a thorough knowledge of using the equipment procured in 1995

and 1996 will be asked to teach how to use and maintain the equipment.

## 2-3 Basic Design

### 2-3-1 Design Concept

#### (1) Policy to natural conditions

Since it is a continental and semi-arid climate in that area, dustproof and anti-humidity equipment should be selected.

#### (2) Policy to social conditions

Although the designated hospitals have been gradually innovated, actual operations are done in line with the standards of the Soviet Union Age. For implementation of the project, modernization and rationalization of the medical services will be proposed in accordance with the medical reforms promoted by the country.

#### (3) Policy of utilization of procuring agent(s) and procured equipment in Uzbekistan

Equipment whose consumption articles can be procured on site should be selected.

#### (4) Maintenance capability

It is difficult to repair high-tech medical equipment at hospitals in Uzbekistan, therefore, equipment whose maintenance system is established by manufacturers' agencies should be selected. The agencies must be in Uzbekistan or accessible to Moscow.

#### (5) Policy of range and grades of procured equipment

1. To arrange equipment for examination and treatment which will be used for pregnant women and infants under one year old.
2. To arrange equipment which can be operated by the staff at the current technical level but not needing special medical engineers for practice.
3. Procured equipment should not exceed the level of the equipment implemented under the 1994 Pediatrics Medical Equipment Arrangement Plan and the 1995 Mothers and Children's Health Medical Equipment Arrangement Plan in Eastern Areas.

(6) Construction period

Construction period should be within 11.7 months for the Phase I.

2-3-2 Basic Design

(1) Overall Plan

1) Estimation of the number of beneficiaries and the demand of patients

The following table shows the expected number of beneficiaries of the Project:

Table 2-1 Estimated Number of Beneficiaries

	Total Population	Number of Women (18 - 45 years old)	Number of Children		
			Neonats	Infant (under 1)	Pediatric (1 - 14)
Samarkand Region	2,543,600	1,036,403	76,725	68,751	1,042,876
Navoi Region	760,000	309,666	19,394	20,542	275,489
Beneficiaries	3,303,600	1,346,069	96,119	89,293	1,318,365

Source : Ministry of Health

2) Criteria for Selecting Equipment

All of the medical equipment requested in the Project by the Uzbekistan Government are regarded as very necessary for promoting the diagnostic activities in the designated medical facilities.

However, considering the basic idea of the Project, impact on the Goal of the Plan set by the Uzbekistan Government, degree of urgency, financial situations etc., the following criteria for formulating the equipment provision plan are selected:

[Policies of Prioritization]

- ① Basic equipment which are directly required in the basic diagnostic activities
- ② Replacement or supplement of the existing equipment
- ③ Equipment whose maintenance and management fee is very cheap and

can be paid by the responsible organization

- ④ Equipment which requires the suitable technical level for the medical staff members of the designated hospitals

[Policies of Disqualification]

- ① Equipment requiring special consumable supplies which are difficult to purchase
- ② Equipment aiming at advanced and expensive treatment, examination, and research activities
- ③ Equipment whose maintenance and management fee is expensive and will make it difficult for the designated hospitals to shoulder it.
- ④ Equipment which require the special technology for operation, maintenance, and management
- ⑤ Equipment which the Uzbekistan side can purchase by itself

Based on the above policies, consistency between the contents of the request and the results of the survey on sites and the analysis is confirmed according to the following evaluation points:

[Evaluation Points]

- ① Classification of the equipment

Replacement: replacement of the existing equipment

Supplement: quantitative supplement of the existing equipment

New (Installation): purchase of new equipment / new activity

- ② Technical level of users

○ : having enough technical levels suitable to use the requested equipment

× : Difficult to use equipment at the current technical level because the equipment requires advanced technology and a lot of experiences.

- ③ Maintenance and management system

○ : which can be maintained and managed

× : which needs special consumable supplies which are

difficult to purchase; or requires special and/or expensive consumable supplies and will make it difficult for the designated hospitals to pay

④ Proper quantity

○ : proper quantity

△ : highly relevant, however needing qualitative adjustment (too little)

▲ : highly relevant, but needing quantitative adjustment (too much)

× : not considered in case of any problem in classification, technical level, or maintenance and management system (disqualified)

(The minimum required quantity is regarded as the proper quantity according to the present conditions of the activities, the project purpose after the implementation, and the action plan of the Project)

⑤ Comprehensive assessment

○ : Equipment of which the examination of the request proved that was relevant

× : Equipment of which the examination of the request concluded that was not included in the Project

### 3) Result of Examination

Table 2-2 Result of Examination for Requested Equipment

Samarqand Regional Children Hospital (SRCH)

Item No.	Description	Quantity Required	Contents of Evaluation				Result	Quantity Planned	Remarks
			Classification related to the existing Equipment	Technical Level	Operation, Maintenance & Management System/ Condition	Consideration of aptitude Quantity			
<b>Rehabilitation Department</b>									
A-1-01	Shortwave Diathermy	1	Replacement	○	○	○	○	1	Replacement
A-1-02	Microwave Therapy Unit	1	Replacement	○	○	○	○	1	Replacement
A-1-03	Interferential Therapy Unit	1	Replacement	○	○	○	○	1	Replacement
A-1-04	Low Frequency Therapy	1	Replacement	○	○	○	○	1	Replacement
A-1-05	Nebulizer	2	Replacement	○	○	○	○	1	Replacement
-	Instrument Dryer with Ultra-Violet Lamp	1	Supplement	○	○	○	○	1	Prevention for disinfection
<b>Clinical Laboratory Department</b>									
A-2-01	Microscope	3	Replacement	○	○	○	○	3	1 for Hematology 1 for Urine Test 1 for Bacteriology
A-2-02	Spectrophotometer	1	Replacement	○	○	○	○	1	General Test for Laboratory
A-2-04	Hematology Analyzer, 15 parameters	1	New	-	×	×	×	×	Need special reagents
A-2-05	Blood Gas Analyzer	1	Replacement	-	×	×	×	×	- ditto -
A-2-06	Coagulometer	1	New	-	×	×	×	×	- ditto -
A-2-07	Biochemical Analyzer	1	New	○	○	○	○	1	Improvement of Biochemical Test
-	Autoclave	1	Supplement	○	○	○	○	1	
-	Laboratory Incubator, with Stand	1	Replacement	○	○	○	○	1	Replacement
-	Glassware Washer	1	New	○	○	○	○	1	To keep cleanness
-	Clinical Refractometer	1	New	○	○	○	○	1	
-	Water Distilling Apparatus (1.8 lit./h.)	1	Replacement	○	○	○	○	1	Replacement
-	Wintrobe Hematocrit Set	1	Supplement	○	○	○	○	1	
<b>Diagnostic Examination Department</b>									
A-3-02	Ultrasound Diagnostic Unit, for General, Doppler with Printer	1	Replacement	○	○	○	○	1	Replacement
A-3-03	Ultrasound Diagnostic System, Color Doppler with Printer	1	Replacement	-	-	-	×	×	overlapping with A-3-02
A-3-04	EEG	1	Replacement	○	○	○	○	1	Correspond to neurological patients
A-3-05	ECG, 6ch	1	Replacement	○	○	○	○	1	Replacement
-	ECG, Portable 1ch	1	Supplement	○	○	○	○	1	for mobile use in Ward
A-3-06	Gastrointestinal Fiberscope, for Child	1	Supplement	○	○	○	○	1	
A-3-07	Bronchofiberscope, for Child	1	Supplement	○	○	○	○	1	
A-3-08	Colonofiberscope, for Child	1	New	○	○	○	○	1	
-	TV Monitor Set for Endoscope	1	New	○	○	○	○	1	Education for medical college students
A-3-09	Trolley, for Fiberscope	2	Supplement	○	○	○	○	2	Maintain 2 Endoscopic Room
A-3-10	Light Source for Fiberscope	1	Supplement	○	○	△	○	2	- ditto -
A-3-11	Suction Unit	2	-	○	○	×	○	×	Included in A-3-10 as Accessory
A-3-12	Endoscopic Cabinet	1	Supplement	○	○	△	○	2	Maintain 2 Endoscopic Room
A-3-13	Cleaner for Endoscope	2	Supplement	○	○	○	○	2	- ditto -
A-3-14	Endoscopic Table	1	Supplement	○	○	△	○	2	- ditto -
A-6-09	Weighing Scale, 150kg	2	Supplement	○	○	▲	○	1	for Outpatients
A-6-10	Thermometer	300	Supplement	○	○	▲	○	33	1 per 10 beds
A-6-11	Sphygmomanometer	50	Supplement	○	○	▲	○	15	1 per 20 beds



Samar kand Regional Children Hospital (SCH)

Item No.	Description	Quantity Required	Contents of Evaluation				Result	Quantity Planned	Remarks
			Classification related to the existing Equipment	Technical Level	Operation, Maintenance & Management System/ Condition	Consideration of aptitude Quantity			
-	Diagnostic Set	4	Supplement	○	○	○	○	4	1 each for Examination Dept.
-	Examination Light	1	Supplement	○	○	○	○	1	
-	Instrument Sterilizer, Table-Top Type	3	Replacement	○	○	○	○	3	
-	Steam Sterilizer, Table-Top Type	3	Supplement	○	○	○	○	3	
-	Electrical Scale, 0 - 10kg	1	Supplement	○	○	○	○	1	
<b>X-ray Department</b>									
A-3-01	Diagnostic X-ray TV System	1	Replacement	○	○	○	○	1	Replacement
-	Film Dryer	1	Supplement	○	○	○	○	1	Fill up a vacancy
-	Dark Room Lamp	1	Replacement	○	○	○	○	1	Replacement
-	Film Developing Set	1	Supplement	○	○	○	○	1	Fill up a vacancy
-	Film Hungry	1	Supplement	○	○	○	○	1	- ditto -
-	Film Preserve Box	1	Supplement	○	○	○	○	1	- ditto -
-	Film Marker	1	Supplement	○	○	○	○	1	- ditto -
-	X-ray Protective Apron	1	Supplement	○	○	○	○	1	- ditto -
-	X-ray Protective Grove	1	Supplement	○	○	○	○	1	- ditto -
-	Film Cassette Set	1	Supplement	○	○	○	○	1	- ditto -
-	Film Cassette Cabinet	1	Supplement	○	○	○	○	1	- ditto -
-	X-ray Warning Indication Lamp	1	Supplement	○	○	○	○	1	- ditto -
<b>Dental Department</b>									
A-3-15	Dental X-ray Unit	1	Replacement	○	○	○	○	1	Replacement
<b>Operation Department (2 Rooms)</b>									
A-4-01	Operation Table	2	Replacement	○	○	○	○	2	Maintain 2 Operation Rooms
A-4-02	Anesthesia Apparatus (with Ventilator)	1	Replacement	○	○	△	○	2	- ditto -
A-4-03	Operation Light, Ceiling Type (2)	2	Replacement	○	○	○	○	2	- ditto -
A-4-04	Electrosurgical Unit	4	Replacement	○	○	▲	○	2	- ditto -
A-4-05	Ventilator (for Anesthesia Apparatus)	2	Replacement	-	-	-	-	-	Included in A-4-02
A-4-06	Suction Unit, 2 Bottles Type	2	Replacement	○	○	○	○	2	Maintain 2 Operation Rooms
A-4-07	Patient Monitor	2	Replacement	○	○	○	○	2	- ditto -
A-4-08	Surgical Instrument Set for Child	3	Supplement	○	○	△	○	4	- ditto -
A-4-09	Surgical Dental Instrument Set for Child	4	Supplement	○	○	▲	○	2	Improvement of Oral Surgery
A-4-10	Shunt	453	×	-	-	Deleted	-	-	Consumables
A-4-11	Endotracheal Set	8	Supplement	○	○	▲	○	2	for 2 Operation Rooms
A-4-12	Heart-Lung Machine	1	×	○	×	Deleted	×	×	High operation cost, consumables required
-	Laryngoscope (with Ambu Bag)	1	Supplement	○	○	○	○	1	for common use
-	Cystoscope	1	Replacement	○	○	○	○	1	Replacement
-	Mayo Stand	2	Supplement	○	○	○	○	2	Fill up a vacancy

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Item No.	Description	Quantity Required	Contents of Evaluation				Result	Quantity Planned	Remarks
			Classification related to the existing Equipment	Technical Level	Operation, Maintenance & Management System/ Condition	Consideration of aptitude Quantity			
<b>Reanimation Department (12 Beds for Infant)</b>									
A-5-01	Patient Monitor	3	Replacement	○	○	○	○	3	1 per 4 beds
A-5-02	Ventilator for Infant	2	Replacement	-	-	×	×	-	Common use with Neonatology Dept.
A-5-03	-	-	×	-	-	Deleted	-	×	Consumables
A-5-04	-	-	×	-	-	Deleted	-	×	Consumables
A-5-05	Laryngoscope (with Ambu Bag) for Infant	3	Replacement	○	○	▲	○	1	Common use
A-5-06	Infusion Pump	12	Supplement	○	○	▲	○	2	Each 1 for 2 Rooms
A-5-07	Syringe Pump	10	Supplement	○	○	▲	○	3	Common use
A-5-08	-	-	×	-	-	-	-	×	Deleted
A-5-09	Hemosorbition Unit for Child	1	New	-	×	×	×	×	High operation cost, consumables required
-	Pulse Oxymeter	1	Supplement	○	○	○	○	1	
-	Suction Unit (Portable)	1	Replacement	○	○	○	○	1	Replacement
<b>Neonatology Department</b>									
A-2-03	Bilirubinmeter (with Hematocrit Centrifuge)	1	New	○	○	○	○	1	for Neonatology Dept.
-	Ultrasound Diagnostic System, Portable	-	Supplement	○	○	○	○	1	Mobile use in ward
A-6-01	Infant Incubator	3	Replacement	○	○	○	○	3	Replacement
A-6-02	Ventilator for Infant	1	Replacement	○	○	○	○	1	Fill up vacant for Infant use
A-6-03	Neonatal Monitor	2	Replacement	○	○	▲	○	1	
A-6-04	Humidifier	2	Replacement	○	○	○	○	2	
A-6-05	Infant Warmer	3	Supplement	○	○	▲	○	2	
A-6-06	Phototherapy Unit	3	Supplement	○	○	○	○	3	Correspond to patients needs
A-6-07	Laryngoscope (with Ambu Bag) for Infant	3	Replacement	○	○	▲	○	1	Replacement
A-6-08	Electronic Scale, 0-10 kg	6	Replacement	○	○	▲	○	2	Replacement
A-6-09	-	-	-	-	-	-	-	-	
A-6-12	Apparatus for Ultraviolet Radiation of Blood	2	Replacement	-	-	-	×	×	Old Method
A-6-13	Matress for Infant	15	New	-	-	-	×	×	Possible to set up by Uzbekistan side
A-6-14	Massager	3	New	-	-	-	×	×	Possible to set up by Uzbekistan side
-	Milk Warmer	1	New	○	○	○	○	1	
-	Breast Pump (Milking Machine)	1	New	○	○	○	○	1	
-	Pulse Oxymeter	1	New	○	○	○	○	1	
-	Oxygen Monitor	1	New	-	-	-	×	0	Attached to A-6-01, A-6-05
-	Oxygen Flowmeter	1	New	-	-	-	×	0	Attached to A-6-01, A-6-05
-	Suction Unit, Portable	1	Supplement	○	○	○	○	1	
-	Syringe Pump	2	Supplement	○	○	○	○	2	
-	Infant Incubator (Portable)	1	Supplement	○	○	○	○	1	
<b>Sterilization Department</b>									
A-7-01	High Pressure Steam Sterilizer with Generator	3	Replacement	○	○	▲	○	2	Capacity considered
A-7-02	Hot Air Sterilizer	2	Supplement	○	○	▲	○	1	- ditto -
<b>Pharmacy Department</b>									
A-7-03	Bottle Sterilizer	2	Replacement	○	○	▲	○	1	Capacity considered

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Item No.	Description	Quantity Required	Contents of Evaluation			Result	Quantity Planned	Remarks	
			Classification related to the existing Equipment	Technical Level	Operation, Maintenance & Management System/ Condition				Consideration of aptitude Quantity
<b>Ambulance</b>									
A-8-01	Ambulance (Patient Delivery Vehicle) with Infant Incubator (Portable)	1	Replacement	-	-	-	-	Deleted, except Infant Incubator	
<b>Laundry Department</b>									
-	Washing Machine, 30kg	2	Replacement	○	○	○	○	2	Replacement
-	Extractor	2	Replacement	○	○	○	○	2	Replacement
-	Drying Machine	1	Replacement	-	-	-	-	-	Deleted

Item No.	Description	Quantity Required	Contents of Evaluation				Result	Quantity Planned	Remarks
			Classification related to the existing Equipment	Technical Level	Operation, Maintenance & Management System / Condition	Consideration of aptitude Quantity			
<b>Diagnostic Examination Department</b>									
B-1-01	Ultrasound Diagnostic Unit, for General, Doppler with Printer	1	Replacement	○	○	○	○	1	
B-1-02	ECG, 6ch	1	Supplement	○	○	○	○	1	
B-1-03	Computer	1	New	-	-	-	×	0	
-	Photocopy Machine	-	New	-	-	-	×	0	
B-8-01	Electrical Scale, 0-10 kg	8	Supplement	-	-	-	×	0	No neonatal outpatients
-	Weighing Scale, 150kg	1	Supplement	○	○	○	○	1	for Pregnant
B-8-02	Thermometer	200	Supplement	○	○	▲		13	1 per 10 beds
B-8-03	Sphygmomanometer	20	Supplement	○	○	▲		5	1 per 20 beds
B-8-04	Stethoscope	30	Supplement	-	-	-	×	0	Private use
B-8-05	Spirometer	1	New	-	-	-	×	0	No activity
-	Diagnostic Set	4	Supplement	○	○	○	○	4	1 each for Examination Dept.
-	Examination Light	2	Supplement	○	○	○	○	2	
-	Instrument Sterilizer, Table-Top Type	3	Replacement	○	○	○	○	3	
-	Steam Sterilizer, Table-Top Type	3	Supplement	○	○	○	○	3	
<b>X-ray Department</b>									
-	Diagnostic X-ray TV System	1	Replacement	○	○	○	○	1	Replacement
-	Film Dryer	1	Supplement	○	○	○	○	1	Fill up a vacancy
-	Dark Room Lamp	1	Replacement	○	○	○	○	1	Replacement
-	Film Developing Set	1	Supplement	○	○	○	○	1	Fill up a vacancy
-	Film Hanger	1	Supplement	○	○	○	○	1	- ditto -
-	Film Preserve Box	1	Supplement	○	○	○	○	1	- ditto -
-	Film Marker	1	Supplement	○	○	○	○	1	- ditto -
-	X-ray Protective Apron	1	Supplement	○	○	○	○	1	- ditto -
-	X-ray Protective Groove	1	Supplement	○	○	○	○	1	- ditto -
-	Film Cassette Set	1	Supplement	○	○	○	○	1	- ditto -
-	Film Cassette Cabinet	1	Supplement	○	○	○	○	1	- ditto -
-	X-ray Warning Indication Lamp	1	Supplement	○	○	○	○	1	- ditto -
-	Mobile X-ray Unit	1	Supplement	-	-	-	×	0	Mobile use not available
<b>Operation Department (2 Rooms)</b>									
B-2-01	Operation Table	2	Replacement	○	○	○	○	2	Maintain 2 Operation Rooms
B-2-02	Anesthesia Apparatus (with Ventilator)	2	Replacement	○	○	○	○	2	- ditto -
B-2-03	Ventilator (for Anesthesia Apparatus)	2	-	-	-	-	-	-	Included in B-2-02
B-2-04	Patient Monitor	2	Replacement	○	○	○	○	2	
B-2-05	Defibrillator	2	Replacement	○	○	○	▲	1	Common use for 2 Rooms
B-2-06	Suction Unit, 2 Bottles Type	3	Replacement	○	○	○	▲	2	1 each
B-2-07	Electrosurgical Unit	2	Replacement	○	○	○	○	2	
B-2-08	Endotracheal Set	3	Supplement	○	○	○	▲	2	

Item No.	Description	Quantity Required	Classification related to the existing Equipment	Contents of Evaluation			Result	Quantity Planned	Remarks
				Technical Level	Operation, Maintenance & Management System/ Condition	Consideration of aptitude Quantity			
B-2-09	Surgical Instrument Set, Caesarean Set	3	Supplement	○	○	○	△	4	2 each
B-2-10	Surgical Instrument Set, Hysterectomy Set	1	Supplement	○	○	○	△	2	1 each
B-2-11	Laparoscope Set	2	Replacement	○	○	○	▲	1	Common use for 2 Rooms
B-2-12	Light Source for Laparoscope	2	Replacement	○	○	○	▲	1	Common use for 2 Rooms
B-8-07	UV Hand Washer	5	New	○	×	×	×	0	
-	Mayo Stand	2	Supplement	○	○	○	○	2	
-	Surgical Instrument Set	3	Supplement	○	○	○	○	3	
-	Operating Light, Stand Type with Battery	1	Replacement	○	○	○	○	1	Supporting
-	Resuscitator, Manual (Ambu Bag) for Adult & Infant	2	Replacement	○	○	○	○	2	for emergency case
<b>Obstetric / Delivery Department</b>									
B-3-01	Gatch Bed	3	Supplement	○	○	○	○	3	
B-3-02	Fetal Monitor	3	New	○	○	▲	○	1	
B-3-03	Infusion Pump	5	Supplement	○	○	▲	○	3	
B-3-04	Laryngoscope (with Ambu Bag)	2	Replacement	○	○	○	○	2	
B-3-05	Ultrasound Diagnostic Unit, Portable	1	Supplement	○	○	○	○	1	
B-3-06	Doppler Fetus Detector	3	Supplement	○	○	▲	○	1	
B-4-01	Delivery Table	6	Replacement	○	○	▲	○	4	
B-4-02	Suction Unit, 2 Bottles Type	5	Replacement	○	○	▲	○	4	
-	Infant Warmer	1	Supplement	○	○	○	○	1	
-	Infant Treatment Table	4	Replacement	-	-	-	×	0	Local furniture available
-	Resuscitator, Manual (Ambu Bag) for Infant	3	Replacement	-	-	-	×	0	Including B-3-04
-	Bassinet (Baby Cot)	10	Supplement	-	-	-	×	0	Local furniture available
-	Stretcher	5	Supplement	-	-	-	×	0	Local furniture available
-	Hydrobath Apparatus (非密通気)	2	New	○	○	▲	○	1	
-	Obstetric Examination Unit	4	Supplement	○	○	○	○	4	
-	Kelly's Pad	8	New	○	○	○	○	8	
-	Electric Scale, 10kg	2	Replacement	○	○	○	○	2	
<b>Neonatology Department</b>									
B-5-01	Laryngoscope (with Ambu Bag) for Infant	2	Supplement	○	○	○	○	2	
B-5-02	Infant Incubator	2	Supplement	○	○	○	○	2	
B-5-03	Ventilator for Infant	1	Replacement	○	○	○	○	1	Common use with Reanimation Dept.
B-5-04	Infant Warmer	3	Supplement	○	○	▲	○	2	
B-5-05	Phototherapy Unit	2	Supplement	○	○	○	○	2	
B-5-06	Syringe Pump	2	Supplement	○	○	○	○	2	
B-5-07	Neonatal Monitor	2	New	○	○	▲	○	1	
B-5-08	Pulse Oximeter	2	New	○	○	○	○	2	
B-6-03	Bilirubinmeter (with Hematocrit Centrifuge)	1	New	○	○	○	○	1	
-	Suction Unit, Portable Type	1	Supplement	○	○	○	○	1	
-	Bilirubinmeter, Portable Type	2	New	-	-	-	×	0	Use B-6-03

Item No.	Description	Quantity Required	Contents of Evaluation				Result	Quantity Planned	Remarks
			Classification related to the existing Equipment	Technical Level	Operation, Maintenance & Management System/ Condition	Consideration of aptitude Quantity			
-	Resuscitator	5	New	○	○	○	○	0	
-	Humidifier	2	Supplement	○	○	○	○	2	
-	Milk Warmer	1	New	○	○	○	○	1	
-	Breast Pump (Milking Machine)	1	New	○	○	○	○	1	
-	Infant Incubator (Portable)	1	Supplement	○	○	○	○	1	
<b>Clinical Laboratory Department</b>									
B-6-01	Microscope	4	Replacement	○	○	▲	○	3	
B-6-02	Spectrophotometer	1	Replacement	○	○	○	○	1	
B-6-04	Hemoglobinmeter	2	New	-	-	-	×	0	
B-6-05	Hematology Analyzer, 15 parameters	1	New	-	-	-	×	0	Reagent not available
B-6-06	Biochemical Analyzer	1	New	○	○	○	○	1	
-	Coagulometer	1	New	-	-	-	×	0	Reagent not available
-	Blood Gas Analyzer	1	New	-	-	-	×	0	-ditto-
-	Autoclave	1	Supplement	○	○	○	○	1	
-	Clinical Refractometer	1	New	○	○	○	○	1	
-	Glassware Washer	1	New	○	○	○	○	1	To keep cleanness
-	Wintrobe Hematocrit Set	1	Supplement	○	○	○	○	1	
<b>Ambulance</b>									
B-7-01	Ambulance (Patient Delivery Vehicle) with Incubator	1	Replacement	-	-	-	×	0	Procured by Uzbekistan side
<b>Sterilizing Department</b>									
B-8-08	Autoclave	1	Replacement	○	○	○	○	1	
B-8-09	Instrument Sterilizer (Pedal Type)	2	Supplement	○	○	○	○	2	
<b>Laundry Department</b>									
-	Washing Machine	1	Replacement	○	○	○	○	1	Replacement
-	Extractor	1	Replacement	○	○	○	○	1	Replacement
-	Drying Machine	1	Replacement	-	-	-	-	-	

Item No.	Description	Quantity Required	Classification related to the existing Equipment	Contents of Evaluation			Result	Quantity Planned	Remarks
				Technical Level	Operation, Maintenance & Management System/ Condition	Consideration of aptitude Quantity			
<b>Diagnostic Examination Department</b>									
C-1-06	Ultrasound Diagnostic Unit, for General, Doppler with Printer	1	Replacement	○	○	○	○	1	
C-4-06	Gastrointestinal Fiberscope	1	Supplement	○	○	○	○	1	
C-4-07	Bronchofiberscope	1	Supplement	○	○	○	○	1	
-	Light Source for Fiberscope	1	Supplement	○	○	○	○	1	
-	Trolley, for Fiberscope	1	Supplement	○	○	○	○	1	
-	Suction Unit	1	-	-	-	-	-	-	Included in Light Source
-	Endoscopic Cabinet	1	Supplement	○	○	○	○	1	
-	Cleaner for Endoscope	1	Supplement	○	○	○	○	1	
-	Endoscopic Table	1	Supplement	○	○	○	○	1	
C-5-01	EEG	1	Replacement	○	○	○	○	1	
C-5-02	Echo Scope	1	-	-	-	Deleted	×	0	Function included in C-1-06
C-6-01	ECG	2	Replacement	○	○	○	○	1	
C-6-02	Spygmomanometer	10	Supplement	○	○	○	○	10	1 per 10 Beds
-	Weighting Scale, 150kg	2	Supplement	○	○	▲	○	1	for Outpatients
-	Thermometer	-	Supplement	○	○	○	○	10	1 per 10 Beds
-	Diagnostic Set	4	Supplement	○	○	○	○	4	1 each for Examination Dept.
-	Examination Light	2	Supplement	○	○	○	○	2	
-	Instrument Sterilizer, Table-Top Type	3	Replacement	○	○	○	○	3	
-	Steam Sterilizer, Table-Top Type	3	Supplement	○	○	○	○	3	
<b>X-ray Department</b>									
-	Diagnostic X-ray TV System	1	Replacement	○	○	○	○	1	
-	Film Dryer	1	Supplement	○	○	○	○	1	
-	Dark Room Lamp	1	Supplement	○	○	○	○	1	
-	Film Developing Set	1	Supplement	○	○	○	○	1	
-	Film Hungry	1	Supplement	○	○	○	○	1	
-	Film Preserve Box	1	Supplement	○	○	○	○	1	
-	Film Marker	1	Supplement	○	○	○	○	1	
-	X-ray Protective Apron	1	Supplement	○	○	○	○	1	
-	X-ray Protective Grove	1	Supplement	○	○	○	○	1	
-	Film Cassette Set	1	Supplement	○	○	○	○	1	
-	Film Cassette Cabinet	1	Supplement	○	○	○	○	1	
-	X-ray Warning Indication Lamp	1	Supplement	○	○	○	○	1	
-	Mobile X-ray Unit	1	Replacement	-	-	-	×	0	
<b>Obstetric / Delivery Department</b>									
C-1-01	Gatch Bed	5	Supplement	○	○	▲	○	2	
C-1-02	Infusion Pump	2	Supplement	○	○	○	○	2	
C-1-03	Fetal Monitor	2	New	○	○	▲	○	1	
C-1-04	Laryngoscope (with Ambu Bag)	4	Replacement	○	○	▲	○	1	

Item No.	Description	Quantity Required	Contents of Evaluation				Result	Quantity Planned	Remarks
			Classification related to the existing Equipment	Technical Level	Operation, Maintenance & Management System/ Condition	Consideration of aptitude Quantity			
C-1-05	Ultrasound Diagnostic Unit, Portable	1	Supplement	○	○	○	○	1	
C-1-07	Hemoglobinmeter	1	New	-	-	-	×	0	
-	Delivery Table	10	Replacement	○	○	▲	○	5	
-	Doppler Fetus Detector	1	New	○	○	○	○	1	
-	Obstetric Examination Unit	4	Supplement	○	○	○	○	4	
-	Electronic Scale, 10kg	2	Replacement	○	○	○	○	2	
-	Suction Unit, 2 Bottles Type	4	Replacement	○	○	○	○	4	
-	Kelly's Pad	8	New	○	○	○	○	8	
<b>Neonatology Department</b>									
C-1-08	Infant Incubator	2	Replacement	○	○	○	○	2	
C-1-09	Syringe Pump	2	Supplement	○	○	○	○	2	
C-1-10	Ventilator for Infant	1	Replacement	○	○	○	○	1	
C-1-11	Neonatal Monitor	1	New	○	○	○	○	1	
C-1-12	Pulse Oximeter	1	New	○	○	○	○	1	
C-1-13	Bilirubinmeter (with Hematocrit Centrifuge)	1	New	○	○	○	○	1	
C-1-14	Infant Warmer	3	Supplement	○	○	▲	○	2	
C-1-15	Phototherapy Unit	2	Supplement	○	○	○	○	2	
C-1-16	Humidifier	3	Supplement	○	○	▲	○	2	
-	Laryngoscope (with Ambu Bag) for Infant	1	Replacement	○	○	○	○	1	
-	Milk Warmer	1	New	○	○	○	○	1	
-	Breast Pump	1	New	○	○	○	○	1	
-	Suction Unit, Portable	1	Supplement	○	○	○	○	1	
-	Infant Incubator (Portable)	1	NEW	○	○	○	○	1	for transportation of emergency patients
<b>Operation Department</b>									
C-2-01	Operation Table	2	Replacement	○	○	○	○	2	
C-2-02	Anesthesia Apparatus	2	Replacement	○	○	○	○	2	
C-2-03	Patient Monitor	2	Replacement	○	○	○	○	2	
C-2-04	Suction Unit	3	Replacement	○	○	▲	○	2	
C-2-05	Electrosurgical Unit	3	Replacement	○	○	▲	○	2	
C-2-06	Infusion Pump	2	-	-	-	-	×	0	Common use with Delivery Room
C-2-07	Surgical Instrument Set	2	Supplement	○	○	△	○	3	
C-2-08	Laparoscope Set	1	Replacement	○	○	○	○	1	
-	Light Source for Laparoscope	1	Replacement	○	○	○	○	1	
C-2-09	Operation Material Set	2	-	-	-	Deleted	×	0	Consumables
C-2-10	-	-	-	-	-	-	-	-	
C-2-11	Instrument Sterilizer	2	Supplement	○	○	○	○	2	
C-2-12	Operation Light, Ceiling Type (2)	2	Replacement	○	○	○	○	2	
C-2-13	Air Conditioner for Operation Room	2	-	-	-	Deleted	×	0	Procured by Hospital
-	High Pressure Steam Sterilizer, φ40 x 65cm	1	Supplement	○	○	○	○	1	



Item No.	Description	Quantity Required	Contents of Evaluation				Result	Quantity Planned	Remarks
			Classification related to the existing Equipment	Technical Level	Operation, Maintenance & Management System/ Condition	Consideration of aptitude Quantity			
	Endotracheal Set	2	Supplement	○	○	○	○	2	
	Mayo Stand	2	Supplement	○	○	○	○	2	
	Surgical Instrument Set, Caesarean Set	4	Supplement	○	○	○	○	4	2 each
-	Surgical Instrument Set, Hysterectomy Set	2	Supplement	○	○	○	○	2	1 each
<b>Reanimation Department (Mother)</b>									
C-4-01	ICU Bed	4	Supplement	○	○	○	○	4	
C-4-02	Patient Monitor	3	Replacement	○	○	▲	○	2	
C-4-03	Side Table	4	-	-	-	-	×	0	Local furniture available
C-4-04	Suction Unit, Portable Type	2	Supplement	○	○	○	○	2	
C-4-05	IV Stand	4	-	-	-	-	×	0	
C-4-08	Ventilator (for Adult)	2	Replacement	○	○	○	○	2	
C-4-09	Defibrillator with Trolley	1	Replacement	○	○	○	○	1	
-	Infusion Pump	2	Supplement	○	○	▲	○	1	
<b>Clinical Laboratory Department</b>									
C-3-01	Microscope	3	Replacement	○	○	○	○	3	
C-3-02	Centrifuge, General Purpose	3	Replacement	○	○	▲	○	1	
C-3-03	Spectrophotometer	1	Replacement	○	○	○	○	1	
C-3-04	Clinical Refractometer	1	Supplement	○	○	○	○	1	
C-3-05	Biochemical Analyzer	1	New	○	○	○	○	1	
C-3-06	pH Meter	1	New	-	-	-	×	0	S/p not available
C-3-07	Hemoglobinmeter	2	New	-	-	-	×	0	
C-3-08	Bilirubinmeter (with Hematocrit Centrifuge)	1	New	-	-	-	×	0	Use In Neonatology Dept.
C-3-09	Electrolyte Analyzer, Na-K-Cl	1	New	-	×	×	×	0	Reagent not available
C-3-10	Blood Type Test Set	1	Supplement	○	○	○	○	1	
C-3-11	Hematology Analyzer, 15 parameters	1	New	-	×	×	×	0	Reagent not available
C-3-12	Laboratory Incubator	2	Replacement	○	○	▲	○	1	
C-3-13	Water Distilling Apparatus (1.8 Lt./h.)	2	Replacement	○	○	○	○	1	
-	Glassware Washer	1	New	○	○	○	○	1	To keep cleanness
-	Wintrobe Hematocrit Set	1	Supplement	○	○	○	○	1	

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Item No.	Description	Quantity Required	Contents of Evaluation				Result	Quantity Planned	Remarks
			Classification related to the existing Equipment	Technical Level	Operation, Maintenance & Management System/ Condition	Consideration of aptitude Quantity			
<b>Diagnostic Examination Department</b>									
D-3-08	Gastrointestinal Fiberscope, for Child	2	Supplement	○	○	○	○	1	
-	Light Source for Fiberscope	1	Supplement	○	○	○	○	1	
-	Trolley, for Fiberscope	1	Supplement	○	○	○	○	1	
-	Endoscopic Cabinet	1	Supplement	○	○	○	○	1	
-	Cleaner for Endoscope	1	Supplement	○	○	○	○	1	
-	Endoscopic Table	1	Supplement	○	○	○	○	1	
D-4-02	Ultrasound Diagnostic Unit, for General, with Doppler and Printer	1	Supplement	○	○	○	○	1	
D-4-03	ECG, 6ch	1	Supplement	○	○	○	○	1	
D-4-04	Spirometer, Portable	1	New	-	-	-	×	0	
D-6-11	ECG, 6ch	2	-	-	-	-	×	0	Repetition with D-4-03
D-6-12	EEG	1	Supplement	○	○	○	○	1	
-	Weighing Scale, 150kg	1	Supplement	○	○	○	○	1	for Outpatients
-	Thermometer	-	Supplement	○	○	○	○	10	1 per 10 beds
-	Sphygmomanometer	-	Supplement	○	○	○	○	5	1 per 20 beds
-	Diagnostic Set	-	Supplement	○	○	○	○	4	1 each for Examination Dept.
-	Examination Light	1	Supplement	○	○	○	○	1	
-	Instrument Sterilizer, Table-Top Type	3	Replacement	○	○	○	○	3	
-	Steam Sterilizer, Table-Top Type	3	Supplement	○	○	○	○	3	
-	Electrical Scale, 0 - 10kg	1	Supplement	○	○	○	○	1	
<b>X-ray Department</b>									
D-4-01	Diagnostic X-ray Unit, with TV System	1	Replacement	-	-	-	×	0	Already replaced to new Equipment
<b>Neonatology Department</b>									
D-1-01	Infant Incubator	2	Supplement	○	○	○	○	2	
D-1-02	Infant Ventilator	1	Replacement	○	○	○	○	1	
D-1-03	Neonatal Monitor	1	Replacement	○	○	○	○	1	
D-1-04	Infant Warmer	2	Supplement	○	○	○	○	2	
D-1-05	Phototherapy Unit	2	Supplement	○	○	○	○	2	
D-1-06	Laryngoscope (with Ambu Bag) for Infant	2	Supplement	○	○	○	○	2	
D-1-07	Infusion Pump	4	-	-	-	-	×	0	
D-1-08	Syringe Pump	4	Supplement	○	○	▲	○	2	
D-1-09	Humidifier	3	Supplement	○	○	▲	○	2	
D-1-10	Bilirubinmeter (with Hematocrit Centrifuge)	1	Supplement	○	○	○	○	1	
D-1-11	Pulse Oximeter	1	Supplement	○	○	○	○	1	
D-1-12	O2 Monitor	2	-	-	-	-	×	-	Included in D-1-01 & D-1-03
D-2-14	Ultrasound Diagnostic Unit, Portable	1						1	
D-6-01	Infant Warmer	5	-	-	-	-	×	-	

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Item No.	Description	Quantity Required	Contents of Evaluation				Result	Quantity Planned	Remarks
			Classification related to the existing Equipment	Technical Level	Operation, Maintenance & Management System/ Condition	Consideration of aptitude Quantity			
D-6-02	Infant Laryngoscope	1	-	-	-	-	x	-	
D-6-03	Humidifier	8	-	-	-	-	x	-	
D-6-04	Electrical	2	-	-	-	-	x	-	
D-6-09	Phototherapy Unit	2	-	-	-	-	x	-	
D-6-10	Nubulizer	8	Supplement	○	○	▲	○	2	
-	Baby Scale	2	Supplement	○	○	○	○	2	
-	Suction Unit, Portable Type	2	Supplement	○	○	▲	○	1	
-	Milk Warmer	1	New	○	○	○	○	1	
-	Breast Pump (Milking Machine)	1	New	○	○	○	○	1	
-	Infant Incubator (Portable Type)	1	Supplement	○	○	○	○	1	
<b>Operation Department</b>									
D-2-01	Operation Table	2	Replacement	○	○	○	○	2	
D-2-02	Operation Light, Ceiling Type	3	Replacement	○	○	▲	○	1	
D-2-03	Patient Monitor	2	Replacement	○	○	○	○	2	
D-2-04	Anesthesia Apparatus (with Ventilator)	2	Replacement	○	○	○	○	2	
D-2-05	Defibrillator	1	Replacement	○	○	○	○	1	
D-2-06	Ventilator (for Anesthesia Apparatus)	2	-	-	-	-	-	-	
D-2-07	Electrosurgical Unit	2	Replacement	○	○	○	○	2	
D-2-08	Surgical Instrument Set	2	Supplement	○	○	△	○	4	
D-2-09	O2 Monitor	1	-	-	-	-	-	-	Included in D-2-03
D-2-10	Pulse Oximeter	1	-	-	-	-	x	-	Specification Included in D-2-03
D-2-11	High Pressure Steam Sterilizer with Generator	1	-	-	-	-	x	-	
D-2-12	Hot Air Sterilizer	1	Replacement	○	○	○	○	1	
D-2-13	Doppler Fetus Detector	1	-	-	-	-	-	0	
D-2-15	Laparoscope	1	-	-	-	-	x	0	
D-2-16	Air Conditioner	2	-	-	-	Deleted			
D-6-05	Surgical Instrument Set	1	-	-	-	-	x	-	
D-6-08	Instrument Sterilizer	2	Supplement	○	○	○	○	2	
D-6-14	Cystoscope Set	1	Replacement	○	○	○	○	1	
D-2-02'	Operating Lamp, Stand Type	1	Replacement	○	○	○	○	1	
-	Laryngoscope (with Ambu Bag)	1	Supplement	○	○	○	○	1	for common use
-	Endotracheal Set	-	Supplement	○	○	○	○	2	for 2 Operation Rooms
-	Mayo Stand	2	Supplement	○	○	○	○	2	
<b>Reanimation Department (6 Beds for Infant)</b>									
D-3-01	Patient Monitor	2	Replacement	○	○	○	○	2	
D-3-02	Ventilator for Infant	1	New	-	-	-	x	0	Common use with Neonatology Dept.
D-3-03	Infusion Pump	2	Supplement	○	○	○	○	2	

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Item No.	Description	Quantity Required	Contents of Evaluation			Result	Quantity Planned	Remarks
			Classification related to the existing Equipment	Technical Level	Operation, Maintenance & Management System/ Condition			
D-3-04	Syringe Pump	5	Supplement	○	○	○	5	Common use with Operation room
D-3-05	O2 Monitor	2	-	-	-	×	0	Specification included in D-3-01
D-3-06	Pulse Oximeter	1	Supplement	○	○	○	1	
D-3-07	Suction Unit, Portable Type	2	Supplement	○	○	○	1	
-	Laryngoscope (with Ambu Bag)	1	Supplement	○	○	○	1	for common use
-	Bilirubinmeter, Portable Type	2	New	-	-	-	0	Low Reliability
<b>Clinical Laboratory Department</b>								
D-5-01	Microscope	2	Replacement	○	○	△	3	
D-5-02	Centrifuge, Table Top, General Purpose	2	Replacement	○	○	▲	1	
D-5-03	Spectrophotometer	1	Replacement	○	○	○	1	
D-5-04	Bilirubinmeter	1	New	-	-	-	-	Use in Neonatology Dept.
D-5-05	Hemoglobinmeter	1	New	-	-	-	-	
D-5-06	Electrolite Analyzer, Na-K-Cl	1	New	○	×	-	0	
D-5-07	Clinical Refractometer	1	Supplement	○	○	○	1	
D-5-08	Refrigerator	2	Replacement	○	○	○	1	
D-5-09	O2 Analyzer	1	-	-	-	-	-	
D-5-10	Biochemical Analyzer	1	Supplement	○	○	○	1	
D-5-11	Hematology Analyzer, 15 parameter	1	New	○	×	×	0	
D-5-12	Electronic Scale (Balance)	2	Replacement	○	○	○	1	
D-5-13	Citological Analyzer	1	New	○	×	×	0	
D-5-14	Immunological Analyzer	1	New	○	×	×	0	
D-5-15	Blood Type Test Set	1	Supplement	○	○	○	1	
D-6-06	pH Meter	1	-	-	-	-	0	
D-6-07	Hematology Analyzer, 15 parameters	1	-	-	×	×	-	Repetition with D-5-11
-	Blood Gas Analyzer	1	New	○	○	○	0	
-	Glassware Washer	1	New	○	○	○	1	To keep cleanness
-	Wintrobe Hematocrit Set	1	Supplement	○	○	○	1	

Item No.	Description	Quantity Required	Contents of Evaluation			Result	Quantity Planned	Remarks	
			Classification related to the existing Equipment	Technical Level	Operation, Maintenance & Management System/Condition				Consideration of aptitude Quantity
Diagnostic Examination Department									
E-2-05	ECG, 6ch	2	Replacement	○	○	▲	○	1	
E-2-06	EEG	1	New	-	×	×	×	0	Facility not available
E-3-08	Gastrointestinal Fiberscope	1	Supplement	○	○	○	○	1	
E-2-12	Bronchofiberscope	1	Supplement	○	○	○	○	1	
E-3-09	Bronchofiberscope	1	-	-	-	-	×	×	Repetition
-	Light Source for Fiberscope	1	Supplement	○	○	○	○	1	
-	Trolley, for Fiberscope	1	Supplement	○	○	○	○	1	
-	Endoscopic Cabinet	1	Supplement	○	○	○	○	1	
-	Cleaner for Endoscope	1	Supplement	○	○	○	○	1	
-	Endoscopic Table	1	Supplement	○	○	○	○	1	
E-3-04	Ultrasound Diagnostic Unit, for General, Doppler with Printer	1	Supplement	○	○	○	○	1	
-	Weighing Scale, 150kg	1	Supplement	○	○	○	○	1	for Outpatients
-	Thermometer	-	Supplement	○	○	○	○	10	1 per 10 beds
-	Sphygmomanometer	-	Supplement	○	○	○	○	5	1 per 20 beds
-	Diagnostic Set	-	Supplement	○	○	○	○	4	1 each for Examination Dept.
-	Examination Light	1	Supplement	○	○	○	○	1	
-	Instrument Sterilizer, Table-Top Type	3	Replacement	○	○	○	○	3	
-	Steam Sterilizer, Table-Top Type	3	Supplement	○	○	○	○	3	
-	Electrical Scale, 0 - 10kg	1	Supplement	○	○	○	○	1	
Obstetric / Delivery Department									
E-1-01	Delivery Table	4	Replacement	○	○	○	○	4	
E-1-02	Infusion Pump	1	Supplement	○	○	△	○	2	
E-1-03	Fetal Monitor	2	New	○	○	▲	○	1	
E-1-04	Ultrasound Diagnostic Unit, Mobile	1	Supplement	○	○	○	○	1	
E-1-05	Hemoglobinmeter	1	-	-	-	-	×	0	Use in Neonatology Dept.
E-1-06	Ventilator (for Anesthesia Apparatus)	2	-	-	-	-	-	-	Operation Dept.
E-1-11	Operation Table	1	-	-	-	-	×	0	Operation Dept.
E-1-12	Anesthesia Apparatus	1	-	-	-	-	×	0	Operation Dept.
E-1-13	Suction Unit, 2 Bottles Type	2	Replacement	○	○	○	○	2	
E-1-14	Operation Instrument Set (Big)	11	-	-	-	-	×	0	Operation Dept.
E-1-15	Doppler Fetus Detector	1	Supplement	○	○	○	○	1	
E-1-16	Infant Warmer	2	Supplement	○	○	▲	○	1	
E-1-17	Electrosurgical Unit	1	-	-	-	-	×	0	Operation Dept.
-	Operating Lamp, Stand Type with Battery	1	-	-	-	-	×	0	Operation Dept.
-	Obstetric Examination Unit	4	Supplement	○	○	○	○	4	
-	Kelly's Pad	8	Supplement	○	○	○	○	8	
-	Baby Scale, 10kg	2	Replacement	○	○	○	○	2	

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Item No.	Description	Quantity Required	Criteria of Evaluation				Result	Quantity Planned	Remarks
			Classification related to the existing Equipment	Technical Level	Operation, Maintenance & Management System/ Condition	Consideration of aptitude Quantity			
<b>Operation Department (2 Rooms)</b>									
E-2-01	Surgical Instrument Set	1	Supplement	○	○	△	○	4	
E-2-02	Laryngoscope (with Ambu Bag) for Infant	1	Supplement	○	○	○	○	1	
E-2-03	Humidifier	3	-	-	-	-	-	0	
E-2-04	Nebulizer	8	-	-	-	-	-	0	
E-2-07	-	-	-	-	-	-	-	-	
E-2-08	Infusion Pump	3	Supplement	-	-	×	×	0	Common use with Delivery Room
E-2-09	Fetal Monitor	1	-	-	-	-	-	0	Delivery Room
E-2-10	Ventilator (for Anesthesia Apparatus)	1	-	-	-	-	-	-	Included In E-2-13
E-2-11	Pulse Oximeter	1	-	-	-	-	-	0	
E-2-12	Bronchofiberscope	1	-	-	-	-	-	0	
E-2-13	Anesthesia Apparatus (with Ventilator)	2	Replacement	○	○	○	○	2	
E-2-14	Suction Unit (2 Bottles)	2	Replacement	○	○	○	○	2	
-	Patient Monitor	2	Replacement	○	○	○	○	2	
E-4-01	Cytoscope	1	Replacement	○	○	○	○	1	
E-4-02	Electrosurgical Unit	1	Replacement	○	○	△	○	2	
E-4-03	Operation Table	2	Replacement	○	○	○	○	2	Maintain 2 Rooms
E-4-04	Operation Instrument Set	1	-	-	-	×	×	×	Repetition with E-2-01
-	Surgical Instrument Set, Caesarean Set	4	Supplement	○	○	○	○	4	2 each
-	Surgical Instrument Set, Hysterectomy Set	2	Supplement	○	○	○	○	2	1 each
E-5-01	Suction Unit	1	Replacement	○	○	△	○	2	
E-5-02	Instrument Sterilizer	2	Replacement	○	○	○	○	2	
-	Operating Lamp, Stand Type	2	Replacement	○	○	▲	○	1	
-	Endotracheal Set	2	Supplement	○	○	○	○	2	
-	Mayo Stand	2	Supplement	○	○	○	○	2	
<b>Neonatology Department</b>									
E-1-07	Neonatal Monitor	2	Supplement	○	○	▲	○	1	
E-1-08	Pulse Oximeter	1	Supplement	○	○	△	○	2	
E-1-09	Bilirubinmeter (with Hematocrit Centrifuge)	1	New	○	○	○	○	1	
E-1-10	Infant Incubator	2	Supplement	○	○	△	○	3	
E-3-01	Infant Warmer	1	Supplement	○	○	△	○	2	
E-3-02	Phototherapy Unit	2	Supplement	○	○	○	○	2	
E-3-03	Nebulizer	3	Supplement	○	○	▲	○	2	
E-3-04	Ultrasound Diagnostic Unit, Mobile	1	-	-	-	-	×	0	Repetition
E-3-05	Ventilator for Infant	2	Replacement	○	○	▲	○	1	
E-3-06	Neonatal Monitor	1	-	-	-	-	×	0	Repetition
E-3-07	Bilirubinmeter, Portable Type	1	-	-	-	-	×	0	Low Reliability
E-3-10	Infant Incubator	2	-	-	-	-	×	0	Repetition
E-7-01	Infant Warmer	2	-	-	-	-	×	0	Repetition
E-7-02	Nebulizer	2	-	-	-	-	×	0	Repetition
-	Humidifier	-	Supplement	○	○	○	○	2	

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Item No.	Description	Quantity Required	Contents of Evaluation				Result	Quantity Planned	Remarks
			Classification related to the existing Equipment	Technical Level	Operation, Maintenance & Management System / Condition	Consideration of aptitude Quantity			
-	Suction Unit, Portable Type	2	Supplement	○	○	▲	○	1	
-	Milk Warmer	1	New	○	○	○	○	1	
-	Syringe Pump	2	Supplement	○	○	○	○	2	
-	Breast Pump (Milking Machine)	1	New	○	○	○	○	1	
-	Infant Incubator (Portable Type)	1	Supplement	○	○	○	○	1	
<b>Clinical Laboratory / Express Laboratory Department</b>									
E-6-01	pH Meter	1	New	○	×	×	×	0	
E-6-02	Hematology Analyzer, 15 parameters	1	New	○	×	×	×	0	
E-6-03	Hemoglobinmeter (with Hematocrit Centrifuge)	1	New	-	-	-	-	-	Use in Neonatology Dept.
E-6-04	Microscope	3	Replacement	○	○	○	○	3	
-	Spectrophotometer	1	Replacement	○	○	○	○	1	
-	Clinical Refractometer	1	Supplement	○	○	○	○	1	
-	Glassware Washer	1	New	○	○	○	○	1	To keep cleanliness
-	Wintrobe Hematocrit Set	1	Supplement	○	○	○	○	1	
<b>X-ray Department</b>									
-	Diagnostic X-ray TV System	1	Replacement	○	○	○	○	1	
-	Film Dryer	1	Supplement	○	○	○	○	1	
-	Dark Room Lamp	1	Supplement	○	○	○	○	1	
-	Film Developing Set	1	Supplement	○	○	○	○	1	
-	Film Hanger	1	Supplement	○	○	○	○	1	
-	Film Preserve Box	1	Supplement	○	○	○	○	1	
-	Film Marker	1	Supplement	○	○	○	○	1	
-	X-ray Protective Apron	1	Supplement	○	○	○	○	1	
-	X-ray Protective Groove	1	Supplement	○	○	○	○	1	
-	Film Cassette Set	1	Supplement	○	○	○	○	1	
-	Film Cassette Cabinet	1	Supplement	○	○	○	○	1	
-	X-ray Warning Indication Lamp	1	Supplement	○	○	○	○	1	
<b>Laundry Department</b>									
-	Washing Machine	2	Replacement	○	○	○	○	2	
-	Extractor	2	Replacement	○	○	○	○	2	
-	Drying Machine	-	-	-	-	-	-	-	
<b>Sterilization Department</b>									
-	High Pressure Steam Sterilizer with Generator	1	Replacement	○	○	○	○	1	

(2) Equipment Plan

1) List of Equipment Planned

Based on the above examination and evaluation, the planned equipment for this Project is listed below.

The designated hospitals are indicated by the following abbreviations; item numbers are shown on the left side and quantities on the right side.

SCH: Samarkand Regional Children Hospital

SMCH: Samarkand Regional Health Care Center for Mother and Children

NGH: Navoi Regional General Hospital

NCH: Navoi Regional Children Hospital

NKDH: Navoi/Khatyrchi District Central Hospital



Table 2-3 List of Equipment

Item No.	Description	SCH	SMCH	NGH	NCH	NKDH	Total
<b>Clinical Laboratory Department</b>							
CL-001	Microscope	3	3	3	3	3	15
CL-002	Spectrophotometer	1	1	1	1	1	5
CL-003	Biochemical Analyzer	1	1	1	1	-	4
CL-004	Autoclave	1	1	1	1	-	4
CL-005	Laboratory Incubator, with Stand	1	-	1	-	-	2
CL-006	Glassware Washer	1	1	1	1	1	5
CL-007	Wintrobe Hematocrit Set	1	1	1	1	1	5
CL-008	Centrifuge, Table Top Type, General Purpose	1	1	1	1	1	5
CL-009	Clinical Refractometer	-	-	-	-	1	1
CL-010	Refrigerator	1	1	1	1	1	5
CL-011	Electronic Balance	1	1	1	1	-	4
CL-012	Blood Type Test Set	-	-	1	1	-	2
CL-013	Water Distilling Apparatus (1.8 lit./h.)	1	-	1	-	-	2
<b>Sterilization Department</b>							
ST-001	High Pressure Steam Sterilizer with Generator	2	1	-	-	1	4
ST-002	Hot Air Sterilizer	1	-	-	1	-	2
ST-003	Instrument Sterilizer, M size, Pedal Type	-	2	-	-	-	2
<b>Obstetric / Delivery Department</b>							
DL-001	Gatch Bed	-	3	2	-	-	5
DL-002	Fetal Monitor	-	1	1	-	1	3
DL-003	Infusion Pump	-	3	2	-	2	7
DL-004	Laryngoscope (with Ambu Bag)	-	2	1	-	1	4
DL-005	Ultrasound Diagnostic Unit, Portable Type	-	1	1	-	1	3
DL-006	Doppler Fetus Detector	-	1	1	-	1	3
DL-007	Hydrotubation Apparatus	-	1	-	-	-	1
DL-008	Infant Warmer	-	1	1	-	1	3

Item No.	Description	SCH	SMCH	NGH	NCH	NKDH	Total
DL-009	Delivery Table	-	4	5	-	4	13
DL-010	Suction Unit, 2 Bottles Type	-	4	4	-	2	10
DL-011	Gynecological Examination Unit	-	4	5	-	4	13
DL-012	Kelly's Pad	-	8	8	-	8	24
DL-013	Baby Scale, 0-10 kg	-	2	2	-	2	6
<b>Dental Department</b>							
DT-001	Dental X-ray Unit	1	-	-	-	-	1
<b>Diagnostic Examination Department</b>							
EX-001	Ultrasound Diagnostic Unit, with Doppler Unit and Printer	1	1	1	1	1	5
EX-002	EEG	1	-	1	1	-	3
EX-003	ECG, 6ch	1	1	1	1	1	5
EX-004	ECG, Portable 1ch	1	-	-	-	-	1
EX-005	Gastrofiberscope, for Child	1	-	1	1	1	4
EX-006	Bronchofiberscope, for Child	1	-	1	1	1	4
EX-007	Colonofiberscope, for Child	1	-	-	-	-	1
EX-008	Light Source for Fiberscope	2	-	1	1	1	5
EX-009	Trolley, for Fiberscope	2	-	1	1	1	5
EX-010	Endoscopic Table	2	-	1	1	1	5
EX-011	Endoscopic Cabinet	2	-	1	1	1	5
EX-012	Cleaner for Endoscope	2	-	1	1	1	5
EX-013	TV Monitor Set for Fiberscope	1	-	-	-	-	1
EX-014	Weighing Scale, 150kg	1	1	1	1	1	5
EX-015	Thermometer	33	13	10	10	10	76
EX-016	Sphygmomanometer	15	5	10	5	5	40
EX-017	Diagnostic Set	4	4	4	4	4	20
EX-018	Examination Light	1	2	2	1	1	7
EX-019	Instrument Sterilizer, Table Top	3	3	3	3	3	15

Item No.	Description	SCH	SMCH	NGH	NCH	NKDH	Total
EX-020	High Pressure Steam Sterilizer, Table Top	3	3	3	3	3	15
EX-021	Baby Scale, 0-10 kg	1	-	-	1	1	3
<b>Reanimation Department (Infant)</b>							
RAI-001	Patient Monitor	3	-	-	2	-	5
RAI-002	Laryngoscope (with Ambu Bag ) for Child	1	-	-	1	-	2
RAI-003	Infusion Pump	2	-	-	2	-	4
RAI-004	Syringe Pump	3	-	-	5	-	8
RAI-005	Pulse Oximeter	1	-	-	1	1	3
RAI-006	Suction Unit, Portable Type	1	-	-	1	1	3
<b>Reanimation Department (Mother)</b>							
RAM-001	ICU Bed	-	-	4	-	-	4
RAM-002	Patient Monitor	-	-	2	-	-	2
RAM-003	Suction Unit, Portable Type	-	-	2	-	-	2
RAM-004	Ventilator (for Adult)	-	-	2	-	-	2
RAM-005	Defibrillator with Trolley	-	-	1	-	-	1
RAM-006	Infusion Pump	-	-	1	-	-	1
<b>Laundry Department</b>							
LD-001	Washing Machine, 30kg	2	1	-	-	2	5
LD-002	Extractor	2	1	-	-	2	5
<b>Neonatology Department</b>							
NB-001	Bilirubinmeter (with Hematocrit Centrifuge)	1	1	1	1	1	5
NB-002	Ultrasound Diagnostic Unit, Portable Type	1	-	-	1	-	2
NB-003	Infant Incubator	3	2	2	2	3	12
NB-004	Ventilator for Infant	1	1	1	1	1	5
NB-005	Neonatal Monitor	1	1	1	1	1	5
NB-006	Humidifier	2	2	2	2	2	10
NB-007	Infant Warmer	2	2	2	2	2	10

Item No.	Description	SCH	SMCH	NGH	NCH	NKDH	Total
NB-008	Phototherapy Unit	3	2	2	2	2	11
NB-009	Laryngoscope (with Ambu Bag) for Infant	1	2	1	2	1	7
NB-010	Baby Scale, 0-10 kg	2	.	.	2	.	4
NB-011	Milk Warmer	1	1	1	1	1	5
NB-012	Breast Pump (Milking Machine)	1	1	1	1	1	5
NB-013	Pules Oximeter	1	2	1	1	2	7
NB-014	Suction Unit, Portable Type	1	1	1	1	1	5
NB-015	Syringe Pump	2	2	2	2	2	10
NB-016	Nubulizer	.	.	.	2	2	4
NB-017	Infant Incubator, Portable, for Transportation	1	1	1	1	1	5
<b>Operation Department</b>							
OP-001	Operation Table	2	2	2	2	2	10
OP-002	Anesthesia Apparatus, with Ventilator	2	2	2	1	2	9
OP-003	Operation Light, Ceiling Type (2)	2	.	2	1	.	5
OP-004	Electrosurgical Unit	2	2	2	2	2	10
OP-005	Suction Unit, 2 Bottles Type	2	2	2	2	2	10
OP-006	Patient Monitor	2	2	2	2	2	10
OP-007	Surgical Instrument Set for Child	4	.	.	4	.	8
OP-008	Surgical Instrument Set	.	3	3	.	4	10
OP-009	Surgical Instrument Set, Caesarean Set	.	4	4	.	4	12
OP-010	Surgical Instrument Set, Hysterectomy Set	.	2	2	.	2	6
OP-011	Surgical Dental Instrument Set for Child	2	.	.	.	.	2
OP-012	Endotrachel Set	2	2	2	2	2	10
OP-013	Resuscitator	1	2	.	.	.	3
OP-014	Cyctoscope	1	.	.	1	1	3
OP-015	Mayo Stand	2	2	2	2	2	10
OP-016	Defibrillator	.	1	.	1	.	2

Item No.	Description	SCH	SMCH	NGH	NCH	NKDH	Total
OP-017	Laparoscope Set	-	1	1	-	-	2
OP-018	Light Source for Laparoscope	-	1	1	-	-	2
OP-019	Operating Light, Stand Type with Battery	-	1	-	1	1	3
OP-020	High Pressure Steam Sterilizer	-	-	2	2	2	6
OP-021	Autoclave, $\phi$ 40 x 65cm	-	-	1	-	-	1
OP-022	Laryngoscope (with Ambu Bag) for Infant	1	-	-	1	1	3
OP-023	Hor Air Sterilizer	-	-	-	1	-	1
<b>Pharmacy Department</b>							
PM-001	Bottle Sterilizer	1	-	-	-	-	1
<b>Rehabilitation Department</b>							
RH-001	Shortwave Diathermy	1	-	-	-	-	1
RH-002	Microwave Therapy Unit	1	-	-	-	-	1
RH-003	Interferential Therapy Unit	1	-	-	-	-	1
RH-004	Low Frequency Therapy	1	-	-	-	-	1
RH-005	Nebulizer	2	-	-	-	-	2
RH-006	Instrument Dryer with Ultra-Violet Lamp	1	-	-	-	-	1
<b>X-ray Department</b>							
X-001	Diagnostic X-ray Unit, with TV System	1	1	1	-	1	4
X-002	Film Dryer	1	1	1	-	1	4
X-003	Dark Room Lamp	1	1	1	-	1	4
X-004	Film Developing Set	1	1	1	-	1	4
X-005	Film Hunger	1	1	1	-	1	4
X-006	Film Preserve Box	1	1	1	-	1	4
X-007	Film Marker	1	1	1	-	1	4
X-008	X-ray Protective Apron	1	1	1	-	1	4
X-009	X-ray Protective Grove	1	1	1	-	1	4
X-010	Film Cassette Set	1	1	1	-	1	4

Item No.	Description	SCH	SMCH	NGH	NCH	NKDH	Total
X-011	Film Cassette Cabinet	1	1	1	.	1	4
X-012	X-ray Warning Indication Lamp	1	1	1	.	1	4