

MINISTRY OF HEALTH
REPUBLIC OF UZBEKISTAN

BASIC DESIGN STUDY REPORT
ON
THE PROJECT FOR IMPROVEMENT OF MATERNAL AND CHILD
MEDICAL EQUIPMENT IN THE EASTERN PROVINCES
IN
THE REPUBLIC OF UZBEKISTAN

BASIC DESIGN STUDY REPORT ON THE PROJECT FOR IMPROVEMENT OF MATERNAL AND CHILD

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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 Maternal and Child Medical Equipment in the Eastern Provinces and entrusted the study to the Japan International Cooperation Agency (JICA).

JICA sent to Uzbekistan a study team from October 4 to November 4, 1995.

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, 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.

February, 1996



Kimio FUJITA
President

Japan International Cooperation Agency

February, 1996

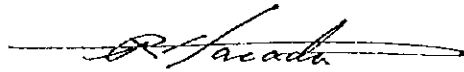
Letter of Transmittal

We are pleased to submit to you the basic design study report on the Project for Improvement of Maternal and Child Medical Equipment in the Eastern Provinces in the Republic of Uzbekistan.

This study was conducted by International Total Engineering Corporation, under a contract to JICA, during the period from September 22, 1995 to February 29, 1996. 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,

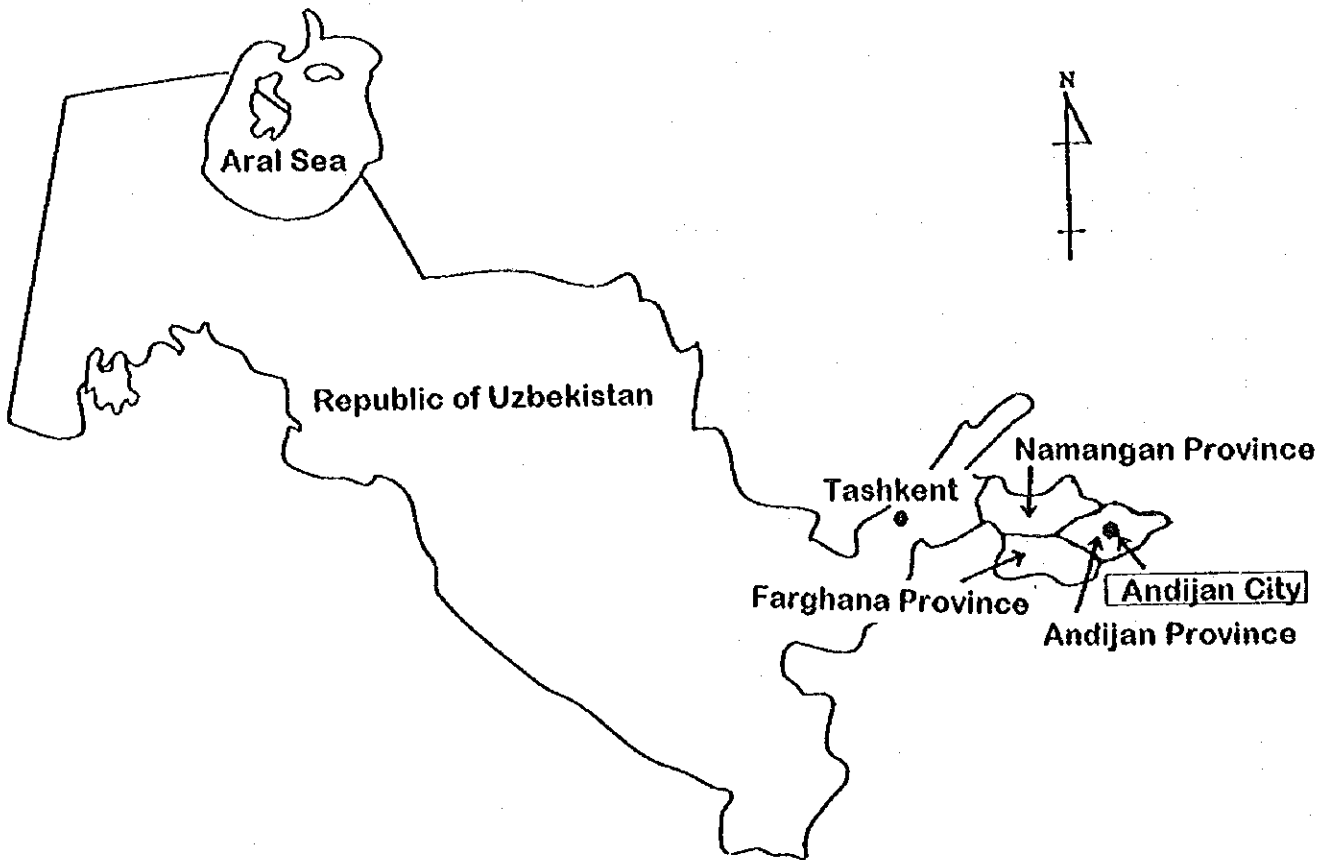


Ryoji HARADA
Project manager,
Basic design study team on
the Project for Improvement of Maternal and Child
Medical Equipment in the Eastern Provinces

International Total Engineering Corporation

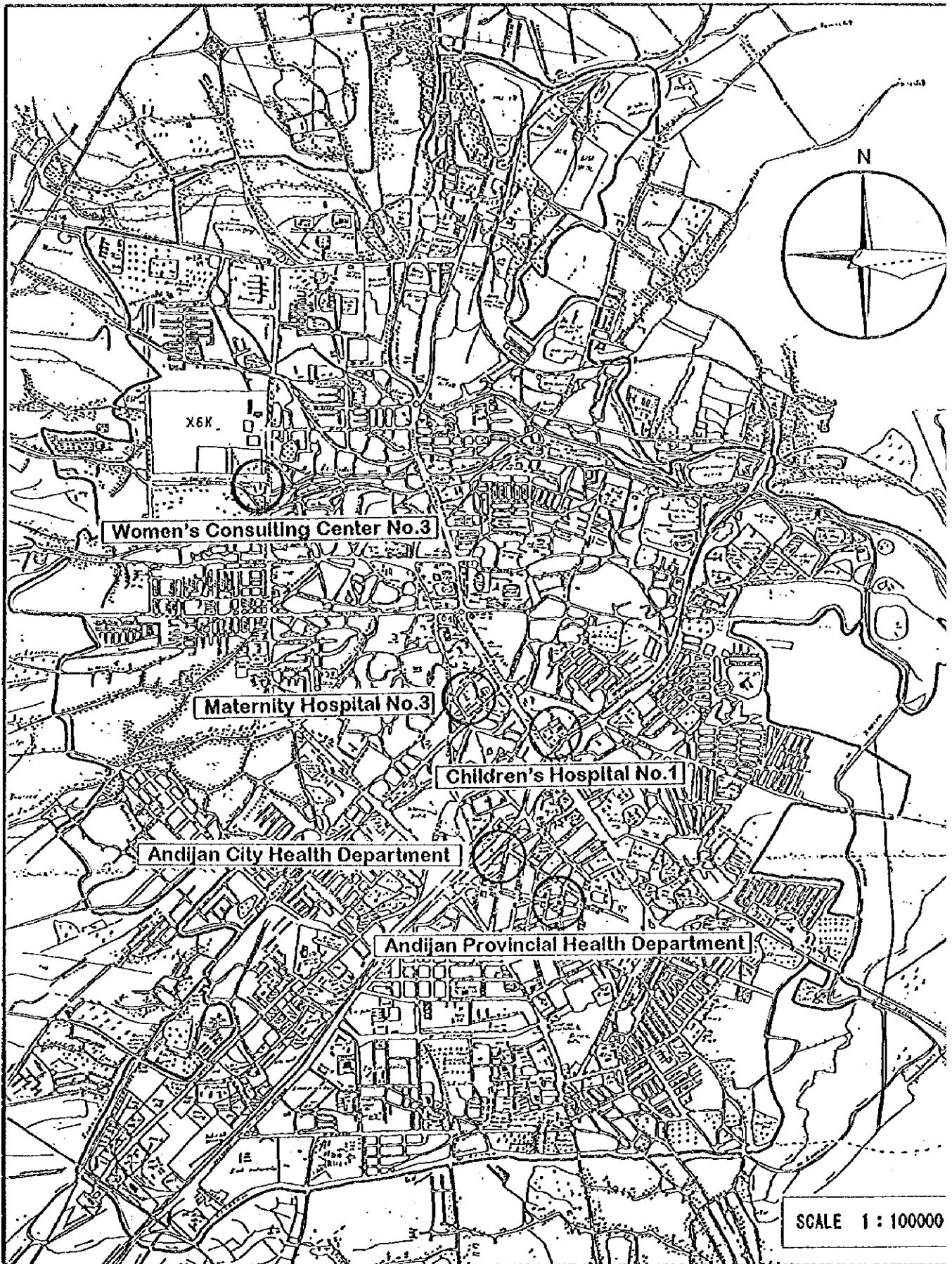
LOCATION MAP

REPUBLIC OF UZBEKISTAN



SCALE 1 : 9000000

ANDIJAN CITY



CONTENTS

Preface

Letter of Transmittal

Location Map

Chapter 1 Background of the Project

1-1	Background of the Project	1
1-2	Contents of the Request.....	2

Chapter 2 Contents of the Project

2-1	Objectives of the Project.....	5
2-2	Basic Concept of the Project.....	5
2-3	Basic Design.....	7
2-3-1	Design Concept.....	7
2-3-2	Basic Design.....	8

Chapter 3 Implementation Plan

3-1	Implementation Plan.....	41
3-1-1	Implementation Concept.....	41
3-1-2	Scope of Works.....	44
3-1-3	Consultant Supervision.....	45
3-1-4	Procurement Plan.....	45
3-1-5	Implementation Schedule.....	47
3-1-6	Obligations of recipient country.....	49
3-2	Operation and Maintenance plan.....	49

Chapter 4 Project Evaluation and Recommendation

4-1	Project Effect.....	53
4-2	Recommendation.....	56

(Appendices)

1.	Member List of the Survey Team.....	A - 1
2.	Survey Schedule.....	A - 3
3.	List of Party Concerned in the Recipient Country.....	A - 5
4.	Minutes of Discussion.....	A - 9
5.	Cost Estimation Borne by the Recipient Country.....	A-23
6.	Water Analysis Report.....	A-25

Chapter 1 · Background of the Project

Chapter 1 Background of the Project

1.1 Background of the Project

The independence of the Republic of Uzbekistan (hereinafter referred to as Uzbekistan.) in November 1991 had a big impact on its health care policy. Independence meant that it was now possible for the Ministry of Health of Uzbekistan to make its own policy decisions, and accordingly it proceeded to formulate and announce its "Health Care Reform Program," the main items of which are more attention to maternal and child health care, measures for dealing with infectious diseases, enhancement of health care education and improvement of the institutional structure of provision of health care services.

Before independence Uzbekistan did almost nothing about its population issue, and that resulted in an extremely high rate of increase of population (2.2% in 1993). But now its government is addressing the issue.

The Ministry of Health of Uzbekistan is particularly aware of the adverse effect on the health of both mother and child of the fact that women have too many children. The average number of children per mother is five, and in rural areas ten or more children per mother is common. Such prolificacy means too short periods between births, which is detrimental to maternal health. As a result, the mortality rates of both women in labor, fetuses and newborns are high. According to the health statistics for 1993 the mortality rate per 1,000 was 42.5 women in labor and 32 newborns.

In order to improve that situation the government of Uzbekistan has formulated a "Maternity Health Care Plan" on the basis of the "Health Care Reform Program." One of the concrete measures of that plan was implementation in 1994 of improvement of medical equipment at two national pediatrics hospitals in Tashkent, on the basis of first-time cooperation on the part of Japan's Grant Aid Program.

But even more so than in the capital, improvement of health care facilities in the field of maternity health is urgently needed in the eastern provinces of the Farghana Valley, where population density is even higher and health care is even less adequate. That is why the Ministry of Health has formulated a "Project for Improvement of Maternal and Child Medical Equipment in the Eastern Provinces." The project will raise the level of maternal and child health care in Andijan Province by improving the functions of three maternal and child health care facilities in that area. The government of Uzbekistan has requested Japanese cooperation in the Grant Aid

Program for procurement of medical equipment concerning diagnosis and treatment of particularly expecting and delivered mothers and newborns, including premature babies.

1.2 Contents of the Request

(1) Objectives of the Project

Andijan Province plays a pivotal role in the eastern provinces, and in the health care field, too, a referral center has been established in it. Serious patients are sent to that referral center not only from Andijan Province itself but also from neighboring Farghana Province and Namangan Province. This project is for the purpose of procurement of the necessary equipment for upgrading that eastern provinces referral center which are Maternity Hospital No.3, Children's Hospital No.1 and Women's Consulting Center No.3 for maternal and child health care.

(2) Project-Implementing Agency

The Ministry of Health of Uzbekistan is the entity that will be responsible for overseeing implementation of the project, and the Andijan Province Health Bureau will be the agency responsible for implementation of the project and for operation, maintenance and management of the facilities in question. The Ministry of Health will give that Provincial Health Department its full backing in terms of budget appropriations of necessary maintenance and management funds for the project and provision of technical guidance and other assistance concerning the facilities involved.

(3) Summary Description of the Project

1) The facilities covered by the project are the following three health care facilities in the Andijan city :

I. Maternity Hospital No.3

II. Children's Hospital No.1

III. Women's Consulting Center No.3

2) Summary Description of Requested Equipment

The equipment requested for those three facilities is as follows:

[I. Maternity Hospital No.3]

- Maternity Dpt. : Delivery tables, Doppler heartrate detector, Fetal monitor, etc.
- Newborns Dpt. : Phototherapy unit, Infant incubators, Oxygen tents, etc.
- Laboratory Dpt. : Refrigerated centrifuge, Desk-top centrifuge, Water distilling apparatus, Microscopes, pH meter, etc.
- Operation Dpt. : Blood refrigerator, Water sterilizing apparatus, Laryngoscopes, Operating tables, Hemostat apparatus, Anesthesia apparatus, etc.
- Intensive Care Unit : Newborn ventilator, Hot-air sterilizer, Ventilator for adult, ECG monitor, Defibrillator, Infusion pump, etc.
- Management Dpt. : Air conditioner, Emergency generator, Washing machines, Extractor machines, Drying machines, etc.
- Vehicles : Ambulance

[II. Children's Hospital No.1]

- Newborns Dpt. : Phototherapy unit, Infant incubators, Infant warmers, Blood refrigerator, Laryngoscopes, Water sterilizing apparatus, Newborn ventilator, Bedside monitors, etc.
- Laboratory Dpt. : Microscopes, Water distilling apparatus, Handy bilirubin meter, Reagent refrigerator, Bilirubin meter, etc.
- Management Dpt. : Air conditioner, Emergency generator, etc.
- Vehicle : Ambulance

[III. Women's Consulting Center No.3]

- Laboratory Dpt. : Spectrophotometer, Refractometer, Centrifuges, Microscopes, Hot-air sterilizer, etc.
- Maternity Dpt. : Gynecological examination tables, Sets of gynecological forceps, Ultrasound scanner, Examination lamps, Colposcopes, Electrocardiograph, Hemostat apparatus, Fetal monitor, Water sterilizing apparatus, Doppler heartrate detector, Dental treatment unit and Instrument set, etc.
- Education Dpt. : Typewriters with memory, Slide projector, OHP, etc.
- Management Dpt. : Air conditioner, Computer (including printer), etc.
- Vehicles : Ambulance

Chapter 2 Contents of the Project

Chapter 2 Contents of the Project

2.1 Objectives of the Project

Among the goals of the "Plan for Improvement of the Health of Mothers and Infants" that is presently being promoted by the Ministry of Health of Uzbekistan is reduction of the mortality rates of women in labor and infants. As a part of that plan the objectives of this project is procuring medical equipment that is lacking at three facilities that are maternal and child health services in the eastern region of the country and replacing the equipment at them that has become obsolete and, by so doing, improving the diagnosis and treatment functions of those facilities, reinforcing maternal and child health activities and supporting promotion of transfer of medical technology to health care facilities at lower levels.

2.2 Basic Concept of the Project

(1) Definition of the Role of the Facilities in Question

I. Maternity Hospital No.3

This hospital, as a "hematology center" (hospital specialized in dealing with deliveries involving profuse loss of blood) in the eastern region, is a referral maternity hospital for pregnant women who have been prone to considerable loss of blood and other abnormal pregnancy cases. It also functions as a training center for obstetrical and gynecological health care workers within the province and is considered to be a obstetrical and gynecological referral center in the region.

II. Children's Hospital No.1

This is a facility to which particularly premature babies are referred from maternity hospitals in and outside the province, and it also serves as a training center for pediatric health care workers in the province. It is considered to be a pediatric referral center in the region.

III. Women's Consulting Center No.3

The main function of this center is early detection of abnormal pregnancies. Patients with detected abnormal pregnancies are referred by it to maternity hospitals according to their symptoms. It also carries out educational activities

concerning pregnancy and delivery for the benefit of women of child-bearing age in the region.

(2) Selection of the Medical Equipment

Selection of the medical equipment is limited to the scope within which it is possible to secure independent development in technical and financial terms, taking into account the information obtained in local surveys concerning the number of health care workers, the technological level, the frequency of use of existing equipment, the degree of ability to assume financial burdens, etc. of the facilities in question. The specifications of the equipment will be considered within the limits of what the other side is capable of dealing with as regards maintenance and control taking into account the technical level of Uzmedtechnika and the local equipment agencies.

1) Specifications of the Equipment

- As for the main specifications of the equipment, what will be considered is equipment with specifications that do not require special replacement parts, that is, equipment that is mechanical just as the existing equipment, avoiding automation and computer control as involving difficulty in terms of maintenance and control.
- Equipment with specifications such as to require as little use of consumables as possible will be considered for the sake of minimizing maintenance and control expenses.
- For equipment that requires use of consumables and periodical overhauling, products will be considered among manufacturers of which have equipment agencies in Russia or other neighboring countries of Central Asia.

2) Quantities of the Different Kinds of Equipment

- In determining the quantities, consideration will be given to such factors as frequency of use of the existing equipment, past test numbers, expected future increase, and so forth. Instead of trying to raise efficiency by automation, increasing needs will be met by increasing the number of units of the equipment.

2.3 Basic Design

2.3.1 Design Concept

(1) Design Conditions for Selection of the Equipment

The design conditions for selection of the equipment will be set as follows on the basis of the basic concept described above.

- (A) In order to keep the costs of maintenance and control as low as possible, instead of equipment with specifications requiring expensive special replacement parts for maintenance and repairs, preference will be given to equipment with mechanical specifications for which general-purpose parts available in the region or in elsewhere in Uzbekistan will be sufficient.
- (B) For similar reasons preference will be given to equipment with specifications not involving much use of consumables. For ventilators, anesthesia apparatus, and other similar equipment, preference will be given to equipment that uses many parts that can be reused after cleaning, sterilizing and similar operations instead of consumables. For spectrophotometers and other equipment requiring reagents, preference will be given to equipment with specifications that make it possible to use reagents prepared by the hospital's laboratory technicians instead of purchased reagents.
- (C) For equipment that requires regular maintenance and control (computers, ultrasound scanner, ventilators, anesthesia apparatus, etc.) and equipment that requires consumables and reagents (syringe pumps, blood cell counters, etc.), preference will be given to products whose manufacturers have agencies or branches in Uzbekistan, Russia or other Central Asian countries and for which reagents and replacement parts can be purchased in the local currency (Cym).
- (D) For equipment that is vital to support of life (ventilators, anesthesia apparatus, etc.), preference will be given to European products widely used in Uzbekistan and products of OECD/DAC countries.
- (E) For the main equipment, preference will be given to the equipment of manufacturers that are able to furnish operating manuals and maintenance and control instructions in Russian and that can also, at the time of delivery and installation of the equipment, send personnel capable of providing guidance concerning how to operate the equipment and to accomplish daily checks and preventive maintenance work on it.

- (F) For equipment that could malfunction or have its functions impaired or its service life shortened by voltage fluctuation (laboratory equipment, computers, etc.), consideration will be given to procurement of voltage stabilizers as accessories.
- (G) For typewriters, computers and other equipment for management and other office work and educational purposes, consideration will be given to procurement from manufacturers' agencies or importers in Uzbekistan.
- (H) For ultrasound scanner, and so forth, it is necessary to give precedence to equipment of manufacturers who are able, at the time of installation of the equipment, to provide training concerning its maintenance and control.
- (I) As for ambulances, those for the Maternity Hospital No.3 and the Children's Hospital No.1 should have infant incubators since they will be for carrying pregnant women and newborns. Those for the Women's Consulting Center No.3 should have stretchers since they will be mainly for carrying pregnant women and visits of center personnel to their homes to examine them there.

2.3.2 Basic Design

(1) Overall Design

At the time of the basic design work for the project equipment, selection and adjustment of quantities were done on the basis of the above-mentioned design policies. The policies regarding cooperation for the different facilities and the reasons for selection of and changes made in the main equipment are as follows:

I. Maternity Hospital No.3

This hospital is a maternity hospital to which expecting mothers who are very prone to profuse bleeding and gynecological patients are referred. The Women's Consulting Center No.1 and No.2 operate under it.

The equipment to be furnished it includes diagnosis and treatment equipment for the obstetrics and gynecology departments and the newborns department, laboratory equipment, operation equipment, intensive care unit equipment and service equipment. The cooperation policies formulated on the basis of those functions are as follows:

1. Improvement of the diagnosis and treatment functions of the obstetrics and gynecological departments and the newborns department,

2. Since the laboratory department is to have the referral function of testing specimens from not only the Women's Consulting Centers No.1 and No.2 but also the Children's Hospital No.1, the Women's Consulting Center No.3 and elsewhere, its blood testing function is to be strengthened,
3. Enhancement of the functions of the operation department as well as improvement of control of cleanliness,
4. Improvement of the basic diagnosis and treatment functions of the intensive care room department, and
5. Supporting for the purpose of keeping important equipment in operation at all times.

The following is an account of how the main equipment has been selected and reasons for changes which were made.

[Obstetrics Department]

- Doppler Heartrate Detector

This equipment is for stethoscopic examination of the heartbeat of the fetus in the mother's body by application of a probe to the outside of her body. Since it is a small unit of equipment that can be moved around, it is considered sufficient to procure only 4 of them instead of the 8 requested taking the places where they will be used and other pertinent factors into account.

- Mobile X-Ray Unit

This equipment is for simple X-Ray photographing of inpatients and obstetrics and gynecology department outpatients. It is considered that what was requested is appropriate in view of the fact that the facility does not at present have any X-Ray equipment and that it is basically necessary for improvement of its diagnosis function. Furthermore, since presently does not have any X-Ray film developing apparatus, a dark room will be needed, and therefore consideration will also be given to procurement of dark room apparatus.

- Ultrasound scanner

This equipment makes it possible to make appropriate examination and diagnosis on the basis of graphic information obtained from ultrasonic waves applied from outside the body. Since it is also noninvasive, it is indispensable for examination and diagnosis of expecting mothers.

Since the hospital does not presently have any ultrasound scanner, it is

appropriate to procure 1 general-purpose unit for the hospital's health care activities and use on obstetrics and gynecology department and other in-patients and 1 portable unit for examination of expecting mothers in their homes.

[Newborns Department]

- Oxygen Tent

This equipment has been requested for the purpose of oxygen treatment of newborn babies who are in a state of asphyxia when born. However, since equipment that does not use very much oxygen is more desirable considering the existing medical gas equipment, effectiveness of treatment, and so forth, consideration will be given to procurement of an oxygen box instead.

[Laboratory Department]

- High Speed Refrigerated Centrifuge

It is planned to establish a hematology center within the facility for the purpose of blood transfusion treatment of women who have suffered severe hemorrhage in delivery. This equipment is needed for separation of the constituents of fresh blood from donors. Since, in view of the purpose for which it is to be used, there is no need for rapid rotation, consideration will be given to procurement of only a refrigerated centrifuge.

- Blood Gas Analyzer

This is an important clinical unit for determination of the condition of patients undergoing treatment with ventilation and other equipment and patients in very serious condition since measurements of oxygen and carbon dioxide in the blood and blood pH give an indication of the condition of the respiratory system, the circulatory system, metabolic ailments, and so forth. Nevertheless, it has been decided not to include it because of the fact that maintenance and control of it would be a problem considering that the manufacturers are presently not able to provide any technical personnel nearby to deal with any trouble with it.

- Fluorometer and Biochemical Analyzer

Since this is a newly introduced unit for which there are serious geographical and financial limitations concerning procurement of reagents and replacement parts, it has been decided not to include it. Instead, consideration will be given to procurement of a manual spectrophotometer considering the present quantities of

test specimens, the test items, etc.

[Operation Department]

- Anesthesia Apparatus With Ventilator

Presently an average of four operations a week are carried out using two operation rooms. Although there are presently two anesthesia apparatuses, one of them is so old that it breaks down all the time and is of no use. The requested item and is appropriate considering the use of the equipment and other factors. Considering the frequency of use of the equipment, it is necessary to procure two supplemental equipment.

[Intensive Care Unit]

- Intracutaneous Gas Monitor

Since this kind of equipment is presently lacking, even in-patients in very serious condition have to be treated without use of a monitor. Considering, however, the types of gas in the blood to be measured and difficulty of maintenance and control, it has been decided to consider procurement of a pulse oxymeter, instead, as a simpler type of equipment.

[Management Department]

- Washing Machines and Extractor Machines

In view of the fact that there is about 500 kgs/day of things that need washing and that the existing washing machines and extractor machines are almost deteriorated after long use, consideration will be given to replacing them by 2 new washing machines and 2 new extractor machines.

- Drying Machines

Although there are 10 drying machines of the electric blower type, 5 of them are out of order after being in service for a very long time. It is therefore considered appropriate to replace 2 of them with new ones.

[Vehicles]

- Ambulance

Since the purpose is to carry expecting mothers to the maternity hospital. Presently using a ambulance belongs to the City Ambulance Center and it is not always available, therefore it is considered that what has been requested is appropriate.

II. Children's Hospital No.1

As a hospital specialized in pediatrics, particularly premature babies are referred to it. The equipment will be examination and treatment equipment for the newborns department, laboratory equipment, service equipment, vehicle, and so forth. The cooperation policies that have been formulated taking into account the characteristics and functions of this hospital are as follows:

1. Improvement of the examination and treatment functions of the newborns department,
2. Limitation of laboratory equipment to what is needed in order to maintain the testing that is presently being done,
3. Improvement of control of cleanliness and support for keeping important equipment in operation at all times, and
4. Improvement of transportation service for premature babies.

The following is an account of how the main equipment has been selected and what changes have been made in so doing.

[Newborns Department]

- Infant Incubator

In the two-storey ward for premature babies there are 8 rooms for premature babies and 1 intensive care unit. Presently there are 5 infant incubators in operating condition, which is not enough. It is therefore necessary to replace the equipment that is no longer good operating condition and to supplement it with new units so that the premature babies can receive the necessary treatment. Although 18 units have been requested, consideration will be given to furnishing of 12 considering the present number of inpatients, the space of the rooms in use and other factors.

- Set of Sterilizing Lamps, Mobile Indoor Sterilizing Lamps

Although equipment for sterilizing the air in the rooms by irradiation of ultraviolet light is already installed, the sterilizing effect does not seem to be very great considering the fact that the rooms are not kept airtight.

Therefore it has been decided not to include such equipment. Instead, it has been decided to plan for a UV water sterilizer for supplying disinfected water with which doctors and nurses can wash their hands before treatment and operation to

prevent secondary infection.

- Syringe Pump, Food Pump

Although both a syringe pump and a food pump have been requested, considering that they are for such use purposes as treatment by medical fluids and supplementing nutrition, it is possible to use the syringe pump for all such purposes. Therefore it has been decided not to include a food pump and to make do with only a syringe pump.

- Hyster Mouth Gags

Considering safety and the use purpose of ensuring that the infant's respiratory tract remains open, we have made a change from mouth gags to air ways and adjusted the quantity.

- Children's Beds With Crank

What was requested is children's beds, but after checking, it was determined that what was meant is beds for newborns. We have therefore made the necessary change.

[Laboratory Department]

- Blood Gas Analyzer

It is not considered appropriate to include this equipment in view of difficulty of maintenance and control since under present conditions the manufacturer cannot provide technical personnel assigned near enough to be able to deal with technical trouble when it occurs.

- Flame Photometer

In view of the difficulty of supply of the necessary fuel gases (propane, butane, etc.) for operation of the equipment it has been decided not to include it.

- Electrolyte Analyzer, Blood Cell Counter

It has been decided not to include this equipment since the need for it is not considered to be very great considering the present numbers of test specimens and the test items involved and also in view of the fact that there is no such equipment there now and therefore the geographical and financial limitations as regards procurement of reagents and replacement parts are too great.

- Biochemical Analyzer, Fluorometer

It has been decided not to include this equipment since the geographical and financial limitations as regards procurement of reagents and replacement parts are too great. Consideration will be given to procurement of a spectrophotometer instead considering the present numbers of test specimens, the test items involved and other factors.

[Management Department]

- Air Conditioner

Since the air conditioner of the rooms for newborns and the intensive care room is not in very good operating condition after long years of use, for its replacement with new equipment is planned.

[Vehicles]

- Ambulance

In view of the main use purpose of transporting newborns from maternity hospitals, pediatric clinics and elsewhere. Since the existing one is call as frequently as 10 times a day. What has been requested is considered to be appropriate.

III. Women's Consulting Center No.3

This center has an out-patient function for obstetrics and gynecology department and a maternity health care function. The equipment includes examination and treatment equipment for the obstetrics and gynecology department, laboratory equipment, educational equipment, service equipment, vehicle, and so forth.

The cooperation policies with respect to this center are as follows:

1. Support for improvement of examination and treatment functions of the obstetrics and gynecology department,
2. Keeping the functions of the test department at their present level,
3. Support for improvement of maternity health care education,
4. Support for improvement of control of cleanliness, and
5. Support for improvement of examination and treatment service outside the center and patient transportation service.

The following is an account of the considerations in selection of the main equipment and the changes made in such selection.

[Obstetrics and Gynecology Department]

- Anesthesia Apparatus (Portable)

There is presently no operation room, and we do not consider one to be necessary. Therefore this unit has not been included.

[Laboratory Department]

- Clinical Spectrophotometer, Spectrophotometer

Although both a clinical spectrophotometer and a spectrophotometer have been requested, consideration will be given to procurement of only 1 spectrophotometer since the functions of those two types of equipment are practically the same and in view of the fact that 1 unit is sufficient considering the use and the numbers of test specimens.

- Blood Gas Analyzer

It has been decided not to include this unit because of difficulty of maintenance and control in view of the fact that neither the manufacturer nor its agencies are presently able to assign technical personnel anywhere nearby for the purpose of coping with trouble.

- Blood Cell Counter, Biochemical Analyzer

It has been decided not to include this unit since the need for it is not considered to be very great considering that the present volume of test specimens and the test items involved are not so many to be automated and also in view of the fact that there is no such equipment there now and therefore the geographical and financial limitations are too great as regards procurement of reagents and replacement parts.

[Education Department]

- Copying Machine, Slide Projector, OHP

At present there are not any sufficient materials except simple charts and drawings. This equipment will be included to provide support for preparation and use of instructional and information materials for the extension service activities "Classes for Expecting Mothers" and "Family Planning" that are presently being implemented.

{ Dental Department }

- Dental Treatment Unit

Consideration will be given to procurement of a new dental chair and dental forceps in view of the fact that expecting and delivered mothers are very much in need of dental treatment and the number of dental patients is considerable and the fact that present dental chair is in very bad condition after long use.

- Dental X-Ray Apparatus

Presently the dental department has to refer its patients to private clinics for X-Ray photographing. Since an X-Ray apparatus is basic to and would be very effective for appropriate examination and diagnosis, procurement of it along with a simple developing apparatus should be considered.

[Management Department]

- Computer

This equipment will be included for the purpose of efficient management of medical records, including number of deliveries to date, and other data on expecting and delivered mothers in the area covered by the Women's Consulting Center No.3.

[Vehicles]

- Ambulance

Since presently there is an ambulance which belongs to the City Ambulance Center. Sometimes patient who live in far place from this Center become serious conditions due to a means of access. It has been judged that what has been requested is appropriate considering that the use purposes are examination, treatment and guidance of expecting mothers at home and taking them to maternity hospitals.

[Equipment Selection Criteria]

In discussions between the government of Uzbekistan officials and our survey mission it was decided to adopt the following criteria for selection of the equipment.

(1) Priorities in Equipment Selection

- a. Basic equipment necessary for fundamental health care activities.
- b. Equipment with a high frequency of use.
- c. Equipment that needs to be replaced because it is deteriorated after long use.

(2) Principles of Elimination in Equipment Selection

- a. Equipment not directly connected with medical service such as diagnosis, treatment and prevention.
- b. Equipment entailing considerable operating and maintenance expenses which can be expected to become a financial burden for the Uzbekistan side.
- c. Hi-tech equipment above the technical level of the Uzbekistan side.
- d. Equipment for which installment is judged to be impossible in view of related infrastructural limitations.
- e. Expensive equipment with low frequency of use, that is small number of test specimens or only small number of beneficiaries.
- f. Equipment that could cause environmental problems.
- g. Equipment for which availability of consumables, spare parts, and so forth can be expected to be limited by geographic or financial factors.
- h. Simple equipment such as furniture that can be procured in Uzbekistan.

The list of equipment requested by the other side was jointly reviewed on the basis of the above criteria, each item being given an "A", "B" or "C" priority rating:

A : Equipment that is very much needed and very appropriate and procurement of which should therefore be given top priority.

B : Equipment that is needed but the appropriateness of which is doubtful.

C : Equipment that is considered not very necessary and not very appropriate.

Subsequently the list agreed on between the government of Uzbekistan officials and our survey mission was again gone over in Japan, the degree of need for and appropriateness of each item being considered in greater detail. The following is an account of how that was done.

After the requested items were classified into the categories indicated below, the evaluation criteria also indicated below were applied to them. Those evaluation criteria were formulated taking into account the content of the discussions and the matters agreed to at the time of the basic design survey. That was taken as the basis for final overall judgment on what equipment to select.

[Equipment Classification]

- Replacement equipment "R" : equipment to replace existing equipment
- New equipment "N" : equipment to be newly procured
- Supplementary equipment "S" : equipment to be procured for the purpose of increasing the quantity of existing equipment

[Evaluation Criteria]

1. Consideration of Degree of Need for It

O : Equipment that urgently needs to be replaced because it is deteriorated after long use. Equipment that is indispensable to the medical service of the facility in question and that needs to be newly provided or increased in quantity.

X : Equipment that is not so very greatly needed considering the medical service involved and equipment for which it is thought that not many patients would benefit from it.

2. Consideration of Technical Level

O : Equipment for which it is considered that there will be no problems concerning its use from the standpoint of the present medical technical level of the users.

X : Equipment for which it is considered that the present level of the technical capacity of the users is not high enough to make proper use of it since it requires a higher medical technical level.

3. Consideration From the Standpoint of Maintenance and Control Capability

O : Equipment for which maintenance and control is possible on the basis of the present level of expense and the maintenance and control capacity of the manufacturer's local agency.

Δ : Equipment for which it is considered that it can be operated on the basis of the facility's own efforts to cope with the increase in maintenance and control expenses resulting from it.

X : Equipment that will entail considerable maintenance and control expense although the number of patients that will benefit from it is small.

4. Appropriateness of the Quantity Requested

O : Equipment for which it is considered that the requested quantity is appropriate in view of the reasons for which it has been requested and the circumstances of the health care activities involved.

Δ : Equipment for which it has been decided that it is necessary to adjust the quantity from that requested in view of the reasons for which it has been requested and the circumstances of the medical service involved.

[Overall Judgment]

O : Equipment for which it has been decided that it is appropriate to include it in the project considering the circumstances regarding what has been requested.

X : Equipment for which it has been decided that it shouldn't be included in the project

The table 2-1 shows the results of evaluation of the different items of equipment requested. An "X" in any of the four columns for the evaluation criteria indicates that the equipment does not meet that criterion, and an "Δ" indicates that it has been necessary to adjust the quantity requested.

Table 2-1 The Review Results of Equipment Requested

No.	DESCRIPTION	Q'ty (A)	Minutes Q'ty x Priority	Class	1	2	3	4	Judge	Q'ty (B)
I	THE MATERNITY HOSPITAL NO.3									
I-1	Delivery Table	4	4 x A	R	O	O	O	O	O	4
I-2	Doppler Heart Rate Detector	4	4 x A	N	O	O	O	O	O	4
I-3	Fetal Monitor	1	2 x A	R	O	O	O	Δ	O	2
I-4	Suction A.P.P.	7	3 x A, 4 x B	R	O	O	O	O	O	7
I-5	Breast Pump	7	4 x A, 3 x C	N	O	O	O	Δ	O	4
I-6	Phototherapy Unit	2	2 x A	R	O	O	O	O	O	2
I-7	Oxygen Tent	1	1 x B	N	O	O	O	O	O	1
I-8	Infant Incubator	5	5 x A	R	O	O	O	O	O	5
I-9	Doppler Heart Rate Detector	4	—	N	O	O	O	Δ	O	0
I-10	High Speed Refrigerated Centrifuge	1	1 x A	N	O	O	O	O	O	1
I-11	Table-Top Centrifuge	2	2 x A	R	O	O	O	O	O	2
I-12	Boiling Sterilizer	2	—	N	x	O	O	O	x	0
I-13	Water Distilling Apparatus	1	1 x A	R	O	O	O	O	O	1
I-14	Comfort Chair	4	—	N	x	O	O	O	x	0
I-15	Mobile X-ray Unit	1	1 x B	N	O	O	O	O	O	1
I-16	Laryngoscope	4	4 x A	S	O	O	O	O	O	4
I-17	Ultrasonic Nebulizer	4	4 x A	R	O	O	O	O	O	4
I-18	Operating Table	1	1 x A	R	O	O	O	O	O	1
I-19	Coagulator Unit W/acc	1	1 x A	R	O	O	O	O	O	1
I-20	Microscope	2	2 x A	R	O	O	O	O	O	2
I-21	pH Meter	1	1 x A	N	O	O	O	O	O	1
I-22	Colposcope Set	1	1 x A	R	O	O	O	O	O	1
I-23	Stretcher	2	2 x A	R	O	O	O	O	O	2
I-24	Infant Weighting Scale	2	2 x A	R	O	O	O	O	O	2
I-25	New-born Ventilator	3	3 x B	R	O	O	O	O	O	3
I-26	Delivery Monitor	1	—	N	O	O	O	Δ	x	0
I-27	Hot Air Sterilizer	2	2 x A	R	O	O	O	O	O	2
I-28	Automatic Respirator (For ADULT)	2	3 x B	R	O	O	O	Δ	O	3
I-29	Central Monitor	1	—	N	x	O	O	O	x	0
I-30	ECG Monitor	1	4 x A	R	O	O	O	Δ	O	4
I-31	Defibrillator	1	1 x A	S	O	O	O	O	O	1

Q'ty (A): Q'ty of Request / Q'ty (B): On further investigation Q'ty

Table 2-1 The Review Results of Equipment Requested

No.	DESCRIPTION	Q'ty (A)	Minutes Q'ty x Priority	Class	1	2	3	4	Judge	Q'ty (B)
I-32	Automatic Respirator (for ADULT)	2	—	R	x	o	o	o	x	0
I-33	Anesthesia A.P.P. (W/Ventilator)	1	2 x A	R	o	o	o	Δ	o	2
I-34	Anesthesia A.P.P. Portable	2	—	N	x	o	o	o	x	0
I-35	Syringe Infusion Pump	2	2 x A	N	o	o	o	o	o	2
I-36	ICU Stretcher Bed	6	4 x A, 2 x C	R	o	o	o	Δ	o	4
I-37	Anesthesia Table	2	2 x A	S	o	o	o	o	o	2
I-38	Transcutaneous Gas Monitor	1	4 x A	N	o	o	o	Δ	o	4
I-39	ECG Portable	1	1 x A, 1 x B	S	o	o	o	Δ	o	2
I-40	Infant Respirator	3	—	R	o	o	o	Δ	o	0
I-41	Neonatal Respirator	2	—	N	o	o	o	Δ	o	0
I-42	Apnea Monitor	20	—	N	x	o	o	o	x	0
I-43	O.B. Ultrasonograph	1	1 x A	N	o	o	o	o	o	1
I-44	Fetal Ultrasonograph	1	1 x B	N	o	o	o	o	o	1
I-45	Stand Lamp	5	5 x A	R	o	o	o	o	o	5
I-46	Blood Component Technology Division	1	—	N	x	x	o	o	x	0
I-47	Laparo Scope	1	—	N	x	o	o	o	x	0
I-48	Bronco Scope	1	—	N	x	o	o	o	x	0
I-49	Na-K-Cl Analyzer	1	1 x B	N	o	o	Δ	o	o	1
I-50	Hyperbasic Oxygen Chamber	1	—	N	x	x	o	o	x	0
I-51	Pulmonary Function Testing System	1	1 x B	N	o	o	o	o	o	1
I-52	Blood Gas Analyzer	1	1 x B	N	o	o	x	o	x	0
I-53	Blood Coagulation System	1	1 x A	R	o	o	o	o	o	1
I-54	Hand Driven Type Resuscitator	20	4 x A, 6 x C	S	o	o	o	Δ	o	4
I-55	Blood Cell Counter	1	1 x B	N	o	o	Δ	o	o	1
I-56	Ambulance	1	1 x A	R	o	o	o	o	o	1
I-57	Fluorometer	1	1 x B	N	o	o	x	o	x	0
I-58	Biochemical Analyzer	1	1 x B	N	x	o	x	o	x	0
I-59	UV Water Steriliser	-	20 x B	N	o	o	o	o	o	20
I-60	Air Conditioner	-	4 x B	R	o	o	o	Δ	o	8
I-61	Emergency Generator	-	1 x B	R	o	o	o	o	o	1
I-62	Laundry Washing Machine	-	—	R	o	o	o	o	o	2
I-63	Laundry Extractor Machine	-	—	R	o	o	o	o	o	2
I-64	Laundry Drying Machine	-	—	R	o	o	o	o	o	2

Q'ty (A): Q'ty of Request / Q'ty (B): On further investigation Q'ty

Table 2-1 The Review Results of Equipment Requested

No.	DESCRIPTION	Q'ty (A)	Minutes Q'ty x Priority	Class	1	2	3	4	Judge	Q'ty (B)
I-65	Darkroom Apparatus	-	-	N	O	O	O	O	O	1
I-66	Mobile Cart for Oxygen Cylinder	-	-	N	O	O	O	O	O	8
I-67	Clinical Spectrophotometer	-	-	R	O	O	O	O	O	1
II.	THE CHILDREN'S HOSPITAL NO.1									
II - 1	Infant Incubator	12	12 x A	R	O	O	O	O	O	12
II - 2	Infant Respirator	3	2 x A, 1 x C	R	O	O	O	Δ	O	2
II - 3	Anesthesia A. P. P.	1	1 x C	N	x	O	O	O	x	0
II - 4	Germicidal Lamp set	20	-	R	x	O	O	O	x	0
II - 5	Movable Indoor Sterilizer	6	6 x C	R	x	O	O	O	x	0
II - 6	Nursing Bottle Warmer	12	6 x A, 6 x C	N	O	O	O	Δ	O	6
II - 7	Micro-wave Therapy Apparatus	4	-	N	x	O	O	O	x	0
II - 8	Infant Warmer	6	3 x A, 3 x C	R	O	O	O	Δ	O	3
II - 9	Infant Incubator	6	-	R	O	O	O	Δ	O	0
II-10	Nebulizer	6	6 x A	R	O	O	O	O	O	6
II-11	Infant Weighting Scale	20	6 x A, 14 x C	R	O	O	O	Δ	O	6
II-12	Neonatal Respirator	2	-	N	O	O	O	Δ	O	0
II-13	Syringe Infusion Pump	30	30 x A	N	O	O	O	O	O	30
II-14	Food Pump	5	-	N	x	O	O	O	x	0
II-15	Hyster Mouth Gag	20	5 x A	N	O	O	O	Δ	O	5
II-16	Blood Gas Analyzer	1	1 x B	N	O	O	x	O	x	0
II-17	Flamephotometer	1	1 x B	N	O	x	O	O	x	0
II-18	ECG Portable Type	2	1 x A, 1 x C	R	O	O	O	Δ	O	1
II-19	ECG	2	1 x A, 1 x C	R	O	O	O	Δ	O	1
II-20	Pediatrics Bed with Crank	60	60 x B	R	O	O	O	O	O	60
II-21	Suction A.P.P.	2	4 x A	R	O	O	O	Δ	O	4
II-22	Hand Driven Type Resuscitator	14	2 x A, 12 x C	R	O	O	O	Δ	O	2
II-23	Ultrasonograph	1	1 x A	N	O	O	O	O	O	1
II-24	Apnea Monitor	1	6 x A	N	O	O	O	Δ	O	6
II-25	Automatic Blood Pressure Manometer	3	3 x A	N	O	O	O	O	O	3
II-26	Transcutaneous Gas Monitor	1	-	N	x	O	O	O	x	0
II-27	Oxygen Flowemeter	6	6 x B	N	O	O	O	O	O	6
II-28	Syringe Infusion Pump	20	-	N	O	O	O	Δ	O	0

Q'ty (A): Q'ty of Request / Q'ty (B): On further investigation Q'ty

Table 2-1 The Review Results of Equipment Requested

No.	DESCRIPTION	Q'ty (A)	Minutes Q'ty x Priority	Class	1	2	3	4	Judge	Q'ty (B)
II-29	Gastro Scope	1	--	N	x	o	o	o	x	0
II-30	Test Scope	1	--	N	x	o	o	o	x	0
II-31	Thermometer	1000	30 x A	R	o	o	o	Δ	o	30
II-32	Microscope	2	2 x A	R	o	o	o	o	o	2
II-33	Bone Marrow Biopsy Needle	3	2 x B, 1 x C	R	o	o	o	Δ	o	2
II-34	Water Distilling Apparatus	1	1 x A	R	o	o	o	o	o	1
II-35	Stand Lamp	3	3 x A	N	o	o	o	o	o	3
II-36	Ambulance	1	1 x A	R	o	o	o	o	o	1
II-38	UV Water Steriliser	-	4 x A	N	o	o	o	o	o	4
II-39	Minoltameter	-	2 x A	N	o	o	o	o	o	2
II-40	Bilirubinmeter with Centrifuge	-	1 x A	N	o	o	o	o	o	1
II-41	Na-K-Cl Analyzer	1	1 x B	N	o	o	x	o	x	0
II-42	Biochemical Analyzer	1	1 x B	N	x	o	x	o	x	0
II-43	Blood Cell Counter	2	1 x B, 1 x C	N	o	o	x	o	x	0
II-44	Fluorometer	1	1 x C	N	o	o	x	o	x	0
II-45	Reagent Refrigerator	2	1 x A, 1 x C	N	o	o	o	Δ	o	1
II-46	Blood Refrigerator	2	1 x A, 1 x C	N	o	o	o	Δ	o	1
II-47	Oxygen Tent	-	1 x B	N	o	o	o	o	o	1
II-48	Phototherapy Unit	-	2 x A	R	o	o	o	o	o	2
II-49	Laryngoscope	-	1 x A	R	o	o	o	o	o	1
II-50	Bedside Monitor	-	2 x A	N	o	o	o	o	o	2
II-51	Air Conditioner	-	3 x B	R	o	o	o	Δ	o	6
II-52	Emergency Generator	-	1 x B	N	o	o	o	o	o	1
II-53	Laundry Washing Machine	-	--	R	o	o	o	o	o	1
II-54	Laundry Extractor Machine	-	--	R	o	o	o	o	o	1
II-55	Laundry Drying Machine	-	--	R	o	o	o	o	o	1
II-56	Mobile Cart for Oxygen Cylinder	-	--	N	o	o	o	o	o	2
II-57	Clinical Spectrophotometer	-	--	R	o	o	o	o	o	1
III.	THE WOMEN'S CONSULTING CENTER NO.3									
III - 1	Clinical Spectrophotometer	1	1 x A	N	o	o	o	o	o	1
III - 2	Glucoserneter	1	1 x A	N	o	o	o	o	o	1
III - 3	Blood Gas Analyzer	1	--	N	o	o	x	o	x	0

Q'ty (A): Q'ty of Request / Q'ty (B): On further investigation Q'ty

Table 2-1 The Review Results of Equipment Requested

No.	DESCRIPTION	Q'ty (A)	Minutes Q'ty x Priority	Class	1	2	3	4	Judge	Q'ty (B)
III - 4	Refractometer	1	1 x A	N	O	O	O	O	O	1
III - 5	Centrifuge	1	1 x A	R	O	O	O	O	O	1
III - 6	Spectrophotometer	1	-	N	O	O	O	Δ	O	0
III - 7	Blood Cell Counter	1	1 x B	N	O	O	x	O	x	0
III - 8	Micro-wave Therapy Apparatus	1	-	N	x	O	O	O	x	0
III - 9	Microscope	1	2 x A	R	O	O	O	Δ	O	2
III-10	Hot Air Sterilizer	4	3 x A, 1 x C	R	O	O	O	Δ	O	3
III-11	Ultrasonograph	2	1 x A, 1 x C	N	O	O	O	Δ	O	1
III-12	Stand Lamp	2	7 x A, 2 x C	N	O	O	O	Δ	O	7
III-13	Colposcope set	2	1 x A, 1 x C	R	O	O	O	Δ	O	1
III-14	ECG	1	1 x A	N	O	O	O	O	O	1
III-15	Doppler Heart Rate Detector	3	2 x A, 1 x C	N	O	O	O	Δ	O	2
III-16	Fetal Monitor	1	1 x A	N	O	O	O	O	O	1
III-17	Anesthesia A. P. P. Portable	2	-	N	x	O	O	O	x	0
III-18	Laryngoscope	4	-	N	x	O	O	O	x	0
III-19	Ambulance	1	1 x A	R	O	O	O	O	O	1
III-20	Operating Instruments for Gynecology	-	1 x A	S	O	O	O	O	O	1
III-21	Examining Table for Gynecology	-	6 x B	R	O	O	O	O	O	6
III-22	Weighing Scale (For Adult)	-	6 x A	S	O	O	O	O	O	6
III-23	Coagulator	-	1 x A	R	O	O	O	O	O	1
III-24	Manometer (Table Top Type)	-	20 x A	S	O	O	O	O	O	20
III-25	Biochemical Analyzer	1	1 x B	N	x	O	x	O	x	0
III-26	Bacteria Analyzer	1	1 x C	N	O	x	O	O	x	0
III-27	UV Water Steriliser	-	2 x B	N	O	O	O	O	O	2
III-28	Air Conditioner	-	1 x B	N	O	O	O	Δ	O	2
III-29	Typewriter	-	1 x A	N	O	O	O	O	O	1
III-30	Photocopier	-	1 x A	N	O	O	O	O	O	1
III-21	Slide Projector	-	1 x A	N	O	O	O	O	O	1
III-22	Computer with Printer	-	1 x B	N	O	O	O	O	O	1
III-23	Over Head Projector (With Screen)	-	1 x A	N	O	O	O	O	O	1
III-24	Dental Treatment Unit w/Instrument Set	-	-	R	O	O	O	O	O	1
III-25	Dental X-Ray Unit w/Instrument Set	-	-	N	O	O	O	O	O	1

Q'ty (A): Q'ty of Request / Q'ty (B): On further investigation Q'ty

(2) Equipment Plan

1) Specifications of Main Items of Equipment in the Plan

The following are the specifications of the main items of equipment in the plan:

I-1 Delivery Table
Composition: 1. Back plate. 2. Waist plate. 3. Auxiliary table. 4. Table for newborn. 5. Heel hold. 6. Shoulder hold. 7. Upper members table. 8. Assist band.
Specifications: 1. Angle of inclination: -15° to +15° 2. Waist plate: 0° to +15° 3. Raising and lowering device: oil pump operated by foot pedal, 65 cm to 90 cm

I-3, III-7 Fetal Monitor
Composition: 1. With built-in printer. 2. Mobile stand.
Specifications: 1. Heartbeat frequency recording function, 1 ch: 1) Indication range: 50 - 210 bpm 2) Heartbeat frequency correction: 160 bpm 2. Labor pain recording function/sensitivity: 20 mm/100 g 3. Fetal movement mark indication: 1) Recording speed: 10 mm/minute, 30 mm/minute 2) Doppler transmission frequency: 1067 kHz, ± 25 kHz

I-6 Mobile X-Ray Unit
Specifications: 1. Power supply: battery charging type 2. High-voltage generation: inverter type 3. X-ray Tube voltage: 50-125 kVP 4. X-ray Tube current: 200-300 mAs

I-10, II-14 Ultrasound Scanner With Doppler
<p>Composition:</p> <ol style="list-style-type: none"> 1. Main body. 2. Trolley. 3. 5MHz linear probe. 4. 3.5MHz convex probe. 5. Infant brain probe. 6. 2.25MHz Doppler sector. 7. 3.5MHz Doppler sector. 8. Black-and-white printer.
<p>Specifications:</p> <ol style="list-style-type: none"> 1. Scan types: convex, sector, linear electronic scan. 2. Display modes: B, B/M, M, Doppler 3. Focus: continuous receiving dynamic focus 4. Display depth: 6 stages 5. Measuring and computing functions: distance, circumferential length, area, volume, ratio, estimation of fetus age, etc. 6. Reporting functions: obstetrics and gynecological department, circulatory organs, Doppler 7. Monitor: approx. 12 inches 8. Rating: AC 220 V, 50 and 60 Hz

I-11 Ultrasound Scanner, Portable
<p>Composition:</p> <ol style="list-style-type: none"> 1. Main body. 2. 3.5MHz convex probe. 3. 5MHz linear probe. 4. 7.5MHz linear probe. 5. 6.5MHz intravaginal probe. 6. Black-and-white printer.
<p>Specifications:</p> <ol style="list-style-type: none"> 1. Scanning method: convex and linear electronic scanning method. 2. Display modes: B, B/B, M and B/M 3. Focus method: continuous receiving dynamic focus 4. Display depth: 4 stages 5. Measuring and computing functions: distance, circumferential length, area, volume, ratio 6. Reporting functions: obstetrics and gynecology department, circulatory organs 7. Monitor: approx. 9 inches 8. Rating: AC 220 V, 50 and 60 Hz

I-18, II-1 Infant Incubator
<p>Composition:</p> <p>1. Main body. 2. Mobile stand. 3. Surface body temperature measurement sensor.</p>
<p>Specifications:</p> <p>1. Bed: With clear side walls in 4 directions and 4 hand ports in 2 directions</p> <p>2. Temperature setting range: 28°C to 39°C</p> <p>3. Warming heater: 400 W</p> <p>4. Temperature control: 35°C to 37°C</p> <p>5. Temperature measurement: 33°C to 38°C</p> <p>6. Alarms: overheating and power supply failure, based on sensors</p>

I-20 Refrigerated Centrifuge
<p>Specifications:</p> <p>1. Maximum speed: 6,000 rpm</p> <p>2. Maximum centrifugal force: 6,920 x g</p> <p>3. Rotor: 6 frames for blood bags</p> <p>4. Motor: d.c. high-torque motor</p> <p>5. Temperature display: digital</p> <p>6. Timer setting: digital</p> <p>7. Speed control: microprocessor type</p> <p>8. Stop function: stops when door is opened, at abnormally high temperature, etc.</p>

I-25 Na - K - Cl Analyzer
<p>Composition:</p> <p>1. Main body. 2. Electrode set. 3. Standard solutions set. 4. Dilute solution set. 5. Set of spare parts.</p>
<p>Specifications:</p> <p>1. Measuring method: electrode method</p> <p>2. Measurement items: K, Na, Cl</p> <p>3. Test specimens: serum, plasma, full blood, urine</p> <p>4. Test specimen quantity: approx. 100 μ L</p> <p>5. Handling capacity: 60 test per hour</p> <p>6. Reading: LCD and built-in printer</p> <p>7. Portioning method: manually and by pipette</p>

I-26 Auto Spirometer

Composition:

1. Main body.
2. Reusable mouthpiece.
3. Nose clip.

Specifications:

1. Flow detection: pneumotachometer
2. Volume detection: digital flow integrating
3. Measuring precision: within $\pm 5\%$
4. Display: approx. 14 inches
5. Printer: thermal printer
6. Measurement items: VC, FVC, FV, MVV, MV

I-27 Blood Coagulation Analyzer

Specifications:

1. Measurement items: PT, APTT, fibrinogen, thrombin time, Extrinsic/Intrinsic factors, thrombo test, etc.
2. Source of light: light-emitting diode
3. Measurement principle: light scattering detection method
4. Wavelength: 660 nm
5. Display: LCD

I-28 Blood Cell Counter

Composition:

1. Main body.
2. Automatic dilutor.

Specifications:

1. Measurement items: WBC, MCV, RBC, MCH, HGB, MCHC, HCT, PLT
2. Grain size distribution: WBC, RBC, PLT
3. Analysis items: W-SCR, W-LCR, W-SCC, W-LCC, RDW-SD, PDW, MPV
4. Measurement time: approx. RBC 20 sec. / test, WBC 13 sec. / test
5. Necessary quantity of blood: 20 μ L.
6. Printing method: thermalgraphic
7. Sampling method: manual and nozzle suction

I-29, II-33, III-14 Spectrophotometer
Composition: 1. Main body. 2. Sipper unit. 3. Printer.
Specifications: 1. Wavelength range: 190-1100 nm 2. Photometric range: -0.300 to 3.00 A, 0.0-200.0%T 3. Wavelength transmission speed: 120, 240, 600, 1200, 2400 nm/minute 4. Response: 0.05 sec. 5. Monitor: black-and-white display 6. Functions: fixed wavelength, multiple-wavelength measurement, wavelength scan, reaction speed/rate measurement, spectral reduction/decalculation, nonvolatile memory 7. Sampling method: manual and by nozzle suction

I-34, II-2 Infant Ventilator Unit
Composition: 1. Main body, with stand and hanger. 2. Reuse-type humidifier. 3. Air compressor.
Specifications: 1. Operating method: pressure control, time control, sustained reflux 2. Operating modes: IPPV, IMV, CPAP, PEEP 3. Settings: <ol style="list-style-type: none"> 1) Inhaling time: 0.1-2 sec. 2) Exhaling time: 0.2-3.0 sec. 3) Breathing frequency: max. 200 times/minute 4) Flow rate: 1-30 l/minute 5) Monitoring function 6) Pressure curve: -10 to 100 mbar 7) I:E ratio: 3:1 to 1:300 8) Breathing frequency: max. 200 times/minute

I-36 Ventilator For Adult
<p>Composition:</p> <ol style="list-style-type: none"> 1. Main body, with stand and hanger. 2. Reuse-type humidifier. 3. Air compressor
<p>Specifications:</p> <ol style="list-style-type: none"> 1. Operating method: air-change quantity control, pressure fixed-time control, pressure control 2. Air change frequency: 1-38 times/minute 3. Inhaling time setting: 0.5-5.5 sec. 4. Tidal volume: 0.1-2.2 L 5. Monitoring function: pressure in respiratory track, alarm 6. Drive: piston pump

I-37 Anesthesia Apparatus
<p>Composition:</p> <ol style="list-style-type: none"> 1. Main body. 2. Trolley. 3. Vaporizer (halothane) 4. Ventilator. 5. Pressure reducing valve for O₂ and N₂O gas, with pressure-tight hose
<p>Specifications:</p> <ol style="list-style-type: none"> 1. Anesthesia apparatus <ol style="list-style-type: none"> 1) Flow meters: O₂: 0.5-10 l/min. N₂O: 0.5-10 l/min. 2) Safety mechanisms: fall in O₂ pressure, interruption of N₂O gas feed 3) Gas feed: central and cylinder, with oxygen flush 2. Ventilator <ol style="list-style-type: none"> 1) Stroke: 50-150 ml, 150-1.500 ml 2) Frequency: 6-60 times/minute 3) Flow: 20-80 l/minute 4) I:E ratio: 1:1, 1:2, 1:3

I-39 ECG Monitor
Composition: 1. Main body. 2. SpO ₂ measuring probe. 3. Stand
Specifications: 1. Items: ECG, sphygmogram, heart rate, pulse rate, SpO ₂ , blood pressure, VPC rate 2. Sweep speed: 25 mm/s, 50 mm/s 3. ECG measurement/induction switching: 3-electrode type 4. Defibrillator protection circuit: equipped 5. Trend items: heart rate, VPC rate, blood pressure, SpO ₂ 6. Trend time: 1, 2, 4, 8 hour 7. Measurement of blood pressure: non-invasive, oscillometric 8. Measurement modes: manual/continuous/automatic 9. SpO ₂ measurement range: 50-100%

I-40 Defibrillator
Composition: 1. Main body. 2. Mobile stand.
Specifications: 1. Defibrillator: 1) Energy setting: 3.5-360 J 2) Synchronous discharge: possible 3) Charging time: within 10 sec. 4) Screen 5) Waveform display: nonfade display, 2-trace 6) Sweep speed: 25 mm / sec. 7) Function display: switching between heart rate, induction, charging energy value and sensitivity 2. Electrocardiograph (ECG): 1) Induction: standard 4-limb induction + chest induction 2) Sensitivity: 1/2, 1, 2, 4 3) Recorder: thermal array type

I-46, II-35 Emergency Generator
Composition: 1. Main body. 2. Manual transfer panel. 3. Connection cable.
Specifications: 1. Generator: bonnet type (Soundproof type) 1) Number of phases: 3-phase, 4-line 2) Rating: AC 220V/380V, 50Hz/60Hz 3) Output: 150 kVA 2. Engine: diesel type 1) Displacement: approx. 7,000 cc 2) Number of cylinders: 6 3) Fuel tank: approx. 200 liters

I-47 Laundry Washing Machine (40kg)
Specification: 1. Type: Side loading 2. Capacity: approx. 40 kg at a time 3. Power consumption: approx. 1.5 kW 4. Rating: 3-phase, 380 V, 50 Hz 5. Inside drum: stainless steel

I-48 Laundry Extractor Machine (40kg)
Specification: 1. Capacity: approx. 40 kg at a time 2. Power consumption: approx. 2.2 kW 3. Standard speed: 1,200 rpm 4. Rating: 3-phase, 380 V, 50 Hz

I-50, II-39 Ambulance With Infant Incubator
Composition: 1. Main car. 2. Infant transport incubator
Specifications: 1. Engine: 2,500 cc diesel 2. Drive: 2WD 3. Gears: 5 gears, manual shift 4. Shape: one-box type 5. Equipment: infant incubator (removable) 6. Dimensions: approx. 4,800 mm (L) x 1,700 mm (W) x 2,250 mm (H) 7. Capacity : 7 persons (including patient(s))

II-4 Infant Warmer
Composition: 1. Main body. 2. Surface body temperature measuring sensor. 3. Trolley. 4. Ceiling warming heater
Specifications: 1. Bed: with side walls in 4 directions 1) Angle of inclination: 20 degrees upward, 15 degrees downward 2) Temperature setting: 35°C to 37°C 2. Warming heater: 600 W 1) Temperature control: 35-37°C 2) Temperature setting: 33-38°C 3. Alarms: overheating and interruption of power supply; sensors

II-26 Neonatal Monitor

Composition:

1. Main body.
2. SpO₂ measuring probe.
3. Mobile stand.

Specifications:

1. Measurement items: ECG, sphygmogram, heart rate, pulse rate, SpO₂, blood pressure, VPC count, blood pressure waveform, respiratory curve, body temperature, SF level
2. Sweep speed: 25 mm/s, 50 mm/s
3. Body temperature measurement: approx. 25°C to 45°C
4. ECG measurement
Induction switching: 3-electrode method, 5-electrode method
5. Defibrillation protection circuit: equipped
6. Trend items: various measurement values
7. Trend time: 1, 2, 4, 8 hour
8. Blood pressure measurement: non-invasive, oscillometric
9. Measurement modes: manual/continuous/automatic
10. SpO₂ measurement range: 50-100%
11. Arrhythmia detection function: template matching method
12. VPC count range: 0-99 counts/minute
13. Arrhythmia alarm: heart stop, ventricular fibrillation, ventricular tachycardia, VPC short-run, tandem ventricular extracyclical contraction, frequent ventricular extracyclical contraction
14. Printing method: thermal array method

III-1 Ultrasound Scanner (without Doppler)
<p>Composition:</p> <ol style="list-style-type: none"> 1. Main body. 2. Stand. 3. 5 MHz linear probe 4. 3.5 MHz convex probe. 5. Infant brain probe. 6. Black and-white printer.
<p>Specifications:</p> <ol style="list-style-type: none"> 1. Scanning methods: convex, sector and linear electronic scanning methods. 2. Display modes: B, B/M and M 3. Focus method: continuous receiving dynamic focus 4. Display depth: 6 stages 5. Measuring and computing functions: distance, circumferential length, area, volume, ratio, fetus age estimation, etc. 6. Reporting functions: obstetrics and gynecology department and circulatory organs 7. Monitor: approx. 12 inches 8. Rating: AC 220 V, 50 and 60 Hz

III-24 Dental Treatment Unit With Instrument Set
<p>Composition:</p> <ol style="list-style-type: none"> 1. Dental treatment unit. 2. Compressor. 3. Dentist's chair. 4. Instrument set. 5. Forceps cabinet. 6. Desktop steam sterilizer.
<p>Specifications:</p> <ol style="list-style-type: none"> 1. Dental treatment unit: manual hydraulic type, with patient body position memory. 2. Hand piece: air turbine, micromotor 3. 3-way syringe 4. Treatment lamp: halogen 5. Compressor: noiseless type 6. Desktop steam sterilizer: max. temperature 121°C

III-28 Ambulance
Composition: 1. Main car. 2. Stretcher.
Specifications: 1. Engine: 2500 cc, diesel 2. Drive: 2WD 3. Gears: 5 gears, manual gear shifting 4. Shape: one-box type 5. Equipment: stretcher (removable) 6. Dimensions: 4,800 mm (L) x 1,700 mm (W) x 2,250 mm (H) 7. Capacity: 7 persons (including patient(s))

2) List of Equipment Included in the Project

A list of the equipment included in the project is given on the next and following pages.

EQUIPMENT LIST

DEPARTMENT	ITEM NO.	NAME OF EQUIPMENT	Q'TY
MATERNITY HOSPITAL NO.3			
OBSTETRICS	I - 1	Delivery Table	4
	I - 2	Doppler Heart Rate Detector	4
	I - 3	Fetal Monitor	2
	I - 4	Suction Unit	7
	I - 5	Breast Pump	4
	I - 6	Mobile X-ray Unit	1
	I - 7	Laryngoscope For Adult	4
	I - 8	Ultrasonic Nebulizer For Adult	4
	I - 9	ECG For Adult	2
	I - 10	Ultrasound Scanner (With Doppler)	1
	I - 11	Ultrasound Scanner, Portable	1
	I - 12	Stand Lamp (L)	5
	I - 13	UV Water Steriliser	20
	I - 14	Darkroom Apparatus Set	1
	I - 15	Mobile Cart With Oxygen Cylinder	8
PEDIATRICS	I - 16	Phototherapy Unit	2
	I - 17	Oxygen Box For Infant	1
	I - 18	Infant Incubator	5
	I - 19	Infant Weighing Scale	2
LABORATORY	I - 20	Refrigerated Centrifuge	1
	I - 21	Table-Top Centrifuge	2
	I - 22	Water Distilling Apparatus	1
	I - 23	Microscope	2
	I - 24	pH Meter	1
	I - 25	Na-K-Cl Analyzer	1
	I - 26	Auto Spirometer	1
	I - 27	Blood Coagulation Analyzer	1
	I - 28	Blood Cell Counter	1
	I - 29	Spectrophotometer	1

EQUIPMENT LIST

DEPARTMENT	ITEM NO.	NAME OF EQUIPMENT	Q'TY
OPERATION DPT.	I -30	Operating Table (Gynecology)	1
	I -31	Electrosurgical Unit	1
	I -32	Colposcope Set	1
	I -33	Stretcher (High-Low Type)	2
	I -34	Neonatal Ventilator Unit	3
	I -35	Hot Air Sterilizer	2
	I -36	Ventilator (For Adult)	3
	I -37	Anesthesia Apparatus	2
	I -38	Anesthesia Instrument Table	2
I.C.U.	I -39	ECG Monitor	4
	I -40	Defibrillator	1
	I -41	Syringe Infusion Pump	2
	I -42	Gatch Bed	4
	I -43	Pulse Oxymeter	4
	I -44	Manual Resuscitator For Adult	4
MANAGEMENT	I -45	Air Conditioner	8
	I -46	Emergency Generator	1
	I -47	Laundry Washing Machine (40kg)	2
	I -48	Laundry Extractor Machine (40kg)	2
	I -49	Laundry Drying Machine	2
VEHICLE	I -50	Ambulance With Infant Incubator	1
CHILDREN'S HOSPITAL NO.1			
PEDIATRICS	II - 1	Infant Incubator	12
	II - 2	Infant Ventilator with Oxygen Cylinder	2
	II - 3	Nursing Bottle Warmer	6
	II - 4	Infant Warmer	3
	II - 5	Ultrasonic Nebulizer For Child	6
	II - 6	Infant Weighing Scale	6
	II - 7	Syringe Infusion Pump	30
	II - 8	Air Way	5

EQUIPMENT LIST

DEPARTMENT	ITEM NO.	NAME OF EQUIPMENT	Q'TY
	II-9	ECG For Child (Portable Type)	1
	II-10	ECG For Child	1
	II-11	Baby Cot	60
	II-12	Suction Unit	4
	II-13	Manual Resuscitator For Child	2
	II-14	Ultrasound Scanner With Doppler	1
	II-15	Pulse Oxymeter	6
	II-16	Automatic Blood Pressure Manometer	3
	II-17	Oxygen Flowmeter	6
	II-18	Electric Thermometer	30
	II-19	Bone Marrow Biopsy Needle Set	2
	II-20	Stand Lamp (L)	3
	II-21	UV Water Steriliser	4
	II-22	Handy Bilirubinmeter	2
	II-23	Oxygen Box For Infant	1
	II-24	Phototherapy Unit	2
	II-25	Laryngoscope For Child	1
	II-26	Neonatal Monitor	2
	II-27	Mobile Cart With Oxygen Cylinder	2
LABORATORY	II-28	Microscope	2
	II-29	Water Distilling Apparatus	1
	II-30	Bilirubinmeter	1
	II-31	Reagent Refrigerator	1
	II-32	Blood Refrigerator	1
	II-33	Spectrophotometer	1
MANAGEMENT	II-34	Air Conditioner	6
	II-35	Emergency Generator	1
	II-36	Laundry Washing Machine (30kg)	1
	II-37	Laundry Extractor Machine (30kg)	1
	II-38	Laundry Drying Machine	1

EQUIPMENT LIST

DEPARTMENT	ITEM NO.	NAME OF EQUIPMENT	Q'TY
VEHICLE	II-39	Ambulance With Infant Incubator	1
WOMEN'S CONSULTING CENTER NO.3			
GYNECOLOGY	III- 1	Ultrasound Scanner	1
	III- 2	Stand Lamp (L)	1
	III- 3	Stand Lamp (S)	6
	III- 4	Colposcope Set	1
	III- 5	ECG For Adult	1
	III- 6	Doppler Heart Rate Detector	2
	III- 7	Fetal Monitor	1
	III- 8	Instrument Set For Gynecology	1
	III- 9	Examining Table For Gynecology	6
	III-10	Weighing Scale For Adult	6
	III-11	Electrosurgical Unit	1
	III-12	Manometer For Adult	20
	III-13	UV Water Steriliser	2
LABORATORY	III-14	Spectrophotometer	1
	III-15	Glucose Meter	1
	III-16	Refractometer	1
	III-17	Table Top Centrifuge	1
	III-18	Microscope	2
	III-19	Hot Air Sterilizer	3
EDUCATION	III-20	Typewriter With Memory	1
	III-21	Photocopier	1
	III-22	Slide Projector	1
	III-23	Over Head Projector Set	1
DENTISTRY	III-24	Dental Treatment Unit With Instrument Set	1
	III-25	Dental X-Ray Unit	1
MANAGEMENT	III-26	Air Conditioner	2
	III-27	Computer With Printer	1
VEHICLE	III-28	Ambulance	1

Chapter 3 Implementation Plan

Chapter 3 Implementation Plan

3.1 Implementation Plan

3.1.1 Implementation Concept

This project will be implemented within the framework of Grant Aid Assistance by the Japanese Government. It will be implemented after it has been approved by the governments of both countries and the Exchange of Notes on it has been concluded between them. After that the Government of Uzbekistan will select a Japanese consultant firm, and it will start the implementation design work for the project. After the implementation design drawings and other documents have been completed, the Japanese firm selected as the supplier in a tender for that purpose will proceed to procure and install the equipment.

The following are some basic matters and other matters to be borne in mind in the implementation planning.

(1) Implementation System

For the project the Ministry of Health of Uzbekistan will be the agency with supreme responsibility and will exercise overall control over it in that capacity, and the Andijan Provincial Health Department will serve as the implementing agency.

(2) Consultant

As soon as the Exchange of Notes (E/N) on the project has been concluded between the governments of the two countries, the Japanese consultant will conclude a contract with the Ministry of Health of Uzbekistan in accordance with the procedure for Japanese Grant Aid Assistance. On the basis of that contract, which will take effect once it has been verified by the Japanese Government, the consultant will carry out the following work:

- 1) In implementation design stage : implementation design, preparation of specifications and other technical documents.
- 2) In the tender stage : selection of the supplier and operational cooperation regarding the supply contract.
- 3) In the procurement stage : equipment procurement work and supervision of installation and of training for operation and maintenance.

(3) Supplier

The supplier that is selected in the tender will conclude a contract with the Uzbekistan side. It also will take effect upon verification by the Japanese Government. On the basis of that contract the supplier will procure and deliver the necessary equipment and materials and will provide the Uzbekistan side with technical guidance regarding installation, operation, maintenance and control of that equipment. Furthermore, it will set up a management system for supply, for a consideration, of spare parts and consumables and provision of technical guidance even after acceptance.

(4) Japan International Cooperation Agency (JICA)

JICA's Grant Aid Project Management Department will exercise instruction guidance over the consultant and the supplier so as to ensure that the project is appropriately implemented in accordance with the Japanese Grant Aid Assistance system. Furthermore, when necessary, it will hold discussions with those carrying out the work for the purpose of promoting implementation of the project.

(5) On Implementation Planning

During the implementation design stage, discussions concerning the implementation planning will be held between the consultant and those concerned with the project on the Uzbekistan side on the basis of the implementation schedule indicated in this report for the purpose of confirming the starting times and the methods of the construction work to be undertaken by the Japanese side and by the Uzbekistan side with respect to each construction work item and ensuring that the construction work to be carried out by each side is smoothly accomplished. The construction work to be done by the Uzbekistan side must be implemented by it as scheduled before commencement of installation of the equipment.

(6) Need to Send Technical Personnel

It is extremely important to learn how to properly operate and maintain and service the procured equipment in order to make it possible for it to operate normally at all times after installation and thereby contribute to suitable diagnosis and treatment. It is therefore necessary for the manufacturers to send technical personnel for supervision of the installation work and provision

of explanations on how to handle the equipment and training (instruction on operating techniques, simple repair techniques and inspection routines).

(7) Implementation Planning and Supervision

The consultant will accomplish the implementation design work and supervision of the project on the basis of the contract with the Uzbekistan side. What is meant by implementation design work is determination of the detailed specifications of the equipment on the basis of the present basic design study and preparation of the tender drawings and documents, which consist of the tender instructions, draft contracts for procurement of the equipment and specifications of the equipment, and it also includes estimation of the cost of procurement of the equipment.

What is meant by supervision is determination of whether or not the supplier is doing his work as required by the contract and making sure that the contract is properly performed. It also includes provision of guidance and advice and making adjustments from a fair point of view so as to promote implementation of the work, and it involves the following specific duties:

- 1) The necessary procedures work for selection of the supplier, the holding of the tender and witnessing conclusion of the contract with the supplier,
- 2) Study and approval of the working drawings, equipment specifications and other documents submitted by the supplier,
- 3) Inspection and approval of the quality and performances of the delivered equipment,
- 4) Overseeing of inspection and provisional acceptance of the delivered equipment and completed installation work,
- 5) Reporting on the state of progress of the work, and
- 6) Witnessing final acceptance.

Besides accomplishment of the above duties, the consultant is to report to the Japanese government officials concerned on the state of progress of project implementation, payment procedures, completion and final acceptance, and so forth.

3.1.2 Scope of Works

(1) The Japanese Government Work Load

The Japanese Government is responsible for accomplishing the following duties concerning consulting services and equipment procurement for the present project:

1) Consulting Services

- Preparation of implementation design drawings and documents for the equipment for the project and instructions for the tender,
- Operational assistance concerning selection of the supplier and the supply contract, and
- Overseeing of process of procurement of the equipment.

2) Procurement and Installation of the Equipment

- Procurement of the equipment for the project and its transportation to the health care facilities concerned and unloading and handling there,
- Guidance of installation of the equipment for the project and trial operation and adjustment there of, and
- Provision of explanations and guidance concerning how to operate, maintain and service the equipment for the project.

(2) The Government of Uzbekistan Work Load

The Government of Uzbekistan is responsible for accomplishment of the work not included in the Japanese Government's responsibilities, such as installation of the equipment of the project. The scope of that work is preparation of the places for installation of the equipment and accomplishment of the construction work for the utilities and other facilities necessary for such installation (power supply lines to the places of installation, water supply and sewer piping, outlets, etc.). Rough cost estimation of work load is shown as Appendices 5. The main work items at the different facilities are as follows:

I. Maternity Hospital No.3

- 1) Generator installation work (150 kVA, diesel),
- 2) Darkroom fixtures work,
- 3) Preparation work for UV water sterilizer (20 sets),
- 4) Preparation work for laundry machine installation, and
- 5) Electric outlet work for installation of medical equipment.

II. Children's Hospital No.1

- 1) Generator installation work (150 kVA, diesel),
- 2) Preparation work for UV water sterilizer (4 sets),
- 3) Preparation work for laundry machine installation, and
- 4) Electric outlet work for installation of medical equipment.

III. Women's Consulting Center No.3

- 1) Preparation work for UV water sterilizer (2 sets), and
- 2) Electric outlet work for installation of medical equipment.

3.1.3 Consultant Supervision

The consultant is to organize a standing project implementation team for smooth accomplishment of the implementation design work on the basis of the policies of Japanese Grant Aid Assistance and in accordance with the basic design.

[Implementation Supervision Policies]

- (1) Close liaison with the persons in charge at the organizations concerned with the project in both countries with a view to completion of provision of the equipment as scheduled,
- (2) Expeditious provision of those undertaking the work with guidance and advice from a fair point of view,
- (3) Provision of appropriate guidance and advice concerning maintenance and control of the equipment after it has been installed and accepted, and
- (4) After confirming completion of installation of the equipment and the fact that the conditions of the contract have been met, the consultant is to witness final acceptance of the equipment and wind up the work after the Uzbekistan side has approved acceptance.

3.1.4 Procurement Plan

(1) Selection of Supplier and Type of Contract

The supplier to undertake the equipment procurement work, who must be an enterprise of Japanese nationality, whether a natural or a juristic person, will be selected on the basis of evaluation of bids in an open competitive tender held for that purpose.

The contract is to be an all-inclusive sales contract specifically indicating the types and models of the equipment. The supplier's responsibilities under the contract are to include everything from supply, production and transportation of the contract equipment to provision of guidance for installation, adjustment and trial operation and technical guidance for operation and maintenance and control.

(2) Procurement of the Equipment

In principle, the equipment for the project is to be procured in Japan. However, if it is considered to be more appropriate to procure some items of equipment from other countries in view of price, performance and maintenance and control (local after-sales service, etc.) conditions, products of other countries will be selected, subject to the following conditions:

- 1) That the manufacturer has an agency or branch in Uzbekistan or one of the other four countries of Central Asia or in Moscow.
- 2) That maintenance and inspection of the products be just as easy as in the case of Japanese products and that an appropriate maintenance and control system have been established.
- 3) That it be possible to procure and deliver the equipment within the time limit of the E/N.

The equipment that might be procured in third countries is that indicated in Table 3-1.

Table 3-1. Equipment That Could Be Procured in Third Countries

Code No.	Designation
I-16, II-24	Phototherapy equipment
I-18, II-1	Infant incubator
I-6	Mobile X-Ray equipment
I-36	Ventilator (for adults)
I-37	Anesthesia apparatus with ventilator (for adults)
I-41, II-7	Syringe pump
I-10, II-14	Ultrasound scanner (with Doppler)
I-11	Ultrasound scanner (portable)
I-25	Electrolyte analyzer
I-29, II-33, III-14	Clinical spectrophotometer
I-34, II-2	Infant ventilator
II-4	Infant warmer
III-1	Ultrasound scanner (without Doppler)
III-20	Typewriter
III-21	Copying machine
III-27	Computer (including printer)

(3) Means of Transportation

- 1) The equipment procured in Japan will be transported overland by truck to a Japanese port and from there shipped by sea to the Iranian port Bandar Abbas. From Bandar Abbas it will be transported again by truck to the different sites in the city of Andijan.
- 2) The equipment procured in third countries will be transported from the German port of Hamburg to the Turkish port of Mersin by sea and from there to the different sites in the city of Andijan by truck.

3.1.5 Implementation Schedule

(1) Implementation Period

After conclusion of the Exchange of Notes and the contract with the supplier it will take approximately 11 months to accomplish the different work that the Japanese side is responsible for, the times needed for the different work items being as follows:

- 1) From conclusion of the E/N up to and including the tender : 4.5 months
 2) Approval of the contract with the supplier and placing of the orders : 0.5 months
 3) Production and procurement of the equipment : 3.0 months
 4) Transportation : 1.5 months
 5) Installation, adjustment, trial operation and guidance concerning operation and maintenance : 1.2 months
Total 11.0 months

(2) Implementation Schedule (Table 3-2)

Table 3-2 Implementation Schedule

Month	1996											
	1	2	3	4	5	6	7	8	9	10	11	12
Detail Design												
E/N	*											
Consultant agreement	*											
Field survey		■										
Preparation of tender documents			□									
Confirmation of tender documents				■								
Tender notice				*								
Tender opening					*							
Evaluation of tender documents						■						
Supply contract						*						
Procurement & Installation												
Manufacturing & Procurement							□□	□□	□□			
Transportation										□□	□	
Installation & Instruction											■	■
Completion												*

3.1.6 Obligations of Recipient Country

- (1) Furnishing of necessary information and documents for the project.
- (2) Payment of the commissions concerning the "Banking Arrangement" (B/A) and the "Authorization to Pay" (A/P) to a Japanese foreign exchange bank.
- (3) Ensuring expeditious unloading of the equipment purchased as non-reimbursable cooperation at the port, tax exemption measures, customs clearance, domestic transportation, and so forth.
- (4) Exemption of all taxes and levies in Uzbekistan concerning the project, including domestic taxes on Japanese staff and staff members of other nationalities involved in the project customs duties and taxes on procurement of equipment and services on the basis of approved contracts.
- (5) Provision of necessary assistance to project staff of Japanese and other nationalities for entry to Uzbekistan and residing there for the purpose of accomplishment of their work connected with procurement of equipment and services on the basis of approved contracts.
- (6) Issuing or approving, on the basis of Uzbekistan law, of authorizations, qualifications and permits needed for implementation of the project.
- (7) Appropriate budgetary appropriations and assignment of personnel for the purpose of proper and effective use and maintenance and control of the equipment purchased for the project.
- (8) Ensuring that the equipment purchased for the project is properly and effectively used and maintained.
- (9) Bearing of all necessary expenses for implementation of the project that are not covered by Japanese Grant Aid Assistance.

3.2 Operation and Maintenance Plan

(1) Operation and Maintenance Plan

- In this project, procurement of equipment is chiefly for the purpose of replacing existing equipment that is no longer in working condition after long years of use, and there would not appear to be much of a problem concerning operation and maintenance of that kind of equipment.
- However, it is possible that new technical problems might arise concerning operation and maintenance of types of equipment that will be procured for the first time. It will therefore be necessary to develop a new operation and

maintenance technical support system in cooperation with Uzmedtechnika as a result of procurement of that kind of equipment.

- The following systems should be planed,

- A system whereby it will be possible to receive technical advice, documentation, operation and maintenance services, and so forth from local agencies of the manufacturers of the supplied medical equipment.
- A system in which users of the equipment can receive technical training at the manufacturers according to actual needs.

(2) Operation and Maintenance Budget

It is estimated that the annual incremental cost of operation and maintenance of equipment in the way of purchase of necessary spare parts, consumables, and so forth after implementation of the project, will be about 600,000 Cym at the Maternity Hospital No.3, 235,000 Cym at the Children's Hospital No.1 and 75,000 Cym at the Women's Consulting Center No.3, for a total of approximately 900,000 Cym.

The main spare parts and consumables that will have to be purchased are indicated in Table 3-3.

Table 3-3. List of Spare Parts and Consumables

Name of equipment	Spare parts / Consumables
Fetal Monitor	Transducers, recording paper, etc.
Microscope	Light-source lamps
pH Meter	Glass electrodes, standard solutions, etc.
ECG Monitor	Skin electrodes
Syringe Infusion Pump	Syringes, sets of tubes
ECG For Adult	Skin electrodes, recording paper, etc.
Stand Lamp	Light-source lamps
Na-K-Cl Analyzer	Measuring electrodes, standard solutions, buffer solution
Auto Spirometer	Recording paper, mouthpieces
Blood Coagulation Analyzer	Blood plasma reagent
Blood Cell Counter	Dilution solution, hemolysis solution, washing solution
UV Water Sterilizer	Filters, sterilizing lamps
Neonatal Monitor	Skin electrodes, recording paper
Slide Projector	Light-source lamps
Over Head Projector Set	Light-source lamps, OHP sheets

The above-mentioned annual incremental cost of operation and maintenance of medical equipment at the three facilities in question represents only about 1.8% of the approximately 50 million Cym annual budget of the Andijan City Health Department, and this year that the City Health Department received a budget supplement equivalent to approximately 20% of that initial amount. Furthermore, from our discussions with provincial and city health officials it would appear that that incremental cost resulting from the project can be secured by the Uzbekistan side.

Therefore for the time being the City Health Department will be covering that incremental cost of operation and maintenance of medical equipment by budget supplements, but in the future it plans to cover medical equipment operation and maintenance costs by increasing health service fee receipts on the basis of a new health service remuneration system. From the above it is considered that the Uzbekistan side will be able to cope with that incremental operation and maintenance cost.

Chapter 4 Project Evaluation and Recommendation

Chapter 4 Project Evaluation and Recommendation

4.1 Project Effect

After implementation of the project, the effects and improvements indicated in Table 4-1 below will result from appropriate operation of the facilities in question by the Uzbekistan side.

Table 4-1. The Effects and Improvements

Present situation and problems	Measures in the project for coping with them	Degree of effect or improvement due to the project
1. High death rates of newborns and expecting mothers	<ul style="list-style-type: none"> -Improvement of precision of diagnosis through procurement of diagnosis and test equipment. -Raising of the level of health care services by replacement of equipment that is no longer in working condition after long service life. -Improvement of patient transportation services. 	-The mortality rates of newborns and expecting mothers can be expected to be lowered through improvement of health care functions in the fields of obstetrics and gynecology and pediatrics.
2. Gap between rural areas and cities in level of health care services, which is much lower in rural areas	-Support to furnishing of circuit health care services to hospitals and rural villages in the region.	-Through early detection of health trouble, it will be possible to provide treatment in the initial stage, which is more effective than in later stages, and that can be expected to contribute to lowering of the mortality rate of expecting mothers.
3. High rate of increase of population and high incidence of ailments due to too frequent pregnancies, with resulting. High rates of health trouble among nursing and young children.	-Support of educational activities concerning health of mothers and children by providing audio-visual equipment for "Mothers' Classes."	-Improvement of nutrition and wider practice of family planning, including longer intervals between pregnancies, will raise the level of protection of the health of expecting mothers and their unborn children, and that can be expected to lower the mortality rates of expecting mothers and newborns.

This project is for the purpose of procuring basic medical equipment that is insufficient or lacking at the facilities of subject and replacing equipment that needs to be replaced after long use. Through implementation of the project those facilities will acquire appropriate examination and treatment functions as referral health care facilities for the region of subject. Such improvement will raise the level of their medical services to the immediate benefit of their patients. Furthermore, since those facilities can play a major role in raising the level of health care of related medical facilities under them in the region as a whole, all residents of the region can be expected to receive a considerable beneficial effect. Specifically, the beneficial effects are as indicated below.

(1) Improvement of Examination and Treatment Functions

For the purpose of enhancing examination and treatment functions in this project consideration is being given to procurement of ultrasound scanner, mobile X-Ray photography equipment and other laboratory equipment. Since high-precision examination and diagnosis will result in more appropriate treatment of patients, that will mean considerable improvement of health care services in the fields of obstetrics and gynecology and pediatrics.

Furthermore, since the facilities in question are referral health care facilities for the region, one can expect improvement of health care services in the region as a whole through, for instance, medical technology transfer to health care facilities operating under the facilities directly covered by the project.

The following is an explanation of the relationship between procurement of equipment in the project and enhancement of the examination and treatment functions of the facilities in question.

1) Introduction of Ultrasound Scanner

- This equipment is extremely effective for protection of the health of expecting mothers and monitoring normal fetus development since it makes it possible to easily detect pregnancy abnormalities and congenital fetal abnormalities in the early stage of pregnancy.
- Observation of internal organs from outside the body by visual display will make high-precision diagnosis possible, and that will be particularly effective in examination and diagnosis in the gynecology department.

2) Introduction of Radiographic Diagnosis Equipment

- This basic equipment to be introduced for the purpose of examination and diagnosis of gynecology department patients is effective for examination and diagnosis of

trouble in the chest and other regions.

3) Replacement of Operation Room Equipment

- The existing anesthesia apparatus, operation tables, operation lamps and other operation-related equipment that is no longer in working condition will be replaced. Such replacement can be expected to result in better coping with operation needs, improvement of control of cleanliness and risk of infection and increase in the number of operations carried out.

4) Replacement of Dental Equipment

- Replacement of such worn-out equipment as dental treatment chairs and procurement of additional equipment such as X-Ray photography apparatus for dental use will result in more efficient and more effective dental examination and treatment.

5) Replacement of Hospital Management Related Equipment

- Replacement of deteriorated washing machines will reinforce prevention of infection in the hospitals.
- Emergency generators for ensuring stable operation of infant incubators, ventilators and other life-support equipment will be replaced.
- Consideration will be given to procurement of air conditioner for temperature control in premature baby rooms and control of cleanliness in operating rooms.

6) Procurement of Ambulances

- The existing vehicles are being used for taking newborns from the maternity hospital to the children's hospital and for making rounds outside the hospital for examination purposes. In the project, consideration will be given to replacement of the present ambulances, which are not in good condition as a result of long use.

(2) Filling of Inter-regional Gap

The medical personnel of the facilities of subject regularly make the rounds of other hospitals in the different areas of the province for the purpose of providing health care services to patients and training and guidance to doctors and other medical personnel working for whole of hospitals at such area. In the project, consideration will be given to procurement of vehicles, educational equipment and portable examination and diagnosis equipment in order to support such activities. Since that will mother-and-child health care service in rural areas, implementation of the present project will contribute to filling of the inter-regional gap in the level of health care.

(3) Strengthening of Mother-and-Child Health Care Activities

It is planned to procure typewriters, slide projectors, over head projector and other educational equipment for use in "Mothers' Classes" organized by the facilities of subject. Such equipment will make possible efficient learning by expecting and delivered mothers of what they need to know for the sake of their own health and that of their babies. A contribution will also be made to mother-and-child health publication activities since it will be possible to distribute pamphlets made using such equipment in rural areas.

(4) Influential Effects

The facilities of subject also function as educational hospitals in that they serve as places for clinical training of students of the Andijan Medical College. Procurement of equipment in this project will result in enhancement of that educational function and will in turn contribute to raising of the technical level of physicians, as a result of which enhancement of the level of health care service throughout the region can be expected.

4.2 Recommendation

It is considered that implementation of the project will be of great significance in view of the considerable effects that can be expected of it as discussed above and because of the fact that it will contribute to raising of the Basic Human Needs of all of the residents of the region. There are, however, certain constraints, identified below, that will have to be resolved in order to make it possible for the project to be smoothly implemented.

(1) The Constraints of Operation and Maintenance

- It will be necessary to establish operation and maintenance systems at the hospitals in order to improve the effectiveness of operation and maintenance of medical equipment. It will be necessary for such organization to work out an equipment control system that includes routine inspection logs, repair records and compilation of operation manuals, service manuals, etc.
- For more difficult equipment it is advisable that a liaison and support system be established so as to be able to obtain technical advice from the manufacturers' agencies.

- It is also advisable that the technical personnel assigned to the manufacturers' agencies provide training on an ongoing basis for the technical personnel charged with operation and maintenance of the equipment, including Uzmedtechnika personnel.

(2) Constraints Concerning the Work of the Uzbekistan Side

In implementation of the project the Uzbekistan side will be doing the revamping work that is necessary for installation of the equipment. Besides securing the necessary budget funds for such work, it will be necessary to complete the work by the time that the equipment is delivered at the very latest. The following is an estimate of the costs of the work for the Uzbekistan side is at each of the facilities in question.

I. Maternity Hospital No.3	203,700 Cym
II. Children's Hospital No.1	127,800 Cym
III. Women's Consulting Center No.3	6,200 Cym
	<u>Total: 357,700 Cym</u>

(3) Constraints Relating to Charging Patients for Health Care Services

1) Keeping Track of Balance of Expenditures and Receipts

- It will be necessary for the hospitals to consider whether or not to establish charges to patients for tests and examination and treatment on the basis of their financial and funding plans.
- In drawing up such financial and funding plans, it is desirable that the concept of depreciation be incorporated in them and that reserve funds be set aside for eventual replacement of equipment according to its normal service life and actual condition after years of use.

2) Establishment of System of Remuneration for Health Care Services

- It is necessary to establish a system of remuneration for health care services by setting fees for tests, examination and treatment taking into account the prices of imported reagents, medicaments and consumables.
- Since no health insurance programs have yet been introduced in Uzbekistan, it is considered that many patients would not be able to pay if patients were to be charged for health care services. Presently patients can receive health care by the hospitals regardless of whether or not they are able to pay. With eventual general introduction of a system of charges for health care services, it will be advisable to

introduce as well a medical insurance system whereby the insured pay premiums geared to their incomes.

- With the help of the medical equipment procured in the present project the facilities of subject should strive for improvement of their diagnosis and treatment functions in order to attain a level of quality of health care services that is appropriate for future charging of fees for them. Ensuring of the quality of health care services will lead to increase of receipts as remuneration for such services and will make it possible to formulate appropriate funding plans, which is extremely important from the standpoint of securing budgets for maintenance and control of medical equipment and procurement of spare parts and consumables.

(4) Constraints Concerning Effective Use of Equipment

The following measures are necessary for effective use of the different items of equipment:

1) New Hiring of Medical Technicians

With procurement of new types of equipment, it will also be necessary that there be new hiring of medical technicians capable of maintenance thereof. Such new hiring will be necessary for the mobile X-Ray apparatus and darkroom equipment of X-Ray film developing planned for the Maternity Hospital No.3. Specifically, it will be necessary to hire at least one radiographer to operate the mobile X-Ray apparatus.

2) As mentioned in section 3.2, "Equipment Operation and Maintenance Plan," it will be necessary to make budgetary arrangements for the increase in operation and maintenance costs after implementation of the project for the new types of equipment that will be procured in it.

3) Formulation of Equipment Management Plans

For sound operation of the equipment it is essential that each hospital formulate equipment management plans. In such planning the first step is to estimate the number of patients and number of tests and examinations for the year in question. Then a management budget should be compiled considering both expenditure plans regarding necessary quantities of consumables, wages of equipment operators, routine equipment inspection costs, and so forth and receipt plans concerning remuneration for health care services and other income. It is advisable that at the end of the year the actual figures be reviewed so that, if necessary, such steps can be taken as determination of budget supplements and revision of unit prices for remuneration of health care services to take effect the next year.

Appendices

I. Member List of the Survey Team

Member list of the Survey Team

1. Leader

Kenji SUZUKI Assistant Director, Grant Aid Division
Economic Cooperation Bureau
Ministry of Foreign Affairs

2. Technical Advisor

Miyuki KOBAYASHI Department of Pediatrics
Faculty of Medicine
The University of Tokyo

3. Project Coordinator

Tsutomu SHIMIZU First Basic Design Study Division
Grant Aid Design and Study Department
Japan International Cooperation Agency (JICA)

4. Project Manager

Ryoji HARADA International Total Engineering Corporation (ITEC)

5. Equipment Planner

Yoshio FURUYA International Total Engineering Corporation (ITEC)

6. Facility Planner

Eiichi YAHAGI International Total Engineering Corporation (ITEC)

7. Procurement Planner / Cost Estimator

Akira WATANABE International Total Engineering Corporation (ITEC)

8. Interpreter

Yukichi GOTO International Total Engineering Corporation (ITEC)

2. Survey Schedule

SURVEY SCHEDULE

No.	Date	Governmental members / Project Manager / Interpreter	Equipment Planner	Facility Planner	Procurement Planner / Cost Estimator
1	Oct.4 Wed	Leave TOKYO (11:25) — Arrive to FRANKFURT (15:30) (LH711)	Team meeting		
2	Oct.5 Thu	Leave FRANKFURT (08:05) — Arrive to TASHKENT (18:35) (HY244)			Survey of Local agent in FRANKFURT
3	Oct.6 Fri	Courtesy call for Ministry of Health, Explanation of Inception report and Survey schedule Courtesy call for Embassy of Japan			Leave TK for MOSCOW(LH3190) Survey of Local agent in MOSCOW
4	Oct.7 Sat	Leave TK for Andijan(HY091), Meeting at Province Health Bureau, Site survey at Children's Hospital No.1			Survey of Local agent in MOSCOW
5	Oct.8 Sun	Site survey and meeting at Maternity Hospital No.3			Survey of Local agent in MOSCOW
6	Oct.9 Mon	Site survey and meeting at Women's Consulting Center No.3			Leave MOSCOW for TASHKENT(4J209)
7	Oct.10 Tue	Meeting with Andijan Province Health Bureau and Project site Representatives Leave Andijan for TASHKENT(HY092)			Leave TASHKENT for Andijan(HY091)
8	Oct.11 Wed	Discussions with Ministry of Health / Ministry for Foreign Economic Relations	Study of data and team meeting		
9	Oct.12 Thu	Signing of Minutes of Discussions, Reporting to Embassy of Japan	Site survey and meeting with at Maternity Hospital No.3		
10	Oct.13 Fri	Site survey of Relative Facilities	Site survey and meeting with at Children's Hospital No.1		
11	Oct.14 Sat	Lv. T.K. for FRANKFURT (LH2877) Lv. F.F. for TOKYO (LH710)(G. members) Lv. T.K. for Andijan (Consultant)	Site survey and meeting with at Women's Consulting Center No.3		
12	Oct.15 Sun	Arrive to TOKYO (08:40) (G. members) Discussion of schedule (Consultant)	Discussion of schedule at City Health Bureau		
13	Oct.16 Mon	Discussion of Questionnaire at City Health Bureau	Discussion of Questionnaire for Maternity Hospital No.3		Discussion of Questionnaire at City Health Bureau
14	Oct.17 Tue	Discussion of Questionnaire at Maternity Hospital No.3	Discussion of Questionnaire for Children's Hospital No.1		Discussion of Questionnaire at Maternity Hospital No.3
15	Oct.18 Wed	Discussion of Questionnaire at Children's Hospital No.1 / City Ambulance station	Discussion of Questionnaire for Women's Consulting Center No.3		Discussion of Questionnaire at Children's Hospital No.1 / City Ambulance station
16	Oct.19 Thu	Discussion of Questionnaire at Women's Consulting Center No.3	Discussion of Questionnaire for Women's Consulting Center No.3		Discussion of Questionnaire at Women's Consulting Center No.3

SURVEY SCHEDULE

No.	Date	Governmental members / Project Manager / Interpreter	Equipment Planner	Facility Planner	Procurement Planner / Cost Estimator
17	Oct.20	Fri Discussion of Questionnaire at Province Health Bureau	Meeting with City Health Bureau, Uzmedtehnika		Discussion of Questionnaire at Province Health Bureau
18	Oct.21	Sat Meeting with City Health Bureau			
19	Oct.22	Sun Study of data / Leave Andijan(15:50) for TASHKENT(16:50)(HY092)			
20	Oct.23	Mon Reporting to Embassy of Japan / Meeting at Ministry of Health			
21	Oct.24	Tue Meeting with EU / World Bank. Discussion of Questionnaire at MOH		Lv. T.K. for FRANKFURT (LH2877)	Lv. TASHKENT for MOSCOW (4J210)
22	Oct.25	Wed Meeting with WHO / UNICEF. Collection of Quotation in TASHKENT		Lv. F.F. for TOKYO (LH710)	Collection of Quotation in MOSCOW
23	Oct.26	Thu Meeting with Embassy of Germany / USAID		Arrive TOKYO (08:45)	Collection of Quotation in MOSCOW
24	Oct.27	Fri Meeting with GTZ. Discussion of Questionnaire at MOH			Collection of Quotation in MOSCOW
25	Oct.28	Sat Discussion of Questionnaire at MOH			Lv. MOSCOW for TOKYO (JL444)
26	Oct.29	Sun Study of Data			Arrive to TOKYO (08:55)
27	Oct.30	Mon Reporting to Embassy of Japan. Discussion of Questionnaire at MOH			
28	Oct.31	Tue Leave TASHKENT(05:05) - FRANKFURT(07:55) - HAMBURG(10:05)			
29	Nov.1	Wed Survey of Local agents / Collection of Quotation in HAMBURG			
30	Nov.2	Thu Survey of Local agents / HAMBURG(14:45) - FRANKFURT(15:55)			
31	Nov.3	Fri Survey of Local agents / FRANKFURT(19:30) - TOKYO (JL408)			
32	Nov.4	Sat Arrive to TOKYO(16:05)			

3. List of Party Concerned in the Recipient Country

List of Party Concerned in the Recipient Country

[Embassy of Japan in Uzbekistan]

1. Mr. Hidenori NAKAJIMA : Counselor
2. Mr. Takashi WATANABE : Second Secretary
3. Mr. Tomonori HASEGAWA : Third Secretary
4. Mr. Hisato AOKI : Attache
5. Mr. Makoto SATO : Attache
6. Mr. Masao OKUDA : Staff

[Ministry of Health, Uzbekistan]

1. Dr. Yarkulov Akhror BAKHRAMOVICH : Deputy Minister
2. Dr. Akhmedov Mekhmon NASYROVICH : Director of Maternal and Child Health
3. Dr. Dzhahalov Uktan DZHAILOVICH : Chief of Maternal and Child Health
4. Mr. Turtayev Mutal RASULOVICH : Director of Finance Department
5. Dr. Fuzailov Farkhad ZUYADULLAEVICH : Director of Personnel and Education
6. Dr. Shaumarov Somat BAKHRAMOVICH : Director of Public Health
7. Dr. Atabekov Nurmat SATINIYAZOVICH : Deputy Director of Public Health
8. Dr. Abdunoman SYDIKOV : Head of External Economic Activity Department
9. Dr. Bakirov Gairat MUFTUNOEVICH : Chief of External Economic Activity Department
10. Prof. Aripov Abdumalik HUGMADOVICH : Scientific Research Institute of Pediatrics
11. Dr. Alizhon H. DADAZHONOV : Pediatric Medical Institute Clinic No 2
12. Ms. Dilya R. KURBANOVA : Director of Uzmedimpex

[Ministry of Foreign Economic Relations, Uzbekistan]

1. Mr. Ganiev E. M. : First Secretary
2. Mr. Ulugbek Kh. SABIROV : Senior Expert

[Andijan Provincial Blood Transfusion Center]

1. Dr. Nasritzenov A. H. : Director

[Andijan Provincial Health Department]

1. Dr. Otakhanov A. M. : Director
2. Prof. Mukhitdinova T. K. : Professor of Andijan Medical College
3. Dr. Abdulloeva Z. N. : Chief of Obstetrics and Gynecology
4. Dr. Sattarova MUKHABBAT : Chief of Maternal and Child Health
5. Mr. Nazirov D. N. : Chief of Health Facility

[Andijan City Health Department]

1. Dr. Vakhobov ABDIMUMIM : Director
2. Dr. Batyrova MUKHARRAM : Deputy Director
3. Dr. Ganieva Rufina : Chief of Medical Education
4. Mr. Karimov M. G. : Chief of Health Facility
5. Ms. Toshboeva MAKHFUZA : Chief of Account Department

[Maternity Hospital No.3]

1. Dr. Saidkhanova Saodat USMANOVNA : Director
2. Ms. Sotvoldieva OLTINOI : Chief of Nurse
3. Dr. Kovalenko Lyudmila VALERJEVNA : Chief Doctor of Laboratory
4. Mr. Mirzakhmedov KHABIBULLO : Electrician
5. Mr. Yusupov RUZIBOI : Driver

[Children's Hospital No.1]

1. Dr. Shirceva Zefira FRANTSEVNA : Deputy Director

[Maternity Hospital No.2]

1. Dr. Kudelina Natalya MIKHAILOVNA : Director

[Women's Consulting Center No.3]

1. Dr. Sattarova MUKHABBAT : Director
2. Dr. Arifov ARABBAL : Dentist
3. Mr. Nasyrov AKHMAD : Electrician

[Andijan City Ambulance Center]

1. Dr. Nasritzenov A. H. : Director

[Children Clinic]

1. Dr. Khatenova Valentina GEORGIEVNA : Director

[Uzmedtechnica Andijan Branch]

1. Mr. Nizamov SADIKHZHON : Director

2. Mr. Iminov I. T. : Chief of Workshop

< Others >

[European Commission]

1. Mr. Hans MARGES : TACIS Program Officer

[UNICEF]

1. Mr. Perevalof ANDREY : Program Officer

[WHO]

1. Dr. Tharald HETLAND : Public Health Adviser

[UNFPA]

1. Mr. Ismailov ISKANDAR : National Project Officer

[World Bank]

1. Mr. Werner : Program Officer

[Embassy of Germany in Uzbekistan]

1. Mr. Stocker : Third Secretary

[German Technical Assistance]

1. Mr. Karlfried METZLER : Program Officer

[U.S. Agency for International Development (USAID)]

1. Mr. David H. MANDEL : Country Representative

4. Minutes of Discussion

MINUTES OF DISCUSSIONS
ON
THE BASIC DESIGN STUDY
ON
THE PROJECT FOR IMPROVEMENT OF MEDICAL EQUIPMENT
FOR
THE EASTERN PROVINCES
IN
THE REPUBLIC OF UZBEKISTAN

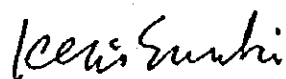
In response to the request from the Government of Uzbekistan, the Government of Japan decided to conduct a Basic Design Study on the Project for Improvement of Medical Equipment for the Eastern Provinces (hereinafter referred to as "the Project"), and entrusted the study to the Japan International Cooperation Agency (JICA).


JICA sent to Uzbekistan a study team, which is headed by Mr. Kenji SUZUKI, Assistant Director, Grant Aid Division, Economic Cooperation Bureau, Ministry of Foreign Affairs, and is scheduled to stay in the country from October 5 to October 31, 1995.

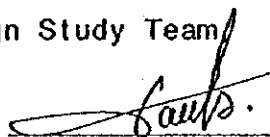
The team held discussions with the officials concerned of Ministry of Health and Ministry for Foreign Economic Relations of the Republic of Uzbekistan and conducted a field survey at the study area.

In the course of the discussions and field survey, both parties have confirmed the main items described on the attached sheets. The team will proceed to further works and prepare the Basic Design Study report.

Tashkent, October 12, 1995


Mr. Kenji SUZUKI
Leader,
Basic Design Study Team
JICA


Mr. Yarkulov A.
Deputy Minister,
Ministry of Health,
Republic of Uzbekistan


Mr. Ganiev E. M.
First Deputy Minister,
Ministry for Foreign Economic Relations,
Republic of Uzbekistan

ATTACHMENT

1. Objective

The objective of the Project is to improve the maternal and children's health service in the Andijan province as well as other eastern provinces of Uzbekistan, by means of necessary equipment procurement and installation.

2. Project Sites

The project sites are the following three hospitals located in Andijan Province.

- (1) The Maternity Hospital No.3
- (2) The Andijan City Children's Hospital
- (3) The Women's Consulting Center No.3

3. Responsible and Executing Organization

- (1) Responsible and Executing Organization for the Project is the Ministry of Health.
- (2) The Ministry of Foreign Economic Relations coordinates related organizations for the smooth implementation of the Project.

4. Items requested by the Ministry of Health

After discussions with the Basic Design Study Team, the items described in ANNEX- I were finally requested by the Ministry of Health.

However, the final components of the Project will be decided after further studies.

5. Comments by the team on the items in 4 above

The equipment to be given high priority in the Project is;

- 1) the equipment to be utilized for diagnosis, treatment and prevention of the common diseases.
- 2) the equipment to be replaced with the existing equipment which is already deteriorated.

While, the equipment to be given low priority in the Project is;

- 1) the equipment not required for medical service such as diagnosis, treatment and prevention.
- 2) the equipment which is available locally such as furniture.
- 3) the advanced equipment to be utilized for research activities.
- 4) the equipment with difficulties on installation and infrastructure conditions.
- 5) the equipment for small number of patients.
- 6) the equipment hazardous to environment.
- 7) the equipment with financial and marketing difficulties on the procurement of consumable and spare parts.

keg

Saukh.

A. D. Qurayev

6. Japan's Grant Aid System

(1) The Ministry of Health and the Ministry for Foreign Economic Relations have understood the system of Japan's Grant Aid on ANNEX-II as explained by the team.

(2) The Ministry of Health and the Ministry for Foreign Economic Relations will take the necessary measures described in ANNEX-III for the smooth implementation of the Project, in case that the Grant Aid Assistance by the Japanese Government is extended to the Project.

7. Schedule of the Study

(1) The consultants will proceed to further studies in Uzbekistan until October 31, 1995.

(2) Based on the Minutes of Discussions and technical examination of the study results, JICA will complete the final report and send it to the Ministry of Health and the Ministry for Foreign Economic Relations by the end of February, 1996.

8. Other Relevant Issues

(1) The Ministry of Health insisted that the highest priority should be given to the following equipment. The team agreed to convey the said message to the Government of Japan and explained the importance of maintenance for the equipment to the Ministry of Health. The team requested the Ministry of Health to clarify the sustainability on these equipment.

- a. Laboratory equipment,
- b. X-ray equipment, and
- c. Respirators.

(2) Monitoring

JICA will check and expedite the progress of execution of the project in each stage.

The Ministry of Health has responsibility for monitoring of the progress of the Project in each phase, allocation of funds, training, maintenance of equipment and operation of the hospitals after procurement and installation of the equipment.

(3) Financial Issues

The hospitals will make financial plan for proper use of equipment procured under the Project.

(4) The Ministry of Health will finish preparation work which is necessary for installation of the equipment before the end of June, 1996.

(5) The equipment procured under the Project shall be used within the project sites shown in the above 2.

Ice

Saints

A. Siquyab

ANNEX I

No		DESCRIPTION	QUANTITY AND PRIORITY
I		MATERNITY HOSPITAL NO. 3	
I	1	Delivery Table	4xA
I	2	Doppler Heart Rate Detector	4xA
I	3	Fetal Monitor	2xA
I	4	Suction A.P.P.	3xA, 4xB
I	5	Breast Pump	4xA, 3xC
I	6	Phototherapy Unit	2xA
I	7	Oxygen Tent	1xB
I	8	Infant Incubator	5xA
I	9	Refrigerated Centrifuge	1xA
I	10	Table-Top Centrifuge	2xA
I	11	Water Distilling Apparatus	1xA
I	12	Mobile X-ray Unit	1xB
I	13	Laryngoscope	4xA
I	14	Ultrasonic Nebulizer	4xA
I	15	Operating Table (Gynecology)	1xA
I	16	Coagulator Unit w/acc	1xA
I	17	Microscope	2xA
I	18	pH Meter	1xA
I	19	Colposcope w/Instrument Set	1xA
I	20	Stretcher	2xA
I	21	Infant Weighing Scale	2xA
I	22	New-born Ventilator	3xB
I	23	Hot Air Sterilizer	2xA
I	24	Automatic Respirator (for ADULT)	3xB
I	25	ECG Monitor	1xA
I	26	Defibrillator	1xA
I	27	Anesthesia A.P.P. (w/Ventilator)	2xA

Ice




ANNEX I

I	28	Syringe Infusion Pump	2xA
I	29	Gatch Bed	4xA, 2xC
I	30	Pulse Oxymeter	4xA
I	31	Anesthesia A.P.P. Table	2xA
I	32	ECG	1xA, 1xB
I	33	Ultrasonograph	1xA
I	34	Ultrasonograph, Portable	1xB
I	35	Stand Lamp	5xA
I	36	Na-K-Cl Analyzer without Sampler	1xB
I	37	Pulmonary Function Testing System	1xB
I	38	Blood Gas Analyzer	1xB
I	39	Blood Coagulation System	1xA
I	40	Hand Driven Type Resuscitator	2(ADULT)xA, 2(CHILD)xA, 6xC
I	41	Blood Cell Counter	1xB
I	42	Ambulance with Incubator	1xA
I	43	Fluorometer	1xB
I	44	Biochemical Analyser	1xB
I	45	UV Water Steriliser	20xB
I	46	Air Conditioner	4xB
I	47	Emergency Generator	1xB
II		ANDIJAN CITY CHILDREN'S HOSPITAL	
II	1	Incubator	12xA
II	2	Infant Respirator with oxygen cylinder	2xA, 1xC
II	3	Anesthesia A.P.P.	1xC
II	4	Movable Indoor Sterilizer	6xC
II	5	Nursing Bottle Warmer w/Stand	6xA, 6xC
II	6	Infant Warmer	3xA, 3xC
II	7	Nebulizer	6xA
II	8	Infant Weighing Scale	6xA, 14xC

102

Samir

A. Daryushev

ANNEX I

II	9	Syringe Infusion Pump	30xA
II	10	Air Way	5xA
II	11	Blood Gas Analyzer	1xB
II	12	Fluorophotometer	1xB
II	13	ECG Portable Type	1xA, 1xC
II	14	ECG	1xA, 1xC
II	15	Baby Cot	60xB
II	16	Suction A.P.P.	4xA
II	17	Hand Driven Type Resuscitator	2xA, 12xC
II	18	Ultrasonograph	1xA
II	19	Pulse Oxymeter	6xA
II	20	Automatic Blood Pressure Manometer	3xA
II	21	Oxygen Flow-meter for piping	6xB
II	22	Electric Thermometer	30xA
II	23	Microscope	2xA
II	24	Bone Marrow Biopsy Needle	2x8, 1xC
II	25	Water Distilling Apparatus	1xA
II	26	Stand Lamp	3xA
II	27	Ambulance with Incubator	1xA
II	28	UV Water Steriliser	4xA
II	29	Minoltameter	2xA
II	30	Bilirubinmeter	1xA
II	31	Na-K-Cl Analyser	1xB
II	32	Biochemical Analyser	1xB
II	34	Blood Cell Counter	1xB, 1xC
II	35	Fluorometer	1xC
II	36	Reagent Refrigerator	1xA, 1xC
II	37	Blood Refrigerator	1xA, 1xC
II	38	Oxygen Box	1xB

165

Santho.

A. S. Prasad

ANNEX I

II	39	Phototherapy Unit	2xA
II	40	Laryngoscope	1xA
II	41	Bedside Monitor	2xA
U	42	Air Conditioner	3xB
II	43	Emergency Generator	1xB
III		WOMEN'S CONSULTING CENTER NO. 3	
III	1	Clinical Spectrophotometer	1xA
III	2	Glucometer	1xA
III	3	Refractometer	1xA
III	4	Centrifuge w/acc	1xA
III	5	Blood Cell Counter	1xB
III	6	Microscope	2xA
III	7	Hot Air Sterilizer	3xA, 1xC
III	8	Ultrasonograph	1xA (FIXED), 1xC (PORTABLE)
III	9	Stand Lamp	1 (BIG) xA, 6 (SMALL) xA, 2xC
III	10	Colposcope w/instrument set	1xA, 1xC
III	11	ECG	1xA
III	12	Doppler Heart Rate Detector	2xA, 1xC
III	13	Fetal Monitor	1xA
III	14	Ambulance	1xA
III	15	Operating Instruments for Gynecology	1xA
III	16	Examining Table for Gynecology	6xB
III	17	Weighing scale	6xA
III	18	Coagulator	1xA
III	19	Manometer	20xA
III	20	Biochemical Analyser	1xB
III	21	Bacteria Analyser	1xC
III	22	UV Water Steriliser	2xB
III	23	Air Conditioner	1xB

109

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ANNEX I

III	24	Typewriter with memory	1x1
III	25	Photocopier	1x1
III	26	Slide Projector	1x1
III	27	Computer with Printer	1x3
III	28	Over head Projector	1x1

109

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Japan's Grant Aid System

(1) Grant Aid Procedures

1) Japan's Grant Aid Program is executed through the following procedures.

- Application (Request made by a recipient country)
- Study (Basic Design Study conducted by JICA)
- Appraisal & Approval (Appraisal by the Government of Japan and Approval by Cabinet)
- Determination of implementation (The Notes exchanged between the Governments of Japan and the recipient country)

2) Firstly, the application or request for a Grant Aid project submitted by a recipient country is examined by the Government of Japan (the Ministry of Foreign Affairs) to determine whether or not it is eligible for Grant Aid. If the request is deemed appropriate, the Government of Japan assigns JICA (Japan International Cooperation Agency) to conduct a study on the request.

Secondly, JICA conducts the study (Basic Design Study), using (a) Japanese consulting firm(s).

Thirdly, the Government of Japan appraises the project to see whether or not it is suitable for Japan's Grant Aid Program, based on the Basic Design Study report prepared by JICA, and the results are then submitted to the Cabinet for approval.

Fourthly, the project, once approved by the Cabinet, becomes official with the Exchange of Notes signed by the Government of Japan and the recipient country.

Finally, for the implementation of the project, JICA assists the recipient country in such matters as preparing tenders, contracts and so on.

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(2) Basic Design Study

1) Contents of the Study

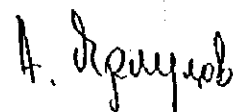
The aim of the Basic Design Study (hereafter referred to as "the Study") conducted by JICA on a requested Project (hereafter referred to as "the Project") is to provide a basic document necessary for the appraisal of the Project by the Japanese Government. The contents of the Study are as follow:

- a) Confirmation of the background, objectives, and benefits of the requested Project and also institutional capacity of agencies concerned of the recipient country necessary for the Project's implementation.
- b) Evaluation of the appropriateness of the Project to be implemented under the Grant Aid Scheme from a technical, social and economic point of view.
- c) Confirmation of items agreed on by both parties concerning the basic concept of the Project.
- d) Preparation of a basic design of the Project
- e) Estimation of costs of the Project

The contents of the original request are not necessarily approved in their initial form as the contents of the Grant Aid project. The Basic Design of the Project is confirmed considering the Guidelines of Japan's Grant Aid Scheme.

The Government of Japan requests the Government of the recipient country to take whatever measures are necessary to ensure its self-reliance in the implementation of the Project. Such measures must be guaranteed even though they may fall outside of the jurisdiction of the organization in the recipient country actually implementing the Project. Therefore, the implementation of the

169



Project is confirmed by all relevant organizations of the recipient country through the Minutes of Discussions.

2) Selection of Consultants

For smooth implementation of the Study, JICA uses (a) registered consultant firm (s). JICA select (a) firms (s) based on proposals submitted by interested firms. The firm (s) selected carry (ies) out a Basic Design Study and write (s) a report, based upon terms of reference set by JICA. The consulting firm (s) used for the Study is (are) recommended by JICA to the recipient country to also work on

the Project's implementation after the Exchange of Notes, in order to maintain technical consistency and also to avoid any undue delay in implementation should the selection process be repeated.

(3) Japan's Grant Aid Scheme

1) What is Grant Aid?

The Grant Aid Program provides a recipient country with non-reimbursable funds to procure the facilities, equipment and services (engineering services and transportation of the products, etc.) for economic and social development of the country under principles in accordance with the relevant laws and regulations of Japan. Grant Aid is not supplied through the donation of materials as such.

2) Exchange of Notes (E/N)

Japan's Grant Aid is extended in accordance with the Notes exchanged by the two Governments concerned, in which the objectives of the Project, period of execution, conditions and amount of the Grant Aid, etc., are confirmed.

3) "The period of the Grant Aid" means the one fiscal year which the

10

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Cabinet approves the Project for. Within the fiscal year, all procedures such as exchanging of the Notes, concluding contracts with (a) consultant firm (s) and (a) contractor (s) and final payment to them must be completed. However in case of delays in delivery, installation or construction due to unforeseen factors such as weather, the period of the Grant Aid can be further extended for a maximum of one fiscal year at most by mutual agreement between the two Governments.

- 1) Under the Grant Aid, in principle, Japanese products and services including transport or those of the recipient country are to be purchased.

When the two Governments deem it necessary, the Grant Aid may be used for the purchase of the products or services of a third country.

However the prime contractors, namely, consulting constructing and procurement firms, are limited to "Japanese nationals". (The term "Japanese nationals" means persons of Japanese nationality or Japanese corporations controlled by persons of Japanese nationality.)

- 2) Necessity of "Verification"

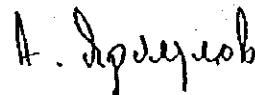
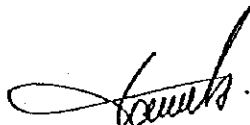
The Government of recipient country or its designated authority will conclude contracts denominated in Japanese yen with Japanese nationals.

Those contracts shall be verified by the Government of Japan. This "Verification" is deemed necessary to secure accountability to Japanese taxpayers.

- 3) Undertakings required of the Government of the Recipient Country

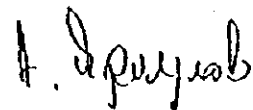
In the implementation of the Grant Aid project, the recipient country is required to undertake such necessary measures as the following:

169



- (1) To secure land necessary for the sites of the Project and to clear, level and reclaim the land prior to commencement of the construction.
- (2) To provide facilities for the distribution of electricity, water supply and drainage and other incidental facilities in and around the sites.
- (3) To secure buildings prior to the procurement in case the installation of the equipment.
- (4) To ensure all the expenses and prompt execution for unloading, customs clearance at the port of disembarkation and internal transportation of the products purchased under the Grant Aid.
- (5) To exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which will be imposed in the recipient country with respect to the supply of the products and services under the Verified Contracts.
- (6) To accord Japanese nationals whose services may be required in connection with the supply of the products and services under the Verified contracts, such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work.
- (7) " Proper Use"
The recipient country is required to maintain and use the facilities constructed and equipment purchased under the Grant Aid properly and effectively and to assign staff necessary for this operation and maintenance as well as to bear all the expenses other than those covered by the Grant Aid.
- (8) " Re-export"
The products purchased under the Grant Aid should not be re-exported from the recipient country.
- (9) Banking Arrangements (B/A)
 - a) The Government of the recipient country or its designated authority

16



ANNEX- III

NECESSARY MEASURES TO BE TAKEN BY GOVERNMENT OF UZBEKISTAN IN CASE JAPAN'S GRANT AID IS EXTENDED.

1. To provide data and information necessary for the Project;
2. To bear two kinds of commissions to the Japanese foreign exchange bank for its banking services based upon the Banking Arrangement (B/A) namely,
 - the advising commission of the "Authorization to Pay (A/P)" and
 - the payment commission;
3. To ensure prompt unloading, tax exemption, and customs clearance at the port of disembarkation in Uzbekistan and prompt internal transportation therein of the materials and equipment for the project purchased under the Grant Aid;
4. To exempt Japanese nationals or a staff from a third country engaged in the project from customs duties, internal taxes and other fiscal levies which may be imposed in Uzbekistan with respect to the supply of the products and services under the verified contracts;
5. To accord Japanese nationals or a staff from a third country whose services may be required in connection with supply of the products and services under the verified contracts, such facilities as may be necessary for their entry into Uzbekistan and stay therein for the performance of their work;
6. To provide necessary permissions, licenses, and other authorization for implementing the Project, if necessary;
7. To assign appropriate budget and staff members for proper and effective operation and maintenance of the equipment procured under the Project;
8. To maintain and use properly and effectively the equipment procured under the Project;
9. To bear all the expenses other than those to be borne by the Grant Aid within the scope of the Project.

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5. Cost Estimation Borne by the Recipient Country

Cost Estimation Borne by the Recipient Country

It is estimated that the total cost to be borne by Uzbekistan side in implementation of the project on the basis of Japanese non-reimbursable cooperation considering the respective responsibilities of the two side will be 357,700 Cym. The following is a breakdown of that estimate.

I. Maternity Hospital No.3	<u>203,700 Cym</u>
1) Generator (150 kVA, diesel) installation work	37,000 Cym
2) Darkroom fixtures work	28,000 Cym
3) Preparation work for UV water sterilizer (20 sets)	52,700 Cym
4) Laundry construction work	36,000 Cym
5) Electric outlet work connected with installation of new medical equipment	50,000 Cym
II. Children's Hospital No.1	<u>127,800 Cym</u>
1) Generator (150 kVA, diesel) installation work	37,000 Cym
2) Preparation work for UV water sterilizer (4 sets)	24,800 Cym
3) Laundry construction work	36,000 Cym
4) Electric outlet work connected with installation of new medical equipment	30,000 Cym
III. Women's Consulting Center No.3	<u>26,200 Cym</u>
1) Preparation work for UV water sterilizer (2 sets)	6,200 Cym
2) Electric outlet work connected with installation of new medical equipment	20,000 Cym

(Note : The figures include miscellaneous expenses.)

6. Water Analysis Report

WATER ANALYSIS REPORT

Sample No.	1	2	3
Sampling Place	Maternity Hospital No.3	Children Hospital No.1	Women's Consulting Center No.3
Sampling Date	1995.10.17	1995.10.17	1995.10.17
Wrdtion	Colorless	Slight Brown	Colorless
Analysis date	1995.11.9	1995.11.9	1995.11.9
pH	7.68	7.80	7.96
Electric Conducting (μ s/cm)	492	492	497
Turbidity (degree)	<1	2	<1
Oxygen Consumption (pH8.3) (mg CaCO ₃ /L)	0	0	0
Oxygen Consumption (pH4.8) (mg CaCO ₃ /L)	122	122	144
Magnesium (mg CaCO ₃ /L)	74	76	82
Calcium (mg CaCO ₃ /L)	136	135	154
Total Hardness (mg CaCO ₃ /L)	210	211	236
Chlorine Ion (mg Cl/L)	12.9	12.7	9.4
Total Iron (mg Fe/L)	0.05	0.44	0.05
Silica (mg SiO ₂ /L)	14.0	14.2	8.16
Phosphorus Acid Ion (mg PO ₄ /L)			
Nitric Acid Ion (mg NO ₃ /L)	18.5	18.3	9.6
Sulfuric Acid Ion (mg SO ₄ /L)	100	99.7	102
Chemical Oxygen Demand KMnO ₄ (mg O/L)	<1	<1	<1
Color level (degree)	<1	3	1

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