

**The Republic of Uzbekistan
Ministry of Health**

**PREPARATORY SURVEY REPORT ON
THE PROJECT FOR
IMPROVEMENT OF EQUIPMENT OF THE NAVOI REGIONAL
MULTIDISCIPLINARY MEDICAL CENTER
IN
THE REPUBLIC OF UZBEKISTAN**

May 2015

Japan International Cooperation Agency (JICA)

International Techno Center Co., Ltd.

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Preface

Japan International Cooperation Agency (JICA) decided to conduct the preparatory survey and entrust the survey to International Techno Center Co., Ltd.

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

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

Finally, 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 survey team.

May, 2015

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Summary

1. Background of the Project

The Republic of Uzbekistan is a landlocked country in Central Asia bordering on Kazakhstan, Turkmenistan, Afghanistan, Tajikistan and Kyrgyzstan. The land area of Uzbekistan is approximately 447,400 km², which largely consists of deserts and plains, with some highlands and mountains in the southeast area. The country became independent in 1991, with its capital being Tashkent, and is made up of 12 regions and the Autonomous Republic of Karakalpakstan.

Uzbekistan's economy had a favorable turn in the mid-2000's and maintained an annual growth rate of around 8% between 2011 and 2014, which was more than twice the growth rate in 2002. The country has shown overall robust economic growth, with a 7.7% growth rate in the mineral industry, 7.0% in agriculture and 11.5% in the construction industry compared to the previous year.

The Navoi Region, in which the Navoi Regional Multidisciplinary Medical Center (NRMMC) is located, is situated northwest of the center of Uzbekistan and has a population of approximately 930,000, according to statistics published by the Navoi Health Department in 2013, and a land area of approximately 110,000 km², which is the second largest after the Autonomous Republic of Karakalpakstan and accounts for 24.8% of the total land area of Uzbekistan, although it has the lowest population among all the regions. The region is characterized by a typical continental climate and low humidity. The region consists of 8 districts, 6 cities (including Navoi City where 132,000 people live), 8 townships and 53 villages. The population is disproportionately concentrated in the southeast area, where Navoi City is located, with the Tamdy and Uchkuduk districts in the northwest area having scattered populations in large areas.

2. Contents of the Project

Since its independence in 1991, Uzbekistan has implemented various measures to reform its health system, including the "National Healthcare Reform Program" that commenced in 1998. Nevertheless, non-communicable diseases (NCDs) such as cardiovascular disease have recently come to account for the majority of the causes of deaths in the country. The current vertically segmented, fragmented health system is not able to adequately cope with serious chronic diseases and their complications, and precludes the provision of proper medical services.

As a solution to these issues, the Uzbekistan government has decided to newly establish regional general hospitals in each region as regional-level centers of tertiary medical care that have multidisciplinary medical functions to cope with changing disease structures and varying needs, while

optimizing the medical facilities and beds. In the Navoi Region, the establishment of the NRMMC was decided according to Uzbekistan Cabinet Ordinance No. 48 "Reform plan of Regional Health Facilities" dated March 18, 2008, and the renovation of the building was completed in 2014.

This renovation plan includes the borrowing or transferring of some of the medical equipment to be used at the NRMMC from other hospitals within the region. However, the pieces of equipment used in existing hospitals in the region are aged and unable to cope with the situation in terms of both quality and quantity. New equipment are therefore needed for the NRMMC to provide proper medical services. With this background, the Uzbekistan government has requested the Japanese government for grant aid for equipping the NRMMC.

3. Basic design of the project

In response to the request, Japan International Cooperation Agency (JICA) dispatched the preparatory survey team from Nov. 9 to Dec. 6, 2014 and after the team returned Japan to conduct analysis, the preparatory survey team was again dispatched to explain the result from April 12 to April 25, 2015. With the Ministry of Health of Uzbekistan, Navoi regional health office, NRMMC and KfW in the preparatory survey stage, the proper plan for appropriate cooperate plan was discussed.

The objective of this project is to upgrade the testing, diagnostic, and treatment equipment in the NRMMC, further strengthen the medical service delivery system of the Center, and thereby contributing to improvement of the regional health system in the city and region of Navoi.

Department and Function	Equipment
Radiology Equipment	CT Scanner, X-Ray System, Angiography, X-ray Apparatus(Mobile), X-ray Apparatus (C-arm)
Functional Diagnosis Equipment	Ultrasound Apparatus, Ultrasound Apparatus (Portable)
Operating Room	Operating Table, Operating Light, Anesthesia Apparatus, Electro Surgical Unit, Operating Microscope (Neurosurgery), Laparoscope set, Electirc Drill for Neurosurgery
Endoscopy	Duodenoscope, Colonoscope, Bronchoscope
ICU	Patient Monitor, ECG, Holter ECG,
Urology	Cystourethroscopy, Cystoscopy, Lithotripter, remote
Dental	Dental Chair Unit, Panorama X-Ray, Dental X-Ray
Ophthalmology	Laser photo coagulator, YAG Laser, Phacoemulsification, ABScan Ophthalmic, Slit Lamp
Laboratory	Centrifuge, Binocular Microscopes, Fume Hood, Automatic Stainer, Glass Washer
Central Sterilizing Room	Autoclave, Sterilizer (Small)

Furthermore this project covers “User training” in the operation of the equipment in order to assure the proper operation and introduction of a management note book “Operation and Maintenance Passport for Medical Equipment” as a soft component.

4. Period and Estimated Cost of the Project

The expected period for completing this project is 13 months and its estimated cost borne by the Uzbekistan side is 41 million Japanese yen.

5. Project Evaluation

By implementing this project for the establishment of the NRMMC as a multidisciplinary medical center that plays a central role in managing NCDs among adults in Navoi Region, where there has been no such center, the residents of Navoi Region (population of about 930,000 people), as well as some of the residents of Samarkand Region (2.8 million), Bukhara Region (1.5 million) and the Republic of Karakalpakstan (1.55 million people) are expected to visit the hospital, where there seem to be equipment shortage or outdated diagnostic equipment. Thus, many groups of people will benefit from this project and its implementation is highly meaningful and justifiable. The quantitative effects will be as follows.

Indicators	Baseline as of 2015	Goal 3 years after completion of Japan's Grant Aid
Annual Number of Outpatients	27,000	54,000
Annual Number of Inpatients	2,500	6,000
Annual Number of CT scanner examinations	0	4,200
Annual Number of Angiography examinations	0	240
Annual Number of General Radiography and Fluoroscopy examinations	0	6,000

The qualitative effects will be as follows.

1) Improvement of the quality of medical services provided by the NRMMC

Implementing the project will make the NRMMC the best equipped medical facility in Navoi Region. While outdated medical equipment are used in Navoi City, the procured equipment for testing and diagnostic will enable NRMMC to provide medical services in an accurate and timely manner, contributing to an improved quality of medical services.

2) Diagnosing and treating patients with complications based on the function of the NRMMC as a multidisciplinary medical center for adult patients

Information of patients with specific diseases will be shared among multiple departments, allowing for the provision of medical services to complications, in addition to the major diseases.

3) Improvement of the medical service delivery system in Navoi Region by the NRMMC assuming the role as a multidisciplinary medical center for adult patients which is temporarily covered by another hospitals.

The NRMMC will be able to take over the role of the Republican Scientific Center for Emergency Medical Services, Navoi Branch, which temporarily served as a multidisciplinary medical center for adult patients. This will result in the establishment of a proper medical service provision system consisting of a multidisciplinary medical center and specialized hospitals. It will also allow for medical services to be provided in Navoi Region to patients who would otherwise have been transferred to another hospital in Tashkent.

**Preparatory Survey Report on
the Project for Improvement of Equipment of
the Navoi Regional Multidisciplinary Medical Center
in
the Republic of Uzbekistan**

Contents

Preface	
Summary	
Contents	
Location Maps	
List of Figures and Tables	
Abbreviations	
Chapter 1 Background of the Project -----	1
Chapter 2 Contents of the Project -----	3
2-1 Basic Concept of the Project -----	3
2-2 Outline Design of the Requested Japanese Assistance-----	4
2-2-1 Design policy-----	4
2-2-2 Basic Plan -----	8
2-2-3 Outline Design Drawing -----	19
2-2-4 Implementation Plan -----	21
2-2-4-1 Implementation Policy-----	21
2-2-4-2 Implementation Conditions -----	21
2-2-4-3 Scope of Works-----	22
2-2-4-4 Consultant Supervision -----	22
2-2-4-5 Procurement Plan -----	23
2-2-4-6 Operational Guidance Plan-----	24
2-2-4-7 Soft Component (Technical Assistance) Plan -----	25
2-2-4-8 Implementation Schedule -----	26
2-3 Obligations of recipient country -----	28
2-4 Project Operation Plan -----	28

2-5 Project Cost Operation Plan-----	29
2-5-1 Initial Cost Estimation -----	29
2-5-2 Operation and Maintenance Cost-----	30
Chapter 3 Project Evaluation -----	32
3-1 Preconditions-----	32
3-2 Necessary Inputs by Recipient Country -----	32
3-3 Important Assumptions -----	32
3-4 Project Evaluations-----	32
3-4-1 Relevance-----	32
3-4-2 Effectiveness -----	34

【Appendix】

1. Member List of the Study Team
2. Study Schedule
3. List of Parties Concerned in the Recipient Country
4. Minutes of Discussion
5. Soft Component (Technical Assistance) Plan

Location Map



List of Figures and Tables

Table 1: Major Equipment -----	9
Table 2: Details of Discussions on Requested Items -----	17
Table 3: Results of Discussions on the Second Preparatory Surveys (Dec.2014) -----	17
Table 4: Results of Discussion with KfW (Dec.2014) -----	18
Table 5: Results of Discussion with NRMMC (April 2014) -----	18
Table 6: Route and duration from Japan -----	23
Table 7: Route and duration from Europe -----	24
Table 8: Route and duration from USA -----	24
Table 9: NRMMC budget results -----	30
Table 10: Proposed indicators for quantitative effects -----	34
Figure 1: X-ray Apparatus, General and Fluoroscopy (B-Bldg.1F) -----	19
Figure 2: CT Scanner (A-Bldg.1F) -----	20
Figure 3: X-ray System, Angiography (C-Bldg.2F) -----	20
Figure 4: Implementation Schedule-----	27

Abbreviations

A/P	Authorization to Pay
B/A	Banking Arrangement
E/N	Exchange of Notes
G/A	Grant Agreement
ICU	Intensive Care Unit
JICA	Japan International Cooperation Agency
JOCV	Japan Overseas Cooperation Volunteers
KfW	Kreditantalt fur Wiederaufbau
M/D	Minutes of Discussions
NRMMC	Navoi Regional Multidisciplinary Medical Center
NCDs	Non-Communicable Diseases
ODA	Official Development Assistance
SVP	Selsky Vrachebny Punkt
WISP-2	Welfare Improvement Strategy Paper for 2013-2015

Chapter 1 Background of the Project

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1. Contents of the Project

Since its independence in 1991, Uzbekistan has implemented various measures to reform its health system, including the "National Healthcare Reform Program" that commenced in 1998. Nevertheless, non-communicable diseases (NCDs) such as cardiovascular disease have recently come to account for the majority of the causes of deaths in the country. The current vertically segmented, fragmented healthcare system is not able to adequately cope with serious chronic diseases and their complications, and precludes the provision of proper medical services.

As a solution to these issues, the Uzbekistan government has decided to newly establish regional general hospitals in each region as regional-level centers of tertiary medical care that have multidisciplinary medical functions to cope with changing disease structures and varying needs, while optimizing the number of medical facilities and beds. In the Navoi Region, the establishment of the Navoi Regional Multidisciplinary Medical Center (NRMMC) was decided according to Uzbekistan Cabinet Ordinance No. 48 "Reform plan of Regional Health Facilities" dated March 18, 2008, and according to the Health Minister's order No.25 to Navoi Health Department dated Jan. 29, 2014, the preparation of the establishment of MRMMC has been started and the renovation of the building was completed in July, 2014.

This renovation plan includes the borrowing or transferring of some of the medical equipment to be used at the NRMMC from other hospitals within the region. However, the pieces of equipment used in existing hospitals in the region are aged and unable to cope with the situation in terms of both quality and quantity. New pieces of equipment are therefore needed for the NRMMC to provide proper medical services. With this background, the Uzbekistan government has requested the Japanese government for grant aid for equipping the NRMMC.

2. Natural Conditions

Uzbekistan prospered as a central region of the Silk Road. The country is located roughly in the center of the five Central Asian countries and borders all the other four. It abuts on the Aral Sea to the north and shares a short border with Afghanistan to the south. The land extends long from east to west and mostly flatlands, with high mountains existing only in the border regions in the east.

The climate of Uzbekistan is continental and dry, the temperature sometimes goes below the freezing point even in winter. The altitude in Navoi City, Navoi Region, where the NRMMC is located,

is 347 and the average temperature in winter from January to March is 0.9°C to 8.4°C, with some days below freezing point. There is also snowfall.

3. Consideration of the environment and local community

The implementation of this project will have no effect on the environment and the local community surrounding the target facility, therefore it is concluded that the category classification would be a C.

Chapter 2 Contents of the Project

Chapter 2 Contents of the Project

2-1 Basic Concept of the Project

Since the independence of Uzbekistan in 1991, efforts such as the State Health Care Reform Program, which started in 1998, have been underway to modernize the health system, but institutional legacies from the former Soviet era are deeply persistent. In the referral system, for example, fragmentation of specialty care at all levels has increased the number of medical institutions and led to fragile linkages between facilities. Moreover, though the cause of death for four-fifths of the population is cardiovascular disease or other non-communicable diseases (NCDs), over-compartmentalization and fragmentation in the current system precludes adequate attention to serious chronic diseases and their complications. This state of affairs has led Uzbekistan to pursue a policy of establishing regional multidisciplinary medical centers in each of its regions to serve as regional-level centers of tertiary medical care. Strengthening of regional multidisciplinary medical centers is also stated as priority in the Welfare Improvement Strategy Paper of the Republic of Uzbekistan for 2013-2015(WISP-2), the comprehensive national health development plan for the country. The Strategy also makes reference to a policy of introducing modern medical equipment to prevent and mitigate diseases on the rise.

The policies and strategy mentioned above led to establishment of the NRMMC, with an outpatient department completed in July 2014, and an internal medicine ward completed in December that year. Some of the medical equipment used in the NRMMC was transferred from other hospitals in the region, but the medical equipment had deteriorated, and the transfer of such equipment alone was inadequate both in quality and in quantity. The project described here will furnish new equipment allowing the NRMMC to provide medical services commensurate with its status as a regional-level center of tertiary medical care.

Prior cooperation, the development study "The Reform of Health Care Services in Navoi Region in the Republic of Uzbekistan (2007-2008)" clarified the division of roles among medical facilities in the Navoi Region and proposed efforts such as reconstruction of an effective referral system. The technical cooperation project "The Project on Preventive Measures for Non-infectious Disease" (2010-2013) conducted trial operation of a health testing and services system at four primary health care facilities (Selsky rachebny punkt : SVP) in Navoi Region. The result of these prior projects and the Project is expected to enable the Navoi Region to offer multidisciplinary medical services, including preventive care

The objective of this project is to upgrade the testing, diagnostic, and treatment equipment in the NRMMC, further strengthen the medical service delivery system of the Center, and thereby contributing to improvement of the regional health system in the city and region of Navoi.

2-2 Outline Design of the Japanese Assistance

2-2-1 Design Policy

(1) Basic Policy

Uzbekistan is enhancing its regional medical facilities as one part of national measures to confront NCDs on the rise. Through budgeting by the government of Uzbekistan to NRMMC as tertiary medical care facility for adults in the Navoi Region, existing building was renovated and upgraded and renovation work completed in 2014.

When the NRMMC opened, the Navoi Region budgeted for the payroll needed to hire new health care providers and other staff and to purchase basic medical equipment, supplies, and drugs, while other medical facilities in the region transferred used medical equipment which still functioned but was no longer in service. However, the budget was not enough to procure the medical equipment such as radiological equipment, ultrasonic diagnostic equipment, and endoscopy, and the government of Uzbekistan made a request to Japan and German government-owned development bank (KfW) to upgrade this equipment.

Consequently, the design policy for this project is to procure the essential equipment needed to deliver medical services addressing the issue of NCDs and their complications in the Navoi Region in concert with the KfW, and within a scope consistent with the operating and maintenance budget of NRMMC.

(2) Policy regarding environmental conditions

Because the altitude of Navoi City, Navoi Region, where the NRMMC is located, is 347, there is no effect on equipment including high-pressure chambers, for example high-pressure steam sterilizers which require consideration of external air pressure. However, the average temperature in winter from January to March is 0.9°C to 8.4°C, with some days below freezing point. There is also snowfall.

Consequently, considering the safety of technicians, schedules for steps such as transportation, delivery, and installation have been designed to avoid winter.

(3) Policy regarding socioeconomic conditions

In Uzbekistan, some public medical facilities are allowed to charge fee for medical services to the patients by the central or regional government. Following the 2014 opening of its outpatient department, the NRMMC also obtained a permit from the Navoi Regional government to charge patient. For residents with disabilities and low-income registered by municipal government have to medical services free of charge.

(4) Policy regarding procurement plan

Consistent with the grant aid activities scheme of Japan, procurements under this project will be Japanese products and Uzbekistani products in principle. Equipment requiring maintenance by its agent will be products of manufacturers with agents or liaison offices with permanent technicians located in Uzbekistan. However, to avoid decreased competitiveness due to the limitation of manufacturers, product from third countries may also be considered for procurement if there are agents or liaison offices with permanent technicians for such products located within Uzbekistan.

The manufacturer and serial number of all medical devices used within Uzbekistan must be registered to the Ministry of Health of the Republic of Uzbekistan. However, because the grant aid of Japan is considered as of humanitarian aid, any Japanese products or third-country products which may be procured under this project but are not registered by the Ministry of Health can be exempted from such registration through application for a presidential order by the Ministry of Health of the Republic of Uzbekistan to the administration of the President of Uzbekistan.

Maintenance contract will also be added for some radiological equipment for sustained operation.

(5) Policy regarding operation and management/maintenance plan

The equipment planned for procurement under this project has been selected from equipment having the same functions as equipment currently used in medical facilities within Uzbekistan and is not equipment requiring special technique for operation. At the same time, the equipment plans have been drafted to allow maintenance within the maintenance budget of NRMMC. To be qualified for procurement, equipment requiring maintenance will have an agent located in Uzbekistan, and at the time of procurement, adequate support for setup and operation, and capability for subsequent, unimpeded maintenance must be confirmed. As a soft component, the introduction of an "Operation and Maintenance Passport for Medical Equipment" is planned for reliable implementation of user training in equipment operation and for administration of equipment operation and maintenance records. The

addition of a 3-year maintenance contract for some radiological equipment will also allow extended use of this equipment.

(6) Policy regarding grade of equipment and setting of specifications

Uzbekistani medical facilities also use a large amount of equipment developed and produced in the former Soviet Union and Eastern Europe. At the same time, many Japanese, European, and US products have been procured since 2000 through Japanese grant aid and support from other donors, and apart from some specialized equipment, these items are currently used in many facilities.

Accordingly, the major equipment and its specifications planned for procurement under this project have been selected from equipment which has been procured in Uzbekistan.

(7) Policy related to the entire process

The overall process of equipment procurement will be completed in approximately 13 months. Implementation of maintenance contract for some equipment will also be completed three years (36 months) after equipment is installed.

(8) Policy regarding consumable supplies/replacement parts

In principle, the basic plan for grant does not include replacement parts. However, this project does provide for maintenance contract including replacement parts for some radiological equipment. Where consumable supplies are concerned, the budgeting process of the Uzbekistan legislature (fiscal year from January to December) makes July the deadline of application for including these items in the next fiscal year budget. And considering the time frames for choosing the medical equipment under this project and determining the consumable supplies needed, procuring this equipment, requesting a budget for the consumable supplies that the equipment requires, and procuring these supplies, this project does include consumable supplies required for a minimal period extending from procurement of equipment to procurement of consumable supplies as part of an Uzbekistan government budget. The objective of this policy is to assure a smooth start of operation of the equipment procured.

(9) Policy regarding training after installation of equipment

Uzbekistan medical facilities use a large amount of medical equipment produced in the former Soviet Union and former Eastern Bloc countries. However, this project does allow for procurement of Japanese-, European-, and American-made equipment products. While the specifications and functions of this equipment are highly similar, some differences in the features of this equipment do exist, such as

control panel language and layout, which necessitates reliable training for issues such as operation and startup inspection. Consequently, a sufficient period of operational guidance is planned at the time of equipment installation to ensure that health care personnel at the facility concerned can operate the equipment appropriately.

(10) Policy regarding soft components

Because the NRMMC is a new medical facility, all the equipment will be procured for the first time. Consequently, to ensure unimpeded setup of the procured equipment immediately after procurement and appropriate, routine operation thereafter, it is important that this project include operating instruction at the time of equipment procurement, and maintenance and management training covering routine inspection.

This project includes operating training provided by the supplier after procurement of equipment. However, due to control panel layout or automation of functions in the equipment, it is highly likely that some operations will be simplified or differ from the operations of existing models of some equipment. Consequently, regular technical advising is needed even after handover by the supplier to ensure that staff learns appropriate operating procedures. In addition to operating training provided by the supplier, this project includes user training in the operation of equipment, including startup and shutdown inspections. This training will be provided with assistance from Uzbekistan health care personnel actually using the medical equipment, including the training for the method of cleaning of endoscopy unit for the measure of in-hospital infection at medical facilities in Uzbekistan.

Routine inspection is also important for ensuring appropriate operation of the procured equipment. In FY2001, a management notebook "Operation and Maintenance Passport for Medical Equipment" was introduced at the Republican Scientific Center for Emergency Medical Services in Tashkent through the Japanese grant aid "The Project for Upgrading the Emergency Medical System in Tashkent City". This passport institutionalized routine inspection and is currently also in use at the Republican Scientific Center for Emergency Medical Services, Navoi Branch. The passport was also introduced through "The Project on Improvement of Rehabilitation Centers in the Republic of Uzbekistan" undertaken in FY2008. With assistance from the Republican Scientific Center for Emergency Medical Services, Navoi Branch, this project will also introduce the passport in order to institutionalize routine inspection at the facility concerned.

2-2-2 Basic Plan (Equipment plan)

(1) Overall plan

In partnership with the KfW, this project will procure various diagnostic equipment (e.g., Radiology Equipment, Ultrasound Apparatus, Endoscopic Equipment and Blood Gas Analyser) and treatment equipment (e.g., Operating Light, Operating Table, Anesthesia Apparatus, Ventilator) for the 200-bed NRMMC, which handles tertiary medical care for adults in the Navoi Region.

Currently the NRMMC includes an outpatient (polyclinic) completed in July 2014 and an internal medicine ward completed in December 2014. Future plans call for sequential completion of an inpatient surgical ward and departments of radiology and clinical screening.

(2) Equipment plan

Surveys for this project were initiated as Japanese grant aid pursuant to a request from Uzbekistan, with first preparatory survey completed in June-July 2014 and the second preparatory survey completed in November-December 2014. Because this is also a cooperative project with the KfW, discussions on partnership with the Ministry of Health and the KfW were carried out during each survey. As a result, 247 equipment items requested initially were ultimately narrowed to 94 items. Additional discussions on the specifications and operating and maintenance costs of the various equipment to be procured took place during the explanation of draft final report in April 2015, and on this basis, some quantities were changed, resulting in final 92 items.

Items for procurement are selected in consideration of the current circumstances at the NRMMC and both the necessity of each equipment item and its validity in the context of Japanese grant aid. Table 1 presents a list of the major equipment currently planned for procurement.

Table 1: Major Equipment

Equipment	Main Specification	Quantity	Purpose
CT Scanner	1)CT <ul style="list-style-type: none"> • 16 slices • Scan time: within 1 second • X-ray tube heat capacity: 3MHU or more 2)X-ray generator: equipped	1	Apparatus providing 360° panoramic X-ray imaging and computer-processed, transverse sectional imaging of the body.
X-Ray System, Angiography	1)Angiography X-ray unit <ul style="list-style-type: none"> • X-ray tube anode heat storage capacity: 1,500kHU or more • Flat panel equipped 2)Operation table: electrical type	1	System for diagnostic imaging through X-ray exposure of contrast medium injected to a target site through a catheter introduced intravascularly.
X-ray Apparatus, General and Fluoroscopy	1)X-ray tube <ul style="list-style-type: none"> • X-ray tube capacity: 200kHU or more • X-ray tube voltage: more than 120kV 2)Patient table: equipped 3)Bucky stand: equipped 4)Operation table: equipped 5)X-ray generator: including 150-80KV	1	X-ray apparatus for multipurpose (orthopedic, thoracic/abdominal) X-ray diagnosis and gastrointestinal fluoroscopy.
X-ray Apparatus(Mobile)	1)Fluoroscopy / general X-ray tube <ul style="list-style-type: none"> • voltage: 120kV or more 2)X-ray generator: 40-125kV 3)Cart: equipped	2	Mobile X-ray apparatus for general purpose use in X-ray diagnosis in ICU and wards outside Department of Radiology
X-ray Apparatus (C-arm)	1)X-ray unit <ul style="list-style-type: none"> • X-ray tube capacity: 40kHU or more • Monitor: 19 inch or more, LCD 	1	Mobile X-ray apparatus for surgical X-ray diagnosis in operating rooms outside Department of Radiology
Ultrasound Apparatus	1)Ultrasound system <ul style="list-style-type: none"> • Probe connector: more than 3 • Monitor: 12 or more inch, color, LCD • Probe : for intra operative, abdominal, cardiac, mammary gland and trans vaginal 	3	Equipment for application of ultrasound waves to a target and imaging of reflected sound.
Ultrasound Apparatus (Portable)	1)Ultrasound system(portable) <ul style="list-style-type: none"> • Probe connector: 3 or more • Monitor: 10.4 inch or more, color, LCD • Probe: for abdominal, cardiac, mammary gland and trans vaginal 	2	Specification of portable use for ultrasound diagnostic system in previous item.

Operating Table	1)Operation table <ul style="list-style-type: none"> •Elevation range: 52-100cm or more •Table top dimensions:1950×500mm •X-ray scan: possible 	3	Operating table suitable for general surgery.
Operating Light	1)Operating light <ul style="list-style-type: none"> •Number of LED units: more than 126(main)/72(sub) •Maximum luminance: 160,000 or more (main)/110,000or more (sub) Lux 	3	Illumination system allowing visualization of surgical field with adequate brightness and correct colors.
Operating Light (Mobile)	1)Operating light (Mobile) <ul style="list-style-type: none"> •Stand type •Number of LED unit: more than 3 •Maximum luminance: over 85,000Lux •Caster equipped 	10	Battery-equipped, mobile illumination system.
Anesthesia Apparatus	1)Anesthesia apparatus <ul style="list-style-type: none"> •Gas supply pressure: including 350-500kPa •Vaporizer Isoflurane 2)Ventilator <ul style="list-style-type: none"> •Ventilation method: electrically driven, volume control •Tidal volume: including 100~1,100ml •Breath frequency: including 5-40 times/min adjustable 	3	Apparatus for delivery of general anesthesia using inhaled anesthetics.
Ventilator	1)Ventilator <ul style="list-style-type: none"> •Ventilation control: volume control and pressure control •Mode: SIMV, Assist/CMV, CPAP/PSV, PEEP •Tidal volume: including 50-2,000mL •Respiratory rate: 0-80 times/min 	6	Apparatus providing artificial substitution and assistance for lung function in individuals where lung no longer functions as a respiratory organ.
Electro Surgical Unit	1)Electro surgical unit <ul style="list-style-type: none"> •Cutting: within 130-350W •Coagulation: within 130W •Coagulation spray: within 65-80W 	5	Surgical unit for sectioning (hemostatic sectioning) and coagulation of body tissues.
X-ray Apparatus (C-arm)	1)Blood gas analyzer <ul style="list-style-type: none"> •Parameters: Ph,Pco₂,PO₂ or more Na,K,Cl,Ca,tHb,SO₂% •Printer equipped 	1	Apparatus for determining whether respiratory function is normal based on observation of arterial blood.

Ultrasound Apparatus	1)Operating microscope (neurosurgery) •Magnification:6:1 zoom, electrically •Eyepiece: 10× and 12.5× •Light source: Xenon 2)Stand: equipped	1	Precision performance of microscopic-aided neurosurgical microsurgery impossible with unassisted vision.
Operating Microscope (Ophthalmology)	1) Operating microscope (ophthalmology) •Eyepiece: 12.5× •Magnification: 4.6、10、16、25× •Maximum intensity: over 115,000Lux •Light source: Halogen or LED 2)Stand: equipped	1	Precision performance of microscopic-aided ophthalmic microsurgery impossible with unassisted vision.
Laparoscope set	1)Laparoscope (rigid) •Camera head equipped •Telescope: 10mm, 0°and 30°, 2 pcs. 2)Forceps: equipped 3)Light source: Xenon lump 4)Electrical surgery unit: Bipolar and mono-polar can be used 5)High flow insufflation unit : equipped 6)Surgipump: equipped 7)Video processor: equipped 8)Monitor: equipped 9)Mobile workstation: equipped	1	Endoscopic device inserted through the surfacial skin into the abdominal cavity.
Duodenoscope	1)Duodeno video fiber scope •Field of view:100°or more, ,outer diameter : 13.7mm or less, inner diameter : 4.2mm or less 2)Forceps: 3 types equipped 3)Light source: Xenon lump 4)Electrical surgery unit: Bipolar and mono-polar can be used 5)Video processor: equipped 6)TV monitor: more than 24inch,PAL 7)Mobile workstation: equipped	1	Endoscope for observation and treatment of the duodenum.
Colonoscope	1)Colono video fiber scope •Field of view:140°or more, outer diameter : 13.2mm or less, inner diameter : 3.8mm or less 2)Forceps: 3 types equipped 3)Light source: Xenon lump 4)Video processor: equipped 5)Monitor: more than 24inch,PAL 6)Mobile workstation: equipped	1	Endoscope for observation and treatment of the colon.

Bronchoscope	<p>1) Broncho video fiber scope</p> <ul style="list-style-type: none"> • Field of view: 120° or more, outer diameter : 5.5mm or less, inner diameter : 2.0mm or less <p>2) Forceps: 3 types equipped</p> <p>3) Light source: Xenon lamp</p> <p>4) Video processor: equipped</p> <p>5) TV monitor: more than 24 inch, PAL</p> <p>6) Mobile workstation: equipped</p>	1	Endoscope for observation and treatment of e.g., lung cancer and pulmonary tuberculosis.
Endoscope set for the nose and paranasal sinuses	<p>1) High definition laryngoscope</p> <ul style="list-style-type: none"> • 10mm, working length 167mm or more, direction of view 70° <p>2) Tele scope</p> <ul style="list-style-type: none"> • Tele scope A: 2.7mm, working length 167mm or more, direction of view 0° • Tele scope B: 2.7mm, working length 70mm or more, direction of view 30° <p>3) Camera head: equipped</p>	1	Device for efficient otorhinological treatment through integrated supply/removal of fluids, suction/exhaust of air, and use of electricity.
Cystourethroscope	<p>1) Uretero-reno fiberscope</p> <ul style="list-style-type: none"> • field of view 90° or more, outer diameter, inner diameter 1.2mm or less <p>2) Cysto-nephro video scope</p> <ul style="list-style-type: none"> • field of view 120° or more, outer diameter 5.5mm or less, inner diameter 2.2mm or less <p>3) Camera head: equipped</p>	2	Device for observation of the urinary tract and bladder.
Cystoscope	<p>1) Telescope: 4mm, direction of view 0°, 30°, 110°, 3 pcs. or more</p> <p>2) Ureteroscop: direction of view 7°, straight and angled ocular equipped</p> <p>3) Nephroscope: direction of view 30°, channel 4mm or more</p> <p>4) Lithotripter equipped</p>	1	Device for observation and treatment of the bladder.

Lithotripter, remote	<p>1) Shock wave source</p> <ul style="list-style-type: none"> • Penetration depth: 150mm or more • Adjustment range: 9 energy levels or more <p>2) X-ray generator</p> <ul style="list-style-type: none"> • Fluoroscopy mode: 6.5mA (normal mode) or more • Radiography mode: 60mA/100mAs or more <p>3) X-ray tube</p> <ul style="list-style-type: none"> • focal spot size: including 0.5/1.5mm <p>4) Monitor: 9inch or more</p>	1	Device allowing pulverization of calculi by shock waves produced outside the body, with no incision of the skin.
Panorama X-Ray	<p>1) Dental Panoramic X-ray</p> <ul style="list-style-type: none"> • Exposure time: 8 seconds (high speed) or more • X-ray tube voltage: within 58-82kVp • X-ray tube current: within 2-10mA 	1	One-film visualization of items including osseous areas of entire jaw, tooth implantation in bone, and temporomandibular joint.
Dental Chair Unit	<p>1) Dental chair unit</p> <ul style="list-style-type: none"> • Seat movement method: hydraulic system • Air motor equipped <p>2) Equipment</p> <ul style="list-style-type: none"> • High speed air-turbine hand piece, air motor with straight and contra angle hand piece, three-way syringe, vacuum syringe and saliva ejector equipped <p>3) Air compressor</p> <ul style="list-style-type: none"> • Motor: more than 0.75 KW • Air exhaust: more than 80 L/min 	2	Device for efficient dental treatment through integrated supply/removal of fluids, suction/exhaust of air, and use of electricity and gases.
Laser photo coagulator	<p>1) Laser photocoagulator</p> <ul style="list-style-type: none"> • Wave length: green 532nm, yellow 577nm equipped • Emission time: within 0.01-3.0 second • Aiming laser: 670nm <p>2) Slit lamp</p> <ul style="list-style-type: none"> • Eyepiece: more than 10× • Eyepiece diopter adjustment: within ±6D-8D 	1	Device used for corneal coagulation.

YAG Laser	<p>1) YAG laser</p> <ul style="list-style-type: none"> • Wave length: 1,064nm • Pulse duration: 4nsec • Spot size: within 10μm <p>2) Slit lamp</p> <ul style="list-style-type: none"> • Objective lens: f=within 130-140mm • Eyepiece: 10× • Magnification: 5×, 8×, 12 or 12.5×, 20×, 32× <p>3) Gonio lens equipped</p>	1	Device used for after-cataract incision.
Phacoemulsification	<p>1) Cataract surgery device</p> <ul style="list-style-type: none"> • Vacuum pump: Peristaltic type • Ultrasound transducer: piezoelectric • Vitreous cutter: pneumatic driven guillotine system • Foot pedal equipped 	1	Device for pulverizing and treating cataract opacity.
ABScan Ophthalmic	<p>1) Ultra sound A scan</p> <ul style="list-style-type: none"> • Probe: 10MHz solid type • Measurement value: axial length, anterior chamber depth, lens thickness, • Display: more than 3.5-inch, color, LCD <p>2) Ultra sound B scan</p> <ul style="list-style-type: none"> • Probe: more than 10MHz • Scan angle: including 52~ 60° 	1	Ophthalmological ultrasound diagnostic device used to acquire ocular axis length, cross-sectional views, and corneal thickness.
Perimeter	<p>1) Perimeter</p> <ul style="list-style-type: none"> • Hemispherical projection perimeter • Measuring range: including 70~90° • Stimulus sizes: 1/16, 1/4, 1, 4, 16, 64mm² • Neutral density filter: variable in 4steps, 5steps, 3steps equipped 	3	Device capable of perceiving early-stage changes in glaucoma and optic nerve disease through recording of the distribution of optic sensation.
Patient Monitor	<p>1) Patient monitor</p> <ul style="list-style-type: none"> • Parameters: including EKG, Resp, SpO₂, NIBP • Display: 15-inch or more, color, LCD • Recharge general battery: equipped • Recorder: equipped <p>2) Cart: equipped</p>	10	Device for monitoring of ECG, heart rate, blood pressure, and body temperature as human vital signs
Defibrillator	<p>1) Defibrillator</p> <ul style="list-style-type: none"> • Energy selection: including 2-270J • Charging time(AC power operation): less than 4s at 270J or 10s at 360J • Display: more than 6.5-inch, color, LCD <p>2) Cart: equipped</p>	7	Device which transmits a direct current transdermally to restore natural heart rhythm in ventricular fibrillation, the most frequent form of cardiac arrest.

ECG	<p>1)ECG</p> <ul style="list-style-type: none"> •Lead: standard 12 leads •Sensitivity: including 5/10/20mm/mv, auto selection •Battery charge time: within 10h •Battery operational time: more than 30min •Display: more than 5.7-inch, color, LCD or touch panel 	4	Device for diagnosis of arrhythmia and supplementary diagnosis of ischemic heart disease, cardiomegaly, and electrolyte abnormalities.
Treadmill	<p>1)Treadmill</p> <ul style="list-style-type: none"> •Speed range : more than 0.0-12km/h •(W)82-86×(H)125-136×(L)195-210cm •Weight: 200kg <p>2)ECG: equipped</p>	1	Device which places a quantified activity load on a subject to test for abnormal electrocardiogram.
Ergometer	<p>1)Ergometer</p> <ul style="list-style-type: none"> •Speed range : including 30-130RPM •(W)46-60×(H)94-100×(L)110-133cm •Weight: less than 50kg <p>2)ECG: equipped</p>	1	Device which places a quantified activity load on a subject to test for abnormal electrocardiogram.
Electromyograph	<p>1)Electromyograph</p> <ul style="list-style-type: none"> •Amplifiers, sensitivity: 1,2,5,10,20,50,100,200,500Mv/div, 1,2,5,10mV/div±5% <p>2)Cart: equipped</p>	2	Device used to screen for peripheral neuritis and other diseases between ventral horn cells and peripheral nerves.
Hematology Analyzer	<p>1)Hematology analyzer</p> <ul style="list-style-type: none"> •Measuring parameters: including WBC, RBC, PLT, HCT •Throughput : more than 100 tests/h <p>2)Sampler capacity: more than 50 samples</p> <p>3)Printer: equipped</p>	1	Device used for screening tests and follow-up testing in blood diseases.
Blood Coagulation Analyser	<p>1)Coagulation analyzer</p> <ul style="list-style-type: none"> •Measuring parameters: including PT, APTT, fibrinogen, TT, coagulation factors •Throughput: PT 180 tests/h, APTT 115tests/h, PT·APTT 115 tests/h <p>2)Sampler capacity: 50 samples</p> <p>3)Printer: equipped</p>	1	Device which measures coagulation time by illuminating a mixture of blood plasma and a reagent with red light to detect changes in turbidity during conversion of fibrinogen to fibrin.
Microbiological Analyzer	<p>1)Microbiological analyzer</p> <ul style="list-style-type: none"> •Measuring parameters: including gram-negative bacteria, gram-positive bacteria, gram-positive spore forming bacilli, bacteria yeast-like organisms, Nessleria genus, Haemophilus genus •Capacity: more than 30 cards per incubator 	1	Device for identification of microbes.

Tissue Processor	1)Tissue processor •Capacity: 300 pcs./time •Dry fun: equipped	1	Pathology screening device for automatic dehydration of tissue, alcohol removal, and paraffin suffusion in a specified duration.
Automatic Stainer	1)Automatic stainer •Capacity: 50 pcs./time •Dry tank to stain: equipped	1	Device for uniform staining of pathology cells.
Water Distiller	1)Water distiller •Pure water to collect : distilled/ion exchanged water •Distilled water produced rate: 5L/h or more •Boiler material: stainlesssteel	2	Device for producing distilled water.
Microtome (Sledge)	1)Microtome (slide type) •Type: slide type •Sectioning range: about 0.5-10 μ m •Knife stroke: 190mm or more	1	Device for thin sectioning of tissue specimens for microscopic observation of tissues.
Autoclave	1) Autoclave •Horizontal type •Nominal chamber volume: 200L or more •Camber material: stainless steel •Boiler: equipped •Sterilizing temperature control: 121°or more 2)Sterilization can: equipped	3	Device for sterilization by high-temperature, high-pressure steam.

Source: Field Survey Team

Tables 2 and 3 present the results of discussions held between the first preparatory survey and the second preparatory survey which resulted in the foregoing list. By completion of the second preparatory survey, the number requested items had been reduced from 247 to 162 items. The number of items requested to Japan was 98 including 32 items requested as a quantity to be apportioned among both Japan and the KfW, as confirmed in a minutes of discussion (M/D) signed pursuant to the second preparatory survey on Dec.5, 2014.

Table 2: Details of Discussions on Requested Items

	July, 214				⇒	Dec. 2014			
	Total	KfW	JICA	KfW/JICA		Total	KfW	JICA	KfW/JICA
Medical Equipment	143	17	107	19		124	32	67	25
Medical Instruments	28	0	24	4		0	0	0	0
Instrumants Set	15	0	13	2		18	0	15	3
laboratory Equipment	38	5	26	7		20	0	16	4
Consumables	8	0	8	0		0	0	0	0
Unknown	1	0	0	1		0	0	0	0
Total	233	22	178	33		162	32	98	32
Office/Furnitures	6	1	5	0		0	0	0	0
Medical Gas	5	0	4	1		0	0	0	0
Others	3	2	1	0		0	0	0	0
Total	14	3	10	1		0	0	0	0
Grand Total	247	25	188	34		162	32	98	32

Source: Field Survey Team

Table 3 : Results of Discussions on the Second Preparatory Surveys (Dec. 2014)

- ① Confirmed that medical equipment such as sphygmomanometers and stethoscopes in the original request, as well as medical gases and kitchen equipment will be purchased under a future Navoi Regional Public Health budget.
- ② Uzbekistan agreed to delete rehabilitation equipment, mattress sterilizing equipment from the equipment list.
- ③ Additional request was made for CT scanners and dental X-ray equipment not appearing on the initial list of requested equipment.
- ④ Some radiological equipment (mobile equipment, C-arm equipment) which was requested only to KfW was included on the list of equipment requested from Japan.

Source: Field Survey Team

Subsequently, a draft final equipment list was provided by the KfW to the Ministry of Health of Uzbekistan on Dec.19, 2014, during an analysis in Japan period following completion of the second preparatory survey. However, 13 items requested from both Japan and the KfW still remained on the final equipment list, and therefore the procurement source was confirmed again. The outcome on Dec.31, 2014 was that the Ministry of Health of Uzbekistan proposed a final request as shown in Table 4 below for the 13 items requested in duplication with the KfW.

Table 4: Results of discussion with KfW (Dec. 2014)

Equipment	Dec 19, 2014		Dec 31, 2014	
	Request to KfW	Request to Japan	Request to KfW	Request to Japan
Ultrasound Apparatus	1	1	0	2
Ultrasound Apparatus (Portable)	1	2	0	2
Syringe Pump	4	28	0	28
Infusion Pump	5	12	0	12
Operating Microscope	1	2	0	2
Ventilator	2	5	0	5
ECG	2	2	0	4
Holter ECG	1	4	0	4
Cystourethroscope	1	1	0	2
Binocular Microscopes	1	4	0	4
Instrument Set (Surgery)	1	6	0	6
Instrument Set (Traumatology)	1	1	0	2
Autoclave (Large)	1	3	0	3

Source: Field Survey Team

Discussions with the NRMCC were held again in April 2015 for the explanation of draft final report of the second preparatory survey, and on this basis, some equipment planned for procurement was eliminated, and quantities were revised. Table 5 below shows the changes made, which were confirmed in the M/D signed on April 24, 2015.

Table 5: Results of final discussion with NRMCC (April. 2015)

Equipment	Original Q'TY	Modified Q'TY
Ventilator	5	6
Ultrasound Disintegration Turbinates	1	0
Microbiological Analyzer	1	0
Water Distiller	3	2
Water Distiller (Big)	2	1

Source: Field Survey Team

As of April 2015, the final equipment list by the KfW side has not been confirmed. Consequently, the Ministry of Health of Uzbekistan and the second preparatory survey team agreed that the Ministry of Health of Uzbekistan would hold discussions and coordinate with KfW based on the equipment list for

the Project in order to avoid duplication or shortages. For good measure, the second preparatory survey team has also explained this arrangement to the KfW directly.

2-2-3 Outline Design Drawings

The layout for the major radiological equipment is as follows. Based on installation standards for radiological equipment in Uzbekistan, the configuration of the various equipment rooms requires modifications concerning following issues.

Assurance of: ① radiation protection (walls, doors, control windows), ② three-phase power supply, and ③ delivery routes for each equipment item.

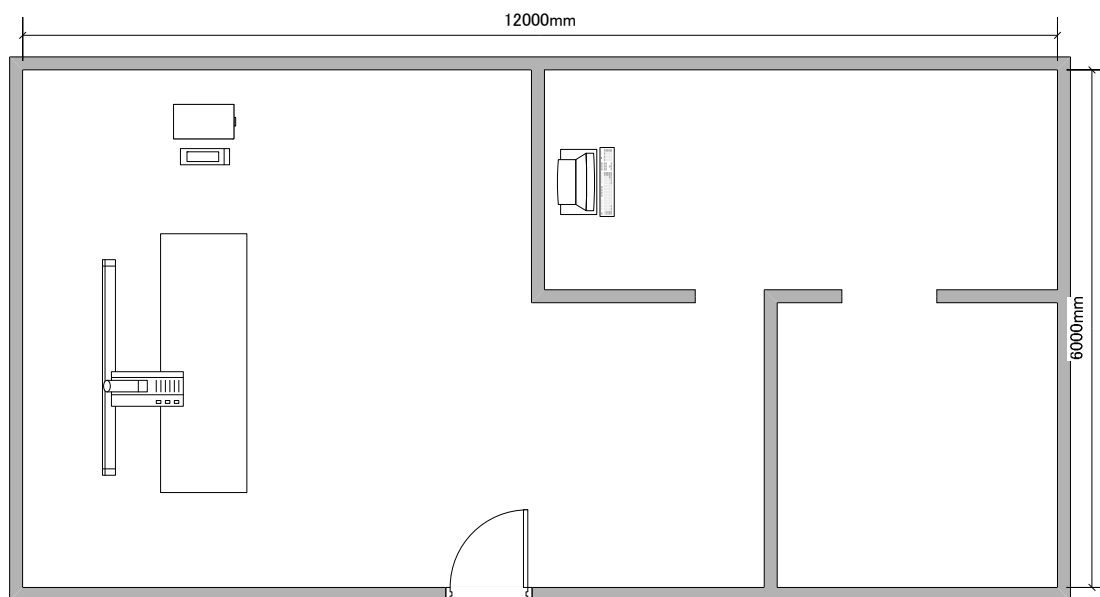


Figure 1: X-ray Apparatus, General and Fluoroscopy (B-Bldg. 1F)

Source: Field Survey Team

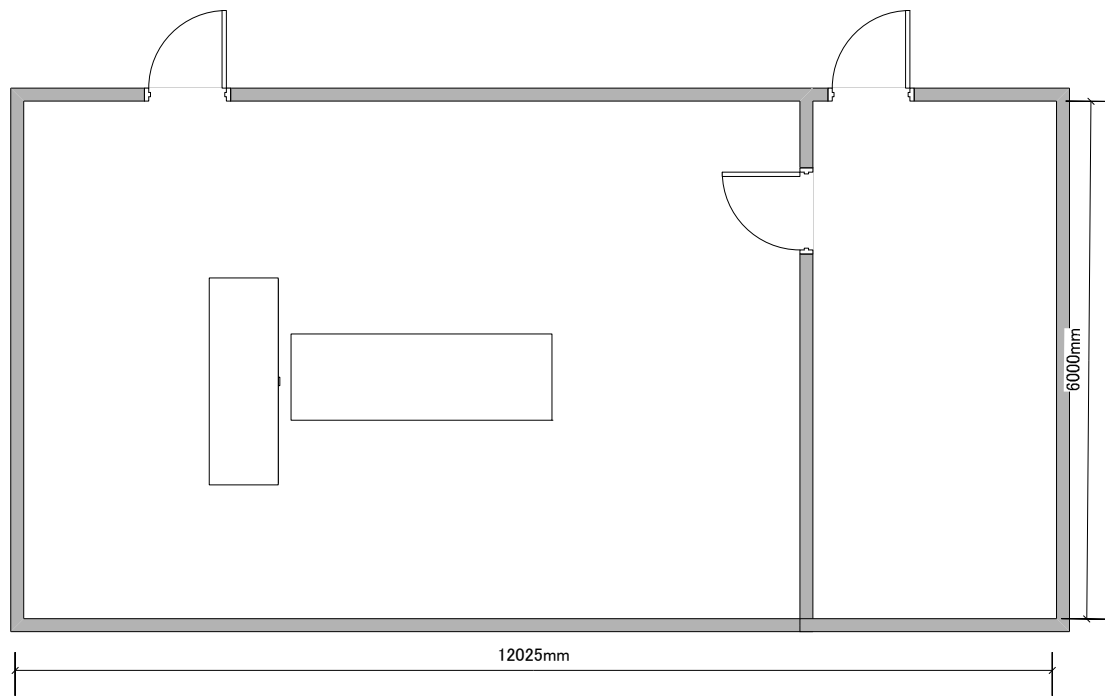


Figure 2: CT Scanner (A- Bldg. 1F)

Source: Field Survey Team

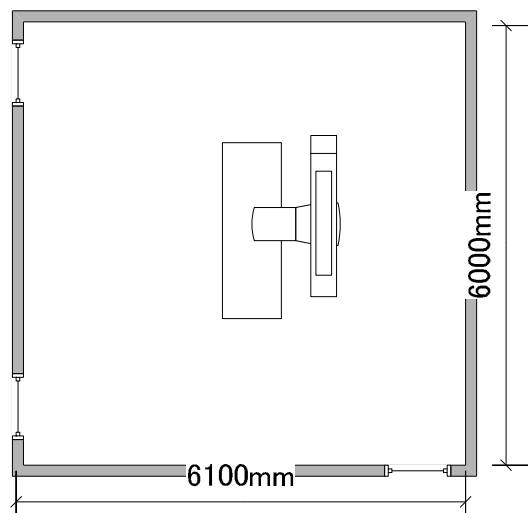


Figure 3: X-Ray System, Angiography (C- Bldg. 2F)

Source: Field Survey Team

2-2-4 Implementation Plan

2-2-4-1 Implementation Policy

Following the cabinet approval of the Project by the Japanese government pursuant to the framework of general grant aid of the Japanese government, and an exchange of notes (E/N) concerning the Project between the Japanese government and the Uzbekistan government, the Uzbekistan government and JICA will immediately enter into a grant agreement (G/A).

After conclusion of the E/N and G/A, a Japanese consulting firm recommended by the JICA will enter into a consultant agreement with the Uzbekistan Ministry of Health pursuant to the administrative procedures of the Japanese grant aid. This agreement will be valid upon approval by JICA. The consultant will perform bidding-related work and procurement oversight work based on this agreement. Japanese trading company selected as the supplier through bidding will also fall under the scope of work for equipment procurement when entering into equipment supply contracts with the Ministry of Health of Uzbekistan, but these contracts will also be effective upon approval by JICA.

Based on guidance from the director of the facility concerned, the supplier will work together with agent technicians from a total of ten fields indicated below to provide technical support relating to equipment procurement, delivery, installation, operation, and maintenance and management. Following procurement, the supplier and agent engineers will also create technical documents and manufacturer/agent lists needed for operation and maintenance: ① 2 radiology equipment personnel, ② 1 operating light person, ③ 1 operating room-related equipment person, ④ 1 endoscopic-related equipment person, ⑤ 1 dental equipment person, ⑥ 1 ophthalmology equipment person, ⑦ 1 ENT equipment person, ⑧ 2 hospital ward equipment personnel, ⑨ 1 testing and analysis equipment person, ⑩ 1 sterilizer person.

2-2-4-2 Implementation Conditions

Medical equipment used in Uzbekistan is approved for use by a medical equipment certificate and by an Uzbekistan medical equipment standards certificate, both issued by the Uzbekistan Ministry of Health, Bureau of Pharmaceutical Quality Control. However, in the case of medical equipment procured for Japanese grant aid and other humanitarian aid, the Ministry of Health of Uzbekistan will apply for the issue of a presidential order which exempts from registration such equipment of non-Uzbekistan manufacture, i.e., Japanese or third-country medical equipment products.

Medical equipment imported through grant aid or other such humanitarian aid can also be procured tax-free if a presidential order is issued in response to a national customs-related application made by the

Ministry of Health of Uzbekistan. Consequently, the Ministry of Health of Uzbekistan will also provide cooperation in the administrative procedures for a presidential order to be issued.

2-2-4-3 Scope of Works

(1) Japanese government

- i. Procurement of the planned equipment
- ii. Marine transportation and land transportation to the center
- iii. Installation and placement of the equipment
- iv. Trial run of the procured equipment, and technical training on operation, routine inspection, and maintenance
- v. Implementation of soft component
- vi. Addition of maintenance contract for some radiological equipment

(2) Uzbekistan government

- i. Providing information and data necessary for the transport, installation and placement of the equipment
- ii. Acquisition of approvals necessary to import the equipment (duty waiver, import license, and importing of medical equipment)
- iii. Improvement of the sites where the procured equipment is planned to be installed.
- iv. Securing the locations for unloading of the procured equipment
- v. Providing sites for the storage of the equipment prior to its installation and replacement
- vi. Securing the transportation route for the procured equipment.
- vii. Removal of existing equipment and repairs to the rooms following the equipment removal

2-2-4-4 Consultant Supervision

Following the implementation of duties related to the tender to select contractors to procure equipment, the consultant will ensure the smooth progress of the procurement and other duties. The key components of procurement supervision include the verification of a consistency between the equipment procured and its description in the agreement, inspection of the products and packing conditions prior to shipping, confirmation of the marine and land transportation/customs clearance status, and the final inspection and receiving of the goods in Uzbekistan.

Regarding pre-shipment inspections, the consultant ensures that there is no discrepancy between the shipment contents and their descriptions in the agreement whereas a third party organization also inspects the entire shipment and packing contents.

The consultant continually strives to stay informed of the progress of each process, provides the Uzbekistan implementing organization and the equipment procurement company with appropriate advice and guidance, and furnishes a report of the progress to the relevant organizations in both countries. The consultant performs spot checks.

2-2-4-5 Procurement Plan

(1) Procurement Sources

The planned equipment in this project should be procured from a Japanese or Uzbekistan manufacture. But the Japanese equipment which requests an agent for maintenance service in Uzbekistan shall meet the condition. If the equipment under the condition cannot meet the condition, it should be procured from the manufacture of third countries.

(2) Transportation Route

As stated in Table 6, Equipment to be shipped from Japan will be packed in containers and shipped from the port of Yokohama for Lianyungang, China by boat. From Lianyungang, the equipment will be transported by railway to Navoi. After all shipments clear the customs, they will be transported by truck to NRMCC. The total time requirement is approximately 45 days.

Table 6: Route and duration from Japan

Route	Method	Duration
Collection at Yokohama port		45 days approx. (including customs clearance)
Yokohama port→Lianyungang port	Marine	
Lianyungang→Kazakhstan→Navoi station (customs clearance)	Railroad	
Tashkent station → targeted facility	Truck	

Source: Japanese Transportation Company

As stated in Table 7, Products to be procured from third countries will be gathered at the port of Hamburg, Germany, and transported by railway to Tashkent through Poland, Belarus, Russia,

Kazakhstan. After all shipments clear the customs, they will be transported by truck to NRMMC. The total time requirement is approximately 30 days.

Table 7: Route and duration from Europe

Route	Method	Duration
Collection at Hamburg station		30 days approx. (including customs clearance)
Hamburg station→Poland→Belarus→Russia→Kazakhstan →Navoi station (customs clearance)	Railroad	
Tashkent station → targeted facility	Truck	

Source: Japanese Transportation Company

As stated in Table 8, Equipment to be shipped from USA will be packed in containers and shipped from the port of Los Angeles for Lianyungang, China by boat. From Lianyungang, the equipment will be transported by railway to Navoi. After all shipments clear the customs, they will be transported by truck to NRMMC. The total time requirement is approximately 55 days.

Table 8: Route and duration from USA

Route	Method	Duration
Collection at Los Angeles port		55 days approx. (including customs clearance)
Los Angeles port→Lianyungang port	Marine	
Lianyungang→Kazakhstan→Tashkent station (customs clearance)	Railroad	
Tashkent station → targeted facility	Truck	

Source: Japanese Transportation Company

2-2-4-6 Operational Guidance Plan

Twelve engineers will be dispatched for this project from agents in a total of ten fields: ① 2 radiology equipment personnel, ② 1 operating light person, ③ 1 operating room-related equipment person, ④ 1 endoscope-related equipment person, ⑤ 1 dental equipment person, ⑥ 1 ophthalmology equipment person, ⑦ 1 ENT equipment person, ⑧ 2 hospital ward equipment personnel, ⑨ 1 testing and analysis equipment person, ⑩ 1 sterilizer person. Initial operational training after equipment installation

will focus on areas such as operating procedures provided when equipment installation and adjustment is completed; preparatory tasks before and after equipment operation; and routine and periodic inspection, including cleaning.

2-2-4-7 Soft components (Technical Assistance) Plan

Soft components are planned for better maintenance and management procedures for medical equipment with reference to experiences of similar projects implemented to date as Japanese grant aid.

1) User training for learning of appropriate operating procedures

Correct operation of equipment is important at the outset for proper diagnosis and treatment of patients using medical equipment.

The system of Japanese Grant Aid includes operational training provided by supplier for proper operation of medical equipment. However, studies of grant aid in other countries have shown that operational training provided immediately after installation of equipment is often ended while there is still insufficient understanding, leading frequently to improper operation and problems after procurement. Behind this outcome is the fact that the medical equipment procured in Japan comprises the newest models of medical equipment in actual use in the country concerned, and proper diagnosis and treatment using such medical equipment requires renewed learning of appropriate operating procedures.

Another issue is the fact that many early malfunctions of equipment occur in the three months immediately following equipment procurement, and when equipment fails to operate normally, operators use the equipment without understanding whether such malfunctions are attributable to improper operation of the equipment or early malfunctions of the equipment, and as a result, the equipment is often left idle, with the cause of malfunction still unknown.

Consequently, plans in this project go beyond operational training provided by the supplier to include operating guidance in actual, proper usage, startup and shutdown inspection, the training for the method of cleaning of endoscopy unit for the prevention of in-hospital infection with assistance provided by Uzbekistani health care personnel actually using the same medical equipment in medical facilities.

2) Introduction of "Operation and Maintenance Passport for Medical Equipment"

This project will make use of a small notebook known as an "Operation and Maintenance Passport for Medical Equipment" ("passport" below) created with cooperation from Japanese JOCV staff in the middle of 2000 at the Republican Scientific Center for Emergency Medical Services (Tashkent), in Uzbekistan.

The passport is an item where the operational status and the maintenance and management of equipment are recorded and represents an effective method for appropriate maintenance and management of equipment procured.

Each equipment item is equipped with a passport for documenting ① routine inspections, ② start times and finish times of daily equipment use and names of usage supervisors, and ③ dates of malfunction; malfunction status; dates of maintenance performed by agents or others, maintenance details, and maintenance results, including causes of malfunction. This document provides a firm foundation for effective implementation of equipment maintenance and management.

Through use of this document, the staff of NRMMC using the medical equipment is able to understand the importance of routine inspections, while the accumulation of operating status, maintenance records, and other data strengthens hospital-wide maintenance and management system for equipment. For example, it allows to create the appropriate purchasing plans for spare parts and consumables supplies in the next fiscal year. We have also ascertained that passports identical to those in this project are currently in use at the Republican Scientific Center for Emergency Medical Services, Navoi Branch.

Consequently, this project includes costs for printing of passports and plans for seminars to assist in the goals, procedures, outcomes, and other aspects of passport use, with assistance from physicians and other health care providers actually using the passports at the Republican Scientific Center for Emergency Medical Services, Navoi Branch.

2-2-4-8 Implementation Schedule

Figure 4 presents the implementation schedule for the Project. The responsibilities of the Japanese and Uzbekistani sides respectively are as follows.

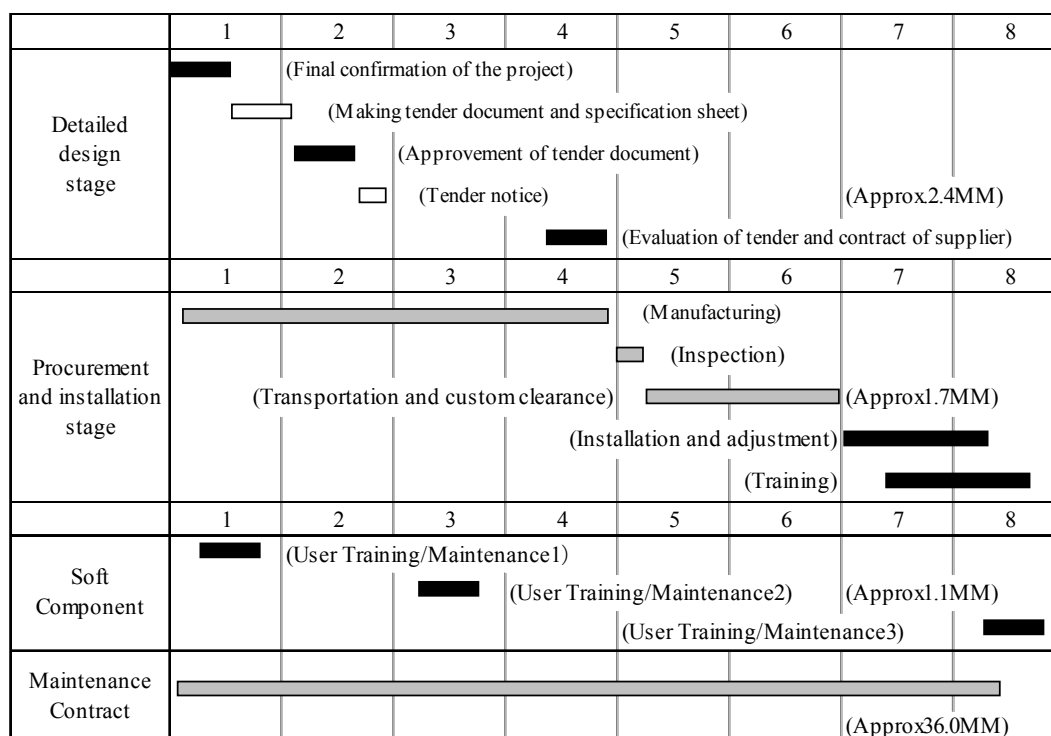


Figure 4: Implementation Schedule

Source: Field Survey Team

(1) Japanese government

The Japanese side will implement procurement of the planned equipment, marine transportation, and land transportation to the project sites, installation and placement of the equipment; a trial run of the procured equipment; and technical training on operation, routine inspection, and maintenance. After handing over the equipment, the supplier will be responsible for flaws in the procured equipment for one year.

(2) Uzbekistan government

The Uzbekistan side will provide the information and data necessary for the transport, installation, and placement of the equipment; improve the sites where the procured equipment is planned to be installed; acquire approvals regarding customs (duty waiver, import license, and importing of medical equipment), including importing and tax exemption; and take budgetary steps for maintenance of the equipment after procurement.

During the basic design study, the survey team confirmed that the Ministry of Health and the local governments concerned will implement the necessary budgetary steps for management and maintenance of the equipment, as well as procedures for customs clearance, including tax exemption without delay. Consequently, there are no particular impediments to implementation of the project.

2-3 Obligations of Recipient Country

The responsibilities of the Uzbekistan side in the implementation of this project are as shown in Section 2-4-3 "Implementation Segmentation / Procurement and Installation Segmentation."

- (1) Various arrangements are necessary for the smooth customs clearance and domestic transportation of the procured equipment within Uzbekistan.
 - Acquisition of approval for waiver of customs clearance fees and levies.
 - Acquisition of approval for waiver of value added tax.
 - Acquisition of import license.
 - Acquisition of approval by the Ministry of Health of Uzbekistan for importing medical equipment.
- (2) Waiver of customs and other various taxes for the equipment procurement company and its employees.
- (3) Assurance of convenience and safety to Japanese citizens involved with the project.
- (4) Completion of banking arrangements (B/A) and the authorization to pay (A/P).
- (5) Offer of personnel and budget (including maintenance budget) necessary for efficient implementation of the project.
- (6) Acquisition of any other approvals needed for implementation of the project.

2-4 Project Operation Plan

The NRMCC is a top referral medical facility in the Navoi Region of Uzbekistan and handles tertiary medical care. Its recruitment of health care personnel in conjunction with the current facility opening has drawn many such personnel currently working in facilities located at the same site, namely, the Navoi Branch of the Republican Scientific Center for Emergency Medical Services, Pediatric center, Pediatric infectious disease center, Tuberculosis center, and the Uzbekistan Mining and Factory Hospital.

As of April 2015, 164 personnel are employed, and the number is expected to reach 383 by June 2016. These include 96 physicians (currently 28), some with experience using CT scanners and extracorporeal shock wave lithotripsy equipment. Given that plans call for employment of 58 physicians

in the top-tier category,¹ requiring 15 or more years of clinical experience, we see no particular problems for the use of each equipment item planned for procurement under this project.

To maintain its medical equipment, the NRMCC also plans to hire two full-time medical equipment technicians serving under the permanent technician responsible for its maintenance. Navoi-MedTechnica, whose capital contributor is UZB-MedTechnica (a Soviet-era public medical device company; now a private enterprise), is also in the Navoi Region, and the Navoi Branch of the State Scientific Center for Emergency Medical Services includes one full-time staff member. The chief doctor of the NRMCC has secured consent with this company to conclude maintenance agreement into the equipment, and on this basis we see no problems for routine, simple maintenance.

2-5 Project Cost Operation Plan

2-5-1 Initial Cost Estimation

(1) Expenses borne by Uzbekistan 424,080,000 Sum (roughly 40.9million Yen)

Contents	Q'TY	Expense (Unit : Million Sum)
Procurement of medical instruments and supply	1	193.3 (31.5 MillionYen)
Renovation for X-ray Room and others	1	222.2 (9 MillionYen)
Others (Commission)		8.8 (0.4 Million Yen)
Total		424.1 (40.1 Million Yen)

(2) Pricing Assumptions

- i. Time of calculations: December, 2014
- ii. Foreign exchange rate: US\$=\111.15, 1 Euro=\141.31, 1 Sum=\0.045
- iii. Project period: 13 months
- iv. Method of placing orders: Single batch
- v. Other: To be implemented in accordance with the scheme for Japan's Grant Aid.

¹ Uzbekistani physicians are classified into four tiered categories depending on their number of years of clinical experience, with 15 years of clinical experience required to enter the top-tier category (April 2015 survey results collected by NRMCC).

2-5-2 Operation and Maintenance Cost

Table 9 presents the 2014 budget for the NRMMC. Including operating expenses for the outpatient department (polyclinic) opened in July 2014, the total amount is 338 million sum (approx. ¥15 million). The FY2015 budget incorporates calculations for a 200-bed scale, reflecting the fully operating facility, and opening of the internal medicine ward on January 26, 2015. On this basis, the budget increases dramatically to a total figure of 6 billion sum (approximately ¥270 million). Income comprises a budget provided by the Navoi Region and income from patient. Of the total, 65% or 3.9 billion sum (approximately ¥175 million), is a contribution from the Navoi Region, representing approximately 2.4% of the 2015 Navoi Regional Health budget.

The budget plan by Navoi Region and NRMMC budget anticipates an increase in accordance with the number of patients. In turn, these assumptions reflect an outlook for increases tracking the 20% annual growth rate of the Navoi Regional budget, and the large number of comparatively high-income residents in the industrial city of Navoi. The income from patients in 2015 is originally planned to comprise 35% of the total, but it is expected that the income from the patients will be approximately 1,803,905,000 sum (approximately ¥80 million), which is over the current budget plan, and the patient fee is likely become 50% of total income of the total income.

Table 9: NRMMC budget results (Units: 1000 sum)

Revenue	2014	2015	2016(forecast)	2017(forecast)
Navoi Region	335,834.0	3,910,905.0	4,693,000.0	5,631,000.0
Patient Fee	21,560.0	2,107,000.0	2,528,000.0	3,126,200.0
Total	357,394.0	6,017,905.0	7,221,100.0	8,757,200.0

Expenditure	2014	2015	2016(forecast)	2017(forecast)
Personal Expenses	149,472.0	3,422,500.0	4,107,000.0	4,928,400.0
Medicines	19,200.0	261,502.0	313,800.0	376,600.0
Medical Supplies	6,810.0	87,168.0	104,600.0	125,600.0
Food Materials	0.0	317,895.0	381,000.0	457,300.0
Utilities Cost	15,875.0	245,340.0	294,400.0	353,300.0
Furniture, etc.	0.0	1,287,000.0	1,544,400.0	1,853,000.0
Maintenance	6,812.0	12,400.0	14,900.0	110,000.0
Others	140,000.0	384,100.0	461,000.0	553,000.0
Total	338,169.0	6,017,905.0	7,221,100.0	8,757,200.0

Source: NRMMC (April, 2015)

Under maintenance and operating expenses, maintenance costs for purchase of replacement parts and similar items in 2015 are extremely low, at 12.4 million sum (approximately ¥600 thousand); given the recent facility opening, virtually no equipment replacement is anticipated, including large equipment.

After this project is completed, the addition of a 3-year maintenance contract for the CT scanner and angiography equipment will obviate a provisional funding need for the expensive X-ray tubes that both systems require. However, funds must be set aside for replacement parts and repair costs in the event that other radiological equipment malfunctions, X-ray tube expenses first and foremost. In 2017, an increase the income from patient is anticipated, and it is confirmed that a budget of 110 million sum (approximately 5 million yen), i.e., approximately 7 times the maintenance and operating expenses in 2015, will be available for maintenance expenses. For maintenance and operating expenses, including repair, involving high-cost replacement parts that the regular budget cannot accommodate, the Navoi Regional Health Department is able to apply to the Ministry of Public Health itself for a special budget.

Chapter 3 Project Evaluation

Chapter 3 Project Evaluation

3-1 Preconditions

In implementing this project, it is important that necessary procedures be taken by the government without delay, after it has been decided what pieces of equipment are to be procured, in order to ensure that all matters described in “2-3: Obligations of Recipient Country” will be implemented by the Uzbekistan side.

3-2 Necessary Inputs by Recipient Country

In order to complete the entire project plan, the following inputs must be made by the Uzbekistan side:

- Employing medical professionals and other staff necessary for the full opening of NRMMC and implementing the operating budget
- Setting up facilities and purchasing equipment and consumables that are not to be procured as part of Japan’s Grant Aid
- Doing necessary repair work of the rooms into which procured equipment will be placed upon delivery

3-3 Important Assumptions

In order to enable the effective and long-term use of the planned pieces of equipment by the hospital staff, the current plan includes the inclusion of the maintenance contract for the major pieces of equipment, as well as for soft components. We also expect the NRMMC to hire new staff and continue to provide them with proper education through in-hospital training etc.

3-4 Project Evaluation

3-4-1 Relevance

(1) Beneficiaries

By implementing this project for the establishment of the NRMMC as a multidisciplinary medical center that plays a central role in managing NCDs among adults in Navoi Region, where there has been no such center, the residents of Navoi Region (population of about 930,000 people), as well as some of the residents of Samarkand Region (2.8 million), Bukhara Region (1.5 million) and the Republic of Karakalpakstan (1.55 million people) are expected to visit the hospital, where there seem to be equipment shortage or outdated diagnostic equipment. Thus, many groups of people will benefit from this project and its implementation is highly meaningful and justifiable.

(2) Importance

Statistics provided by the Ministry of Public Health of Uzbekistan show that deaths due to NCDs account for 81% of all deaths in the country, with deaths due to cardiovascular diseases and malignant neoplasms accounting for more than 70% of all deaths. It is therefore highly meaningful to establish a multidisciplinary medical center that plays a central role in managing NCDs.

(3) Relevancy to the national policy

The Uzbekistan government started constructing regional medical institutions according to their Cabinet Ordinance No. 48 "Reform plan of Regional Health Facilities" dated March 18, 2008. The establishment of the NRMMC as a tertiary center as part of the current project is also planned in accordance with the cabinet ordinance. The renovation of the NRMMC building was started in 2009 and completed in 2014. The center plays a crucial role in the local management of NCDs in Navoi Region.

Uzbekistan also started in 2014 the development of the "Prevention and Control of Non-communicable Diseases in the Republic of Uzbekistan in 2014-2020" strategy to cope with a continuously increasing number of NCD patients, as part of their national development project. Since not only healthcare but also socioeconomic interventions are necessary for the management of NCDs, the Ministry of Health decided in 2015 to cooperate with other ministries, including the Ministries of Finance, Economic Affairs, Education, and Agriculture, in developing the "Healthcare Development Strategy" to promote NCD management by implementing cross-cutting measures, followed by the publication of the draft of the "Action Plan on Healthy Nutrition and NCD Prevention for 2015-2020".

The implementation of the project for promoting NCD management is justified by the involvement of not only the ministry of health but also education, finance and others in NCD management. In fact, the government aims to fundamentally improve the status of NCD management as a nationwide issue by expanding the scope of responsibilities of each local government. In this regard, the implementation of the project is relevant.

(4) Consistency with the national policy

The project is consistent with the priority area of Japan's country-specific aid policy for the Republic of Uzbekistan "Support for Rebuilding Social Sectors", and the JICA Country Analysis Paper designating "Increasing household income and improving healthcare and education in rural areas" as a priority area.

3-4-2 Effectiveness

(1) Quantitative effects

Table 10 : Proposed indicators for quantitative effects

Indicators	Baseline as of 2015	Goal 3 years after completion of Japan's Grant Aid
Annual Number of Outpatients *1	27,000	54,000
Annual Number of Inpatients *2	2,500	6,000
Annual Number of CT scanner examinations *3	0	4,200
Annual Number of Angiography examinations *4	0	240
Annual Number of General Radiography and Fluoroscopy examinations *5	0	6,000

Source: Field Survey Team

The rationale for the quantitative effects shown in the above section is as follows:

	Baseline As of 2015	Goal 3 years after completion of JGA
* 1	<u>90people/day x 25days x 12months=27,000</u> The yearly (12 months) total of patients was calculated based on 90 patients/day (the average daily number of outpatients visiting internal medicine-related departments between January and April 2015; 95 beds available at the internal medicine ward) and 6 days of service provided per week. As of the end of April 2015, the average daily number of outpatients was 120-150.	<u>180people/day x 25days x 12months=54,000</u> The daily number will increase to 180 in and after 2016, when the surgery ward will be opened and the internal medicine and surgery wards will accommodate nearly equal numbers of beds (95 in internal medicine and 105 in surgery). The average daily number of outpatients was calculated based on 120-150 patients/day for internal medicine and 30-60 patients/day for surgery.
*2	95beds x 2rotation x 6months = 1,140 120beds x 2rotation x 6months = 1,440 <u>(Total 2,580 → 2,500)</u> With the assumption of 2 cycles of patient turnover per month, the total number of patients was calculated assuming that only the internal medicine ward will be open in the first half of 2015 and the number of beds available will increase to 120 (from 95) later in the year.	95beds x 2rotation x 12months = 2,280 (Internal) 120beds x 3rotation x 12months = 3,780 (Surgical) <u>(Total 6,060 → 6,000)</u> The number was calculated assuming that in 2017, all 200 beds will be in full operation, with 2 cycles of patient turnover per month in internal medicine and 3 cycles per month in surgery, where patients stay for shorter periods compared to those in internal medicine.
*3	<u>0</u>	<u>14cases/day x 25days x 12months = 4,200</u> Assuming that each session, including image reading, takes 30 minutes per patient and 14 sessions will be done per day in 2017.
*4	<u>0</u>	<u>5cases/week x 4weeks/month x 12months = 240</u> Assuming that an average of 5 sessions of angiography for diagnostic/therapeutic purposes will be performed per week, including coronary angiography and peripheral angiography for determining the need for leg amputation in diabetic patients.

*5	<u>0</u>	<u>Genral X-Ray</u> <u>4cases/dayx4hoursx25daysx12months=4,800</u> <u>Fluoroscopy</u> <u>1case/dayx4hoursx25daysx12months=1,200</u> <u>(Total→6,000)</u> Both types of equipment (general X-ray, fluoroscopy) will be placed in the same radiation room and therefore cannot be used at the same time. The numbers were calculated assuming that each type of equipment can be used for 4 hours per day, thus 4 sessions of plain X-ray and 1 session of fluoroscopy per day.
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2) Qualitative effects

Implementing the project in Navoi Region will lead to an improved quality of medical services provided by the NRMMC. The establishment of the service provision system at the NRMMC will also allow for the provision of multidisciplinary medical services to patients with complications, thereby contributing to a better medical service provision system in Navoi Region.

1) Improvement of the quality of medical services provided by the NRMMC

Implementing the project will make the NRMMC the best equipped medical facility in Navoi Region. While outdated medical equipment are used in Navoi City, the procured equipment for testing and diagnostic will enable NRMMC to provide medical services in an accurate and timely manner, contributing to an improved quality of medical services.

2) Diagnosing and treating patients with complications based on the function of the NRMMC as a multidisciplinary medical center for adult patients

Information of patients with specific diseases will be shared among multiple departments, allowing for the provision of medical services to complications, in addition to the major diseases.

3) Improvement of the medical service delivery system in Navoi Region by the NRMMC assuming the role as a multidisciplinary medical center for adult patients which is temporarily covered by another hospitals.

The NRMMC will be able to take over the role of the Republican Scientific Center for Emergency Medical Services, Navoi Branch, which temporarily served as a multidisciplinary medical center for adult patients. This will result in the establishment of a proper medical service provision system consisting of a multidisciplinary medical center and specialized hospitals. It will also allow for medical services to be provided in Navoi Region to patients who would otherwise have been transferred to another hospital in Tashkent.

Based on the evaluation above, it is appropriate and efficient to extend Japan's Grant Aid as stipulated in this report.

Appendices

1. Member List of the Study Team
2. Study Schedule
3. List of Parties Concerned in the Recipient Country
4. Minutes of Discussions
5. Soft Component (Technical Assistance) Plan

【Appendix】

1. Member List of the Study Team

1) Preparatory Survey (Nov. 9, 2014 – Dec. 6, 2014)

Leader	Ms. Hiroe Ono	Director, Health Team 4 Human Development Dept., JICA
Technical Advisor	Dr. Dai Yoshizawa	Bureau of International Medical Cooperation National Center for Global Health and Medicine
Cooperation Planning	Mr. Yukihiro Kondo	Health Team 4, Human Development Dept., JICA
Equipment Planning	Mr. Kazuhiro Abe	International Techno Center Co., Ltd.
Equipment Planning	Ms. Miho Konno	International Techno Center Co., Ltd.
Facility Planning	Mr. Yasuhiro Hiruma	International Techno Center Co., Ltd.
Procurement & Cost Planning	Mr. Kiyoshi Ishii	International Techno Center Co., Ltd.
Interpreter	Ms. Hiromi Watanabe	Franchir Co., Ltd.

2) Explanation of Draft Final Report (April 12, 2014 – April 25, 2014)

Leader	Ms. Hiroe Ono	Director, Health Team 4 Human Development Dept., JICA
Technical Advisor	Dr. Dai Yoshizawa	Bureau of International Medical Cooperation National Center for Global Health and Medicine
Cooperation Planning	Mr. Yukihiro Kondo	Health Team 4, Human Development Dept., JICA
Equipment Planning	Mr. Kazuhiro Abe	International Techno Center Co., Ltd.
Equipment Planning	Ms. Miho Konno	International Techno Center Co., Ltd.
Interpreter	Ms. Hiromi Watanabe	Franchir Co., Ltd.

2) Explanation of Draft Final Report (April 12, 2014 – April 25, 2014)

			JICA Team	Consultant Team		
			Hiroe ONO(TAKUMA) (Ms.) Dai YOSHIZAWA (Dr.) Yukihiro KONDO (Mr.)	Project Manager/Medical Equipment Planner1	Medical Equipment Planner2	Interpreter
				Kazuhiro ABE	Miho KONNO	Hiromi WATANABE
1	12 April 2015	Sun		Narita→Incheon→Tashkent		
2	13 April 2015	Mon		10:00 Courtesy call to KfW 11:00 Courtesy call to MoH 12:00 Courtesy call to JICA Office		
3	14 April 2015	Tue		Tashkent→Navoi 10:00 Courtesy call and Meeting to NRMMC		
4	15 April 2015	Wed		09:00 Meeting to NRMMC 15:00 Courtesy call to Navoi Oblast Health Office		
5	16 April 2015	Thu		09:00 Meeting to NRMMC		
6	17 April 2015	Fri		09:00 Meeting to NRMMC		
7	18 April 2015	Sat		09:00 Meeting to NRMMC		
8	19 April 2015	Sun	Narita→Incheon→Tashkent	Internal Meeting		
9	20 April 2015	Mon	09:00 Courtesy call to JICA Office 10:00 Courtesy call to KfW 11:00 Courtesy call to MoH	09:00 Meeting to NRMMC		
10	21 April 2015	Tue	Tashkent→Navoi 10:00 Courtesy call to Navoi Oblast Health Office 11:00 Courtesy call and Meeting to NRMMC			
11	22 April 2015	Wed	10:00 Meeting to Navoi Oblast Health Office Navoi→Buhara→Tashkent	Navoi→Tashkent		
12	23 April 2015	Thu	Discussion of M/D with MoH			
13	24 April 2015	Fri	12:00 Meeting and Report to JICA office 14:00 Signing of M/D with MoH 16:00 Meeting and Report to Japanese Embassy Tashkent→			
14	25 April 2015	Sat	→ Incheon→Narita			

3. List of parties Concerned in the Recipient Country

Ministry of Health of Uzbekistan

Dr. Asilbek Khudayarov	First Deputy Minister
Mr. Shavkat Tillaev	Deputy Minister
Mr. Abdunumon Sidikov	Head of Department of International Relations
Mr. Urugbek Khailaev	Deputy Head of Department of International Relations
Mr. Mukhaamedov Zafar	Head of Department of Coordination of Investment Project
Mr. Bobun Yuldashaev	Department of Coordination of Investment Project
Ms. Yuliya Dronina	Head of the Project, Implementation Unit KfW Bankt

Navoi Health Office

Dr Fazliddin Usmanov	Head of Navoi Oblast Health Administration
Dr. Rustam Khamraev	Responsible for Organization of Prevention and Curative Activities

Navoi Regional Multidisciplinary Medical Center

Dr. Bakhtiyor Bazarov	Chief Doctor
Dr. Rustam Khamraev	Dupty Chief Doctor
Dr. Shoimanov Nuriddin	Health Statistics
Mr. Otaboi Narmurodov	Engineer
Dr. Berdiev Dilshod	Nurosurgelist
Dr. Salim Haydarov	Urologist
Dr. Aziz Shodiev	Urologist
Dr. Anvar Hiolirov	Laringologist
Dr. Bahodir Tukutacv	Laringologist
Dr. Mardiboy Juraev	Neuro Pathologist
Dr. Korim Momatov	Surgeon
Dr. Fakhridin Boboerov	Surgeon
Dr. Mavlonov Fakhridin	Radiology and Ultrasound
Dr. Rustam Dzhumaev	Endoscopic specialist
Ms. Firuzo Ismatova	Specialist of Ultrasound
Dr. Farrukh Karimov	Dentist
Dr. Shamuratov Sanjar	Dentist
Dr. Gulnora Khosilova	Rehabilitation
Mr. Bobir Iidiev	Chief of Laboratory

Dr. Suyun Ismatov	Cardiologist
Dr. Farkhod Khamraev	Hematologist
Dr. Ural Narkulov	Traumatologist
Dr. Shukhrat Makhmudov	Ophthalmologist
Dr. Bakhodir Tukhtaev	ENT
Dr. Farkhodzhon Khadiyaev	ICU
Dr. Nigora Kutlieva	Pulmologist
Dr. Dilhuza Davlatova	Gynecologist
Dr. Saida Abdiakhatova	Pathologist

KfW

Mr. Irnazarov Shakhrukh	Head of KfW Office in Uzbekistan
Mr. Thomas Edgan Lehmann	Head of KfW Office in Bishkek

Embassy of Japan in Uzbekistan

Mr. Fumihiko Kato	Ambassador Extraordinary and Plenipotentiary
Dr. Shizuko Matsuoka	Medical Attache and Counselor
Mr. Masayuki Ichikawa	Third Secretary

JICA Uzbekistan Office

Mr. Masao Shikano	Chief Representative
Mr. Eiji Asami	Senior Representative
Mr. Daisuke Fukumori	Representative
Ms. Yoko Katakura	Project Formulation Adviser
Mr. Malik Mukhitdinov	Program Officer
Mr. Sharifzoda Sharipov	Program Officer

**4. Minutes of
Discussion**

**MINUTES OF DISCUSSIONS
ON
THE SECOND PREPARATORY SURVEY
ON
THE PROJECT FOR IMPROVEMENT OF EQUIPMENT
OF
NAVOI REGIONAL MULTIDISCIPLINARY MEDICAL CENTER
IN
THE REPUBLIC OF UZBEKISTAN**

In response to the request from the Republic of Uzbekistan (hereinafter referred to as "Uzbekistan"), the Government of Japan decided to conduct a preparatory survey on the Project for Improvement of Equipment of Navoi Regional Multidisciplinary Medical Center (hereinafter referred to as "the Project") and entrusted the study to the Japan International Cooperation Agency (hereinafter referred to as "JICA").

JICA sent to Uzbekistan the First Preparatory Survey Team from June 29 to July 12, 2014. Based on the First Preparatory Survey, the Second Preparatory Survey Team (hereinafter referred to as "the Team") was sent from November 9 to December 6, 2014, headed by Ms. Hiroe Ono, Director, Health Team 4, Health Group 2, Human Development Department, JICA.

The Team held discussions with the officials concerned of the Government of the Republic of Uzbekistan and conducted a field survey.

In the course of discussions and field survey, both sides confirmed the matters referred to in the documents attached hereto.

Tashkent, 5 Dec 2014



Mr. Anvar ALIMOV
Minister of Health
The Republic of Uzbekistan



Mr. Masao SHI KANO
JICA Uzbekistan Office
Chief Representative
Japan International Cooperation Agency
Japan

ATTACHMENT

I. OBJECTIVES OF THE PROJECT

The objective of the Project is to improve the medical services in Navoi region through the procurement of medical equipment at Navoi Regional Multidisciplinary Medical Center (hereinafter referred to as "NRMMC".)

II. PROJECT SITE

NRMMC, Navoi city, Navoi region

III. RESPONSIBLE AND IMPLEMENTING ORGANIZATIONS

1. Responsible Organization

The Ministry of Health, the Republic of Uzbekistan (hereinafter referred to as "the MoH")

2. Implementing Organization

NRMMC

IV. ITEMS REQUESTED BY UZBEKISTAN SIDE

Through the Second Preparatory Survey, the Team investigated the appropriateness of the request from Uzbekistan side during the First Preparatory Survey. The final requested items for Japan's grant aid are described in Annex 1.

V. SCHEDULE OF THE SECOND PREPARATORY SURVEY

1. The Field Survey

The field survey for the Second Preparatory Survey is being carried out in accordance with the tentative schedule attached in the Annex 2.

2. Draft Final Report

The Team will prepare the draft final report in English which describes the basic design of the Project, and will dispatch a mission to explain its contents in April, 2015.

3. Final Report

The final report will be submitted to the Government of Japan for the Project appraisal. Through the appraisal, the Japanese cabinet will make a final decision for the implementation of the Project. If the Project is approved by the Japanese cabinet, the final report will be sent to the Uzbekistan side.

VI. JAPAN'S GRANT AID SCHEME

1. Uzbekistan side understands the Japan's Grant Aid Scheme explained by the Team as described in Annex 3 and Annex 4.

2. Uzbekistan side will take necessary measures, as described in Annex 5 for smooth implementation of the Project, as a condition for the Japan's Grant Aid to be implemented.

VI. OTHER RELEVANT ISSUES

1. Selection of the Equipment

1-1. The Demarcation between Kreditanstalt für Wiederaufbau (hereinafter referred to as "KfW") and JICA.

1-1-1. Equipment necessary for NRMMC is requested both to the Government of Japan and to KfW. The Uzbekistan side and the Team discussed and made a list of equipment with priority to be procured by Japan's Grant Aid.

1-1-2. The list is made in consideration of following points.

- The role of NRMMC defined by the Order No.25 "Establishment of Navoi Regional Multidisciplinary Medical Center" by the Minister of Health, the Republic of Uzbekistan issued on January 29, 2014.
- Avoiding duplication
- Continuous provision of medical services because there may be difference of timing on installation of equipment from both partners.

1-1-3. The list has been shared with KfW for their planning of the equipment for procurement.

1-1-4. The MoH shall coordinate with KfW on the equipment to be procured by KfW based on the equipment list by Dec 19th, 2014.

1-2. Additional Requested Equipment

Both sides agreed to include items (ex. CT scanner and Panorama X-ray apparatus), which are additionally requested during the survey, in the equipment list through the discussion.

1-3. Equipment not to be Covered by Japan's Grand Aid

Uzbekistan side agreed to procure following items by its own expenses after the discussions.

- Mattress sterilizer
- Equipment for physiotherapy
- PCR
- Other items such as tonometer and stethoscope

2. Renovation of the facilities

The Uzbekistan side agreed to undertake the renovation of the existing facilities (ex. floors, doors, walls) for CT scanner, angiography, operation theaters and autoclaves.

3. Maintenance on the Equipment to be procured

3-1. Allocation of Budget and Human Recourses

The Uzbekistan side agreed to secure and allocate the necessary staff and budget to operate and maintain the medical equipment procured under the Project properly and effectively.

3-2. Maintenance Services

The Team explained that the importance of the routine maintenance and maintenance service of some major medical equipment. Keeping this in view, both sides agreed to consider inclusion of maintenance service contract to the major medical equipment that need frequent maintenance into the Project.

3-3. Soft Components

Both sides agreed on the necessity of technical assistance as soft components of the Project, which will be provided by Japan's grant aid, for proper operation and maintenance of the equipment.

4. Others

4-1. Sufficient Allocation of Budget and Human Resources

The Uzbekistan side agreed to secure sufficient budget and staff for the operation of the facilities and medical equipment provided.

4-2. Technical Support from Republican Specialized Medical Centers

The MoH has confirmed that republican specialized medical centers (ex. National Cardiology Medical Center) provide necessary training for staff of NRMMC for diagnosis and treatments utilizing equipment, especially for CT scanner and angiography.

4-3. Monthly Reporting

The MoH shall inform JICA Uzbekistan Office the situation of its related matters at NRMMC (ex. status of operation, installation of equipment, opening of departments, and others) on monthly basis. In particular the progress of KfW's project shall be informed.

END

Annex 1 Equipment List

Annex 2 The Schedule of the Field Survey of the Second Preparatory Survey

Annex 3 Japan's Grant Aid Scheme

Annex 4 Flow Chart of Japan's Grant Aid Procedures

Annex 5 Major Undertakings to be taken by Each Government (Equipment)

Annex1. Equipment List/ Приложение 1. Перечень оборудования

No.	Name of equipment (RS)	Name of equipment (ENG)	Name of equipment (JP)	Q'TY	Priority	Remarks1	Remarks2
1	Операционный стол	Operating Table	手術台	3	A	*	
2	Набор инструментов (малая хирургия)	Instrument Set (Small Surgery)	器具セット (小外科用)	20	B		
3	Набор инструментов (хирургия)	Instrument Set (Surgery)	器具セット (外科用)	6	B	*	**
4	Операционный бестеневой светильник (передвижной)	Operating Light (Mobile)	無影灯 (移動型)	10	A		**
5	Операционный бестеневой светильник	Operating Light	無影灯	3	A	*	**
6	Оториноларингологическая установка	ENT Treatment Unit	耳鼻咽喉科用診察ユニット	3	A		**
7	Аудиометр	Audiometer	聴力計	1	A		
8	Медицинский отсасыватель	Suction Unit	吸引器	19	A	*	
9	Набор инструментов (ЛОП)-А	Instrument Set (ENT)-A	器具セット (耳鼻咽喉科用Aタイプ)	2	B		
10	Стоматологическая установка	Dental Chair Unit	歯科診断ユニット	2	A		
11	Сухожаровой шкаф	Hot Air Sterilizer	乾熱滅菌器	6	A		
12	Набор инструментов (стоматология)	Instrument Set (Dental)	器具セット (歯科治療用)	15	B		**
13	Набор инструментов (хирургическая стоматология)	Instrument Set (Dental Surgery)	器具セット (口腔外科用)	2	B		**
14	Урофлоуметр	Uroflowmeter	尿流量測定器	1	A		
15	Офтальмоскоп	Ophthalmoscope	検眼鏡	2	B	*	
16	Офтальмологический периметр	Perimeter	視野計	3	A		
17	Набор инструментов (малая офтальмология)	Instrument Set (Small Ophthalmic)	器具セット (眼科処置用)	3	B		
18	Щелевая лампа	Slit Lamp	細隙灯顕微鏡	1	A	*	
19	АВ-скан офтальмологический	ABScan Ophthalmic	超音波装置 (眼科用)	1	A		
20	Набор инструментов (гинекология)	Instrument Set (Gynecology)	器具セット (婦人科用)	2	B		
21	Электрокоагулятор	Electro Surgical Unit	電気メス	4	A	*	
KfW	Биохимический анализатор автоматический (200 и более анализов в час)	Automatic biochemical analyzer (200 or more tests per hour)	生化学分析装置	0	-		
22	Гематологический анализатор	Hematology Analyzer	血液分析器	1	A		
23	Центрифуга	Centrifuge	遠心器	3	A	*	
24	Бинокулярный микроскоп	Binocular Microscopes	双眼顕微鏡	4	A	*	**
25	Бинокулярный микроскоп с видекамерой	Binocular Microscope with Video Camera	双眼顕微鏡 (ビデオカメラ付)	3	A		**
26	Анализатор свертывания крови	Blood Coagulation Analyser	血漿分析装置	1	A	***	
27	Холодильник	Refrigerator	冷蔵庫	1	A	*	
28	Морозильник (-75 град.)	Deep Freezer	冷凍庫 (マイナス75℃)	4	A		
29	Вытяжной шкаф	Fume Hood	クリーンベンチ	2	A		
30	Моечная машина для стеклянных посуды	Glass Washer	ガラス洗浄機	2	B	*	
31	Спектрофотометр	Spectrophotometer	分光光度計	1	B		
32	Термостат	Water Bath	恒温水槽	10	A		**
33	Микробиологический анализатор	Microbiological Analyzer	微生物分析器	1	A		
34	Анализатор определения кислотно-щелочного состояния крови	Analyzer for determination of acidbase status of blood	塩酸基分析装置	2	A	***	**
35	Дистиллятор	Water Distiller	蒸留水製造装置	3	A	*	
36	Дистиллятор (большого размера)	Water Distiller (Big)	蒸留水製造装置 (大)	2	A		
37	Водоумягчительная установка	Water Softener	軟水化装置	2	A		
38	Автоклав	Autoclave	高圧蒸気滅菌器	3	A		
39	ЭКГ	ECG	心電計	2	A	*	
40	Велоэргометр	Ergometer	エルゴメーター	1	A		
41	Тредмил	Treadmill	トレッドミル	1	A		
42	Монитор ЭКГ по Холтеру	Holter ECG	ホルター心電計	4	A	*	
43	Дефибриллятор	Defibrillator	除細動器	7	A	*	**
44	Электромиограф	Electromyograph	筋電計	2	A	*	
45	Рентгеновский аппарат, графический и скопический	X-ray Apparatus, General and Fluoroscopy	X線一般/透視撮影装置	1	A	*	
46	Ультразвуковой аппарат	Ultrasound Apparatus	超音波診断装置	1	A	*	
47	Стоматологический рентген	Dental X-Ray	歯科用レントゲン	1	A		
48	Дуоденоскоп	Duodenoscope	十二指腸鏡 (内視鏡)	1	A	*	
49	Колоноскоп	Colonoscope	大腸鏡 (内視鏡)	1	A	*	
50	Бронхоскоп, фиберный	Bronchoscope, Fiber	気管支鏡 (軟性鏡)	1	A	*	
51	Стол для эндоскопических исследований	Table for Endoscopy	内視鏡診察台	3	A		
52	Рентгеновский аппарат (передвижной)	X-ray Apparatus (Mobile)	X線撮影装置 (移動型)	2	A	*	**
53	Рентгеновский аппарат (С-дуга)	X-ray Apparatus (C-arm)	X線撮影装置 (Cアーム型)	1	A	*	

No.	Name of equipment (RS)	Name of equipment (ENG)	Name of equipment (JP)	Q'TY	Priority	Remarks1	Remarks2
54	Медицинские коляски	Wheel Chair	車椅子	20	B	*	
55	Кровать	Bed	ベッド	26	B	*	
56	Наркозный аппарат	Anesthesia Apparatus	麻酔器	3	A	*	
57	Набор инструментов (большая офтальмологическая микрохирургия)	Instrument Set (Big Ophthalmic Microsurgery)	器具セット (眼科微小手術用器具 (大))	2	B		
58	Литотриптор, контактный	Lithotripter, Contact	接触結石破壊装置	1	C		
59	Набор инструментов (ТУР простаты)	Instrument Set (Prostate)	器具セット (前立腺切除術)	1	A	*	
60	Лапароскопический набор	Laparoscope set	腹腔鏡	1	A	*	
61	Операционный микроскоп (нейрохирургия)	Operating Microscope (Neurosurgery)	手術用顕微鏡 (脳外科)	1	A		
62	Операционный микроскоп (офтальмология)	Operating Microscope (Ophthalmology)	手術用顕微鏡 (眼科)	1	A		
63	Электрическая дрель для нейрохирургии головного мозга	Electric Drill for Neurosurgery	電気ドリル (脳外科用)	1	B		
64	Интраоперационный многофункциональный ультразвуковой аппарат	Intraoperative multifunctional ultrasound machine	術中多機能超音波装置	1	A		
65	Шприц-насос	Syringe Pump	シリンジポンプ	28	A	*	**
66	Микропипетка	Micro Pipetter	マイクロピペッター	1	B		
67	Инфузионный насос	Infusion Pump	輸液ポンプ	12	A	*	
68	Монитор пациента	Patient Monitor	患者モニター	10	A	*	
69	Аргонный лазер	Argon Laser	アルゴンレーザー (眼科)	1	A		
70	ИАГ лазер	YAG Laser	YAGレーザー (眼科)	1	A		
71	Гониоскоп для лазерных манипуляций	Gonioscope for laser manipulation	隅角鏡	3	B		
72	Литотриптер, дистанционный	Lithotripter, remote	遠隔結石砕碎器	1	A		
73	Операционный цистоскоп	Operating urethroscopy	尿道膀胱鏡	1	B		
74	Набор инструментов для вытяжки стальной проволокой	Steel-Wire Traction Instrument Set	牽引器具セット	10	A		**
75	Электрическая дрель для травматологии	Electric Drill for Traumatology	電気ドリル (外傷用)	2	B		
76	Набор инструментов (травматология)	Instrument Set (Traumatology)	器具セット (外傷用)	1	B	*	
77	Реанимационный аппарат	Resuscitator	蘇生バッグ	14	C		
78	Искусственный вентилятор легких	Ventilator	人工呼吸器	5	A	*	**
79	Ларингоскоп	Laryngoscope	喉頭鏡	4	A	*	
80	Анализатор газов крови	Blood Gas Analyzer	血液ガス分析装置	1	A	*	
81	Ультразвуковой небулайзер	Ultrasonic Nebulizers	超音波ネブライザー	12	A		**
82	Кислородный концентратор	Oxygen Concentrator	酸素濃縮器	4	A	*	
83	Набор инструментов (ЛОП) –B	Instrument Set (ENT)-B	器具セット (耳鼻咽喉科用Bタイプ)	1	B		
84	Ультразвук для дезинтеграции носовых раковин	Ultrasound disintegration turbinates	超音波式除去装置 (耳鼻科)	1	B		**
85	Эндоскопический набор для носа и придаточных пазух носа	Endoscope set for the nose and paranasal sinuses	内視鏡 (耳鼻科用)	1	A		
86	Набор инструментов (трахеотомия)	Instrument Set (Tracheotomy)	器具セット (気管切開)	3	B		
87	Набор инструментов (эндоларингеальная операция)	Instrument Set (Endolaryngeal Operations)	手術セット (喉頭用)	1	B		
88	Электрокоагулятор для ЛОР (портативный)	Electro Surgical Unit (Portable)	電気メス (小型) 耳鼻科	1	A		
89	Набор инструментов (ЛОП) –C	Instrument Set (ENT)-C	器具セット (耳鼻咽喉科用Cタイプ)	2	B		
90	Ультразвуковой аппарат (портативный)	Ultrasound Apparatus (Portable)	超音波診断装置 (ポータブル)	2	A		
91	Стерилизатор (маленького размера)	Sterilizer (Small)	滅菌器	4	A		**
92	Набор инструментов (аутопсия)	Instrument Set (Autopsy)	器具セット (解剖用)	2	B		
93	Микротом (санний)	Microtome (Sledge)	マイクロトーム (滑走型)	1	A		
94	Гистопроектор	Tissue Processor	自動包埋装置	1	A		
95	Автомат для покраски гистологических препаратов	Automatic Stainer	自動染色機	1	A		
96	Рентгеновская система, ангиографическая	X-Ray System, Angiography	血管造影装置	1	A		
97	КТ сканер	CT Scanner	CTスキャナ	1	A		
98	Панорамный рентгеновский аппарат	Panorama X-Ray	歯科用パノラマレントゲン	1	A		

Equipment with "*" needs to be coordinated by MOII to avoid duplication between KfW and JICA.

Quantity of equipment with "**" will be analyzed and maybe changed after analysis in Japan

Equipment with "***" will be provided based on the specification of No.60 "Automatic biochemical analyzer" to be provided by KfW.

Annex2. The Schedule of the Field Survey of the Second Preparatory Survey

			JICA Team	Consultant Team																															
			Hiroe ONO (Ms.) Dai YOSHIKAWA (Dr.) Yukihiro KONDO (Mr.) Aygul ADRAKHIMOVA (Ms.)	Project Manager/Medical Equipment Planner1	Medical Equipment Planner2	Facility Planner	Procurement and Cost Planner	Interpreter																											
				Kazuhiro ABE (Mr.)	Miho KONNO (Ms.)	Yasubiro HIRUMA (Mr.)	Kiyoshi ISHII (Mr.)	Hironori WATANABE (Ms.)																											
1	09 November 2014	Sun		Narita → Incheon → Tashkent					Narita → Incheon → Tashkent																										
2	10 November 2014	Mon		Courtesy call to JICA Office, MoH, Japanese Embassy							Same as P.M																								
3	11 November 2014	Tue		Tashkent → Navoi Courtesy call and Meeting to NHD, NRMCC									Tashkent → Navoi																						
4	12 November 2014	Wed		Research on NHD or NRMCC																															
5	13 November 2014	Thu																																	
6	14 November 2014	Fri																																	
7	15 November 2014	Sat																																	
8	16 November 2014	Sun	Narita → Incheon → Tashkent	Navoi → Tashkent	Research on NHD or NRMCC			Research on NHD or NRMCC																											
9	17 November 2014	Mon	Internal Meeting, MoH, KfW if possible visit to hospitals	MoH, KfW																															
10	18 November 2014	Tue	Tashkent → Navoi (HY1349 Departure 05:40) Courtesy call to NHD																																
11	19 November 2014	Wed	Research on NHD or NRMCC, other hospitals																																
12	20 November 2014	Thu																																	
13	21 November 2014	Fri	Send M/D (Draft) to MoH																																
14	22 November 2014	Sat	Navoi → Bukhara → Tashkent (HY1340 Departure 21:55) Team Meeting																																
15	23 November 2014	Sun	Team Meeting																																
16	24 November 2014	Mon	MoH, KfW																																
17	25 November 2014	Tue	MoH, Japanese Embassy, JICA office, Tashkent →																																
18	26 November 2014	Wed	→ Incheon → Narita	Tashkent → Navoi																															
19	27 November 2014	Thu																																	
20	28 November 2014	Fri																																	
21	29 November 2014	Sat																																	
22	30 November 2014	Sun				Research on NHD or NRMCC																													
23	01 December 2014	Mon																																	
24	02 December 2014	Tue																																	
25	03 December 2014	Wed																																	
26	04 December 2014	Thu	Navoi → Tashkent, Internal Meeting																																
27	05 December 2014	Fri	Report to Japanese Embassy, JICA office, Tashkent →																																
28	06 December 2014	Sat	→ Incheon → Narita																																

Annex3. Japan's Grant Aid Scheme

The Government of Japan (hereinafter referred to as "the GOJ") is implementing the organizational reforms to improve the quality of ODA operations, and as a part of this realignment, a new JICA law was entered into effect on October 1, 2008. Based on the law and the decision of the Government of Japan (hereinafter referred to as "the GOJ"), JICA has become the executing agency of the Grant Aid for General Projects, for Fisheries and for Cultural Cooperation, etc.

The Grant Aid is non-reimbursable fund to a recipient country 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. The Grant Aid is not supplied through the donation of materials as such.

1. Grant Aid Procedures

The Japanese Grant Aid is conducted as follows-

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

2. Preparatory Survey

(1) Contents of the Survey

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

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



(3) Eligible source country

Under the Japanese Grant Aid, in principle, Japanese products and services including transport or those of the recipient country are to be purchased. When JICA and the Government of the recipient country or its designated authority deem it necessary, the Grant Aid may be used for the purchase of the products or services of a third country. However, the prime contractors, namely, constructing and procurement firms, and the prime consulting firm are limited to "Japanese nationals".

(4) Necessity of "Verification"

The Government of the recipient country or its designated authority will conclude contracts denominated in Japanese yen with Japanese nationals. Those contracts shall be verified by JICA. This "Verification" is deemed necessary to secure accountability to Japanese taxpayers.

(5) Major undertakings to be taken by the Government of the Recipient Country

In the implementation of the Grant Aid Project, the recipient country is required to undertake such necessary measures as Annex 2.

(6) "Proper Use"

The Government of the recipient country is required to maintain and use the facilities constructed and the 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.

(7) "Export and Re-export"

The products purchased under the Grant Aid should not be exported or re-exported from the recipient country.

(8) Banking Arrangements (B/A)

- a) The Government of the recipient country or its designated authority should open an account in the name of the Government of the recipient country in a bank in Japan (hereinafter referred to as "the Bank"). JICA will execute the Grant Aid by making payments in Japanese yen to cover the obligations incurred by the Government of the recipient country or its designated authority under the Verified Contracts.
- b) The payments will be made when payment requests are presented by the Bank to JICA under an Authorization to Pay (A/P) issued by the Government of the recipient country or its designated authority.



Project.

- Preparation of a basic design of the Project.
- Estimation of costs of the Project.

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

JICA 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 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 Survey, JICA uses (a) registered consulting firm(s). JICA selects (a) firm(s) based on proposals submitted by interested firms.

(3) Result of the Survey

The Report on the Survey is reviewed by JICA, and after the appropriateness of the Project is confirmed, JICA recommends the GOJ to appraise the implementation of the Project.

3. Japan's Grant Aid Scheme

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

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

(2) Selection of Consultants

The consultant firm(s) used for the Survey will be recommended by JICA to the recipient country to also work on the Project's implementation after the E/N and the G/A, in order to maintain technical consistency.



(9) Authorization to Pay (A/P)

The Government of the recipient country should bear an advising commission of an Authorization to Pay and payment commissions to the Bank.

(10) Social and Environmental Considerations

A recipient country must ensure the social and environmental considerations for the Project and must follow the environmental regulation of the recipient country and JICA socio-environmental guideline.

(End)



Annex 4. Flow Chart of Japan's Grant Aid Procedures

Stage	Flow & Works	Recipient Government	Japanese Government	JICA	Consultant	Contract	Others
Application	<p>(T/R : Terms of Reference)</p>						
Project Formulation & Preparation	<p>Preparatory Survey</p>						
Appraisal & Approval							
Implementation	<p>(E/N: Exchange of Notes) (G/A: Grant Agreement) (A/P: Authorization to Pay)</p>						
Evaluation & Follow up							

Annex 5. Major Undertakings to be taken by Each Government (Equipment)

NO	Items	To be covered by the Grant	To be covered by Recipient
1	To bear the following commissions to a bank of Japan for the banking services based upon the B/A		
	1) Advising commission of A/P		•
	2) Payment commission		•
2	To ensure prompt unloading and customs clearance at the port of disembarkation in recipient country		
	1) Marine(Air) transportation of the products from Japan to the recipient country	•	
	2) Tax exemption and custom clearance of the products at the port of disembarkation		•
	3) Internal transportation from the port of disembarkation to the project site	•	
3	To accord Japanese nationals whose services may be required in connection with the supply of the products and the services under the verified contract such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work		•
4	To exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which may be imposed in the recipient country with respect to the supply of the products and services under the verified contract		•
5	To maintain and use properly and effectively the facilities constructed and equipment provided under the Grant Aid		•
6	To bear all the expenses, other than those to be borne by the Grant Aid, necessary for the transportation and installation of the equipment		•

(B/A: Banking Arrangement, A/P: Authorization to pay, N/A: Not Applicable)

MINUTES OF DISCUSSIONS
ON
THE SECOND PREPARATORY SURVEY
ON
THE PROJECT FOR IMPROVEMENT OF EQUIPMENT
OF
NAVOI REGIONAL MULTIDISCIPLINARY MEDICAL CENTER
IN
THE REPUBLIC OF UZBEKISTAN

In response to the request from the Republic of Uzbekistan (hereinafter referred to as "Uzbekistan"), the Government of Japan decided to conduct a preparatory survey on the Project for Improvement of Equipment of Navoi Regional Multidisciplinary Medical Center (hereinafter referred to as "the Project") and entrusted the study to the Japan International Cooperation Agency (hereinafter referred to as "JICA").

JICA sent to Uzbekistan the first field survey team from June 29 to July 12, 2014, and during November 9 to December 6 in 2014, the second field survey team was dispatched. Based on these field survey results, the third field survey Team (hereinafter referred to as "the Team") was sent from 19 to 25 April, 2015 headed by Ms. Hiroe Ono, Director, Health Team 4, Health Group 2, Human Development Department, JICA.


The Team held discussions with the officials concerned of the Government of the Republic of Uzbekistan and conducted a field survey.

In the course of discussions and field survey, both sides confirmed the matters referred to in the documents attached hereto.

Tashkent, 24 April 2015



Dr. Anvar ALIMOV
Minister of Health
The Republic of Uzbekistan



Mr. Eiji ASAMI
Senior Representative
JICA Uzbekistan Office
Japan International Cooperation Agency

ATTACHMENT

(1) COMPONENTS OF THE DRAFT REPORT

The Uzbekistan side agreed and accepted in principle the components of the Draft Report explained by the Team. The items targeted by the Project are described in Annex 1.

(2) OBJECTIVES OF THE PROJECT

The objective of the Project is to improve the medical services at Navoi Regional Multidisciplinary Medical Center (hereinafter referred to as “NRMMC”) through the procurement of medical equipment, and to contribute to the improvement of medical systems in Navoi region.

(3) PROJECT SITE

NRMMC, Navoi city, Navoi region

(4) RESPONSIBLE AND IMPLEMENTING ORGANIZATIONS

1. Responsible Organization

The Ministry of Health, the Republic of Uzbekistan (hereinafter referred to as “the MoH”)

2. Implementing Organization

Navoi Health Department

NRMMC

(5) SCHEDULE OF THE SURVEY

The draft final report will be submitted to the Government of Japan for the Project appraisal. Through the appraisal, the Japanese cabinet will make the final decision for the implementation of the Project. If the Project is approved by the Japanese cabinet, the final report will be sent to the Uzbekistan side.

(6) JAPAN'S GRANT AID SCHEME

The Uzbekistan side had shown full understanding of the Japan's Grant Aid Scheme and the necessary measures to be taken by the Uzbekistan side as described in Annex 3, Annex 4 and Annex 5 of the Minutes of Discussions signed by both sides on December 5, 2014.

(7) CONFIDENTIALITY OF THE PROJECT

1. Both Uzbekistan and Japan sides confirmed that all information related to the Project including detailed specifications of the equipment and other technical information shall not be disclosed to any outside parties before the conclusion of all the contracts for the Project.

2. The Team explained the Project Initial Cost Estimation as described in Annex 3. Both sides agreed that the Project Initial Cost Estimation should never be disclosed to any outside parties before the conclusion of all the contracts for the Project. The Uzbekistan side understood that the Project Initial Cost Estimation is not final and is subject to change.

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(8) OTHER RELEVANT ISSUES

1. Draft Report

Uzbekistan side agreed and accepted in principle the components of the Draft Report explained by the Team. The items targeted by the Project are described in Annex 1. Both sides, in particular, discussed and agreed on following items.

1-1. Selection of Medical Equipment

Uzbekistan side requested Japanese side to consider the role of NRMCC defined by the Order No.25 "Establishment of Navoi Regional Multidisciplinary Medical Center" by the Minister of Health, the Republic of Uzbekistan issued on January 29, 2014.

1-2. Soft Components (Annex 2)

It is recommended to implement technical assistance as soft components of the Project for proper operation and maintenance of the equipment. Following components are considered in soft components.

- 1) User training for appropriate operating procedures
- 2) Introduction of "Operation and Maintenance Passport for Medical Equipment"

1-3. Maintenance Service

The Team explained that the importance of routine preventive maintenance to major medical equipment by technicians. Keeping this in view, both sides agreed to consider inclusion of maintenance services to major medical equipment (CT scanner and Angiography) that need frequent maintenance for three years.

MoH also agreed to secure ministry's budget for Maintenance cost on equipment, especially, CT scanner and Angiography after the 3-year maintenance contract by its own responsibility.

2. Major Undertakings by Uzbekistan Side

Following undertakings by Uzbekistan side were agreed by the both sides.

2-1. Renovation of the facilities

Uzbekistan side agreed to complete all necessary renovation on walls, floors, ceilings and others to install medical equipment to be procured. Rooms for CT scanner, X-ray apparatus, Angiography, and autoclaves as well as operation theaters should be renovated to secure proper environment. The Project initial cost estimation including renovation are described in Annex 3.

2-2. Allocation of human resources and budget

Uzbekistan side agreed to secure and allocate staff, such as qualified health personnel, and medical engineers, and the budget for operation and maintenance. Especially maintenance cost after 3 year maintenance contract period must be secured by the Uzbekistan side. The estimated cost from 2015-2017 is shown in Annex 4, and allocation of human resources is described in Annex 5.

3. Others

3-1. Changes of requested medical equipment

The following items are deleted from the equipment list (Annex 1) by following reasons.

- 1) Ultrasound disintegration turbinate (In equipment list No. 53)
Priority of the equipment is low.
- 2) Microbiological Analyzer (In equipment list No. 76)
Operational cost, especially reagent, is too high.

Additional number of items is requested by Uzbekistan side considering the necessity of the equipment.

- 1) Ventilator (In equipment list No. 12) : One additional ventilator was requested.
- 2) Bronchoscope (In equipment list No. 32): One additional endoscope was requested as an attachment of bronchoscope.

In terms of the necessity, the amount of Water Distiller (In equipment list No. 86-87) was decreased from 6 to 4.

3-2. Budget for the operation of NRMMC

Uzbekistan side explained that the budget of NRMMC consists of both regional budget and revenue from user fee. Regional budget will be increased according to the number of patient's beds from 95 in 2014 to 200 in 2016. Furthermore, the operational budget of the NRMMC will be secured as the revenue from user fee will increase from 6% in 2014 to 35% in 2015, and in the future to 50% of NRMMC's entire revenue.

3-3. Coordination with KfW

The MoH shall coordinate with KfW on the equipment to be procured by KfW based on the equipment to be procured by the Project (Annex 1).

END

Annex 1 Equipment List

Annex 2 Soft Component Plan

Annex 3 Project Initial Cost Estimation

Annex 4 Estimated Costs for Staff Allocation, Operation and Maintenance

Annex 5 Staff Allocation

Annex 6 Implementation Schedule of the Project



Annex 1 Equipment List

No.	Name of equipment (RS)	Name of equipment (ENG)	Name of equipment (JP)	Q'TY	Priority	Remarks
1	КТ сканер	CT Scanner	CTスキャナ	1	A	
2	Рентгеновая система, ангиографическая	X-Ray System, Angiography	血管造影装置	1	A	
3	Рентгеновский аппарат, графический и скопический	X-ray Apparatus, General and Fluoroscopy	X線撮影装置 (透視撮影装置)	1	A	
4	Рентгеновский аппарат (передвижной)	X-ray Apparatus(Mobile)	X線撮影装置 (移動型)	2	A	
5	Рентгеновский аппарат (С-дуга)	X-ray Apparatus (C-arm)	X線撮影装置 (Cアーム型)	1	A	
6	Ультразвуковой аппарат	Ultrasound Apparatus	超音波診断装置	3	A	
7	Ультразвуковой аппарат (портативный)	Ultrasound Apparatus (Portable)	超音波診断装置 (ポータブル)	2	A	
8	Операционный стол	Operating Table	手術台	3	A	
9	Операционный бестеневой светильник	Operating Light	无影灯	3	A	
10	Операционный бестеневой светильник (передвижной)	Operating Light (Mobile)	无影灯 (移動型)	10	A	
11	Наркозный аппарат	Anesthesia Apparatus	麻酔器	3	A	
12	Искусственный вентилятор легких	Ventilator	人工呼吸器	6	A	Q'TY 5 to 6
13	Электрокоагулятор	Electro Surgical Unit	電気メス	5	A	
14	Анализатор газов крови	Blood Gas Analyzer	血液ガス分析装置	1	A	
15	Операционный микроскоп (нейрохирургия)	Operating Microscope (Neurosurgery)	手術用顕微鏡 (脳外科)	1	A	
16	Операционный микроскоп (офтальмология)	Operating Microscope (Ophthalmology)	手術用顕微鏡 (眼科)	1	A	
17	Лапароскопический набор	Laparoscope set	腹腔鏡	1	A	
18	Медицинский отсасыватель	Suction Unit	吸引器	18	A	
19	Электрическая дрель для нейрохирургии головного мозга	Electric Drill for Neurosurgery	電気ドリル (脳外科用)	1	B	
20	Электрическая дрель для травматологии	Electric Drill for Traumatology	電気ドリル (外傷用)	2	B	
21	Реанимационный аппарат	Resuscitator	蘇生バッグ	14	C	
22	Ларингоскоп	Laryngoscope	喉頭鏡	4	A	
23	Набор инструментов (малая хирургия)	Instrument Set (Small Surgery)	器具セット (小外科用)	20	B	
24	Набор инструментов (хирургия)	Instrument Set (Surgery)	器具セット (外科用)	6	B	
25	Набор инструментов (травматология)	Instrument Set (Traumatology)	器具セット (外傷用)	2	B	
26	Набор инструментов (трахеотомия)	Instrument Set (Tracheotomy)	器具セット (気管切開)	3	B	
27	Набор инструментов (эндоларингеальная операция)	Instrument Set (Endolaryngeal Operations)	手術セット (喉頭用)	1	B	
28	Набор инструментов (гинекология)	Instrument Set (Gynecology)	器具セット (婦人科用)	2	B	
29	Стол для эндоскопических исследований	Table for Endoscopy	内視鏡診察台	3	A	
30	Дуоденоскоп	Duodenoscope	十二指腸鏡 (内視鏡)	1	A	
31	Колоноскоп	Colonoscope	大腸鏡 (内視鏡)	1	A	
32	Бронхоскоп, фиберный	Bronchoscope	気管支鏡 (内視鏡)	1	A	
33	Эндоскопический набор для носа и придаточных пазух носа	Endoscope set for the nose and paranasal sinuses	内視鏡 (耳鼻咽喉科用)	1	A	
34	Цистоуретроскоп	Cystourethroscope	膀胱尿道鏡 (内視鏡)	2	B	
35	Цистоскоп	Cystoscope	膀胱鏡 (内視鏡)	1	C	
36	Литотриптер, дистанционный	Lithotripter, remote	対外衝撃波結石破碎装置	1	A	
37	Урофлоуметр	Uroflowmeter	尿流量測定器	1	A	
38	Набор инструментов (ТУР простаты)	Instrument Set (Prostate)	器具セット (前立腺切除術)	1	A	
39	Стоматологический рентген	Dental X-Ray	歯科用レントゲン	1	A	
40	Панорамный рентгеновский аппарат	Panorama X-Ray	歯科用パノラマレントゲン	1	A	
41	Стоматологическая установка	Dental Chair Unit	歯科診断ユニット	2	A	
42	Набор инструментов (стоматология)	Instrument Set (Dental)	器具セット (歯科治療用)	15	B	
43	Набор инструментов (хирургическая стоматология)	Instrument Set (Dental Surgery)	器具セット (口腔外科用)	2	B	
44	Лазерный фотокоагулятор	Laser photo coagulator	レーザー光凝固装置 (眼科)	1	A	
45	ИАГ лазер	YAG Laser	YAGレーザー (眼科)	1	A	
46	Факоэмульсификация	Phacoemulsification	超音波水晶体乳化吸引装置	1	A	
47	АВ-скан офтальмологический	ABScan Ophthalmic	超音波診断装置 (眼科用)	1	A	
48	Щелевая лампа	Slit Lamp	細隙灯顕微鏡	1	A	
49	Офтальмоскоп	Ophthalmoscope	検眼鏡	2	B	
50	Офтальмологический периметр	Perimeter	視野計	3	A	
51	Набор инструментов (малая офтальмология)	Instrument Set (Small Ophthalmic)	器具セット (眼科処置用)	3	B	
52	Набор инструментов (большая офтальмологическая микрохирургия)	Instrument Set (Ophthalmic Microsurgery)	器具セット (眼科微小手術用器具)	2	B	

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Annex 1 Equipment List

No.	Name of equipment (RS)	Name of equipment (ENG)	Name of equipment (JP)	Q'TY	Priority	Remarks
53	Ультразвук для дезинтеграции носовых раковин	Ultrasound disintegration turbinates	超音波式除去装置 (耳鼻科)	0	B	Deleted
54	Оториноларингологическая установка	ENT Treatment Unit	耳鼻咽喉科用診察ユニット	3	A	
55	Аудиометр	Audiometer	聴力計	1	A	
56	Набор инструментов (ЛОП)-А	Instrument Set (ENT)-A	器具セット (耳鼻咽喉科用Aタイプ)	2	B	
57	Набор инструментов (ЛОП) –В	Instrument Set (ENT)-B	器具セット (耳鼻咽喉科用Bタイプ)	1	B	
58	Набор инструментов (ЛОП) –С	Instrument Set (ENT)-C	器具セット (耳鼻咽喉科用Cタイプ)	2	B	
59	Кровать	Bed	ベッド	26	B	
60	Монитор пациента	Patient Monitor	患者モニター	10	A	
61	Дефибрилятор	Defibrillator	除細動器	7	A	
62	ЭКГ	ECG	心電計	4	A	
63	Монитор ЭКГ по Холтеру	Holter ECG	ホルター心電計	4	A	
64	Тредмил	Treadmill	トレッドミル	1	A	
65	Велозргометр	Ergometer	エルゴメーター	1	A	
66	Электромиограф	Electromyograph	筋電計	2	A	
67	Шприц-насос	Syringe Pump	シリンジポンプ	28	A	
68	Инфузионный насос	Infusion Pump	輸液ポンプ	12	A	
69	Ультразвуковой небулайзер	Ultrasonic Nebulizers	超音波ネブライザー	12	A	
70	Кислородный концентратор	Oxygen Concentrator	酸素濃縮器	4	A	
71	Медицинские коляски	Wheel Chair	車椅子	20	B	
72	Холодильник	Refrigerator	冷蔵庫	1	A	
73	Морозильник (-30,-80 град.)	Deep Freezer	冷凍庫	4	A	
74	Гематологический анализатор	Hematology Analyzer	血球分析装置	1	A	
75	Анализатор свертывания крови	Blood Coagulation Analyser	血液凝固分析装置	1	A	
76	Микробиологический анализатор	Microbiological Analyzer	微生物分析器	0	A	Deleted
77	Центрифуга	Centrifuge	遠心器	3	A	
78	Спектрофотометр	Spectrophotomete	分光光度計	1	B	
79	Биноклярный микроскоп	Binocular Microscopes	双眼顕微鏡	4	A	
80	Биноклярный микроскоп с видеокамерой	Binocular Microscope with Video Camera	双眼顕微鏡(ビデオカメラ付)	3	A	
81	Гистопроцессор	Tissue Processor	自動包埋装置	1	A	
82	Автомат для покраски гистологических препаратов	Automatic Stainer	自動染色機	1	A	
83	Вытяжной шкаф	Fume Hood	クリーンベンチ	2	A	
84	Моечная машина для стеклянных посуды	Glass Washer	ガラス洗浄機	2	B	
85	Термостат	Water Bath	恒温水槽	10	A	
86	Дистиллятор	Water Distiller	蒸留水製造装置	2	A	Q'TY 3 to 2
87	Дистиллятор (большого размера)	Water Distiller (Big)	蒸留水製造装置 (大)	1	A	Q'TY 2 to 1
88	Водоумягчительная установка	Water Softner	軟水化装置	2	A	
89	Набор инструментов (аутопсия)	Instrument Set (Autopsy)	器具セット (解剖用)	2	B	
90	Микротом (санный)	Microtome (Sledge)	ミクロトーム(滑走型)	1	A	
91	Микропипетка	Micro Pipetter	マイクロピペッター	1	B	
92	Автоклав	Autoclave	高圧蒸気滅菌器	3	A	
93	Стерилизатор (маленького размера)	Sterilizer (Small)	滅菌器	4	A	
94	Сухожаровой шкаф	Hot Air Sterilizer	乾熱滅菌器	6	A	

Annex 2 Soft Component Plan

(1) User training for appropriate operating procedures

Appropriate operation of medical equipment is important at the outset for diagnosis and treatment of patients. The system of Japanese grant assistance includes operational training provided by procurement contractors for proper operation of medical equipment. However many early malfunctions of equipment occur in the three months immediately following equipment procurement.

Thus as soft component, training including startup and shutdown inspection will be conducted 3 months and 8 months after installation with assistance provided by Uzbekistani health care providers using the same medical equipment.

(2) Introduction of "Operation and Maintenance Passport for Medical Equipment"

The project will also introduce a small notebook known as an "Operation and Maintenance Passport for Medical Equipment" ("the passport"). The passport is a tool to record operational status of the maintenance such as routine inspections, starting time, finishing time, names of operators, dates of malfunction, malfunction status, and date, details and results of maintenance.

Data accumulated through use of this tool enables hospital to establish a hospital-wide maintenance and management system, for example, by allowing creation of appropriate purchasing plans for spare parts and consumables supplies in the next fiscal year.

Soft component includes costs for printing of passports and holding seminars for maintenance and management of equipment with assistance from health care providers actually using the passports at the Navoi Branch of the National Scientific Center for Emergency Medical Services.

Annex 3 Project Initial Cost Estimation

(1) Expenses borne by Japan

The project cost will not be disclosed, until suppliers' contract would be verified by Japanese Government.

(2) Expenses borne by Uzbekistan 909 million Sum (roughly 40.9 million Yen)

Contents	Q'TY	Expense (Unit : million Sum)
Procurement of medical instruments and supply	1	700 million Sum (31.5 million Yen)
Renovation for X-ray Room and others	1	200 million Sum (9.0 million Yen)
Others (Commission)		9.0 Million Sum (0.4 million Yen)
Total		909 Million Sum (40.9 Million Yen)

(3) Pricing Assumptions

1. Time of calculations :December, 2014
2. Foreign exchange rate :1US\$=111.15 YEN, 1Euro=141.31 YEN
1Sum=0.045 YEN
3. Project period :13 months
4. Method of placing orders :Single batch
5. Other :To be implemented in accordance with the schemes for Japanese grant aid

Annex 4 Estimated Costs for Staff Allocation, Operation and Maintenance

	2015	2016	2017
Personal Expenses	3,422,500	4,107,000	4,928,400
Medicines	261,502	313,800	376,600
Medical Supplies	87,168	104,600	125,600
Kitchen Expenses	317,895	381,000	457,200
Utilities Cost	245,340	294,400	353,300
Additional Inventory	1,287,000	1,544,400	1,853,000
Maintenance*	12,400	14,900	110,000
Others	384,100	461,000	553,000
Total	6,017,905	7,221,100	8,757,100

Source: NRMCC (April, 2015)

Unit: 1,000 Sum

Cost for X-ray tube is excluded from the table above

*Additional maintenance cost on CT scanner and Angiography after the 3-year maintenance contract is necessary.

Full maintenance contract including replacement of X-ray tube, periodical check and on-call repairment for the two equipment is 444,000,000Sum / Annually
Replacement of a X-ray tube for costs approximately 178,000,000Sum.

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Annex 5 Staff Allocation

Person

Profession	April, 2015	June, 2016
Doctor	28	68
Nurse	94	163
Assistant Nurse	0	86
Medical Technician	6	19
Others	36	47
Total	164	383

(64)

8

Annex 6 Implementation Schedule of the Project

Month	1	2	3	4	5	6	7	8
Detailed design stage	■	(Final confirmation of the project)						
		□	(Making tender document and specification sheet)					
		■	(Approval of tender document)					
		□	(Tender notice)					(Approx. 2.4MM)
				■	(Evaluation of tender and contract of supplier)			
Month	1	2	3	4	5	6	7	8
Procurement and installation stage	■				(Manufacturing)			
					■	(Inspection)		
		(Transportation and custom clearance)			■		(Approx. 1.7MM)	
					(Installation and adjustment)		■	
						(Training)		■
Month	1	2	3	4	5	6	7	8
Soft Component	■	(User Training/Maintenance1)						
			■	(User Training/Maintenance2)			(Approx. 1.1MM)	
					(User Training/Maintenance3)		■	
Maintenance Contract	■							
							(Approx. 36.0MM)	

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5. Soft Component (Technical Assistance) Plan

(1) Background to Soft Component Planning

The newly established NRMMC is the first multidisciplinary medical center in Navoi Region to focus on adults. This project will equip the NRMMC with the medical equipment (92 items in total) needed to diagnose and treat primarily cardiovascular diseases, cancer, and other NCDs.

The specifications of the equipment planned for procurement under this project are essentially equivalent to those of items in routine use within Uzbekistan, and consequently, no specialized technique is needed for its operation. However, the knowledge, technology, and routine preventive maintenance needed to provide consistent, normal operation is crucial to ensure extended, routine operation of this equipment.

In this context, technical support and guidance are deemed to be significant for assuring a minimum level of project benefit, providing support for unimpeded setup of the project by the country of Uzbekistan, and establishment of an efficient and lasting maintenance system.

Experiences of Japanese grant aid projects and other donor's projects provided to Uzbekistan, and the technical assistances intended to enhance the public health infrastructure in other countries indicates that, efforts to enforce ongoing, routine operation of equipment, and likewise, performance of preventive maintenance are like the two wheels of a car for allowing extended use of the equipment procured.

Implementation of "user training" (teaching correct operating procedures to all health care personnel who use the equipment) is effective for ensuring normal operation of equipment.

Where preventive maintenance is concerned, it is effective to introduce "Operation and Maintenance Passport for Medical Equipment", created with cooperation from the Japanese JOCV at the Republican Scientific Center for Emergency Medical Services in 2000, and we have planned for implementation of this technical guidance is planned as the soft component of the project.

(2) Soft Component Goals

- 1) Health care personnel using equipment procured with Japanese general grant aid are trained reliably in correct operation of equipment at NRMMC.
- 2) Routine inspections, a foundation of equipment maintenance, become a regular practice, and maintenance and administrative activities are sustained.

(3) Soft Component Benefits

Benefits derived from the soft component are as follows.

- 1) Responsibility for maintenance of each equipment is clarified.
- 2) Health care personnel at the Center master proper operation of equipment and gain an

understanding of the importance of routine inspections.

- 3) Personnel are able to determine the cause of malfunctions, predict future failure intervals, and prepare for maintenance based on operating and maintenance records for each equipment systems.
- 4) The total operating time of equipment is clarified, and a purchasing plan for supplies can be created based on comparisons of operating time and actual purchases of supplies.

(4) Determination of Benefit Achievement

Methods of determination are as follows.

1) User Training

1) Pre- and post-training testing

2) Survey (after operational training by the supplier and after implementation of soft component)

2) Maintenance Management

- Create organizational chart for equipment management system
- Record operation and maintenance status of equipment on routine basis using "Operation and Maintenance Passport for Medical Equipment"
- Record total operating time, cause of malfunction, and maintenance performed at time of any malfunctions (It will lead to the creation of "Lessons Learned List" (cautions) for preventive maintenance in the future)
- Create annual purchasing plan for next fiscal year based on comparison of operating time and actual supply purchases

(5) Soft Component Activities (Investment plan)

Soft component activities comprise two components: (1) user training and (2) maintenance.

1) User Training

- Creation of user training manual

A. Content

To convey the basic knowledge for correct use of medical equipment included in the equipment procured for this project, regardless of the medical facility where used, we will supplement operational training manuals prepared by the medical equipment manufacturers will be supplemented with a "User Training Manual" prepared by JICA in Uganda in 2014 and will translate this document into Russian for use.

B. Deliverables

Russian language version of "User Training Manual"

200 copies to be prepared, size A4, black and white, approximately 100 pages, simplified binding with covers.

C. Number of Workdays

For tasks including Russian language translation of the "User Training Manual", approval of the translation through a supervisory institution, ordering of printing, and checking the final document received, the time required will be 7 days for a Japanese coordinator, 3 days for a senior technician, and 3 days for other specialized health care personnel (radiological and other functional diagnosis, operating room, and endoscope-related equipment).

- Workshops

A. Content

Workshops will be held to teach basic operations using the "User Training Manual", including startup and shutdown inspection and subsequent disinfection of the equipment provided (e.g., endoscopes).

B. Deliverables

The complete document sets of operational training manuals (produced by manufacturers).

C. Number of Workdays

For tasks including preparation for workshops, the time required will be 7 days for a Japanese coordinator, 3 days for a senior engineers, and 3 days for other specialized health care personnel (radiological and other functional diagnosis, operating room, and endoscope-related equipment). Workshops will be 2 days long as they will be conducted at medical facilities in operation.

- On-site Practice

A. Content

The NRMCC staff will perform actual operation to review operation, and operating performance will be checked for any errors. Any incorrect operation will be addressed by instruction on the spot at such time.

B. Deliverables

Report on "pre- and post-testing" results and "Survey"

C. Number of Workdays

For instruction on correct operating and handling procedures using actual, procured equipment, the time required will be 3 days for a Japanese coordinator, 3 days for a senior technician, and 3 days for other specialized health care personnel (radiological and other functional diagnosis, operating room, and endoscope-related equipment).

2) Maintenance management

- Creation of "Operation and Maintenance Passport for Medical Equipment"

A. Content

① Creation of Checklist Items for Routine Inspections

After the supplier is selected, the local manufacturers or agents operating through the suppliers will be required to create checklist items for routine inspections for equipment on the equipment procurement list for which routine inspection is deemed highly important.

② Creation of "Operation and Maintenance Passport for Medical Equipment"

"Operation and Maintenance Passport for Medical Equipment" will be created with assistance from the Ministry of Health and the Republican Scientific Center for Emergency Medical Services, Navoi Branch on the basis of the equipment procurement list. This effort will follow local discussions on details of the aforementioned checklist items for routine inspections held locally led by a Japanese coordinator/Maintenance Management Advisor for this component, and including a (local) senior technician serving as a workshop instructor for this component, and various specialist technicians (e.g., radiological and other functional diagnosis, operating room, and endoscope-related equipment).

B. Deliverables

"Operation and Maintenance Passport for Medical Equipment"

350 copies produced, A5 paper (per booklets used by Republican Scientific Center for Emergency Medical Services, Navoi Branch), black and white, approximately 120 pages, simplified binding with covers.

C. Number of Workdays

For selection and listing of checklist items for routine inspections, selection of items and design incorporated in Operation and Maintenance Passport for Medical Equipment, approval through supervisory institution, ordering of printing, checking of the final document received, and preparation for the aforementioned user training, the time required will be 7 days for a Japanese coordinator, and 3 days for a senior engineers.

- Workshops

A. Content

The NRMCC staff will perform actual operation to review operation, and operating performance will be checked for any errors. Any incorrect operation will be addressed by instruction on the spot at such time.

B. Deliverables

Instructional materials for workshops based on "Routine Inspection Checklist"

C. Number of Workdays

For instruction on correct operating procedures using actual procured equipment, the time required will be 7 days for a Japanese coordinator, and 3 days for a senior technician.

- On-site Practice

A. Content

On-site practice and instruction will be carried out to put material learned in the workshops into practice on site and to gain familiarity with these activities. From the perspective of the Japanese 5S workplace organization system that uses a list of five Japanese words: *seiri*(sort), *seiton*(systematic arrangement), *seiso*(shine), *seiketsu* (standardize), and *shitsuke*(sustain), specific content will include basic instruction on topics such as sorting of equipment units, accessories, and supplies during startup/shutdown inspection; checking for good order, maintenance of cleanliness through cleaning; understanding of checklist items for equipment inspections and checking of Operation and Maintenance Passport for Medical Equipment entries; and checking of procured equipment operating status during one-on-one questioning by equipment users.

B. Deliverables

"Outcomes Report for On-site Practice and Instruction"

C. Number of Workdays

In on-site practice and instruction, 5 staff members will all participate as instructors for 3 days. A Japanese coordinator and Uzbek specialist health care providers will be divided among: Radiological and other functional diagnostic equipment (specialist health care provider ①), operating room-related equipment (specialist health care provider ②), and endoscope-related equipment (specialist health care provider ③), and technology transfer will take place to build a maintenance management system designed for problem-solving and more specific routine inspections.

3) Report Preparation and Completion Report

A. Content

A report on on-site activity outcomes will be prepared and sent to the Ministry of Health and the JICA Uzbekistan office.

B. Deliverables

Soft component completion report

C. Number of Workdays

For report preparation, partial translation of workshop and other materials, and consultation with partner implementing organizations, the time required will be 3 days for a Japanese coordinator and 2 days for a senior technician.

(6) Procurement of Soft Component Implementation Resources

A blended model will be used involving direct support from a Japanese consultant and subcontracting to local resources.

1) Japanese consultant

- Maintenance instructor (1 individual)

① Activities

- Contract negotiations and contracting with the Uzbekistan Republican Scientific Center for Emergency Medical Services and Navoi Medtehnika, Inc.
- Information gathering and ad hoc discussions on checklist items for inspections for individual equipment systems among Japanese, European, and US manufacturers or their local agents for 45 items/maximum 45 firms representing a focus of the soft component
- Workshop sponsoring and scheduling/organization of participants, venue arrangement, and overall administration
- Explanation of grant assistance activities in workshops, and preparation of technical guidance and instructional materials for maintenance using the Japanese 5S workplace organization system
- Handling of any new orders, improvements, or other issues arising in on-site practice by Uzbek engineers at participating facilities
- Reporting to Uzbekistan, embassies, and the JICA office (report preparation and submission)

② Procurement procedures

The project manager for the two prior grant aid projects in Uzbekistan similar to this project,

one of which was introduction of the "Operation and Maintenance Passport for Medical Equipment" planned in this project will be in charge of the procurement of soft components. The project manager will be one who has planned and implemented the soft component in this project in like fashion.

2) Local Resources (Uzbekistan)

- Senior engineer ① (1 individual): Contract negotiations and contracting with Navoi Medtehnika, Inc. or the State Scientific Center for Emergency Medical Services, Navoi Branch

① Activities

- Assistance in creating routine, periodic inspection list
- Technical instructor in workshops and advising related to introduction of the "Operation and Maintenance Passport for Medical Equipment" for construction of equipment operation and maintenance systems.

- Health care providers ①, ②, ③: Specialist health care providers in the State Scientific Emergency Medical Services Center, Navoi Branch, and the Uzbekistan Mining Industry Public Health and Hygiene Hospital

① Activities

- Practical training for correct operation of equipment, notably, startup/shutdown inspection in workshops and on-site practical instruction
- Specialist health care provider ① will be responsible for radiological and other functional diagnostic equipment; specialist health care provider ② will be responsible for operating room-related equipment, and specialist health care provider ③ will be responsible for endoscope-related equipment.

② Procurement procedures

The essentials and details of this project will be described to the Republican Scientific Center for Emergency Medical Services, Navoi Branch, and the Uzbekistan Mining Industry Public Health and Hygiene Hospital, both located on the same premise as the NRMCC, and to Navoi Medtehnika, Inc., a company contracted for equipment maintenance by the State Scientific Center for Emergency Medical Services, Navoi Branch. Assistance to the soft component (user training and maintenance management) has been proposed, and some facilities agreed. Notably, the State Scientific Center for Emergency Medical Services, Navoi Branch, has actually introduced the "Operation and Maintenance Passport for Medical Equipment."

(7) Soft Component

	Number of days						Total (Day)	Total (M/M)
	1	2	3	4	5	6		
Installation and Operational Training				■				
(1) User Training Translation and printing for User Training Manual	■							
Preparation of Workshop	■		■					
Workshop and practice			■		■			
Report					■			
(2) Maintenance Print for the Maintenance Passport	■							
Preparation of Workshop	■							
Workshop and practice			■		■			
Report					■			
Chief Advisor /Maintenance (Japanese) Working Days	■		■		■	■	33	1.10
Chief Engineer/Maintenance (Uzbekistan) Working Days	■		■		■	■	20	0.67
Expert/Radiology (Uzbekistan) Working Days	■		■		■		12	0.40
Expert/Operation Room(Uzbekistan) Working Days	■		■		■		12	0.40
Expert/Fiberscope (Uzbekistan) Working Days	■		■		■		12	0.40
Total							89	2.97

(8) Soft Component Deliverables

- 1) Completion reports sent to client and Japanese side
(Based on soft component completion report in JICA guidelines and completion report for client based on consultant contract)
- 2) User training manual/Russian language version (200 copies)
- 3) Operation and Maintenance Passport for Medical Equipment (350 copies)
- 4) Workshop instructional materials (documents based on operation training manuals for procured equipment)
- 5) List of workshop and onsite practice participation

(9) Partner Country Responsibilities

Ongoing work with assistance from Ministry of Health and Navoi Health Department

-Ministry of Health

During implementation of user training particularly for procured equipment and, likewise, introduction of the "Operation and Maintenance Passport for Medical Equipment", with cooperation from the Ministry of Health, assistance will be requested from medical facilities under the umbrella of the Ministry of Health, first and foremost the Republican Scientific Center for Emergency Medical Services, Navoi Branch, located near the NRMCC. Assistance will also be required for

efforts such as placement of workshop instructors and maintenance technicians, and their participation will be needed from the outset of the project.

-NRMMC

In "Operation and Maintenance Passport for Medical Equipment" workshops, the participation of all staff involved in the procured equipment will be needed. However, given that the NRMMC is a medical facility, closure is not possible, and on behalf of participating staff members, plans call for the same workshop to be held over the span of 2 days. With on-duty hours adjusted in each case as authorized by the director of the NRMMC, nearly all staff will participate.