The Islamic Republic of Iran
Ministry of Health and Medical Education

PREPARATORY SURVEY REPORT
ON
THE PROJECT FOR IMPROVEMENT OF MEDICAL EQUIPMENT IN TEHRAN
IN
THE ISLAMIC REPUBLIC OF IRAN

November 2017

JAPAN INTERNATIONAL COOPERATION AGENCY

CONSORTIUM OF
TAC INTERNATIONAL INC.
AND
BINKO INTERNATIONAL LTD.

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PREFACE

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

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

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

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

November, 2017

Mitsuko KUMAGAI
Director General,
Human Development Department
Japan International Cooperation Agency

SUMMARY

1. Overview of the Country

The Islamic Republic of Iran (Iran) shares its northern border with Azerbaijan, Armenia and Turkmenistan, its eastern border with Pakistan and Afghanistan, and its western border with Turkey, Qatar and the United Arab Emirates. Its land area is around 4.4 times larger than that of Japan (approximately 1.65 million square kilometers), and it is surrounded by 3,000 to 4,000 meter-high mountains on three sides. The Caspian Sea, which is often classed as the world's largest lake, locates to its north, and the Persian Gulf to its south. In addition, there are four clearly-distinguished seasons in this country; temperatures approach zero degrees Celsius at their lowest in winter, with occasional snow. Summers meanwhile are extremely hot and dry.

Due to its geographical situation, Iran has received approximately one million refugees, mainly from Afghanistan and Iraq; making Iran one of the largest refugee recipient countries in the world. The official language is Persian, and ethnic groups comprise Persians (51%) who speak Persian as their mother tongue, followed by Azerbaijanis (25%), Kurds (7%) and Arabs (4%).

Iran is an Islamic nation having a republican government established just after the end of the Persian Empire for the 1979's Iranian Revolution, when Sayyid Ruhollah Mūsavi Khomeini was appointed as the first Supreme Leader of Iran.

In 2016, Iran's nominal Gross National Product (GDP) was 376.8 billion US dollars and nominal GDP per capita 4,683 US dollars; the growth rate of Iran's real GDP marked as approximately 6.5% compared to the previous year.[1] Although the nominal GDP comprises industries such as service (53.8%), gas and oil (15.9%), mineral (13.1%), construction (5.9%), agricultural forestry and fishery (7.1%) and so on[2], most of Iran's national revenue is covered by income from gas and oil industry and tax revenues. However, the Government of Iran (GoI) has been undertaking diversification of industries including vehicle manufacturing, aerospace, manufacturing of home electric appliances, and so on.

2. Background and Outline of the Project

In recent years, Iran has been showing an increasing trend in mortality due to Non-Communicable diseases (NCDs), and NCDs make up 76% of the overall causes of death which is higher than the global average of 65.5%. The top two causes of death among NCDs were cardiovascular disease (CVD), accounting for 46%, and cancer, accounting for 13%. Based on this situation, the Ministry of Health and Medical Education (MOHME) developed *the National Action Plan for Prevention and Control of Non-Communicable Diseases and the Related Risk Factors in the Islamic Republic of Iran, 2015-2025* (*the National NCDs Action Plan*) in 2015, and is implementing the plan to strengthen the

[1] *World Economic Outlook Database*, International Monetary Fund (IMF), April, 2017.
[2] *Country Overview: Iran* (30th June, 2017), Japan Center for International Finance.

provision of medical services to promote early detection and treatment of NCDs, which are becoming more prevalent due to the extended life expectancy of the population.

Since 1979, primary care system centered on the prevention and management of diseases has been steadily developed. However, in urban tertiary medical facilities, it is difficult to provide proper medical images necessary for diagnostic services and medical services for CVDs. It is also hard to perform appropriate endoscopic surgeries which are less burdensome on patients and should be adopted in accordance with each patient's condition. On the other hand, quality and quantity of medical service provision differs from a region to another in Tehran. In the eastern part of Tehran where relatively large population living in impoverished circumstances, demands on public medical services have been increasing because of reductions in out-of-pocket payments. However, there is insufficient deployment of the medical equipment used in diagnostic and treatment services for CVD and cancer in the area. Patients faced with such circumstances may experience increased physical and mental burdens and such situations may increase the burden of diseases caused by CVD and cancer in the country. Therefore, it is an urgent issue to improve access to the medical equipment necessary for early detection and treatment of cancer and CVD in the said area.

Under such circumstances, Japan International Cooperation Agency (JICA) conducted the *Data Collection Survey on Health Sector in the Islamic Republic of Iran* in 2016, and this survey suggested as its conclusion that the NCDs control has to be conducted as the top-priority issue.

Based on the suggestion, the GoI selected Imam Hossein Educational Hospital (IHEH) and Ruin Tan Arash Hospital (RTAH), which are tertiary medical facilities in the eastern Tehran as target facilities for the Cooperation, and requested the Project for Improvement of Medical Equipment in Tehran (the Project) to the Government of Japan (GoJ). The Project aims for strengthening diagnostic and treatment functions for CVD and cancer which have high mortality among NCDs in the country through improved access to the medical equipment necessary for early detection and treatment of cancer and CVD in the two hospitals. This Project is also positioned as a high-priority cooperative effort indispensable for providing appropriate medical services for the above diseases in *the National NCDs Action Plan*.

3. Outline of the Survey Results and Description of the Project

In response to the Iran's request, the GoJ decided to conduct a preparatory survey for the Project and JICA sent a survey team (the Team) to Iran from 2nd to 14th March 2017 (13 days) as a first field survey, and from 1st to 20th May 2017 (20 days) as a second filed survey. During the field survey, the Team investigated positions, functions, roles in the Iran's health system and clinical activities of target facilities. In the series of investigations, the Team also clarified status of existing equipment and its operational and maintenance system including human resource allocations. Based on the analysis of data and information collected in the two field surveys, the Team formulated a draft Outline Design document of the Project after returning to Japan, and an explanatory mission was sent to Iran to explain the draft document to the Iranian side from 31st August to 7th September, 2017 (8 days).

The GoI originally requested 15 items of medical equipment and the request finally became

25 items for the following reasons;

- NCDs are accounted for 76% of the causes of death in Iran. Since CVD (46%) rates higher than cancer (13%) as the leading cause of death, equipment highly contributing to CVD countermeasures was additionally requested.
- In regard to cancer treatment, radiotherapy devices such as linear accelerators, which allows to expect therapeutic effect without resection of tumors, has been excluded from the original request since they are not made in Japan and it cannot be ensured its maintenance through manufacturer's local agents.

Table i Comparative Table of Original Request and Final Request

Target Facility	Original request	Priority	Final request	Q'ty
Imam Hossein Educational Hospital	Angiography system (for coronary vessels)	1	Angiography system (for coronary vessels)	1
	Angiography system (for neuro/peripheral vessels)	2	Angiography system (for neuro/peripheral vessels)	1
		3	ERCP and Surgical Mobile C-arm X-ray unit	1
	Endo sonography system	4	Endo-sonography system	1
	Echocardiography unit	5	Echocardiography unit	1
		6	Ultrasonography unit (4D)	2
		7	Surgical X-ray TV system	1
	CT simulator	8	Systemic X-ray CT simulator	1
		9	Digital mobile X-ray unit	2
		10	Digital X-ray unit	2
		11	Computed Tomography 16-slice	1
		12	Digital mammography unit with flat panel detector and stereotaxy system including workstation	1
	Gastroendoscope and Colonoscope set			
	Linear accelerator	-		
	Bracky therapy	-		
	Cyber knife	-		
	Tomo therapy	-		
Ruin Tan Arash Hospital	Computed Tomography 64-slice	1	Computed Tomography 16-slice	1
	Magnetic Resonance Imaging 1.5 Tesla	2	Magnetic Resonance Imaging 1.5 Tesla	1
	Digital mammography unit with flat panel detector and stereotaxy system including workstation	3	Digital mammography unit with flat panel detector and stereotaxy system including workstation	1
		4	Laparoscope set (consisting of hysteroscopy, resectoscope and morcellator)	2
		5	Gastroscope and Colonoscope with scope cleaner	1
		6	Digital X-ray unit	1
		7	Digital mobile X-ray unit	1
	Ultrasonography unit with linear probe, probe for breast superficial tissue, vaginal probe and 3D/4D probe, stereotactic biopsy system	8	Ultrasonography unit with linear probe, probe for breast superficial tissue, vaginal probe and 4D probe, stereotactic biopsy system	2
		9	HLA typing	1

Target Facility	Original request	Priority	Final request	Q'ty
		10	Fully automated cryostat	1
		11	Echocardiography unit	1
		12	Electrolyte analyzer	1
		13	Blood gas analyzer	1
	Linear accelerator (high-energy)			

Source: Survey team

In result of the field surveys, 12 items (see Table ii) were selected with using selection criteria; purpose of use, urgency, technical level, operation system, maintenance system, and operation and maintenance cost.

Table ii Planned Equipment

Target Facility	Code No.	Name of Equipment	Purpose of Use	Q'ty	MC
Imam Hossein Educational Hospital	1	Angiography system (for coronary vessels)	To confirm the location and extent of stenosis/obstruction or perform dilation treatment by using catheter, for examination or treatment of conditions in which the myocardium is ischemic due to arteriosclerosis or thrombus stenosis/obstruction of the lumen of the coronary artery such as myocardial infarction and angina pectoris.	1	●
	2	Angiography system (for neuro/peripheral vessels)	To perform intracerebral endovascular treatment, abdominal vascular treatment, and peripheral arterioplasty, by using Angiography biplane system.	1	●
	3	ERCP and Surgical Mobile C-arm X-ray unit	To directly image and observe the biliary tract and pancreatic duct through injecting contrast medium using an endoscope under fluoroscopic view of surgical C-arm. It contributes to obtain various information such as endoscopic findings, bile duct images, and pancreatic ductal images and detect digestive cancer including pancreatic cancer.	1	
	4	Endo-sonography system	An endoscope equipped with an ultrasonic device used to perform ultrasonic examination from inside the digestive tract. The atmosphere, abdominal wall, fat of the abdominal cavity, and bone do not impede image generation, and high-resolution observations are possible. Also allow inspection of sites such as the pancreas which are difficult to observe.	1	
	5	Echocardiography unit	To observe heart disease by insertion of a tube that emits ultrasonic sounds from the mouth into the esophagus or stomach. Measures heart size and thickness of heart wall and monitors blood flow and presence of clot(s) in the coronary artery.	1	
Ruin Tan Arash Women Hospital	6	Computed Tomography 16-Slice	Since it is a multi-slice (16-slice) device, it is not necessary for patients to hold the breath for a long time and high-speed shooting is possible for whole body. It is used for early	1	●

Target Facility	Code No.	Name of Equipment	Purpose of Use	Q'ty	MC
			detection for intracranial bleeding, cerebral vascular disturbance such as cerebral aneurysm, lung and gastrointestinal cancers.		
	7	Magnetic Resonance Imaging 1.5 Tesla	Used for imaging inside the living body by means of nuclear magnetic resonance. Applications include analysis using three-dimensional images and confirmation of soft tissue lesions, etc. This project contributes to the diagnosis and response evaluation of cancer in the liver, prostate, uterus, ovary and breast[3] etc. in particular.	1	●
	8	Digital mammography unit (with flat panel and stereotaxy system including workstation)	X-ray unit dedicated to breast cancer. Diagnostic accuracy of calcified lesions with possible cancer is higher than ultrasonography. By using the biopsy device, definitive diagnosis is also possible through pathological examination.	1	●
	9	Laparoscope set	Used mainly in general surgery and gynecology, as well as examination and treatment of lesions in digestive organs, uterine myoma, uterine cancer, ovarian cancer, etc. Laparoscope inserted into the peritoneal cavity from the body's surface skin by opening about three holes in the abdomen without laparotomy.	2	
	10	Gastroscope and Colonoscope set	The gastroscope is inserted into the mouth and observes the esophagus, stomach and duodenum, and used for special examination and treatment such as endoscopic resection and ultrasonic endoscopy. The colonoscope is inserted into the anus and observes the large intestine or performs endoscopic resection. It is used for early detection and treatment of gastrointestinal cancer.	1	
	11	Digital X-ray unit	Used to obtain general X-ray images such as those of the chest and abdomen at low doses. Allows instant reading and diagnosis after shooting without film.	1	
	12	Digital mobile X-ray unit	Used for patients such as postoperative ICU patients who are unable to move to the X-ray room, to take chest or abdomen X-ray images at low doses by moving the unit.	1	

Note: MC = Maintenance Contract.

4. Project Schedule and Cost Estimate

After the conclusion of the E/N between the both governments, it is expected that the Detailed Design/Bidding Stage and Procurement will take about 6.0 and 8.0 months, respectively; therefore, in total, it will take 14 months up to the handover. Furthermore, part of the image diagnostic devices is to be procured with a few years of maintenance contracts that start from the completion of the

[3] MRI using a contrast medium performs important role in order to differentiate tumor at breast and normal breast tissue for diagnostic of treat cancer.

manufacturer's warranty period; accordingly, the entire schedule of the implementation will be completed within three years (36 months) after the handover of all the equipment. The total cost to be borne by the Iranian side is estimated at approximately 49 million Japanese yen.

5. Project Evaluation

5-1 Relevance

As part of the Project, this Cooperation is intended to be one of the components which strengthen early detection and treatment functions for cancer and CVD in tertiary hospitals located in the eastern part of Tehran. In this context, the relevance of the Project is evaluated as highly relevant to implement from the following perspectives. Therefore, the Cooperation is suitable for implementation under Japan's Grant Aid.

(1) Beneficiaries of the Project

The area where the two target facilities are located is the eastern part of Tehran, which has a relatively large population of persons living in impoverished circumstances compared to other areas in Tehran; in this sense the Cooperation can be considered to constitute as a humanitarian aid. Meanwhile, IHEH is designated as a 1st level trauma center, a stroke center and an Acute Myocardial Infarction (AMI) center and RTAH is designated as a breast cancer diagnostic and treatment center, and also as a training center for laparoscopy. In this sense, this Cooperation is relevant to be implemented under Japan's Grant Aid because both of the target facilities are designated hospitals for cancer and CVD and open to 12 million populations living in Tehran.

(2) Contribution to Human Security

In Iran, demands on diagnostic services for cancer and CVD have been on the rise along with the increasing number of NCDs due to extensions in life expectancies and lifestyle changes (smoking, insufficient physical activity, etc.) among the population led by social and economic changes in the country. However, medical equipment to provide proper medical services has been aging and in short. Therefore, the new and additional procurement of medical equipment for early detection and treatment of cancer and CVD under the Project will enable Iran's health sector to answer such medical demands. Specifically, the Project will procure Angiography systems which have the potential to reduce physical burdens of patients receiving treatments such as cardiovascular catheterization and angioplasty for cerebral and peripheral vessels, and so on. As a result, lengths of hospital stays will be shortened and patients rehabilitated more quickly than was previously the case.

In view of the above-mentioned benefits, the Project will contribute to protecting patient dignity, and reduce threats to lives and to their livings, meaning that implementation of this Cooperation is relevant from Human Security perspectives.

(3) Consistency with National Level Long-term plans in Iran

The Project would be consistent with *the National NCDs Action Plan* as a national-level long-term plan. Particularly, since the Cooperation aims to strengthen the capacities for early detection and treatment of NCDs at the two tertiary hospitals, the Project will contribute to achieving the targets outlined in the above action plan, especially "Target 1: A 25% reduction in the risk of premature death from cardiovascular disease, cancer, diabetes, chronic lung diseases" and "Target 9: An 80% availability of the affordable basic technologies and essential medicines including generics in private and public sectors".

(4) Alignment with Japanese Cooperation Policies

In *the Cooperation Development Plan for Islamic Republic of Iran 2017*, the GoJ places priority on the area of "Strengthening of Social and Economic Infrastructure", and has created a strategic program called "Formulation of Resilient Society Program". As parts of the program, provision of high-quality medical equipment and improvement of medical services are specified as concrete projects for the health sector. In addition, at the Japan-Iran Economic Cooperation Consultation Meeting (held on March 12, 2016), it was agreed to cooperate on improvement of medical equipment in existing hospitals in Iran through financial cooperation from Japan.

Based on all of the above-mentioned, the Project is aligned with the Japanese cooperation policies and their orientation for Iran.

(5) Strengthening the Relationship between the Two Countries

Through the Cooperation contributing to the Iranian health sector, mutual relationship between Iran and Japan is anticipated to strengthen because Japanese medical manufacturers with high product qualities and technologies may probably advance into the Iranian medical market. This is also consistent with the GoJ's policy on "Promotion Business of Medical Technology to International Market".

5-2 Effectiveness

Expected effects of the Project are as follows;

(1) Qualitative Effects

As expected outputs to measure the improvement of quality of medical services to be provided at IHEH and RTAH, the target facilities of the Cooperation, after completion of the Cooperation, quantitative indicators are set as shown in Table iii. The target of each indicator represents achievement of the Project objective.

Table iii Quantitative Effects

Target Facility	Indicators	Unit	Baseline (Year 2016)	Target (Year 2022) 【3 years after completion of the Project】
Imam Hossein Educational Hospital	1. The number of cases in which coronary artery imaging was performed	cases/ year	1,400	2,100
	2. The number of echocardiographic examinations	cases/ year	16,959	25,000
	3. The number of endo-sonography examinations	cases/ year	0	600
Ruin Tan Arash Hospital	4. The number of MRI examinations	cases/ year	0	2,400
	5. The number of CT examinations	cases/ year	0	3,600
	6. The number of upper and lower digestive endoscope examinations	cases/ year	469	600
	7. The number of cancer operations using laparoscope	cases/ year	1,896	2,700

Source: Survey Team

(2) Qualitative Effects

Expected qualitative effects of the Project are shown in Table iv.

Table iv Qualitative Effects

1.	Since the hospitals will provide necessary and quality-ensured medical services to the people in the catchment area(s), accessibility of people near to the hospital(s) will be improved and the hospital's reliability will be also increased.
2.	The number of diseases that can be diagnosed and treated by the latest medical equipment increases thorough medical equipment provided by the Project, so that plenty of knowledge and experience can be provided in the field of clinical education. Therefore, the level of satisfaction of training among medical doctors working in the target facilities will increase.

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2. Survey Schedule
3. List of Parties Concerned in the Recipient Country
4. Minutes of Discussions (M/D)
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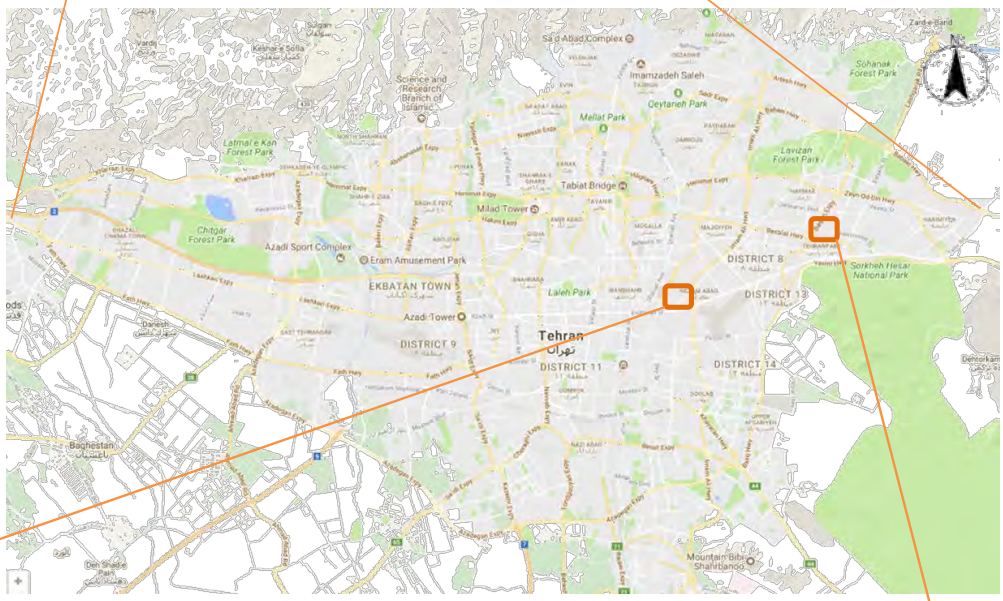

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ABBREVIATIONS

Abbreviations	Official Name
A/P	Authorization to Pay
AMI	Acute Myocardial Infarction
B/A	Banking Arrangement
B/L	Bill of Lading
BME	Biomedical Engineer
CNCCP	Comprehensive National Cancer Control Program
CT	Computed Tomography
CVD	Cardiovascular Disease
EAA	Export Administration Act
EAR	Export Administrative Regulations
E/N	Exchange of Notes
ERCP	Endoscopic retrograde cholangiopancreatography
FDA	Food and Drug Administration
G/A	Grant Agreement
GMP	Good Manufacturing Practice
GoI	Government of Iran
GoJ	Government of Japan
GQP	Good Quality Practice
GVP	Good Vigilance Practice
HOA	Heyat Omana Arzi
HTP	Health Transition Plan
IAD	International Affairs Department
ICU	Intensive Care Unit
IHEH	Imam Hossein Educational Hospital
JICA	Japan International Cooperation Agency
L/C	Letter of Credit
MOHME	Ministry of Health and Medical Education
MRI	Magnetic Resonance Imaging
NCDs	Non-communicable Diseases
PPCI	Primary Percutaneous Coronary Intervention
RTAH	Ruin Tan Arash Hospital
UPS	Uninterruptible Power Supply
VAT	Value Added Tax
WHO	World Health Organization

CHAPTER 1
BACKGROUND OF THE PROJECT

Chapter 1 Background of the Project

1-1 Background and Outline of the Project

In recent years, Iran has been showing an increasing trend in mortality due to Non-Communicable diseases (NCDs), and NCDs make up 76% of the overall causes of death which is higher than the global average of 65.5%. The top two causes of death among NCDs were cardiovascular disease (CVD), accounting for 46%, and cancer, accounting for 13%. Based on this situation, the Ministry of Health and Medical Education (MOHME) developed *the National Action Plan for Prevention and Control of Non-Communicable Diseases and the Related Risk Factors in the Islamic Republic of Iran, 2015-2025* (*the National NCDs Action Plan*) in 2015, and is implementing the plan to strengthen the provision of medical services to promote early detection and treatment of NCDs, which are becoming more prevalent due to the extended life expectancy of the population.

Since 1979, primary care system centered on the prevention and management of diseases has been steadily developed. However, in urban tertiary medical facilities, it is difficult to provide proper medical images necessary for diagnostic services and medical services for CVDs. It is also hard to perform appropriate endoscopic surgeries which are less burdensome on patients and should be adopted in accordance with each patient's condition. On the other hand, quality and quantity of medical service provision differs from a region to another in Tehran. In the eastern part of Tehran where relatively large population living in impoverished circumstances, demands on public medical services have been increasing because of reductions in out-of-pocket payments. However, there is insufficient deployment of the medical equipment used in diagnostic and treatment services for CVD and cancer in the area. Patients faced with such circumstances may experience increased physical and mental burdens and such situations may increase the burden of diseases caused by CVD and cancer in the country. Therefore, it is an urgent issue to improve access to the medical equipment necessary for early detection and treatment of cancer and CVD in the said area.

Under such circumstances, Japan International Cooperation Agency (JICA) conducted the *Data Collection Survey on Health Sector in the Islamic Republic of Iran* in 2016, and this survey suggested as its conclusion that the NCDs control has to be conducted as the top-priority issue.

Based on the suggestion, the GoI selected Imam Hossein Educational Hospital (IHEH) and Ruin Tan Arash Hospital (RTAH), which are tertiary medical facilities in the eastern Tehran as target facilities for the Cooperation, and requested the Project for Improvement of Medical Equipment in Tehran (the Project) to the Government of Japan (GoJ). The Project aims for strengthening diagnostic and treatment functions for CVD and cancer which have high mortality among NCDs in the country through improved access to the medical equipment necessary for early detection and treatment of cancer and CVD in the two hospitals. The Project is also positioned as a high-priority cooperative effort indispensable for providing appropriate medical services for the above diseases in *the National NCDs Action Plan*.

1-2 Natural Conditions

(1) Topography

Iran locates in a strategically important point between the Middle East and Western Asia, and shares its east and west sides of borders with multiple number of neighboring countries; the north side of Iran faces the Caspian Sea, and the south side of Iran is surrounded by the Persian Gulf and the Gulf of Oman. The city of Tehran where two target facilities locate is the capital of Iran and is the most populous city in the country. Also, Tehran is the capital city of Tehran Province and forms a metropolitan area. The paving condition of roads are good and there will not be any problem anticipated in the inland transportation from the port city of Bandara Abbas which faces the Strait of Hormuz to Tehran city, also from Tehran Imam Khomeini International Airport to the final destinations.

(2) Climate

The climate of Tehran belongs to steppe climate. During winter, the temperature in January goes down around 5 degrees Celsius (an average temperature from 1981 to 2010), and the lowest recorded temperature in the past hits minus 21 degrees Celsius in Tehran. Also, winter time it can be snowed because of the high rainfall. On the other hand, summer in Tehran is dry and very hot (average temperature in July is 31.2 degrees Celsius) and rarely rains. However, night time in summer is cool because it is dry.

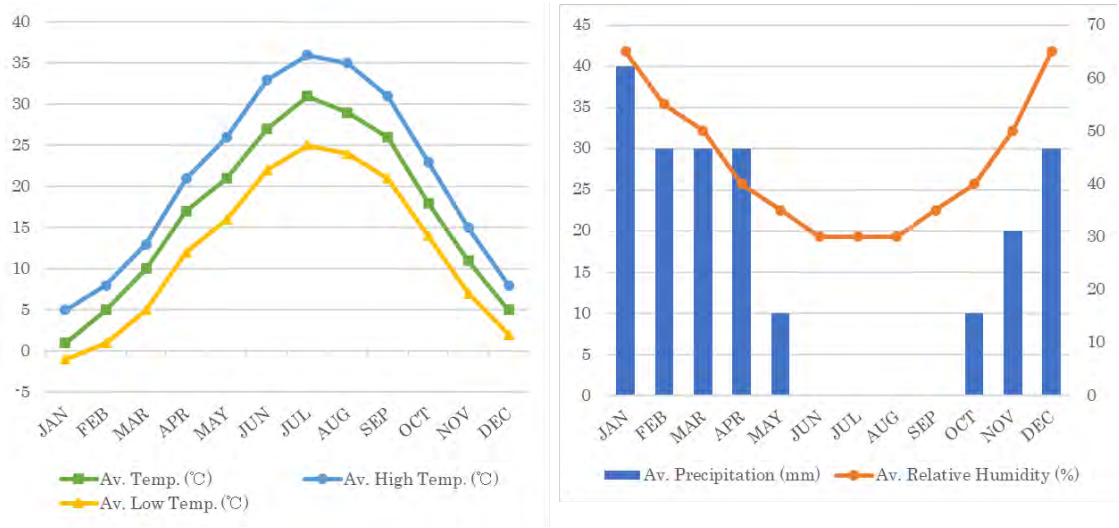

Figure 1-1 Climate in Tehran

Source: http://www.weatherbase.com (Accessed in February, 2017)

(3) Natural Disaster

Iran locates in the mountain side of Alpine-Himalayan belt, so that frequent earthquakes tend to occur all over the country. Although there has been no major earthquake struck Tehran since 1830, once such a big earthquake strikes Tehran, the damages would be huge since Tehran is one of the highly populated large cities in the world. The following table shows the recent major natural disasters occurred in Iran. As it shows, earthquakes are major cause of natural disasters than other

causes such as floods[1]. Recent Major natural disasters are shown in Table 1-1.

Table 1-1 Major Natural Disasters occurred in Iran（After 2000）

Month/Year	Disaster	Affected Areas	Death (persons)	Affected (persons)	Damage Amount (thousand US$)
Aug. 2001	Flood	Golestan, Khorasan, Semnan Provinces	412	1,200,200	78,800
Jun. 2002	Earthquake	Ab Garm, Buin Zahra, Avaj districts and others	227	111,300	300,000
Aug. 2002	Flood	Golestan, Khorasan, Semnan Provinces	39	200,000	4,000
Dec. 2003	Earthquake	Bam District	26,796	267,628	500,000
Feb. 2005	Earthquake	Zarand District	612	94,766	80,000
Mar. 2006	Earthquake	Lorestan Province	63	161,418	42,262
Aug. 2012	Earthquake	Varzeghan village, Heris, Tabliz districts	306	61,546	500,000
Apr. 2013	Earthquake	Busher province	37	4,350	600,000

Source: EM-DAT The International Disaster Database (http://www.emdat.be/,accessed in September, 2017)

1-3 Social and Environmental Considerations

The equipment to be procured under the Cooperation will be installed in the existing facilities where daily clinical activities are performed. Meanwhile, the installation will not induce any wastewater from X-ray developing solutions since all the medical equipment and accessories are digitized. Therefore, there will not be any negative environmental and social impacts.

1-4 Others

After Iranian Revolution occurred in 1979, Iran faced various challenges, however, it has been making progress in the development of the nation under the long-term and mid-term frameworks of national development plans. After *the Third Five-year Development Plan (2000-2005)*, the country has been aiming to empower women under the perspective of emphasizing importance of the role of women in the society. The government is aiming to generate an environment which enables to provide both men and women equal opportunities to access health care and education. In 2012, in the Iranian parliament, there was a discussion on "Female patients should be diagnosed by female medical personal"[2] and the government has been making efforts to strengthen the function of women's hospitals under the "Gender segregation" policy on the health and medical service provisions.

This Cooperation covers a women's hospital as one of the target and 80% of health personnel there is female, so that the image diagnostic devices such as Magnetic Resonance Imaging (MRI), Computed Tomography (CT) and Digital mammography unit procured by the Cooperation will be operated by female radiographers in the hospital. Also Laparoscope sets to be procured under the Cooperation will enable the hospital to provide low invasive cancer treatment among female patients.

[1] *The Project for Capacity Building for Earthquake Risk Reduction and Disaster Management in Tehran,* JICA
[2] This information was obtained during a field survey of *the Data Collection Survey on Health Sector in the Islamic Republic of Iran*.

Therefore, it is expected that the Project will bring more benefits to female patients by strengthening the capability of the hospital to detect early stage of cancer and give effective and low invasive treatment to the female patients.

CHAPTER 2
CONTENTS OF THE PROJECT

Chapter 2 Background of the Project

2-1 Basic Concept of the Project

(1) Overall Goals and Project Purpose

In recent years, Iran has seen an increasing trend in mortality due to NCDs. NCDs make up 76% of the overall causes of death and it is higher than the global average of 65.5%. The top two causes of death among NCDs were CVD accounting for 46%, and cancer accounting for 13% (WHO 2014). Based on this situation, MOHME developed *the National NCDs Action Plan* and is working on strengthening the provision of medical services following this *National NCDs Action Plan* to promote early detection and treatment of NCD, which is becoming more prevalent due to the extended life expectancy of the population in Iran.

Since the capital city, Tehran, has experienced an increase in population in the latter half of the 20th century, in addition, economic disparities in the city have been expanding, so it becomes more important, and there is a constant demand, to provide medical services at public medical facilities that have lowered out-of-pocket payments of patients. MOHME is now strengthening the provision and function of medical diagnosis and treatment in order to provide prompt and adequate medical services to the population at 24 medical facilities designated for CVD and cancers (15 CVD facilities and 9 cancer centers: 6 of Type 2 and 3 of Type 3)[1] in Tehran; such enhancement is preferentially necessary to be taken since, in eastern Tehran, there is a high demand for medical services provided by public medical facilities.

In this context, the Project aims to strengthen the function of the diagnosis and treatment of CVD and cancer at two tertiary medical facilities in eastern Tehran, namely, IHEH and RTAH through the provision of medical equipment necessary for early detection and treatment of CVD and cancer.

(2) Basic Concept of the Project

The Project aims to improve the quality of medical services through the procurement of medical equipment that will contribute to enhancing early detection and treatment functions of CVD and cancer in IHEH and RTAH. Accordingly, the provision system of medical services is expected to strengthen for CVD and cancer patients. The target facilities are IHEH and RTAH, and the Cooperation will mainly procure image diagnostic devices and endoscopes.

2-2 Outline Design of the Japanese Assistance

2-2-1 Design Policy

2-2-1-1 Basic Principle

The Project aims to enhance medical services for CVD and cancer at two tertiary hospitals located in eastern Tehran, namely, IHEH and RTAH, through provision of necessary medical equipment for early detection and treatment of the above diseases. The Project is planned based on a request from the Government of Iran (GoI), the results of field surveys, and discussions

[1] Grade of cancer center is basically decided according to the number of Linear accelerators. A cancer center with one to three Linear accelerators is defined as Type 2; three to four Linear accelerators as Type 3.

conducted between the Iranian and Japanese sides.

(1) Principle for Realization of the National NCDs Action Plan

In *the National NCDs Action Plan*, recently developed by MOHME in order to reduce the prevalence of NCDs, "25% reduction in the risk of premature death from cardiovascular disease, cancer, diabetes and chronic lung disease" is set as Target 1 to be achieved by 2025. Activities to achieve this target are also identified; improvement of outpatient services through early detection and treatment, shortening the time from the on-set of illness till the beginning of treatment, and expansion of access to medical services. With awareness of these activities to achieve the target, the scope of the Cooperation is to be set in relation to CVD and cancer.

(2) Medical Equipment related with Cancer

Cancer is the second leading cause of death among NCDs in Iran. Looking at the mortality rate by cancer site, digestive cancer such as gastric cancer, esophagus cancer and colorectal cancer is prevalent in both sexes in Iran. Among women, breast cancer has the highest mortality rate. This situation has caused the promotion of early detection of these cancers. Also, the Comprehensive National Cancer Control Program (CNCCP), which has been running since 2007, strategized to strengthen the algorithm of medical services on cancer including prevention, early detection and cancer screening programs. Therefore, in the Project, the focus will be on medical equipment that promotes the early detection and treatment of digestive-organ cancers, which account for the highest mortality rates by cancer site in both sexes, and breast cancer, which has the highest mortality rate among women.

(3) Medical Equipment related with CVD

Regarding CVD, "An 80% availability of the affordable basic technologies and essential medicines, including generics in private and public sectors" is set as Target 9 of *the National NCDs Action Plan*, which is to be achieved by 2025; activities including improvement of Primary Percutaneous Coronary Intervention (PPCI)[2] system and further development of catheter laboratories and stroke care units are also described. Therefore, the Cooperation plans to procure such medical equipment that contributes to improving and strengthening the diagnosis and treatment of heart diseases including Acute Myocardial Infarction (AMI) and thrombolytic therapy for strokes to public hospitals in eastern Tehran for the development of PPCI system.

(4) Policy on Natural Conditions

Iran has a steppe climate, or desert climate, and has low amounts of rainfall. In summer, the temperature reaches nearly 40 degrees Celsius and it is very dry, but in winter, the temperature goes down to less than 10 degrees Celsius and parts of the country sometimes have snow and the humidity reaches around 60%. The target facilities of the Project locate in Tehran city, at an

[2] PCI is a primary catheter treatment that improves blood flow in obstructed coronary arteries by performing balloon dilation, stent implantation and the like against acute myocardial infarction.

altitude of about 1,200m. Following points are to be considered in accordance with the above-mentioned natural conditions;

- The expected arrival timing of medical equipment in Tehran, if everything goes as planned, would be from fall to winter. Therefore, to protect the medical equipment from humidity, export packing in cases/crates will be applied to the equipment to be procured under the Cooperation.
- Since ambient temperature and humidity should be controlled properly for image diagnostic devices, the Iranian side will install air conditioners in designated rooms as their scope of works.

(5) Policy on Socioeconomic Conditions

Iran uses the Iranian calendar and during the New Year period, which starts from the middle of March to the beginning of April, it is a holiday for most Iranian nationals. In addition, if everything goes as planned, procurement bidding is expected to hold just before Ramadan (a fasting period starting from May 15th, 2018 for a month). With these facts in mind, the bidding time and procurement schedule need to be managed properly to avoid such social and cultural occasions.

(6) Policy on Procurement Conditions

In principal, medical equipment to be procured under the Cooperation shall be made in Japan and/or in Iran. Meanwhile, the procurement of third countries' products other than Japan and/or Iran is to be considered when preferred after the approval of the both countries if such medical equipment is not made in Japan and/or Iran, or if it is hard to ensure proper competitiveness of the bidding when countries of origin of the equipment is only confined to Japan and/or Iran.

1) The equipment that requires repair and periodic check by manufacturers must be the one whose local agent has been registered in Iran[3] in order to ensure the operation and maintenance systems of the equipment including procurement of consumables and spare parts and its quality after procurement, so that the target facilities can effectively use the medical equipment for a long time.
2) Both target facilities have systems to secure the budget of operation and maintenance of medical equipment. The Project, therefore, plans to procure minimum quantity of necessary consumables for the smooth start-up of the procured medical equipment.
3) For the equipment which may be expensive including repair cost and affect clinical operation significantly if its function stops, relevant spare parts especially which cannot be stored in local agents for the Iranian business practices are to be also procured under the Cooperation in consideration with the continuous provision of quality-ensured medical services.

[3] Local-agent registration system in Iran is a system regulated by Medical Equipment Department, Food and Drug Organization of MOHME; each medical equipment shall be registered to the system with its price as an approval of sales in Iran. The registration system also requires each local agent to secure the supply system of consumables and spare parts necessary for the equipment's operation and maintenance as well as to allocate certified engineers of the equipment's manufacturer.

(7) Policy on Use of Local Agents

For the medical equipment to be procured under the Cooperation, each manufacturer's local agent has certified engineers who have trained at manufacturers' headquarters and/or overseas branches and are capable of undertaking installation/maintenance work and application software training. Therefore, these engineers may possibly perform initial operational training including that of medical application software after installation and commissioning of medical equipment to be procured under the Cooperation.

(8) Policy on Operation and Maintenance

1) Considering the site situations, Biomedical Engineers (BME) allocated to Medical Equipment Maintenance Department in both target facilities will basically perform operation and maintenance, which can be done in the facilities such as calibration and daily check of the procured medical equipment. Additionally, the said equipment is to be the one that engineers stationed at manufacturer's local agents are capable of performing its maintenance activities.
2) Among all the equipment, equipment which may affect clinical operation significantly if its function stops may possibly be procured from Japan and considered to come with maintenance contract[4] after ending manufacturer's warranty period[5] of such equipment in order to provide continuous and quality-ensured medical services.

(9) Policy on Grades and Specifications of Equipment

1) Based on the Iranian standard of medical technology, medical equipment to be procured under the Cooperation will be equivalent to specifications and grades which deserve for target facilities to function as core regional hospitals providing tertiary medical services. Specifically, it is planned to procure image diagnostic devices such as Angiography systems, CT and MRI that are pre-installed with medical application software including image capturing methods and image reconstruction functions indispensable for diagnosis and/or treatment in order to facilitate effective use of the equipment after its handover.
2) The Project plans to procure equipment that can be used continuously in consideration of the user's technical level, the maintenance system of the local agent, and the operation and maintenance system of the target facilities.
3) For image diagnostic devices and equipment including computers as its components, Uninterruptible Power Supply (UPS) is to be procured for backing up the continuous operation of equipment at the time of power failure, so that it does not significantly affect treatment and photographing.

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[4] A type of maintenance contract of medical equipment. This includes periodic check of the relevant equipment at site, on-call check-up and repair and replacement of spare parts for free of charge or on payment basis.
[5] Medical equipment manufacturer's guarantee. This guarantee includes on-call repair and will be applied only for one year after its handover of the relevant equipment to medical facilities. In general, this guarantee does not include periodic checks.

(10) Policy on the Procurement Method and the Implementation Schedule

The implementation schedule of the Project will be set appropriately according to Japan's Grant Aid scheme and will be carried out paying attention to the followings;

1) In order to procure and install image diagnostic devices to IHEH and RTAH, refurbishment work at IHEH and construction of a new building at RTAH are planned and implemented as the Iranian scope of works. Since the relevant equipment is delicate and requires to be stored/installed in the rooms whose temperature is appropriately controlled, their transport will not be started until the completion of the Iranian scope of works gets confirmed.
2) Among medical equipment to be procured under the Cooperation, there are some components of equipment which may be regulated by export control regulations by Export Administrative Regulations (EAR) based on the Export Administration Act (EAA) under the jurisdiction of the Bureau of Industry and Security in the United States of America (U.S.A.). For the shipment to Iran, therefore, it is necessary to apply to each authority and obtain an export license.

2-2-2 Basic Plan

2-2-2-1 Overview of the Project

(1) Change in Request

The original request was mainly composed of equipment specialized for cancer treatment; however, the request has been changed into equipment contributing to early detection and treatment of cancer and CVD. The process is as shown below;

- NCDs are accounted for 76% of the cause of death in Iran. Since CVD (46%) rates higher than cancer (13%) as the leading cause of death, equipment highly contributing to CVD countermeasures was additionally requested.
- In regard to cancer treatment, radiotherapy devices such as linear accelerators, which allows to expect therapeutic effect without resection of tumors, has been excluded from the original request since they are not made in Japan and it cannot be ensured its maintenance through manufacturer’s local agents.

(2) Requested Equipment

Comparison of the original and final request is as shown in Table 2-1. The final requested equipment comprised of 12 items from IHEH and 13 items from RTAH.

Table 2-1 Comparative Table of Original Request and Final Request

Target Facility	Original request	Priority	Final request	Q'ty
Imam Hossein Educational Hospital	Angiography system (for coronary vessels)	1	Angiography system (for coronary vessels)	1
	Angiography system (for neuro/peripheral vessels)	2	Angiography system (for neuro/peripheral vessels)	1
		3	ERCP and Surgical Mobile C-arm X-ray unit	1
	Endo sonography system	4	Endo-sonography system	1
	Echocardiography unit	5	Echocardiography unit	1
		6	Ultrasonography unit (4D)	2
		7	Surgical X-ray TV system	1
	CT simulator	8	Systemic X-ray CT simulator	1
		9	Digital mobile X-ray unit	2
		10	Digital X-ray unit	2
		11	Computed Tomography 16-slice	1
		12	Digital mammography unit with flat panel detector and stereotaxy system including workstation	1
	Gastroendoscope and Colonoscope set			
	Linear accelerator	-		
	Bracky therapy	-		
	Cyber knife	-		
	Tomo therapy	-		
Ruin Tan Arash Hospital	Computed Tomography 64-slice	1	Computed Tomography 16-slice	1
	Magnetic Resonance Imaging 1.5 Tesla	2	Magnetic Resonance Imaging 1.5 Tesla	1
	Digital mammography unit with flat panel detector and stereotaxy system including workstation	3	Digital mammography unit with flat panel detector and stereotaxy system including workstation	1
		4	Laparoscope set (consisting of hysteroscopy, resectoscope and morcellator)	2
		5	Gastroscope and Colonoscope with scope cleaner	1
		6	Digital X-ray unit	1
		7	Digital mobile X-ray unit	1
	Ultrasonography unit with linear probe, probe for breast superficial tissue, vaginal probe and 3D/4D probe, stereotactic biopsy system	8	Ultrasonography unit with linear probe, probe for breast superficial tissue, vaginal probe and 4D probe, stereotactic biopsy system	2
		9	HLA typing	1
		10	Fully automated cryostat	1
		11	Echocardiography unit	1
		12	Electrolyte analyzer	1
		13	Blood gas analyzer	1
	Linear accelerator (high-energy)			

Source: Survey team

2-2-2-2 Overall Plan

The final requested equipment to be procured under the Project is mainly image diagnostic devices and endoscopes such as CT, MRI, Angiography systems and Endoscopes to public tertiary medical facilities in eastern Tehran, IHEH and RTAH, in order to enhance the quality of medical services regarding early detection and treatment of cancer and CVD. In regard to the replacement of existing equipment, it is confirmed that there is no problem for facility conditions such as installation space and power consumptions since medical facilities currently in use are subject to installation. On the other hand, for the installation of image diagnostic devices, refurbishment of the sites for installation of equipment in IHEH and new construction of three-story building in RTAH are planned to be implemented in the Iranian scope of works throughout the Project to secure appropriate installation places. Details of the Iranian scope of works are described in "2-2-2-4 Refurbishment and Electrical Planning as the Recipient Country's Scope of Works" and "2-2-3 Outline Design Drawing".

2-2-2-3 Equipment Planning

(1) Equipment Selection Criteria

Two target facilities narrowed down their request to 12 items in total through discussion with personnel in charge both MOHME and the target facilities. These items have been evaluated with the selection criteria described in "Table 2-2 Selection Criteria for Requested Equipment" in consideration with the priorities and quantities. The results of consideration for each equipment are shown in "Table 2-3 Consideration of Requested Equipment".

Table 2-2 Selection Criteria for Requested Equipment

Criteria	Points to be considered
1. Purpose of use	Equipment that contributes to improving the quantity and quality of the early detection and treatment of cancer and CVD at a tertiary medical facility.
2. Urgency	Equipment that is urgently needed for improvement in providing medical services as a tertiary medical facility and medical education as a teaching hospital among the equipment necessary for the early detection and treatment of cancer and CVD.
3. Technical level	Equipment that can be used by the medical staff with the technical level in the target facilities.
4. Operation system	Medical staff has been allocated or are expected to be allocated for appropriate operation.
5. Maintenance system	Equipment that can be managed and maintained by BME in the Medical Equipment Maintenance Department in the target facilities and the manufacturer's local agent can manage and maintain. (Daily check, periodic check and repair, etc.) In addition, spare parts and consumables can be procured from manufacturer's local agent.
6. Operation and Maintenance cost	Equipment that is relatively inexpensive to operate and maintain by the Iranian side.

Table 2-3 Consideration of Requested Equipment

Target Facility	Name of Equipment	Quantity	1. Purpose of use	2. Urgency	3. Technical level	4. Operation system	5. Maintenance system	6. Operation and maintenance cost	Overall evaluation
Imam Hossein Educational Hospital	Angiography system (for coronary vessels)	1	○	○	○	○	○	○	○
	Angiography system (for neuro/peripheral vessels)	1	○	○	○	○	○	○	○
	ERCP and Surgical Mobile C-arm X-ray unit	1	○	○	○	○	○	○	○
	Endo-sonography system	1	○	○	○	○	○	○	○
	Echocardiography unit	1	○	○	○	○	○	○	○
	Ultrasonography unit (4D)	2	○	x	○	○	○	○	x
	Surgical X-ray TV system	1	○	x	○	○	○	○	x
	Systemic X-ray CT simulator	1	○	x	○	○	○	○	x
	Digital mobile X-ray unit	2	○	x	○	○	○	○	x
	Digital X-ray unit	2	○	x	○	○	○	○	x
	Computed Tomography 16-slice	1	○	x	○	○	○	○	x
	Digital mammography unit with flat panel detector and stereotaxy system including workstation	1	○	x	○	○	○	○	x
Ruin Tan Arash Hospital	Computed Tomography 16-slice	1	○	○	○	○	○	○	○
	Magnetic Resonance Imaging 1.5 Tesla	1	○	○	○	○	○	○	○
	Digital mammography unit with flat panel detector and stereotaxy system including workstation	1	○	○	○	○	○	○	○
	Laparoscope set (consisting of hysteroscopy, resectoscope and morcellator)	2	○	○	○	○	○	○	○
	Gastroscope and Colonoscope with scope cleaner	1	○	○	○	○	○	○	○
	Digital X-ray unit	1	○	○	○	○	○	○	○
	Digital mobile X-ray unit	1	○	○	○	○	○	○	○
	Ultrasonography unit with linear probe, probe for breast superficial tissue, vaginal probe and 4D probe, stereotactic biopsy system	2	○	x	○	○	○	○	x
	HLA typing	1	○	x	○	○	○	○	x
	Fully automated cryostat	1	○	x	○	○	○	○	x
	Echocardiography unit	1	○	x	○	○	○	○	x
	Electrolyte analyzer	1	○	x	○	○	○	○	x
	Blood gas analyzer	1	○	x	○	○	○	○	x

(2) Equipment Planning

Consideration has been made based on the above "(1) Equipment Selection Criteria", while both Iranian and Japanese sides have made prioritization on the requested items. As a result, both sides agreed to procure the equipment listed in "Table 2-4 Planned Equipment List". Accordingly, The Cooperation plans to procure the equipment for early detection and treatment of CVD and cancer for IHEH, and the equipment for early detection and treatment of cancers for RTAH.

At IHEH, the plan is to install two types of Angiography systems and Echocardiography units. This will improve the quality of treatment and increase the number of cases such as PPCI including stenting, thrombolytic therapy for strokes, coil embolization for cerebral vessels and peripheral angioplasty. Introduction of an Echocardiography unit contributes to strengthening the diagnosis function. Regarding diagnosis and treatment of cancer, introduction of Endoscopic Retrograde Cholangiopancreatography (ERCP) and an Endo-sonography system that are not owned by the IHEH at present time enable diagnosis and treatment of cancer using minimally invasive measures. Therefore, it will be possible to treat a patient who needs an examination of digestive cancer including pancreatic cancer without referring to other hospitals.

At RTAH, the plan is to install CT, MRI and a Digital mammography unit for early detection of cancer and to introduce Laparoscope sets also useful for cancer's treatment for the contribution to strengthening algorithms of cancer diagnosis and treatment services. Especially, definitive diagnosis of breast cancer becomes possible at RTAH by adding a biopsy function to the Digital mammography unit as its component. In addition, introduction of Laparoscope sets enables a minimally invasive treatment of such as uterine myoma, uterine cancer, ovarian cancer, etc. Furthermore, replacement of the Digital X-ray unit and the Digital Mobile X-ray unit will contribute to screening, diagnosis and postoperative examination of lung cancer and abdominal cancer, while introduction of a Gastroscope and Colonoscope set will contribute to the diagnosis and treatment of upper and lower gastrointestinal cancer such as stomach and colorectal cancer. Therefore, the plan will realize the early detection of cancer in the general surgical and gynecological fields.

Table 2-4 Planned Equipment List

Target Facility	Code No.	Name of Equipment	Q'ty	Target disease
Imam Hossein Educational Hospital	1	Angiography system (for coronary vessels)	1	CVD
	2	Angiography system (for neuro/peripheral vessels)	1	CVD
	3	ERCP and Surgical Mobile C-arm X-ray unit	1	Cancer
	4	Endo-sonography system	1	Cancer
	5	Echocardiography unit	1	CVD
Ruin Tan Arash Hospital	6	Computed Tomography 16-slice	1	Cancer
	7	Magnetic Resonance Imaging 1.5 Tesla	1	Cancer
	8	Digital mammography unit (with flat panel and stereotaxy system including workstation)	1	Cancer
	9	Laparoscope set	2	Cancer
	10	Gastroscope and Colonoscope set	1	Cancer
	11	Digital X-ray unit	1	Cancer
	12	Digital Mobile X-ray unit	1	Cancer

Among the requested equipment, a morcellator comprising of the Laparoscope set is excluded from the set since manufacturers refrain from selling it worldwide after receiving notification by the U.S.A.'s Food and Drug Administration (FDA) in April 2014. In addition, an endoscope washer comprising of the Gastroscope and Colonoscope set is also excluded from the request of this Cooperation because, in RTAH, the existing endoscopes are used cleanly and safely by washing them by hands. Table 2-5 below shows specifications and purpose of use of all the equipment.

All the equipment will be principally procured in Japan or in Iran, and its model is to be the one whose consumables can be purchased in Iran if the equipment requires consumables for its operation. Basically, consumables are ensured to procure by the Iranian side; therefore, the Cooperation covers consumables at the amount of approximately one-month operation for the smooth start-up of the procured medical equipment.

Among medical equipment that may affect clinical operation significantly if its function stops in addition to the fact that equipment and repair costs are expensive, spare parts of X-ray related equipment are planned to be also included in maintenance contracts because such parts are basically difficult to store at local agents for the Iranian business practices. Manufacturer's warranty period of the equipment will start from the date of handover to the target facilities and valid for one year; the said maintenance contracts whose details are shown in Table 2-6 below.

Table 2-5 Specifications of Main Equipment

Code No.	Name of Equipment	Major Specifications	Q'ty	Purpose of use
1	Angiography system (for coronary vessels)	Specification : 1. Floor-mounted C-arm 1) Type: Floor mounted 2) C-arm rotation: 240°or more 3) C-arm sliding: -50° ～+45° or more 4) C-arm speed: 20°/s or more	1	To confirm the location and extent of stenosis/obstruction or perform dilation treatment by using catheter, for examination or treatment of conditions in which the myocardium is ischemic due to arteriosclerosis or thrombus stenosis/obstruction of the lumen of the coronary artery such as myocardial infarction and angina pectoris.
2	Angiography system (for neuro/peripheral vessels)	Specifications: 1. Floor-mounted C-arm 1) Type: Floor mounted 2) C-arm speed: 20°/s or more 2. Ceiling mounted C-arm 1)Type: Ceiling-mounted 2) C-arm sliding :-50°/45°or more	1	To perform intracerebral endovascular treatment, abdominal vascular treatment, and peripheral arterioplasty, by using Angiography biplane system.
3	ERCP and Surgical Mobile C-arm X-ray unit	Specifications: 1. C-arm 1) Focus to imaging intensifier distance: 90 cm or more 2) Positioner aperture: 50 cm or more 2. Duodenoscope 1) Field of view: 100°(Backward side viewing) or wider range 2) Bending direction: 4 directions with up, down, right and left 3) Bending angle: up 120° , down90°, right 100°and left 90° or more	1	To directly image and observe the biliary tract and pancreatic duct through injecting contrast medium using an endoscope under fluoroscopic view of surgical C-arm. It contributes to obtain various information such as endoscopic findings, bile duct images, and pancreatic ductal images and detect digestive cancer including pancreatic cancer.
4	Endo-sonography system	Specifications: 1. Video Ultrasound endoscope (Radial) 1) Field of view: 100° or more 2) Depth of field: 5 - 100 mm or wider range 3) Bending section: Up 130° Down 90° or more Left 90 Right 90° or more	1	An endoscope equipped with an ultrasonic device used to perform ultrasonic examination from inside the digestive tract. The atmosphere, abdominal wall, fat of the abdominal cavity, and bone do not impede image generation, and high-resolution observations are possible. Also allow inspection of sites such as the pancreas which are difficult to observe.
5	Echocardiography unit	Specifications: 1. Main unit 1) Scan mode: Liner scan, Sector scan, Convex scan 2) Monitor: LCD color 17 inch or more 3) Viewing mode: B-mode, M-mode, Spectrum Doppler, Doppler, Color Doppler 2. Sector probe 1) Type: Sector 2) Frequency: 1.8-4.2MHz or wider range 3.TEE Probe: 3.5 – 7.5 MHz or wider range	1	To observe heart disease by insertion of a tube that emits ultrasonic sounds from the mouth into the esophagus or stomach. Measures heart size and thickness of heart wall and monitors blood flow and presence of clot(s) in the coronary artery.

Code No.	Name of Equipment	Major Specifications	Q'ty	Purpose of use
6	Computed Tomography 16-Slice	Specifications: 1. Gantry 1) Number of detectors: 8 or more 2) Scan area: Whole body including head 3) Scan system: 360°continuous rotate 4) Scan types: Helical, Dynamic and Conventional scan	1	Since it is a multi-slice (16-slice) device, it is not necessary for patients to hold the breath for a long time and high-speed shooting is possible for whole body. It is used for early detection for intracranial bleeding, cerebral vascular disturbance such as cerebral aneurysm, lung and gastrointestinal cancers.
7	Magnetic Resonance Imaging 1.5 Tesla	Specification: 1. Main unit 1) Operating field: 1.5 Tesla or more 2) Magnet bore diameter: 60cm or more 3) Shim coil: Normal conducting coil 4) Magnet Shielding: Straight shield 5) EMI Shielding: 99% shielding factor or90 dB shield factors	1	Used for imaging inside the living body by means of nuclear magnetic resonance. Applications include analysis using highly accurate three-dimensional images and confirmation of soft tissue lesions, etc. This project contributes to the diagnosis and response evaluation of cancer in the liver, prostate, uterus, ovary and breast[6] etc. in particular.
8	Digital mammography unit (with flat panel detector and stereotaxy system including workstation)	Specifications: 1. X-ray generator 1) Type: High-frequency inverter system or equivalent 2) Max. X-ray tube voltage: 49kV or more 3) Max. X-ray tube current: 200mAs or more	1	X-ray unit dedicated to breast cancer. Diagnostic accuracy of calcified lesions with possible cancer is higher than ultrasonography. By using the biopsy device, definitive diagnosis is also possible through pathological examination.
9	Laparoscope set	Composition: Main unit: (Including telescopes), Hysteroscope, Resectoscope, Set of Surgical instruments, Electrosurgical unit, Insufflator, etc. Specifications: Telescope A 0°,Working length: 30～32cm, Telescope B 30°, Working length: 30～32cm, etc.	2	Used mainly in general surgery and gynecology, as well as examination and treatment of lesions in digestive organs, uterine myoma, uterine cancer, ovarian cancer, etc. Laparoscope inserted into the peritoneal cavity from the body's surface skin by opening about three holes in the abdomen without laparotomy.
10	Gastroscope and Colonoscope set	Specifications: 1. Gastroscope 1) Field of view: 140°or more 2) Working length: 1,030mm or more 3) Range of tip bending: Up 210°, Down 90°, Right and Left 100°or more 2. Colonoscope 1) Field of view: 140°or more 2) Working length: 4～100 mm or wider range 3) Range of tip bending: Up and Down: 180°/180° or more, Right and Left 160°/160° or more	1	The gastroscope is inserted into the mouth and observes the esophagus, stomach and duodenum, and used for special examination and treatment such as endoscopic resection and ultrasonic endoscopy. The colonoscope is inserted into the anus and observes the large intestine or performs endoscopic resection. It is used for early detection and treatment of gastrointestinal cancer.

[6] MRI using a contrast medium performs important role in order to differentiate tumor at breast and normal breast tissue for diagnostic of treat cancer.

Code No.	Name of Equipment	Major Specifications	Q'ty	Purpose of use
11	Digital X-ray unit	Specifications: 1. X-ray generator 1) Type: High-frequency inverter system 2) Power: 50kW or more 3) Max. tube voltage: 150kV or more 4) Max. tube current: 630mAs or more 2. X-ray tube unit 1) X-ray tube: Max. tube voltage 150kV or more 2) Max. anode heat storage: 140kJ (200kHU) or more	1	Used to obtain general X-ray images such as those of the chest and abdomen at low doses. Allows instant reading and diagnosis after shooting without film.
12	Digital mobile X-ray unit	Specifications: 1. Main unit 1) X-ray control unit: Inverter type 2) X-ray generator (with HT cable) (1) kV range: 40～100kV or more (2) mA range: 35mA or more (3) mAs range: 0.25～25mAs or more	1	Used for patients such as postoperative ICU patients who are unable to move to the X-ray room, to take chest or abdomen X-ray images at low doses by moving the unit.

Table 2-6 Maintenance Contracts of Equipment planned under the Cooperation

Name of Equipment	Contents of Warranty / Condition of Maintenance Contract		
	Warranty period (First year after the handover of the equipment)	Maintenance contract (Second year after the handover of the equipment)	Maintenance contract (Third year after the handover of the equipment)
-Angiography system (for coronary vessels) -Angiography system (for neuro/peripheral vessels) -CT -MRI	-Check, repair and exchange correspondence at the time of equipment defects with proper use - Periodic check complies with the contents of the manufacturer's regulations - On-call repair	- Periodic checks and maintenance services (2 times/year) - On-call correspondence twice a year, after that, it will be for compensation - Replacement of X-ray tube, (one time when necessary) * Excluding MRI 1.5 Tesla - Two-year contract period after one year warranty period	
Digital mammography unit		- Periodic checks and maintenance services (2 times/year) - On-call correspondence twice a year, after that, it will be for compensation - One-year contract period after one year warranty period	

2-2-2-4 Refurbishment and Electrical Planning as the Iranian Scope of Works

(1) Indispensable Refurbishment Work to be implemented by the Recipient Country for the Project

For the installation of major equipment such as two types of Angiography systems for IHEH and CT and MRI for RTAH, the installation environment needs to be prepared by facility refurbishment, etc. In this Project, refurbishment work and other related works shall be carried out by the Iranian side. The following table shows an overview of the refurbishment work and other related works as an obligation of the Iranian side.

Table 2-7 Overview of the Environment Preparation and Facility Refurbishment for Installing Equipment procured under the Cooperation (Obligation of Recipient Country)

Name of Equipment	Target facility and location	Outline of required new construction or refurbishment work
MRI (1.5 Tesla) and CT (16-slice)	Courtyard parking of RTAH	· New three-story building from B2 floor to ground floor · MRI on B2 floor and CT on B1 floor, reception on the Ground floor, with assumed access by the elevator from the existing cafeteria on ground floor.
Angiography system (for coronary vessels)	Cardiovascular ward of IHEH (2nd floor)	Preparation of a new angiography room (single plane/floor-mounted) by refurbishing the current doctor's office and store room. Existing control room also expanded.
Angiography system (for neuro/peripheral vessels)	Radiology department of IHEH (B1 floor)	Refurbishment of the current recovery room into an angiography room (Biplane). Radiation protection already installed. Refurbishment of the ceiling is necessary for installing ceiling-mounted C-arm. The control room to be shared with the adjacent existing angiography room.

The proposed construction site of the new building of RTAH has physical constraints (facing a courtyard parking, for example) in addition to its limited space, and requires attention for planning the B1 and B2 floor where CT and MRI are proposed to install. In order to confirm the feasibility of the plan, layout plan was proposed (see "2-2-3 Outline Design Drawing") and consulted with the engineers of manufacturers' local agents on technical matters concerning delivery planning, shielding materials, etc. Based on the above consultation, the Iranian side has been informed necessity of a certain distance to be ensured between an elevator and the MRI's magnet, and of preparation of a recovery room for patients after contrast injections.

(2) Electrical Work

The power supply required for the equipment described in (1) will be prepared in the Iranian scope of works to fulfill requirements such as power consumption. For image diagnostic devices such as CT and MRI, and UPS corresponding to each power consumption will be procured under the Japan's Grant Aid while the preparation of an emergency power supply is included in the Iranian scope of works.

(3) Overall Goals and Project Purpose

When installing the Digital X-ray unit and Digital mammography unit planned for RTAH, the existing equipment in the rooms needs to be disposed or transferred to other locations.[7] Since the

[7] According to interviews from Medical Equipment Maintenance Department of Tehran University of Medical Sciences, broken medical equipment which is necessary to be disposed has to meet the conditions below;

- The relevant equipment has been installed for more than 10 years;
- Further repair of the relevant equipment is impossible because of difficulty in procurement of spare parts.

Meanwhile, usable parts of the relevant equipment are to be removed when its disposal for further repair of other equipment.

transfer and disposal of existing equipment should be planned so that the provision of services to patients will not be delayed/disturbed, the Iranian side shall carry this out before the arrival of the new equipment procured under the Cooperation.

2-2-3 Outline Design Drawing

Figures 2-1 to 2-3 show facility construction/refurbishment plans to be carried out by the Iranian side.

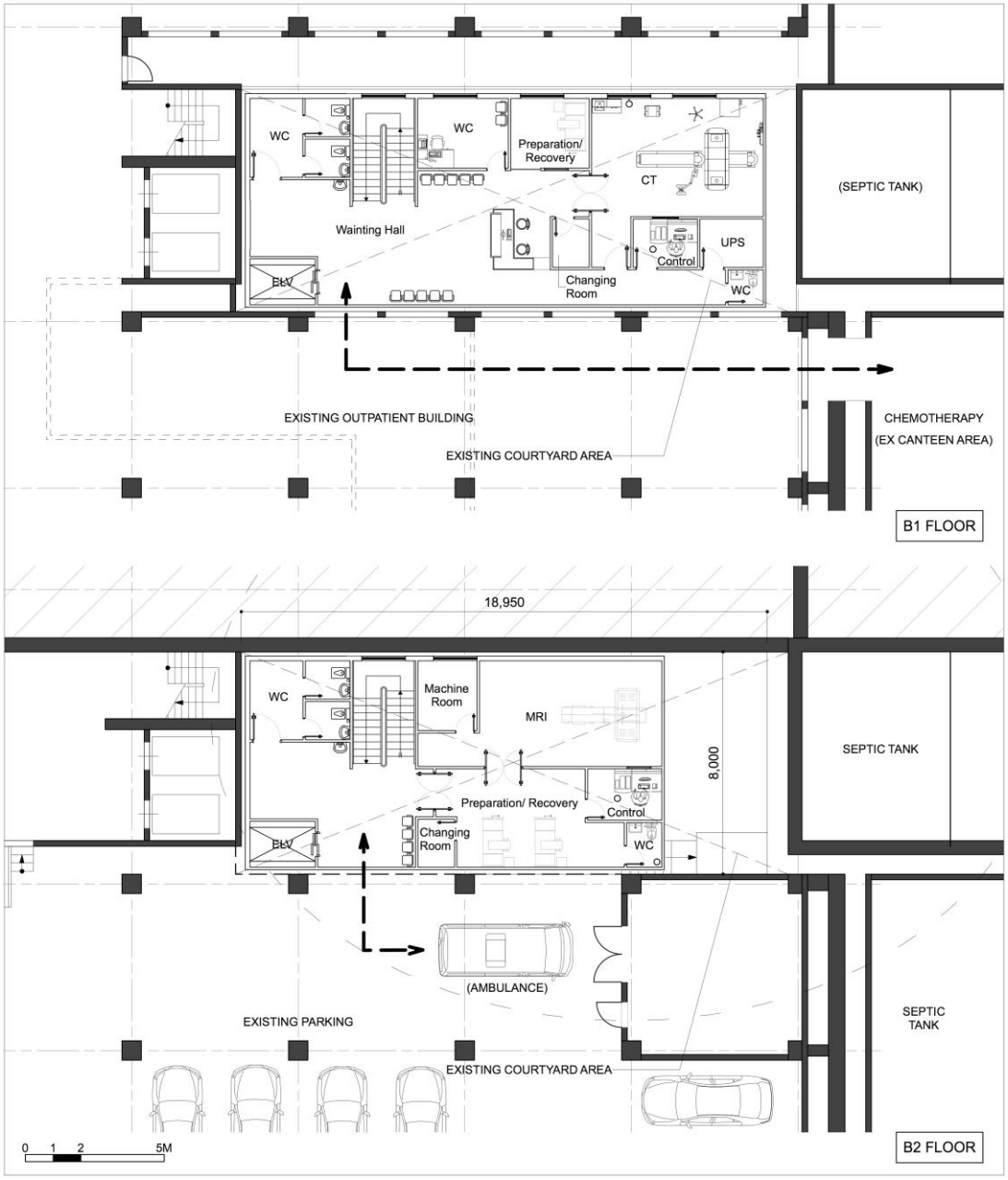

Figure 2-1 Proposed Plan of the New Building of RTAH, S=1:250

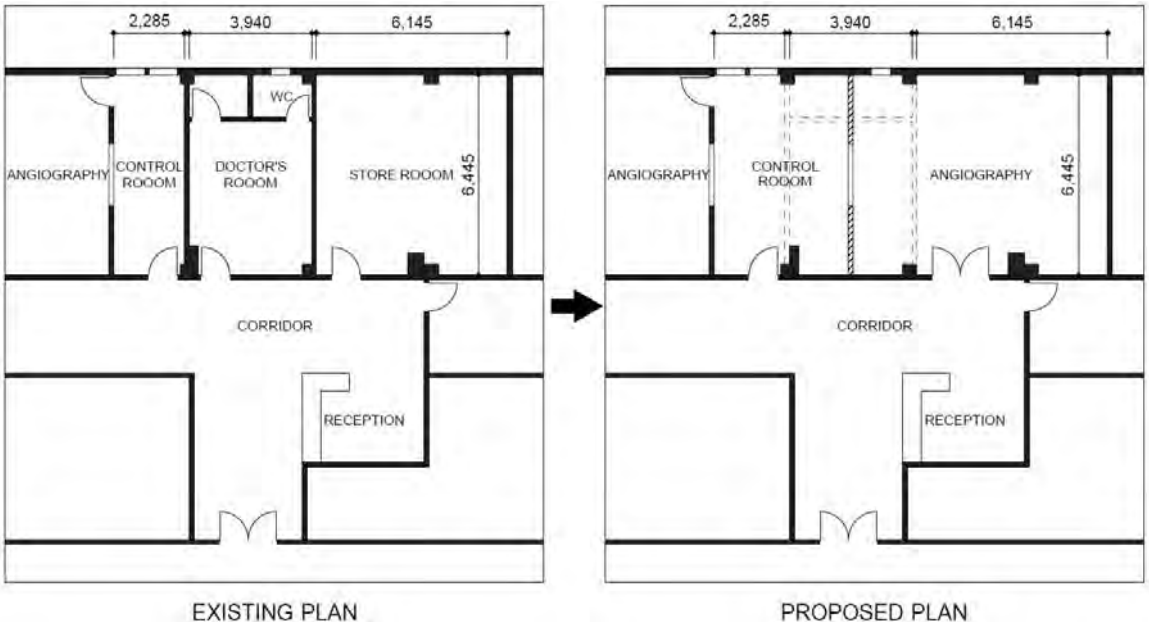

Figure 2-2 Cardiovascular Ward (Second floor) of IHEH, S=1:250

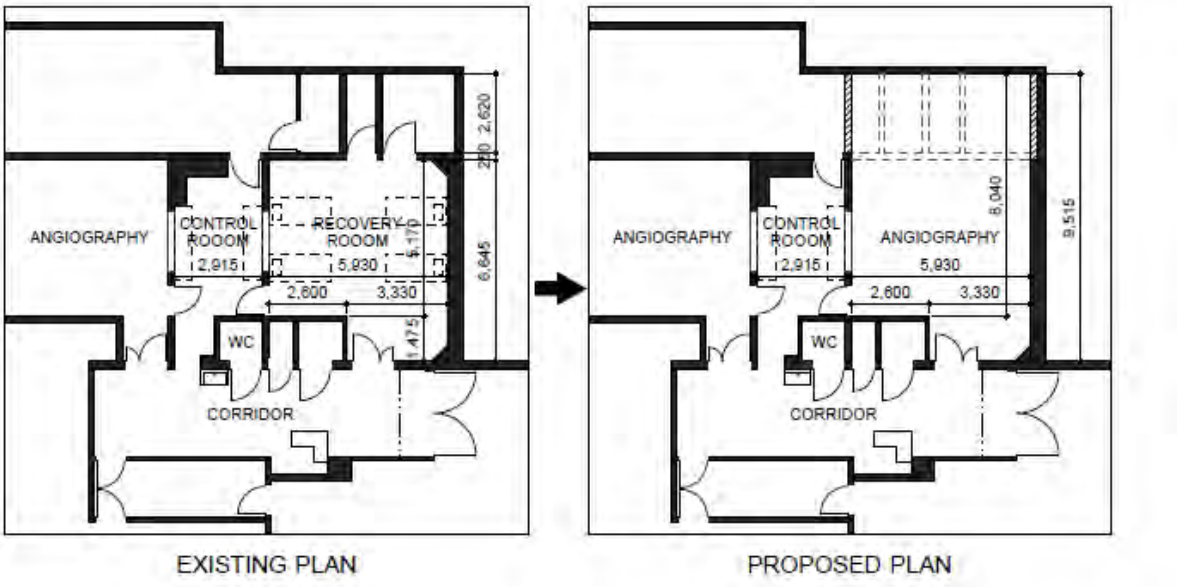

Figure 2-3 Angiography Unit (B1 floor) of IHEH, S=1:250

2-2-4 Implementation Plan

2-2-4-1 Implementation Policy

(1) Essentials of Project Implementation

The Project shall be carried out within the framework of Japan's Grant Aid scheme. Thus, after the GoJ approves the Project at a Cabinet meeting, the GoJ and the GoI shall sign an Exchange of Notes (E/N), and the GoI and JICA shall sign a Grant Agreement (G/A). Then, the Line Ministry on the Iranian side shall conclude a consultancy agreement with the Consultant in charge of project implementation, and the Consultant shall commence the Detailed Design, duties for the bidding, and supervision of the project implementation. After completion of the Detailed Design,

bidding will be held to decide a supplier that is a Japanese corporate body. The Supplier decided upon in the said bidding shall carry out procurement for equipment and installation work.

(2) Framework for Project Implementation

The following four parties mentioned below from 1) to 4) will carry out the Project.

1) Line Ministry and Executing Agency

The Line Ministry for the Project is International Affairs Department (IAD) of MOHME, while the executing agency shall be Shahid Beheshti University of Medical Sciences and Tehran University of Medical Sciences, which supervise target facilities. MOHME shall coordinate with all relevant organizations to ensure smooth implementation of the Project and appropriate matters to be borne by relevant organizations. On the other hand, the Line Ministry shall supervise the executing agency.

2) The Consultant

As regulated by Japan's Grant Aid scheme, a Japanese consultant (the Consultant) shall conclude a consultancy agreement with IAD of MOHME for the following services. The agreement will come into force after concurrence with JICA. Prompt conclusion of the consultancy agreement after signing of the G/A is important for smooth project implementation.

(i) Detailed Design Stage

Based on this Preparatory Survey, the Consultant finalizes the details of the equipment planning and prepares a set of bidding documents including technical specifications and drawings, if necessary.

(ii) Bidding Stage

The Consultant shall attend the bidding process of the Supplier conducted by the said Line Ministry. Here, the Consultant supports the executing agency for administrative procedures necessary for each contract and reporting tasks to the GoJ.

(iii) Procurement Supervision

The Consultant shall confirm and supervise if the Supplier implements contracted works properly in accordance with their Supplier's Contract.

3) The Supplier

An equipment supplier (the Supplier) selected through the bidding process shall procure equipment; delivery, installation/setting-up, commissioning, operation training, handover work and performance of maintenance contract are included. Under the Cooperation, the Supplier is also required to conduct shielding work prior to the delivery of the MRI in coordination with the contractor of the new construction work to be conducted by the Iranian side.

According to Japan's Grant Aid scheme, the Supplier is limited to a Japanese corporate body and will be selected by a competitive bidding. The bidding will be determined after negotiating with the lowest price bidder who satisfies the technical requirements. IAD of MOHME as the Line Ministry shall conclude a supplier's contract with the Supplier selected by the above bidding and receive verification from JICA.

4) Japan International Cooperation Agency (JICA)

JICA shall conclude a G/A with the Iranian Line Ministry and supervise the implementation to ensure that it will be appropriately carried out under Japan's Grant Aid scheme. JICA shall consult with the executing agency if necessary, and facilitate the project's implementation.

2-2-4-2 Implementation Conditions

(1) Local Situations and Regional Characteristics

1) Maintenance Capabilities of Local Agents of Medical Equipment

In Tehran, the capital city of Iran, there is registered local agents of medical equipment made in both Japan and Europe, and they deal with equipment planned under the Cooperation as well as its spare parts and consumables. These agents can also provide maintenance services through maintenance contracts; for example, in IHEH, image diagnostic devices such as CT Simulators in Cancer Center and medical equipment used in operation theaters and Intensive Care Unit (ICU) have been repaired under such contracts. As after-sales services, these agents are, based on MOHME's regulations, obliged to go to the site within 24 hours in Tehran city in order to confirm the status of medical equipment on-site if it breaks down. Therefore, to meet the regulations, each manufacturer employs and deploys sufficient numbers of certified engineers who are well trained by manufacturers. Accordingly, maintenance of the planned equipment under the Cooperation can be fully covered by utilizing locally established resources with skills and knowledge.

2) Local Construction Companies

In Iran, construction companies are classified in five grades by the total value of contracts. Apart from this, each university of medical sciences has a registration list of companies with experience in hospital construction as potential contractors. Contracts of construction and refurbishment works are made by bidding process or negotiated contracts depending on the price.

Both of the new construction for RTAH and the refurbishment work for IHEH are anticipated to be negotiated contracts since the scale of the work is small. Generally, for construction projects architectural firm(s) is/ are appointed for designing work, and a contractor is in charge of both designing and construction works in most cases of small refurbishment works.

The local agent of the medical equipment manufacturer selected by the bidding process shall prepare and submit to target facilities an installation proposal document[8] containing a

[8] For MRI to be procured in this Cooperation, the specifications of shields and quenching tubes are also

recommended layout and required conditions for building, electrical and other facilities. The architects appointed by target facilities for the construction or the refurbishment work shall carry out the designing works in accordance with the document to fulfill the requirements. Particularly for the new construction of RTAH, the designing and equipment layout shall be determined through discussions between the agent and architects before the approval by the hospital. The contracted construction companies shall carry out the work in accordance with the design drawings to prepare the required environment for the equipment.

(2) Tax Exemption and Refund Procedure

Tax exemption and refund of taxes and levies are applicable to equipment and services of maintenance contracts as well as of facility refurbishment work when they are all procured under Japan's Grant Aid scheme. Tax refunds are applicable when these items are procured domestically in Iran. In order to advance the procedure smoothly, the Japanese side is required to submit the Master List of equipment shipped for this Cooperation to Heyat Omana Arzi (HOA)[9], a procurement organization of medical equipment from IAD of MOHME. The submitted documents are then reviewed and the Japanese side receives approval. After that, the Treasury Department of the MOHME issues a tax exemption permit and a tax refund permit.

For customs clearance and tax exemption procedures, the Japanese side also submits the following shipping documents to HOA, such as a pro forma invoice, product catalog, packing list, shipping inspection certificate, Letter of Credit (L/C), Bill of Lading (B/L), certificate of origin, insurance policy, import permit, other necessary ministry documents, etc. Since these procedures take about five to seven days, it is necessary to prepare and submit them in advance with sufficient time. At the same time, the Iranian side is requested to cooperate closely with each related authority in order to ensure the procedures advance smoothly.

Under the Cooperation, HOA will bear custom clearance fee, and all custom duties[10] are exempted by its advanced application. At the time of proceeding exemption of tax and custom clearance fee, it is necessary to submit tax exemption certificate together with pro forma invoices. On the other hand, for medical equipment and UPS necessary for proper operation of medical equipment procured in Iran, receipts which state the purchased price and tax values separately shall be attached to the tax refund permits.

(3) Other Notes on Procurement of Equipment

1) Since prolonging the time for EAR approval procedures can cause delays in the implementation period of this Project, the bidding documents should describe points to be

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included in this installation proposal document.

[9] The HOA is a nonprofit organization that has a characteristic of a public procurement organization under MOHME, conducting procurement of medical equipment to public medical facilities, its customs clearance, and transport work.

[10] In Iran, custom duties are determined on the basis of Export Import Regulations Act, Executive Ordinance of Export Import Regulations Act and Circulation Letter by the Iranian Cabinet's decision. Rate of duties are determined in accordance with HS codes (worldwide unified codes based on the commodity classification for foreign trade statistics, which is basically used when cargo is exported/imported).

considered to explain the necessary application for acquiring permission at an early stage and relay it to bidders in bidding documents as procurement risks in advance. In case planned procurement, equipment contains export prohibited spare parts, it is a policy to confirm that the medical equipment manufacturers have acquired export licenses at the stage of preparing the bidding documents.

2) The Supplier will investigate the two target facilities up to one month before the commencement of refurbishment and the time of delivery of the equipment, and confirm the progress and completion of the work to be carried out by the Iranian side such as refurbishment/construction of the facilities, delivery routes and appropriate storage of all the equipment, planned installation places, electricity preparation, and so on. Then, the Supplier will prepare and follow an implementation schedule of delivery, setting-up/installation and operational training of each procured equipment.

2-2-4-3 Scope of Works

The Project shall be implemented through Japan's Grant Aid scheme under mutual cooperation between Japan and Iran. Therefore, the Japanese and Iranian sides have discussed the scope of works of Iran and Japan on the procurement/installation of the equipment, refurbishment and new construction of facilities. These matters are summarized as follows;

(1) Japanese Scope of Works

- Procurement, aviation/marine transportation to the ports of discharge, and insurance for aviation/marine transport insurance of the equipment;
- Setting-up, installation, commissioning and adjustment of the equipment;
- Operation training and maintenance of the equipment;
- Shielding work for MRI room.

(2) Iranian Scope of Works

- Unloading, customs clearance, tax exemption at the ports of discharge and procedure for tax refund;
- Work such as refurbishment, new building construction, removal of existing equipment, supply of necessary electric capacity, in order to ensure an installation place in the target facilities for the equipment to be procured;
- Provision of temporary room(s) with locks and air conditioner to store the procured equipment before its setting and/or installation.

2-2-4-4 Consultant Supervision

(1) Policy for Procurement Supervision

The Consultant shall fully take into account Japan's Grant Aid scheme, and objectives and contents of the Detailed Design of the Project, and perform its duties throughout the Cooperation,

ranging from the Detailed Design, activities related to procurement bidding, supervision of equipment procurement, handover of equipment to the executing agencies and supervision of execution of maintenance contracts. For the procurement under the Project, the Consultant shall smoothly and accurately contact and report to personnel in charge at relevant organizations in both countries, and ensure that equipment procurement will be completed without any delay, but with predetermined quality.

(2) System and Contents of Procurement Supervision

To manage the progress of the entire Cooperation and supervise the equipment procurement, the Consultant plans to dispatch a Chief Consultant, a Resident Procurement Supervisor and an Inspection Engineer. The Consultant shall cooperate with MOHME and the procurement supervision will be performed mainly by the Resident Procurement Supervisor and the Inspection Engineer. In addition, the Consultant shall submit to the GoJ necessary information such as progress of the Project, payment arrangement, situation of the handover of the equipment, etc. The procurement supervision will be performed by works mentioned below;

1) Chief Consultant (Japanese): 1 person

- To supervise the entire Cooperation and the overall schedule of equipment procurement;
- To confirm and monitor the progress of refurbishment and new building construction to be carried out by the Iranian side as well as installation of the equipment through the Resident Procurement Supervisor's report. If any disturbance/problems occur during the refurbishment/construction period, the Chief Consultant will ask IAD of MOHME and each medical university to strengthen monitoring to avoid delays that may be caused by the above situation;
- To obtain approval from the Iranian side on reports that explain the entire implementation of the Project including certificates of final inspection and handover of the equipment issued by the Chief Consultant.

2) Resident Procurement Supervisor (Japanese): 1 person

- The Resident Procurement Supervisor shall be dispatched to Iran three times to manage the progress of the entire Cooperation and supervise the overall schedule of Equipment procurement;
- To visit target facilities before commencement of the new building construction and refurbishment to be borne by the Iranian side immediately after the Supplier is determined; at the same time, the Resident Procurement Supervisor explains/reports to Head of Hospital and personnel in charge at the target facilities by presenting the layout planning drawn by manufacturers to obtain approval for installation requirements of the equipment to be procured;
- To confirm the progress of the new building construction and refurbishment to be carried out by the Iranian side in order to arrange the commencement of delivery and installation of the

equipment. In case any difference from the predetermined drawings occurs and/or there is a possibility of hindering the equipment installation due to delays, the Resident Procurement Supervisor will advise the Iranian supervisor and/or Head of Hospital and personnel in charge at the target facilities to improve the situation in order to ensure the proper installation environment of the equipment;

- To schedule the appropriate delivery times of the MRI's magnet as well as the shielding work for the new building to be constructed for the installation of CT and MRI in RTAH through communication with personnel from RTAH, the local contractor and the manufacturer's local agent;
- To supervise a series of procurement works such as unloading, unpacking, setting-up/installation and operation training for each piece of equipment after its arrival in Tehran;
- To check the result of magnetic field measurements after the shielding work of the new MRI room, and confirm the room's conformity with the requirements of the installation environment.

3) Inspection Engineer (Japanese): 1 person

- Inspection Engineer would be dispatched to Iran three times in order to evaluate the state of maintenance service provision and support the maintenance plan for the next fiscal year for the equipment procured under the Project with maintenance contract. If any defect is found, the Inspection Engineer shall instruct the manufacturers or the Supplier to perform maintenance services;
- In order to promote project implementation on schedule, Inspection Engineer will work in Japan and conduct various inspections including confirmation of drawings of image diagnostic devices, observing pre-shipment inspections to be carried out by an assigned inspection agency, and so on. Then, the Inspection Engineer will prepare inspection reports and plan for equipment installation up to the handover.

2-2-4-5 Quality Control Plan

(1) Equipment to be Procured

Local agents who deal medical equipment procured under the Cooperation shall be already registered in the Iranian market.

- Iran manages thoroughly distribution of medical equipment in order to ensure the quality of medical services in Iran. Medical Equipment Department, Food and Drug Organization of MOHME manages and looks for compliance with FDA[11] certification or CE marking[12] in EU countries and ISO Quality Management System (13485 and 9001, etc.) related to

[11] Advance registration, notification or approval with FDA is required in order to sell medical equipment in the U.S.A. market.

[12] It refers to a mechanism in which the manufacturer self-declares that it has met the essential conditions of the European Medical Device Directive for its products. It is a regulatory requirement required to sell to the EU market.

manufacturing of medical equipment.

- In the case of a Japanese product to be procured, its manufacturer must ship the equipment complied with Good Manufacturing Practices (GMP), Good Quality Practice (GQP) and Good Vigilance Practices (GVP) prescribed in the Pharmaceutical Affairs Law of Japan.

(2) Procurement of Shield Materials for Installing in MRI room

Procurement of materials for magnetic and/or radio wave shielding is required to be installed in the new MRI room. The materials shall be the ones of a highly reliable quality that MRI manufacturers have experience in installing.

2-2-4-6 Procurement Plan

(1) Eligible Country of Origin

Equipment shall be principally procured in Iran or Japan. However, some of the equipment may be procured from third countries, if preferable. Table 2-8 shows the equipment to possibly be procured from third countries.

Table 2-8 Equipment to be possibly procured from Third Countries

Code No.	Name of Equipment
3*	ERCP and Surgical Mobile C-arm X-ray unit
9	Laparoscope set
11*	Digital X-ray unit

*) Equipment described in codes No. 3 and 11 is to be made in third countries, although manufacturers of both products are located in Japan.

(2) Transport of the Equipment

Equipment to be procured from Japan and/or third countries is planned to be packed in export packing cases/crates to avoid moisture during marine transportation and will be shipped from each loading port by container ships. The consignee of the Project is to be HOA. Once unloaded at Bandara Abbas Port in Iran, the equipment shall be transported in bond by land up to Tehran for custom clearance, and reloaded onto small trucks for delivery to the destination, namely, the two target facilities. At the target facilities, a crane shall carry heavy equipment such as the MRI's magnet and the CT's gantry into designated rooms. Meanwhile, the MRI's magnet shall be transported by air to Tehran Imam Khomeini International Airport since the liquid helium in the magnet may vaporize during its transportation.

The period of transportation is estimated as follows: 1.5 months for marine transportation, five to seven days for inland transportation from Bandara Abbas Port to Tehran Customs, three working days for customs clearance, then one day from Tehran Customs to target facilities. The road conditions are good, so there is no problem for inland transportation. In the case of air transportation, the equipment is to be delivered by land to the target facilities after customs clearance at the Tehran airport.

Insurance during inland transportation will be covered by an Iranian or a Japanese private insurance company. After landing at the port, insurance would cover the period from unpacking, delivery, installation, commissioning up to the handover of the equipment, and any damage/malfunction during this inland transportation is recognized, the insurance will be applied to such cases.

2-2-4-7 Operational Guidance Plan

For setting/installation work of the equipment, the Supplier shall make arrangements to send engineers to the target facilities through manufacturers of the medical equipment or their local agents, and the engineers shall conduct initial and operation training (including guidance on maintenance) on the equipment. This operation training includes guidance regarding medical application software of MRI, CT and Angiography systems.

2-2-4-8 Soft Component (Technical Cooperation) Plan

Since medical technology and operation and maintenance systems of the equipment are established in the target facilities, it was concluded that there will be no hindrance after the handover of the equipment without a soft component, which designed to enhances knowledge and technology/skills to manage the maintenance of medical equipment, to utilize the equipment and application software and to read images taken by the MRI. Therefore, the soft component is not included in the Cooperation.

2-2-4-9 Implementation Schedule

After the conclusion of E/N between the both governments, it is expected that the Detailed Design/Bidding Stage and Procurement Stage will take about six and eight months, respectively; in total, it will take 14 months up to the handover. Furthermore, the image diagnostic devices are to be procured with few years of maintenance contracts that start from the completion of the manufacturer's warranty period; therefore, the entire schedule of the implementation will finish within three years (36 months) after the handover of all the equipment.

In order to implement the project with following schedule, Iranian side works needs to be completed step by step, details are shown below;

1) Time of Bidding Notice– Iranian side will complete the foundation work of RTAH
2) Time of Pre-shipment Inspection– Iranian side will complete whole construction and refurbishment works.

Figure 2-4 shows the Project implementation process including the Iranian side work.

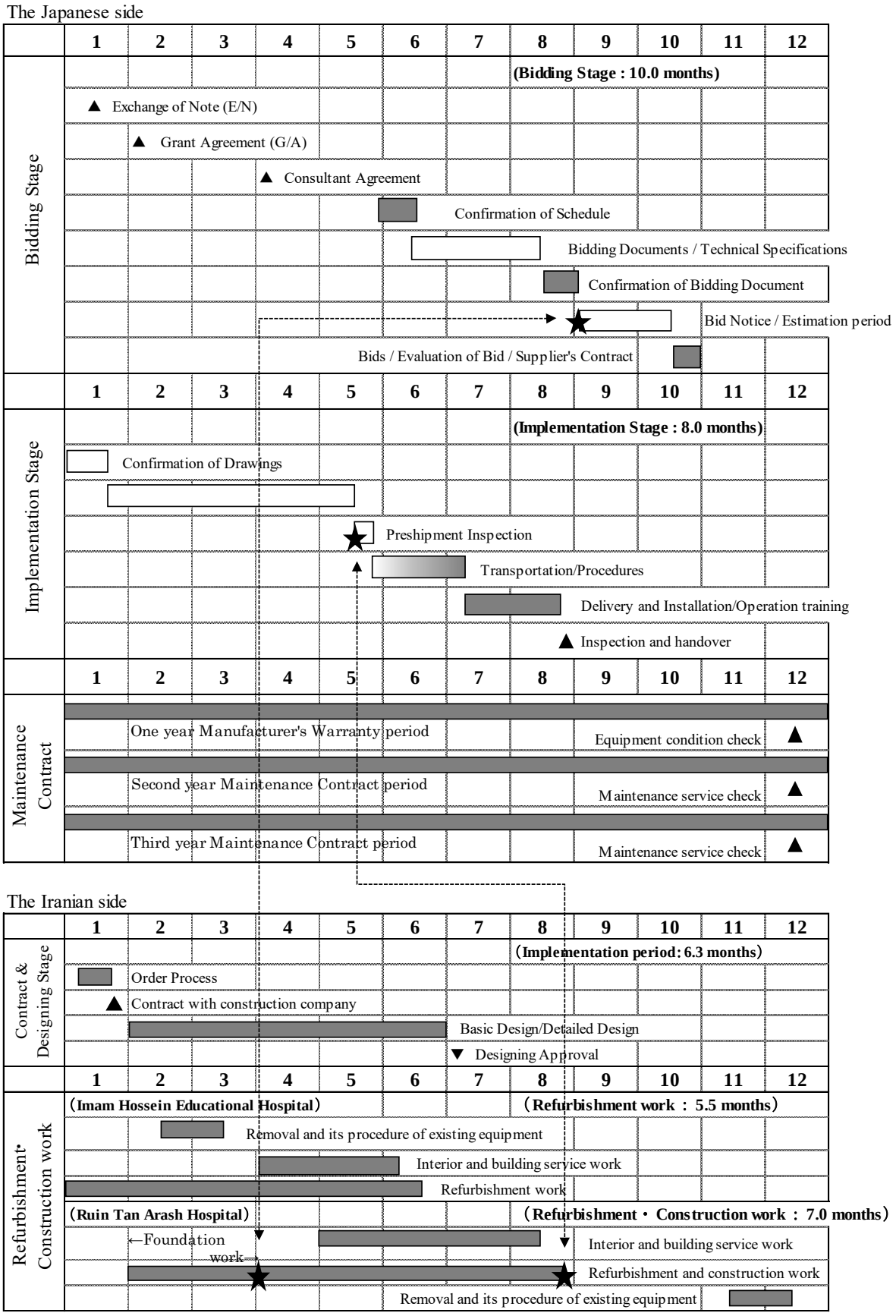


Figure 2-4 Implementation Schedule

2-3 Obligations of Recipient Country

The Iranian side shall cover the following obligations involved in implementation of the Project;

(1) Equipment Procurement Related

- Unloading, customs clearance, tax exemption at the unloading port and procedure for tax refund;
- Refurbishment for equipment installation environment, new building construction (including using electricity of the required capacity);
- Removal of existing equipment to secure equipment installation space, securing necessary power supply;
- Provision of temporary storage place for planned equipment within target facilities (air-conditioning room with lockable door).

(2) Maintenance Related

- Procurement of consumables, spare parts, medicine, and necessary medical materials such as stents for the operation and maintenance of equipment;
- Proper and effective use and maintenance of procured equipment under this project, and securing necessary personnel for such equipment.

(3) Procedure Related

- To pay fees for Banking Arrangements (B/A), Authorization to Pay (A/P) and its modification;
- To issue various authorizations required for the implementation of this Project such as various licenses and official recognition, and to arrange exemption from customs duties, Value Added Tax (VAT) and other domestic taxes to Japanese personnel, Japanese corporations and third country officials engaged in the Project;
- To provide quick responses to taxation and customs procedures of imported materials procured by Japan's Grant Aid;
- To provide any convenience necessary for Japanese and other people from third countries to enter and stay in Iran for the Project implementation;
- To bear all the necessary expenses other than those covered by Japan's Grant Aid project.

2-4 Project Operation Plan

IHEH and RTAH will conduct operation, maintenance and management of equipment and facilities to be developed through this cooperation.

(1) Medical Equipment User

The equipment procured under this Cooperation will be basically placed/installed in existing facilities and departments of target facilities, although refurbishment and new construction are to be done among the Cooperation in consideration of installation environment of some medical equipment. In the existing facilities and departments, the operation and maintenance including daily checks of the existing equipment has been performed by staffs such as specialists, nurses and co-medicals like

radiographer and laboratory technicians.

Most of the equipment to be procured under the Cooperation is aimed to replace with existing malfunctioning equipment and/or to strengthen functions of some existing equipment; therefore, there are almost no new techniques necessary for operation and maintenance. Furthermore, since the radiologist at RTAH has experiences in operation and maintenance of CT and MRI, RTAH's radiographers without such experiences could operate and maintain through institutionalization and practices of those maintenance systems including calibrations. Thus, there is no need to assign new medical personnel with special technique for operation and maintenance of equipment procured under the Project. In conclusion, it can be said that the existing medical personnel would be able to operate and maintain procured medical equipment properly after the handover of such equipment.

(2) Engineer in Operation and Maintenance of Medical Equipment

The BME in Medical Equipment Maintenance Department at target facilities is assigned to instruct daily checks and performance management including calibration for medical equipment to be procured under the Cooperation. Accordingly, the BME shall instruct end-users cases when equipment malfunctions and how to conduct troubleshooting and daily checks as preventive maintenance. For these reasons, it is possible for both target facilities to maintain and manage the procured medical equipment properly after completion of the Cooperation.

(3) Operation of Medical Equipment

Regarding consumables and spare parts of medical equipment, there are three types of procurement. Firstly, consumables and spare parts commonly used in every hospital are procured in a lump by HOA. Secondly, medical materials such as stents, guidewires and so on, which are used in any cardiology department, are procured by universities of medical sciences after totalization of necessary quantities in each affiliated hospital by medical equipment maintenance department. Finally, consumables and spare parts used individually in each hospital are procured by each hospital based on necessary quantities calculated according to each department's performance after getting approval of the hospital administration. In Iran, public hospitals could manage operational budget from hospital revenue by three different procurement routes of spare parts and consumables mentioned above. In case budget is in short tentatively, such a hospital can borrow and return it when there is sufficient revenue. Thus, it is possible to operate and maintain the procured equipment after completion of the Cooperation.

The above situation of operation and maintenance of medical equipment explains that technical level of end-users and maintenance engineers of medical equipment are ensured and purchase routes of spare parts and consumables are established. Furthermore, it is expected to strengthen technique and a system of maintenance activities by the equipment end-users through the Project. Therefore, the operation and maintenance of the procured medical equipment in the both target facilities could be performed properly after completion of the Cooperation.

2-5 Project Cost Estimation

2-5-1 Initial Cost Estimation

(1) Estimated Cost to be Borne by the Government of Iran

According to "(2) Cost Estimation Condition" below, the breakdown based on the Iranian scope of works is estimated as follows.

Table 2-9 Estimated Cost to be borne by the Iranian Side

Obligations	Estimated expenses (US Dollars)	Japanese yen (thousand yen)	Remarks
New building construction cost of Ruin Tan Arash Hospital	350,000	39,589	
Refurbishment cost of Imam Hossein Educational Hospital	65,000	7,352	
Removal of existing equipment	300	34	
Banking arrangement fee	13,650	1,544	Fee for A/P
Custom clearance fee	3,209	363	
Total	432,159	48,882	

(2) Cost Estimation Condition

- Time of estimation: May 2017
- Exchange Rate: 1US Dollars =113.11 yen
- Procurement period: As shown in the implementation Schedule
- Others: This project shall be carried out under Japan's Grant Aid scheme.

2-5-2 Operation and Maintenance Cost

(1) Operation and Maintenance Cost of the Project

1) Imam Hossein Educational Hospital

The annual cost of operation and maintenance for IHEM is estimated as shown in Table 2-10.[13] Consumables, spare parts and maintenance contract cost necessary for the operation and maintenance for the procured equipment under the Project are shown in Table 2-11.

[13] 1 Iran Rial = 0.003455 yen (July 2017).

Table 2-10 Estimated Annual Costs of Operation and Maintenance for IHEM[14]

Unit: thousand IRR (thousand yen)

Year after Completion of the Project / Costs by Item	1st year (FY2019)	2nd year (FY 2020)	3rd year (FY 2021)	4th year (FY 2022) and onwards
1) Medicine	8,894,067	8,894,067	8,894,067	8,894,067
2) Medical materials	106,372,214	106,372,214	106,372,214	106,372,214
3) Consumables and maintenance contract	3,391,317	3,391,317	3,391,317	4,983,214
Total	118,657,598 (409,962)	118,657,598 (409,962)	118,657,598 (409,962)	120,249,495 (415,462)

Table 2-11 Operation and Maintenance Costs in IHEH

Unit: thousand IRR (thousand yen)

Equipment	Costs	Consumables to be used annually	1st year	2nd year	3rd year	4th year
Angiography system (for Coronary vessels)	Maintenance incl. spare parts	Contrast injection syringe, Contrast				578,871
	Consumables		868,307	868,307	868,307	868,307
Angiography system (for neuro./ peripheral vessels)	Maintenance incl. spare parts	Contrast injection syringe, Contrast				1,013,025
	Consumables		868,307	868,307	868,307	868,307
ERCP and Surgical Mobile C-arm X-ray unit	Maintenance	Various forceps such as biopsy forceps, X-ray film, Sterilization cover		28,944	28,944	28,944
	Consumables		1,114,327	1,114,327	1,114,327	1,114,327
Endo-sonography system	Maintenance	Aspiration biopsy cytology needle set		23,155	23,155	23,155
	Consumables		434,153	434,153	434,153	434,153
Echocardiography unit	Maintenance	Ultrasonic gel, Recording paper		43,415	43,415	43,415
	Consumables		10,709	10,709	10,709	10,709
Total			3,295,803 (11,387)	3,391,317 (11,717)	3,391,317 (11,717)	4,983,213 (17,217)

Regarding the annual costs of operation and maintenance of IHEH, the annual increase in operation and maintenance costs will be approximately from 118,657,598 thousand Iranian Rials (IRR) in the first three years after the completion of this Cooperation, and 120,249,495 thousand IRR in the fourth year and onwards (See Table 2-10). Compared to the operation and maintenance expenses that need to be arranged at IHEH and the revenue of IHEH as a whole in FY 2015 (2,569,873,624 thousand IRR), since it is less than approximately 4.7%, it is a slight increase for IHEH. Therefore, it would be possible to cover the medicine, medical materials, consumables, spare parts and maintenance contracts necessary for the Project. Furthermore, IHEH will need to prepare budget from FY 2022 in order to cover maintenance contracts directly

[14] According to the questionnaire, it is estimated that 700 case of coronary artery imaging, 2,316 of peripheral & cerebral vessel treatments and 600 cases of thrombolytic therapy and 5041 cases of echocardiographic examination are expected to increase.

from local agents of manufacturers for medical equipment procured under the Project after expiration of maintenance contracts covered by the Project.

2) Ruin Tan Arash Hospital

The annual cost of operation and maintenance for RTAH is estimated as shown in Table 2-12.[15] Consumables, spare parts and maintenance contract cost necessary for operation and maintenance for the procured equipment under the Project are shown in Table 2-13.

Table 2-12 Estimated Annual Costs of Operation and Maintenance for RTAH[16]

Unit: thousand IRR (thousand yen)

Year after Completion of the Project / Costs by Item	1st year (2019)	2nd year (2020)	3rd year (2021)	4th year (2022) and onwards
1) Medicine	6,032,417	6,032,417	6,032,417	6,032,417
2) Medical materials	0	0	0	0
3) Consumables and maintenance contract	3,301,592	3,301,592	3,324,747	5,350,796
Total	9,334,009 (32,249)	9,334,009 (32,249)	9,357,164 (32,329)	11,383,213 (39,329)

Table 2-13 Operation and Maintenance Costs in RTAH

Unit: thousand IRR (thousand yen)

Equipment	Costs	1st year	2nd year	3rd year	4th year
CT 16-slice	Maintenance incl. spare parts				868,307
	Consumables	1,238,784	1,238,784	1,238,784	1,238,784
MRI 1.5 Tesla	Maintenance incl. spare parts				1,157,742
	Consumables	743,849	743,849	743,849	743,849
Digital mammography unit	Maintenance			23,155	23,155
	Consumables	28,944	28,944	28,944	28,944
Laparoscope set	Maintenance		14,472	14,472	14,472
	Consumables	193,054	193,054	193,054	193,054
Gastroscope and Colonoscope set	Maintenance		14,472	14,472	14,472
	Consumables	1,027,496	1,027,496	1,027,496	1,027,496
Digital X-ray unit	Maintenance		14,472	14,472	14,472
	Consumables	8,683	8,683	8,683	8,683
Digital mobile X-ray unit	Maintenance		8,683	8,683	8,683
	Consumables	8,683	8,683	8,683	8,683
Total		3,249,493 (11,227)	3,301,592 (11,407)	3,324,747 (11,487)	5,350,796 (18,487)

[15] 1 Iran Rial = 0.003455 yen (July 2017).

[16] According to the questionnaire, it is estimated that 2,400 cases of MRI, 3,600 cases of CT, 175 cases of breast X-ray examination, 804 cases of laparoscopic surgery and 131 cases of upper & lower endoscopies are expected to increase.

Regarding the annual costs of operation and maintenance of RTAH, the annual increase in operation and maintenance costs required at a minimum will be approximately 9,334,009 thousand IRR in the first two years after the completion of this Cooperation. In the third year, it will be 9,357,164 thousand IRR since the maintenance contract fee for Digital mammography unit will be added. About 11,383,213 thousand IRR will be newly required from the fourth year and onwards, as the costs of maintenance contracts for CT and MRI will be added (See Table 2-13). These increases are accounted for approximately 7.1% of the total revenue of RTAH in FY2015 (106,930,000 thousand IRR). The installation of CT and MRI is expected to increase fees of examination and medical treatment from the patients, and it is expected that the allocation budget from Tehran University of Medical Sciences will also increase next year. Therefore, it would be possible to cover the medicine, medical materials, consumables, spare parts and maintenance contract necessary for the Project.

Regarding the maintenance contract for equipment under the Project, RTAH will need to prepare budget for Digital mammography unit from FY 2021 and for CT and MRI from FY2022 in order to cover maintenance contract directly from local agents of manufacturers for those equipment provided under the Project after expiration of maintenance contract covered by the Project.

CHAPTER 3
PROJECT EVALUATION

Chapter 3 Project Evaluation

3-1 Preconditions

In the implementation of the Project, the Iranian side needs to carry out their major undertakings mentioned in "2-3 Obligations of Recipient Country" in appropriate timing before the procurement of medical equipment or during the procurement period. These preconditions are very important in order to implement the entire Project smoothly.

3-2 Necessary Inputs by Recipient Country

Following inputs shall be taken by the Iranian side so that the Project is to be effective and to keep the effectiveness.

- To procure necessary consumables, spare parts, medicines and medical materials for the operation and maintenance of the equipment to be procured under the Project;
- To secure continuous employment of medical personnel necessary to utilize and maintain facilities and equipment introduced under the Project appropriately and effectively;
- To implement operation and maintenance of the equipment continuously and steadily by conclusion of maintenance contracts with local agents of manufacturers after completion of each manufacturer's warranty period of the procured equipment under the Project.

3-3 Important Assumptions

Following assumptions need to be satisfied in order to produce and maintain the effectiveness of the Project.

- MOHME will continue to implement *the National NCDs Action Plan*.
- MOHME will continue to implement HTP started from 2014 and the rate of patient out-of-pocket payments will be continuously kept and keep patients to be accessible to the target facilities.
- There will not be big natural disasters such as earthquakes which can give catastrophic damages on infrastructure like roads network and life lines which are important for patients to access hospitals.

3-4 Project Evaluation

3-4-1 Relevance

As part of the Project, this Cooperation is intended to be one of the components which strengthen early detection and treatment functions for cancer and CVD in tertiary medical facilities located in the eastern Tehran. In this context, the Project is evaluated as highly relevant to implement from the following perspectives. Therefore, the Cooperation is suitable for implementation under Japan's Grant Aid.

(1) Beneficiaries of the Project

The area where the two target facilities are located is the eastern part of Tehran, which has a relatively large population of persons living in impoverished circumstances compared to other areas

in Tehran; in this sense the Cooperation can be considered to constitute as a humanitarian aid. Meanwhile, IHEH is designated as a 1st level trauma center, a stroke center and an AMI center and RTAH is designated as a breast cancer diagnostic and treatment center, and also as a training center for laparoscopy. In this sense, this Cooperation is relevant to be implemented under Japan's Grant Aid because both of the target facilities are designated hospitals for cancer and CVD and open to 12 million populations living in Tehran.

(2) Contribution to Human Security

In Iran, demands on diagnostic services for cancer and CVD have been on the rise along with the number increasing of NCDs due to extensions in life expectancies and lifestyle changes (smoking, insufficient physical activity, etc.) among the population led by social and economic changes in the country. However, medical equipment to provide proper medical services has been aging and in short. Therefore, the new and additional procurement of medical equipment for early detection and treatment of cancer and CVD under the Project will enable Iran's health sector to answer such medical demands. Specifically, the Project will procure Angiography systems which have the potential to reduce physical burdens of patients receiving treatments such as cardiovascular catheterization and angioplasty for cerebral and peripheral vessels, and so on. As a result, lengths of hospital stays will be shortened and patients rehabilitated more quickly than was previously the case.

In view of the above-mentioned benefits, the Project will contribute to protecting patient dignity, and reduce threats to lives and to their livings, meaning that implementation of this Cooperation is relevant from Human Security perspectives.

(3) Consistency with the National Level Long-term Plans in Iran

The Project would be consistent with *the National NCDs Action Plan* as a national-level long-term plan. Particularly, since the Cooperation aims to strengthen the capacities for early detection and treatment of NCDs at the two tertiary hospitals, the Project will contribute to achieving the targets outlined in the above action plan, especially "Target 1: A 25% reduction in the risk of premature death from cardiovascular disease, cancer, diabetes, chronic lung diseases" and "Target 9: An 80% availability of the affordable basic technologies and essential medicines including generics in private and public sectors".

(4) Alignment with Japanese Cooperation Policies

In *the Cooperation Development Plan for Islamic Republic of Iran 2017*, the GoJ places priority on the area of "Strengthening of Social and Economic Infrastructure", and has created a strategic program called "Formulation of Resilient Society Program". As parts of the program, provision of high-quality medical equipment and improvement of medical services are specified as concrete projects for the health sector. In addition, at the Japan-Iran Economic Cooperation Consultation Meeting (held on March 12, 2016, it was agreed to cooperate on improvement of medical equipment in existing hospitals in Iran through financial cooperation from Japan.

Based on all of the above-mentioned, the Project is aligned with the Japanese cooperation policies and their orientation for Iran.

(5) Strengthening the Relationship between Two Countries

Through the Cooperation contributing to the Iranian health sector, mutual relationship between Iran and Japan is anticipated to strengthen because Japanese medical manufacturers with high product qualities and technologies may probably advance into the Iranian medical market. This is also consistent with the GoJ's policy on "Promotion Business of Medical Technology to International Market".

3-4-2 Effectiveness

Expected effects of the Project are as follows;

(1) Qualitative Effects

As expected outputs to measure the improvement of quality of medical services to be provided at IHEH and RTAH, the target facilities of the Cooperation, after completion of the Cooperation, quantitative indicators are set as shown in Table 3-1. The target of each indicator represents achievement of the Project objective.

Table 3-1 Quantitative Effects

Target Facility	Indicators	Unit	Baseline (Year 2016)	Target (Year 2022) 【3 years after completion of the Project】
Imam Hossein Educational Hospital	1. The number of cases in which coronary artery imaging was performed	cases/ year	1,400	2,100
	2. The number of echocardiographic examinations	cases/ year	16,959	25,000
	3. The number of endo-sonography examinations	cases/ year	0	600
Ruin Tan Arash Hospital	4. The number of MRI examinations	cases/ year	0	2,400
	5. The number of CT examinations	cases/ year	0	3,600
	6. The number of upper and lower digestive endoscope examinations	cases/ year	469	600
	7. The number of cancer operations using laparoscope	cases/ year	1,896	2,700

Source: Survey Team

【Indicator 1: The number of cases in which coronary artery imaging was performed (cases/year) 】

◆ Rational of Indicator 1: Additional introduction of an Angiography system (for coronary artery) will make IHEH possible to respond to cases with high urgency in addition to coronary artery catheter examinations and treatment; therefore, it will strengthen the diagnostic and treatment function of IHEH as an AMI center.

Currently, IHEH is conducting diagnosis and treatment of coronary artery diseases by using an existing single-plane angiography system. 1,400 cases were conducted in 2016 (three to four cases per day) by operating the system for 365 days in a year. However, cases with high urgency cannot be responded due to lack of equipment. The introduction of the new Angiography system (for coronary artery) will enable IHEH to respond to emergency cases such as AMI in addition to scheduled services of catheter examinations and treatment of coronary artery; IHEH expects to receive such emergency cases around 700 cases (one to two cases per day) annually. Therefore, around 2,100 cases of coronary artery imaging will be performed in a year by the two single-plane angiography systems.

【Indicator 2: The number of echocardiographic examinations (cases/year)】

◆ Rational of Indicator 2: Provision of an echocardiography unit will strengthen the diagnostic and treatment function of CVD that cannot be performed with existing equipment.

The number of echocardiographic examinations carried out by two existing echocardiography units was 16,959 in 2016 in IHEH. However, since existing equipment do not have a transesophageal probe, IHEH has to depend on coronary angiography, which is invasive procedure, in order to follow up patients after treatment and to confirm whether patients who received coronary artery catheter treatments need to have another treatment or not. Such examinations give burdens on patients' body. The new Echocardiography unit will be equipped with a transesophageal probe which makes it possible to carry out echocardiographic examinations for patients who received catheter treatment as follow-up examinations with non-invasive way. It is expected to carry out 22 examinations in a day by the new equipment; therefore, 25,000 cases of echocardiographic examinations will be carried out by three echocardiography units in a year.

【Indicator 3: The number of endo-sonography examinations (cases/year)】

◆ Rational of Indicator 3: Introduction of a new Endo-sonography system will make IHEH possible to carry out aspiration biopsy cytology to pancreas and bile ducts, and to carry out detail examinations of pancreas which are difficult to treat by usual endoscopy examinations.

IHEH does not have any endo-sonography at present time. This newly-introduced Endo-sonography system will be used in the outpatient department and is expected to examine two (2) cases per day for 300 days in a year. Therefore, the annual number of examinations by the equipment is expected to be around 600 cases.

【Indicator 4: The number of MRI examinations (cases/year)】

◆ Rational of Indicator 4: Introduction of an MRI will strengthen diagnostic and treatment function by realizing detection, diagnosis and evaluation of therapeutic effect on cerebrovascular disorders such as cerebral infarction and cancers of uterus, ovary, breast, liver, prostate, etc.

RTAH does not have any MRI at present time. Since RTAH accepts both male and female emergency cases, six (6) to seven (7) cases of MRI examinations per day will be expected. During 365 days of operation in a year, the annual number of MRI examinations is, therefore, expected to be around 2,400 cases.

【Indicator 5: The number of CT examinations (cases/year)】

◆ Rational of Indicator 5: Introduction of a CT will strengthen diagnostic and treatment function by realizing early detection and treatment, and further evaluation of therapeutic effect on cerebrovascular disorders such as intracranial hemorrhage, cerebral aneurysms, and lung cancer and gastrointestinal cancer.

RTAH does not have any CT at present time. Since RTAH accepts both male and female emergency cases, nine (9) to ten (10) cases of CT examinations will be conducted in a day. During 365 days of operation in a year, the annual number of examinations is, therefore, expected to be around 3,600 cases.

【Indicator 6: The number of upper and lower digestive endoscope examinations (cases/year)】

◆ Rational of Indicator 6: Replacing the existing aged gastroscope and colonoscope with a new set will afford more opportunities of early detections, diagnosis and treatment of digestive cancers; therefore, it will lead to strengthen diagnostic and treatment function of digestive cancer in RTAH.

Currently, RTAH is conducting endoscope examinations by using each set of gastroscope and colonoscope. Endoscopy services are provided for two days in a week, 104 days in a year in the outpatient department, and the daily average number of endoscope examinations is four (4) to five (5) cases. The new set of endoscopes for upper and lower digestive systems will replace the existing ones and the time of each endoscopic examination is to be shorten because of improved image quality so that it is expected to take five (5) to six (6) examinations in average per day. The operating days of endoscopy services are expected to be the same, so that the annual number of endoscopic examinations is expected to be around 600 cases.

【Indicator 7: The number of cancer operations using laparoscope (cases/year)】

◆ Rational of Indicator 7: Additional introduction of Laparoscope sets will expand opportunities for resection and removal of lesions in the digestive system and pelvic cavity (uterus / ovary), and early diagnosis and treatment of such cases.

Currently, RTAH has two sets of laparoscopes. In the operation theater, scheduled laparoscopic

treatments are performed 4 days in a week, 208 days in a year. The number of operations on uterine myoma, endometriosis, hysterectomy and so on in 2016 was 1,896 cases (four to five cases per day in average). The existing laparoscopes will be used as they are at present, though they are not able to be used for some types of operation due to missing instruments of the equipment.

In addition to usual operations that have been performed so far, two new sets to be procured under the Project will expand opportunities to treat uterine myoma, uterine cancer, ovarian cancer and so on by using hysteroscope and resectoscope which are included as components of the additional equipment. Although the number of days of laparoscopic services in a year is expected to be the same, the operations using the new laparoscopes will require more time; therefore, the number of operation per day is estimated as half of the number performed by the existing ones. Accordingly, the annual number of operations by the equipment is expected to be around 2,700 cases by using four (4) sets of laparoscopes.

(2) Qualitative Effects

Expected qualitative effects of the Project are shown in Table 3-2. Questionnaire survey will be conducted among people living in the hospital catchment areas and using those hospital services regularly, and among residents who are under medical trainings in these hospitals in order to confirm qualitative effects.

Table 3-2 Qualitative Effects

1.Since the hospitals will provide necessary and quality-ensured medical services to the people in the catchment area(s), accessibility of people near to the hospital(s) will be improved and the hospital's reliability will be also increased;
2. The number of diseases that can be diagnosed and treated by the latest medical equipment increases thorough medical equipment improved by the Project, so that plenty of knowledge and experience can be provided in the field of clinical education. Therefore, the level of satisfaction of training among medical doctors working in the target facilities will increase.

APPENDICES

Appendix 1. Member List of the Survey Team

(1) Field Survey I (2nd of March - 14th of March, 2017: 13 days)

	Name	Position	Organization
JICA	Kenichi ITO	Team Leader	Health Team 1, Health Group 1 Human Development Dept.
	Mitsuo ISONO	Technical Adviser	Senior Advisor (Health Sector)
	Keiichi OSATO	Cooperation Planning	Health Team 1, Health Group 1 Development Dept.
Consul-tant	Akiko OKITSU	Chief Consultant / Health Planning	TAC International Inc.
	Yasuko ASANUMA	Equipment Planning 1	Binko International Ltd.

(2) Field Survey II (1st of May - 20th of May, 2017: 20 days)

	Name	Position	Organization
JICA	Mitsuo ISONO	Team Leader / Technical Adviser	Senior Advisor (Health Sector)
	Keiichi OSATO	Cooperation Planning	Health Team 1, Health Group 1 Development Dept.
Consul-tant	Akiko OKITSU	Chief Consultant / Health Planning	TAC International Inc.
	Yasuko ASANUMA	Equipment Planning 1	Binko International Ltd.
	Yukiko NISHIBARI	Equipment Planning 2	Binko International Ltd.
	Naoki KAYANO	Procurement Planning / Cost Survey	Binko International Ltd.
	Toshitsugu MATSUMURA	Structural / Facility Planning	Binko International Ltd.

(3) Explanation of Draft Final Report (31st of August - 7th of September, 2017: 8 days)

	Name	Position	Organization
JICA	Mitsuo ISONO	Team Leader / Technical Adviser	Senior Advisor (Health Sector)
	Keiichi OSATO	Cooperation Planning	Health Team 1, Health Group 1 Development Dept.
Consul-tant	Akiko OKITSU	Chief Consultant / Health Planning	TAC International Inc.
	Yasuko ASANUMA	Equipment Planning 1	Binko International Ltd.

Appendix 2. Survey Schedule

(1) Field Survey I (2nd of March - 14th of March, 2017: 13 days)

Date			Mission Members from JICA			Consultant Team	
			Technical Adviser Mitsuo ISONO	Team Leader Kenichi ITO	Cooperation Planning Keiichi OSATO	Chief Consultant / Health Planning Akiko OKITSU	Equipment Planning 1 Yasuko ASANUMA
1	2-Mar-17	Thu			Dep. Japan		
2	3-Mar-17	Fri			09:40 Arr. Tehran / 18:00-20:00 Internal Meeting		
3	4-Mar-17	Sat	09:40 Arr. Tehran		Documentation		
			10:30-12:00 Internal Meeting				
			13:30-15:30 Explanation of Inception Report at MOHME (Participants: Acting Minister of MOHME, MOHME International Affairs Dept., Medical Equipment Dept., MOFA)				
4	5-Mar-17	Sun	09:00-15:00 Checking the condition of existing medical equipment and facilities, consideration of requested equipment (IHEH)				
5	6-Mar-17	Mon	10:30-15:00 Checking the condition of existing medical equipment and facilities, consideration of requested equipment (RTAH)				
6	7-Mar-17	Tue		09:00-12:00 Hearing on Japanese-style medical care at MOHME (Participants: MOHME Hospital Administration and Research Division)		Documentation	
				14:00-16:30 Explanation of Japanese grant project scheme (incl. responsibility of Iranian side and documentation works) at MOHME (Participants: MOHME International Affairs Dept., Finance Dept.)			
7	8-Mar-17	Wed		09:00-12:00 NCDs current situation, implementing relevant policies and projects in Iran, Needs of NCDs medical equipment, etc. at MOHME (Participants: MOHME, HOA, NCDs Dept.)			
				14:00-17:30 MM discussion at MOHME (Participants: MOHME, HOA, NCDs Dept.)			
8	9-Mar-17	Thu		10:00-11:30 Site visit / discussion at Tehran Cancer Research Institute			
				13:00-14:00 Site visit / discussion at JICA Tehran office			
				15:00-16:00 Site visit / discussion at Embassy of Japan in Iran			
9	10-Mar-17	Fri		Documentation			
10	11-Mar-17	Sat		14:00 Sign M/D at MOHME			
				Documentation	Dep. Tehran	1. Procedures and practices on medical equipment import and custom clearance 2. Checking the need of pre-authorization for importing medical equipment 3. Checking the schedule, required documents and procedures with relevant governmental agencies	
11	12-Mar-17	Sun		Dep. Tehran → Japan	Arr. Japan	Handling medical equipment, maintenance system, etc.	
12	13-Mar-17	Mon				1. Hearing to hospital staff (technical and management aspects) 2. Checking the condition of existing medical equipment and facilities	
13	14-Mar-17	Tue				Dep. Tehran → Haneda	

HOA: Hayat Omana Arzi
IHEH: Imam Hossein Educational Hospital
JICA: Japan International Cooperation Agency
M/D: Minutes of Discussion
MOFA: Ministry of Foreign Affairs
MOHME: Ministry of Health and Medical Education
NCDs: Non-communicable Diseases
RTAH: Ruin Tan Arash Hospital

(2) Field Survey II (1st of May - 20th of May, 2017: 20 days)

Date			Mission Members from JICA		Consultant Team				
			Team Leader / Technical Adviser Mitsuo ISONO	Cooperation Planning Keiichi OSATO	Chief Consultant / Health Planning Akiko OKITSU	Equipment Planning 1 Yasuko ASANUMA	Equipment Planning 2 Yukiko NISHIBARI	Procurement Planning / Cost Survey Naoki KAYANO	Structural / Facility Planning Toshitsugu MATSUMURA
1	1-May-17	Mon			Dep. Haneda → Tehran				Dep. Haneda → Tehran
2	2-May-17	Tue			Hearing survey on MRI and CT installation location and maintenance ability at medical equipment manufacturer's local agencies				Same as Chief Consultant / Equipment Planning 1
3	3-May-17	Wed			Courtesy visit JICA Tehran office Introduction of new member / Check itinerary				Same as Chief Consultant / Equipment Planning 1 and preparation for field survey, etc.
4	4-May-17	Thu			Hearing survey on MRI and CT installation location and maintenance ability at medical equipment manufacturer's local agencies		Dep. Haneda → Tehran (Same as Chief Consultant / Equipment Planning 1)		Same as Chief Consultant / Equipment Planning 1
5	5-May-17	Fri	Dep. Japan		Internal Meeting / Documentation				
6	6-May-17	Sat	Arr. Tehran		Ruin Tan Arash Hospital Hearing survey on hospital information	Hearing survey on medical equipment (Meeting topic : technical specification, etc.)		Hearing survey on MRI and CT installation location	
			Internal Meeting		Jam Hospital visit / discussion				
					Hearing survey at medical equipment manufacturer's local agencies				Hearing survey on MRI and CT installation location
7	7-May-17	Sun	8:30-9:30 MOHME discussion at MOHME						
			9:30-11:30 Meeting on procurement equipment's specifications for RTAH at MOHME						
			Preparing M/D draft		Meeting on maintenance system of hospital, survey on competence of personnel, installation environment of large equipment, and carry-in route regarding MRI and Endoscope room, etc. at Omid hospital				
8	8-May-17	Mon	8:30-11:00 IHEH discussion (explanation of equipment list and confirmation of necessity of soft component)						
			Confirmation of indicators			Confirmation of technical specifications	Same as Chief Consultant	Confirmation of Angiography system installation location	
			Preparing M/D draft		Loghman hospital (Shahid Beheshti University of Medical Sciences) visit / discussion				
					Hearing survey on hospital maintenance, competence of personnel, installation environment of large equipment and carry-in				MRI / CT refurbishment case survey
9	9-May-17	Tue	8:30-11:00 RTAH discussion (explanation of equipment list and confirmation of necessity of soft component)						
			Confirmation of hospital information and indicators			Confirmation of technical specifications		Additional survey on MRI and CT installation location	
			Preparing M/D draft		14:00-15:20 Physical Resource and Development Plan Department (grade of construction company, hospital construction process, supervisor agencies, budget, etc.)				
					15:30-16:30 NCDs Dept.(CVD) (request for questionnaire survey and statistics)				
10	10-May-17	Wed	8:30-10:30 Discussion and Signing of M/D						
			Reporting to Embassy of Japan in Iran				Documentation		
11	11-May-17	Thu	Hospital visit / discussion		Creation of Minutes and Questionnaire	Hearing survey on medical equipment manufacturer's local agencies at Radiology Congress in Iran			Hearing survey on construction circumstances, consideration on necessity of RTAH construction plan
12	12-May-17	Fri	Dep. Tehran → Afghanistan	Dep. Tehran → Tokyo	Internal Meeting / Documentation on creation of technical note draft				
13	13-May-17	Sat			Creation of Minutes and Questionnaire	Hearing survey on equipment procurement and maintenance ability of medical equipment manufacturer's local agencies			Visit / discussion to hospital construction site and hearing survey on design for medical facilities and MRI / CT installation location
14	14-May-17	Sun			Tehran Heart Center (Technical level, etc.) 15:30-16:30 CVD Research Institute		Documentation		Dep. Tehran → Haneda
15	15-May-17	Mon			Confirmation of hospital finance etc.at Shahid Beheshti University of Medical Sciences (confirmation of hospital finance)	Hearing survey on equipment procurement and maintenance ability of medical equipment manufacturer's local agencies			
						Hearing survey on local forwarder insurance company			
16	16-May-17	Tue			WHO (NCDs related activities)	Hearing survey on third country manufacturer's local agency at Medical Equipment Exhibition.			
						Hearing survey on local forwarder insurance company, survey on customs related circumstances at local forwarder company			
17	17-May-17	Wed			Information analysis, collection of Questionnaire	Hearing survey on equipment procurement and maintenance ability of medical equipment manufacturer's local agencies		Dep. Tehran	
					Finalization of technical note draft				
18	18-May-17	Thu			Reporting to JICA Tehran office (technical note, etc.)				
					Finalization of technical note draft	Hearing survey on equipment procurement and maintenance ability of medical equipment manufacturer's local agencies		Arr. Haneda	
19	19-May-17	Fri			Internal Meeting / Documentation (Meeting on follow-up, etc. after members return Japan with an interpreter)		Dep. Tehran		
20	20-May-17	Sat			Dep. Tehran → Haneda		Arr. Narita		

CT: Computed Tomography
CVD: Cardiovascular disease
IHEH: Imam Hossein Educational Hospital
JICA: Japan International Cooperation Agency
M/D : Minutes of Discussion
MOHME: Ministry of Health and Medical Education
MRI: Magnetic Resonance Imaging
NCDs: Non-communicable Diseases
RTAH: Ruin Tan Arash Hospital
WHO: World Health Organization

(3) Explanation of Draft Final Report (31st of August - 7th of September, 2017: 8 days)

Date			Mission Members from JICA		Consultant Team	
			Team Leader / Technical Adviser Mitsuo ISONO	Cooperation Planning Keiichi OSATO	Chief Consultant / Health Planning Akiko OKITSU	Equipment Planning 1 Yasuko ASANUMA
1	31-Aug-17	Thu			Dep. Narita	
2	1-Sep-17	Fri	Dep. Narita		Arr. Tehran Checking implementation schedule, etc. with local consultant	
3	2-Sep-17	Sat	Arr. Tehran		Documentation	
			13:30 Discussion with MOHME (Explanation of M/D draft)			
			PM: Meeting with Human Resource Dept.		PM: Hearing survey on medical equipment manufacturer's local agencies	
4	3-Sep-17	Sun	09:00 RTAH (Explanation of the Cooperation components, discussion on Indicators with baselines and targets, and any other necessary discussions)			
			14:00 IHEH (Explanation of the Cooperation components, discussion on Indicators with baselines and targets, and any other necessary discussions)			
					16:00 Hearing survey on medical equipment manufacturer's local agencies	
5	4-Sep-17	Mon	Preparing M/D draft		09:00 Hearing survey to MOHME Finance Dept. 11:00 Hearing survey to Shahid Beheshti University of Medical Sciences 14:00 Hearing survey to Tehran University of Medical Sciences	
6	5-Sep-17	Tue	AM: Discussion and Signing of M/D with MOHME			
			16:00 Reporting to JICA Tehran office		PM: Hearing survey on medical equipment manufacturer's local agencies	
7	6-Sep-17	Wed			AM: Hearing survey on medical equipment manufacturer's local agencies PM: Documentation	
8	7-Sep-17	Thu			Dep. Tehran → Haneda	

IHEH: Imam Hossein Educational Hospital
JICA: Japan International Cooperation Agency
M/D: Minutes of Discussion
MOHME: Ministry of Health and Medical Education
RTAH: Ruin Tan Arash Hospital

Appendix 3. List of Parties Concerned in the Recipient Country

Ministry of Health and Medical Education

Dr. Assadi Lari	International Affairs Department	Head
Dr. Jalal Naeli	International Affairs Department	Deputy
Dr. Mohammad Jafar Malek	International Affairs Department	Deputy
Mr. Gholizadeh	International Affairs Department	Expert
Halime Alemohammad	International Affairs Department	Expert
Parvin Heydari	International Affairs Department	Expert
Dr. Ali Motlagh	Cancer Department	Head
Dr. Zahra Mirahsani	Health Affairs Department	Expert
Hossein Shaft	Financial Affairs Department	Deputy
Asghar Kuhi	Financial Affairs Department	Head
Mostafa Jouzi	Financial Affairs Department	Expert
Dr. Alireza Mogheysi	NCD Department	Deputy
Dr. Ali Ghanbari Motlagh	Curative Affairs	Deputy
Dr. Ali Maher	Curative Affairs	Vice Deputy
Dr. Mabel	Curative Affairs	Deputy
Mr. Ali Mozaemi	Physical Resources and Development Plan	Deputy Director

Imam Houssein Educational Hospital

Dr. Kariman	Head of Hospital	
Dr. Tabatabie	Radiotherapy	Head
Amir Gholizadeh	Department of Medical Equipment	Head
Vahid Bour	Imaging Department	Supervisor
Ali Alizadeh	Radiotherapy Department	Expert
Mohammad Bayatpour	Curative Affairs Department	Supervisor
	Hospital Hoteling	Advisor
Mr. Bayatpour	Administration Affairs Department	Head

Ruin Tan Arash Hospital

Dr. Majid Amini	Management of Hospital	
Ashraf Moeini	Head of Hospital	
Reihane Pirjani	Deputy of Hospital	
Maryam Sangargir	Department of Medical Equipment	
Ms. Malmir	Facility Department	Head
Dr. Kashani	Education Department	Head

Heyat Omana Arzi (HOA)

M.H.Dashti	Commercial Manager
M. Sadegh Abolghassemi	Commercial specialist

Shahid Beheshti University of Medical Sciences

Amir Ali Mafi	International Advisor
Dr. Aghajani	Vice chancellor
Dr. Faizi	Vice Chancellor of international affairs
Dr. Fathi	Vice Chancellor of Resources and Development

Tehran University of Medical Sciences and NCDs Research Center

Mohammad Hossein Darvish	Deputy /Medical Equipment
Dr. Alipour	Vice chancellor of Curative Affairs
Mr. Naghsh Band	Expert on Construction
Mr. Ersilo	Head of Medical Equipment Department
Dr. Farshad Farzadar	Chair of NCD research Center

Tehran Cancer Research Institute

Mohammad Shirkhoda	Associate Professor
Azin Namjou	Manager of CRC
Malihe Khaleqian	Supervisor of Department
Reza Shirkoohi	Associate Professor
Saeid Amanpour	Director of lab
M.a. Mohagheghi	Head of CRC
Elham Mohebbi	International Coordinator
Kazem Zendehdel	Research Deputy

Tehran Heart Center

Dr. Haji Ghasemi	Administrator

World Health Organization（WHO）

Dr. Mansour Ranjbar	National Professional Officer, NCD

Appendix 4. Minutes of Discussions (M/D)

(1) Field Survey I

(2) Field Survey II

(3) Explanation of Draft Final Report

(1) Field Survey I

Minutes of Discussions
on the Preparatory Survey I for the Project for
Improvement of Medical Equipment in Teheran,
in the Islamic Republic of Iran

In response to the request from the Government of the Islamic Republic of Iran (hereinafter referred to as "Iran"), Japan International Cooperation Agency (hereinafter referred to as "JICA"), dispatched the Preparatory Survey Team for the Outline Design(first field survey) (hereinafter referred to as "the Team") of the Project for Improvement of Medical Equipment in Teheran (hereinafter referred to as "the Project") to Iran, headed by Mr. Kenichi ITO, Director of Health Team 1, Health Group 1, Human Development Department, JICA, from 4th March to 14th March, 2017. The Team held a series of discussions with the officials of the Government of Iran and conducted a field survey. In the course of the discussions, both sides have confirmed the main items described in the attached sheets.

Teheran, 11th March, 2017

Mr. Kenichi Ito
Leader
Preparatory Survey Team
Japan International Cooperation Agency
Japan

Dr.Mohammad Aghajani
Deputy for Curative Affairs
Ministry of Health and Medical Education
Islamic Republic of Iran

ATTACHMENT

1. Objective of the Project

   The objective of the Project is to strengthen the function of the selected hospitals (Imam Hossein Educational Hospital and Ruin Tan Arash Hospital) in Teheran by procurement of the medical equipment for early detection and treatment of cancer and cardiovascular diseases, thereby contributing to improving quality of clinical service for cancer and cardiovascular diseases in the Islamic Republic of Iran.

2. Title of the Preparatory Survey

   Both sides confirmed the title of the Preparatory Survey as "the Preparatory Survey for the Project for Improvement of Medical Equipment in Teheran".

3. Project Sites

   Both sides confirmed that the sites are in Imam Hossein Educational Hospital and Ruin Tan Arash Hospital, which is shown in Annex 1.

4. Responsible authorities for the Project

   Both sides confirmed the authorities responsible for the Project are as follows:

   4-1. Shahid Beheshti University of Medical Science and Tehran University of Medical Science will be the executing agencies for the Project (hereinafter referred to as "the Executing Agency"). The Executing Agencies shall coordinate with all the relevant authorities to ensure smooth implementation of the Project and ensure that the undertakings for the Project shall be managed by relevant authorities properly and on time. The organization charts are shown in Annex 2.

   4-2. The line ministry of the Executing Agency is the International Affairs Department, Ministry of Health and Medical Education (hereinafter referred to as "MOHME"). The MOHME shall be responsible for supervising the Executing Agency on behalf of the Government of Iran.

5. Items requested by the Government of the Islamic Republic of Iran

   5-1. The Team explained that medical equipment which is not made in Japan and whose maintenance cannot be handled by local agents appointed by the Japanese manufacturers in Iran for maintenance of equipment were excluded from the original equipment list requested by Iran, as described in Annex 3.

5-2. As a result of discussions, both sides confirmed that the equipment requested by the Government of Iran is for early detection and treatment of cancer and cardiovascular diseases, of which items and priority is provided in Annex 4.

5-3. JICA will assess the feasibility of the above requested items through the Preparatory Survey and will report the findings to the Government of Japan. Both sides will be revised and confirmed the priority items during the Preparatory Survey II. The final items of the Project will be decided by the Government of Japan.

6. Procedures and Basic Principles of Japanese Grant

6-1. The Iranian side agreed that the procedures and basic principles of Japanese Grant as described in Annex 5 shall be applied to the Project. As for the monitoring of the implementation of the Project, JICA requires Iranian side to submit the Project Monitoring Report, the form of which is attached as Annex 6.

6-2. The Iranian side agreed to take the necessary measures, as described in Annex 7, for smooth implementation of the Project. The contents of Annex 7 will be elaborated and refined in the Preparatory Survey II and be agreed in the mission dispatched for explanation of the Draft Preparatory Survey Report. The contents of Annex 7 will be used as an attachment to the Grant Agreement.

7. Schedule of the Survey

7-1. JICA will dispatch a mission as the Preparatory Survey II around April to May, 2017, in order to further discuss the details of the scope of the Project.

7-2. JICA will prepare a draft Preparatory Survey Report in English and dispatch a mission to Iran in order to explain its contents around August, 2017.

7-3. When the contents of the draft Preparatory Survey Report are accepted and the undertakings for the Project are fully agreed by the Iranian side, JICA will finalize the Preparatory Survey Report and send it to the Iranian side around October, 2017.

7-4. The above schedule is tentative and subject to change.

8. Other Relevant Issues

8-1. The Iranian side agreed to allocate budget (operational and maintenance costs) and human resources (health service providers and any other personnel) necessary for the proper and sustainable operation and maintenance of the

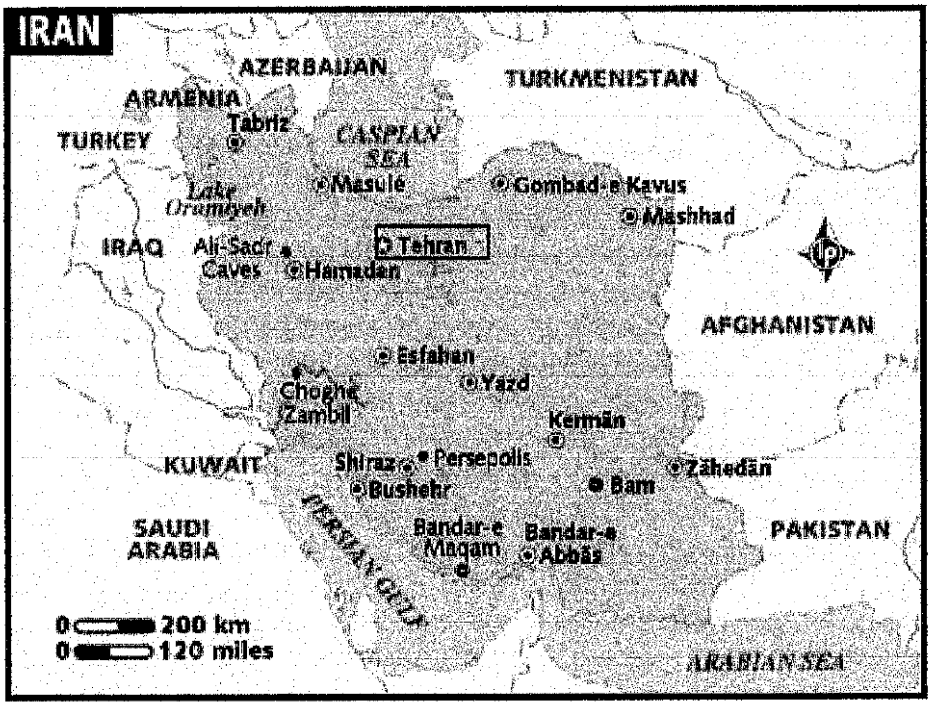
equipment under the Project.

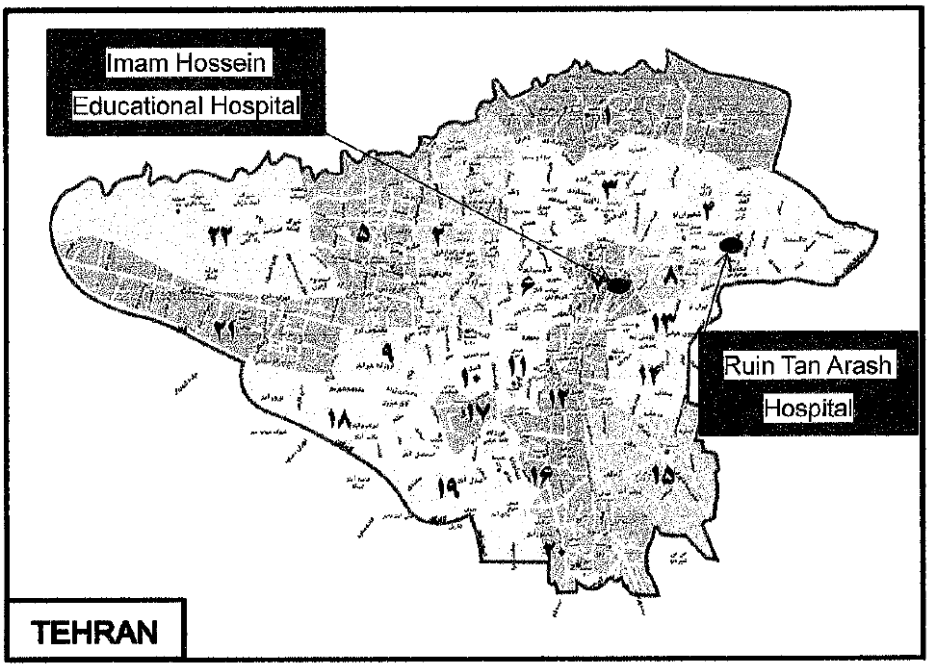
8-2. Both sides noted that the Iranian side shall ensure that customs duties, internal taxes and ,other fiscal levies which may be imposed in the country of the Recipient with respect to the purchase of the products and/or the services be exempted.

Annex 1 Project Sites in Iran
Annex 2 Organization Chart
Annex 3 Original Equipment List requested by Iran
Annex 4 Confirmed Equipment List requested by Iran
Annex 5 Japanese Grant Aid
Annex 6 Project Monitoring Report (template)
Annex 7 Major Undertakings to be taken by the Government of Iran

Annex 1

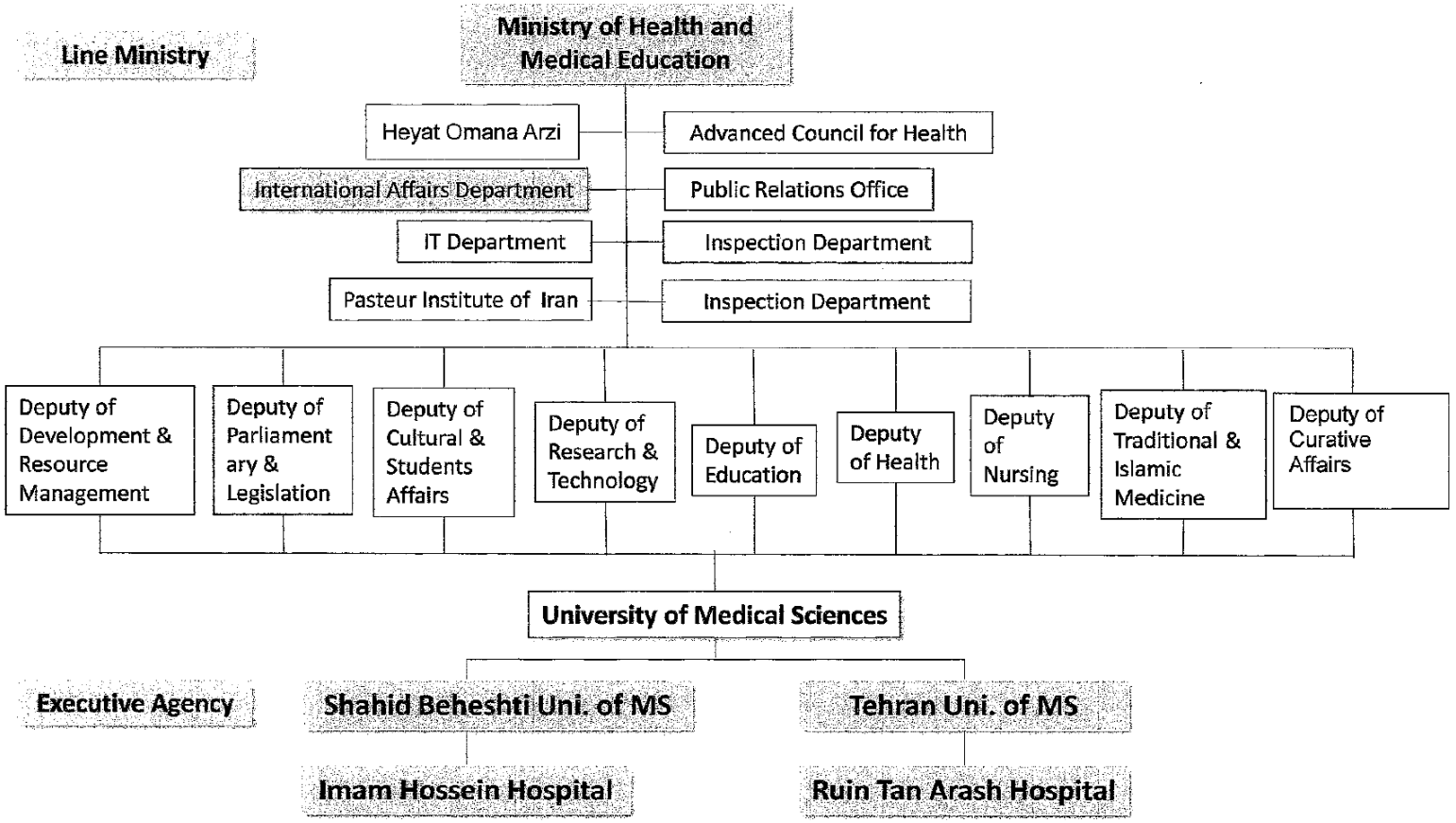
PROJECT SITES IN IRAN





Annex 2

ORGANIZATION CHART



Annex 3

Original Equipment List requested by Iran

Name of Hospital	Description	Q'ty	Not made in Japan
Imam Hossein Educational Hospital	Coroner vessel angiography machine	1	
	Peripheral vessel angiography machine	1	
	Endoscopy machine	1	
	Colonoscopy machine	1	
	Endo sonography	1	
	CT simulator	1	
	Linear accelerator	1	x
	Braki therapy	1	x
	Cyber knife	1	x
	Tomo therapy	1	x
Ruin Tan Arash Hospital.	MRI machine (1.5 Thesla)	1	
	CT scan (64 slice)	1	
	Radiotherapy machine (high energy)	1	x
	Digital mammography machine with flat panel and stereotaxie system	1	
	Sonography machine (2 sets) with canox and linear probes with frequencies suitable for breast examinations, vaginal prove, three and four dimensional probes and if possible chest sonography stereotaxie system	1	
	HLA typing	1	x
	Laparoscopy system (consisting of hysteroscopy, resectorsope and morcellator)	2	
	Endoscopy machine	1	
	Colonoscopy machine	1	

Annex 4

Confirmed Equipment List requested by Iran

Name of Hospital	Priority by Iran	Description	Q'ty
Imam Hossein Educational Hospital	1	Coroner vessel angiography machine	1
	2	Peripheral vessel angiography machine	1
	3	ERCP and C-arm X-ray machine	1
	4	Endo sonography	1
	5	Echo cardiography	1
	6	Sonography 4D	2
	7	Portable C-arm X-ray machine	1
	8	CT simulator	1
	9	Digital portable X-ray machine	2
	10	DDR(Digital X-ray machine)	2
	11	CT 16 slice	1
	12	Digital mammography machine with flat panel and stereotaxie system including workstation	1
Ruin Tan Arash Hospital	1	CT 16 slice	1
	2	MRI 1.5 Tesra	1
	3	Digital mammography machine with flat panel and stereotaxie system including workstation	1
	4	Laparoscopy system (consisting of hysteroscopy, resectorsope and morcellator)	2
	5	Endoscope and colonoscope with scope cleaner	1
	6	DDR(Digital X-ray machine)	1
	7	Digital portable X-ray machine	1
	8	Sonography machine with canox and linear probes with frequencies suitable for breast examinations, vaginal prove, three and four dimensional probes and if possible chest sonography stereotaxie system	2
	9	HLA typing	1
	10	Fully automated cryostat	1
	11	Echo cardiography	1
	12	Electrolyte analyzer	1
	13	Blood gas analyzer	1

* The above list of equipment is written in the priority order of each hospital.

Annex 5

JAPANESE GRANT

The Japanese Grant is non-reimbursable fund provided to a recipient country (hereinafter referred to as "the Recipient") to purchase the products and/or services (engineering services and transportation of the products, etc.) for its economic and social development in accordance with the relevant laws and regulations of Japan. Followings are the basic features of the project grants operated by JICA (hereinafter referred to as "Project Grants").

1. Procedures of Project Grants

Project Grants are conducted through following procedures (See "PROCEDURES OF JAPANESE GRANT" for details):

(1)Preparation

- The Preparatory Survey (hereinafter referred to as "the Survey") conducted by JICA

(2)Appraisal

-Appraisal by the government of Japan (hereinafter referred to as "GOJ") and JICA, and Approval by the Japanese Cabinet

(3)Implementation

Exchange of Notes

-The Notes exchanged between the GOJ and the government of the Recipient

Grant Agreement (hereinafter referred to as "the G/A")

-Agreement concluded between JICA and the Recipient

Banking Arrangement (hereinafter referred to as "the B/A")

-Opening of bank account by the Recipient in a bank in Japan (hereinafter referred to as "the Bank") to receive the grant

Construction works/procurement

-Implementation of the project (hereinafter referred to as "the Project") on the basis of the G/A

(4)Ex-post Monitoring and Evaluation

-Monitoring and evaluation at post-implementation stage

2. Preparatory Survey

(1) Contents of the Survey

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

-Confirmation of the background, objectives, and benefits of the Project and also institutional capacity of relevant agencies of the Recipient necessary for the implementation of the Project.

-Evaluation of the feasibility of the Project to be implemented under the Japanese Grant from a technical, financial, social and economic point of view.

-Confirmation of items agreed between both parties concerning the basic concept of the Project.

-Preparation of an outline design of the Project.

-Estimation of costs of the Project.

-Confirmation of Environmental and Social Considerations

The contents of the original request by the Recipient are not necessarily approved in their initial form. The Outline Design of the Project is confirmed based on the guidelines of the Japanese Grant.

JICA requests the Recipient to take measures necessary to achieve its self-reliance in the implementation of the Project. Such measures must be guaranteed even though they may fall outside of the jurisdiction of the executing agency of the Project. Therefore, the contents of the Project are confirmed by all relevant organizations of the Recipient based on the Minutes of Discussions.

(2) Selection of Consultants

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

(3) Result of the Survey

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

3. **Basic Principles of Project Grants**

(1) Implementation Stage

1) The E/N and the G/A

After the Project is approved by the Cabinet of Japan, the Exchange of Notes (hereinafter referred to as "the E/N") will be singed between the GOJ and the Government of the Recipient to make a pledge for assistance, which is followed by the conclusion of the G/A between JICA and the Recipient to define the necessary articles, in accordance with the E/N, to implement the Project, such as conditions of disbursement, responsibilities of the Recipient, and procurement conditions. The terms and conditions generally applicable to the Japanese Grant are stipulated in the "General Terms and Conditions for Japanese Grant (January 2016)."

2) Banking Arrangements (B/A) (See "Financial Flow of Japanese Grant (A/P Type)" for details)

a) The Recipient shall open an account or shall cause its designated authority to open an account under the name of the Recipient in the Bank, in principle. JICA will disburse the Japanese Grant in Japanese yen for the Recipient to cover the obligations incurred by the Recipient under the verified contracts.

b) The Japanese Grant will be disbursed when payment requests are submitted by the Bank to JICA under an Authorization to Pay (A/P) issued by the Recipient.

3) Procurement Procedure

The products and/or services necessary for the implementation of the Project shall be procured in accordance with JICA's procurement guidelines as stipulated in the G/A.

4) Selection of Consultants

In order to maintain technical consistency, the consulting firm(s) which conducted the Survey will be recommended by JICA to the Recipient to continue to work on the Project's implementation after the E/N and G/A.

5) Eligible source country

In using the Japanese Grant disbursed by JICA for the purchase of products and/or services, the eligible source countries of such products and/or services shall be Japan and/or the Recipient. The Japanese Grant may be used for the purchase of the products and/or services of a third country as eligible, if necessary, taking into account the quality, competitiveness and economic rationality of products and/or services

necessary for achieving the objective of the Project. However, the prime contractors, namely, constructing and procurement firms, and the prime consulting firm, which enter into contracts with the Recipient, are limited to "Japanese nationals", in principle.

6) Contracts and Concurrence by JICA

The Recipient will conclude contracts denominated in Japanese yen with Japanese nationals. Those contracts shall be concurred by JICA in order to be verified as eligible for using the Japanese Grant.

7) Monitoring

The Recipient is required to take their initiative to carefully monitor the progress of the Project in order to ensure its smooth implementation as part of their responsibility in the G/A, and to regularly report to JICA about its status by using the Project Monitoring Report (PMR).

8) Safety Measures

The Recipient must ensure that the safety is highly observed during the implementation of the Project.

(2) Ex-post Monitoring and Evaluation Stage

1) After the project completion, JICA will continue to keep in close contact with the Recipient in order to monitor that the outputs of the Project is used and maintained properly to attain its expected outcomes.

2) In principle, JICA will conduct ex-post evaluation of the Project after three years from the completion. It is required for the Recipient to furnish any necessary information as JICA may reasonably request.

(3) Others

1) Environmental and Social Considerations

The Recipient shall carefully consider environmental and social impacts by the Project and must comply with the environmental regulations of the Recipient and JICA Guidelines for Environmental and Social Considerations (April, 2010).

2) Major undertakings to be taken by the Government of the Recipient

For the smooth and proper implementation of the Project, the Recipient is

required to undertake necessary measures including land acquisition, and bear an advising commission of the A/P and payment commissions paid to the Bank as agreed with the GOJ and/or JICA. The Government of the Recipient shall ensure that customs duties, internal taxes and other fiscal levies which may be imposed in the Recipient with respect to the purchase of the Products and/or the Services be exempted or be borne by its designated authority without using the Grant and its accrued interest, since the grant fund comes from the Japanese taxpayers.

3) Proper Use

The Recipient is required to maintain and use properly and effectively the products and/or services under the Project (including the facilities constructed and the equipment purchased), to assign staff necessary for this operation and maintenance and to bear all the expenses other than those covered by the Japanese Grant.

4) Export and Re-export

The products purchased under the Japanese Grant should not be exported or re-exported from the Recipient.

Attachment 1

PROCEDURES OF JAPANESE GRANT

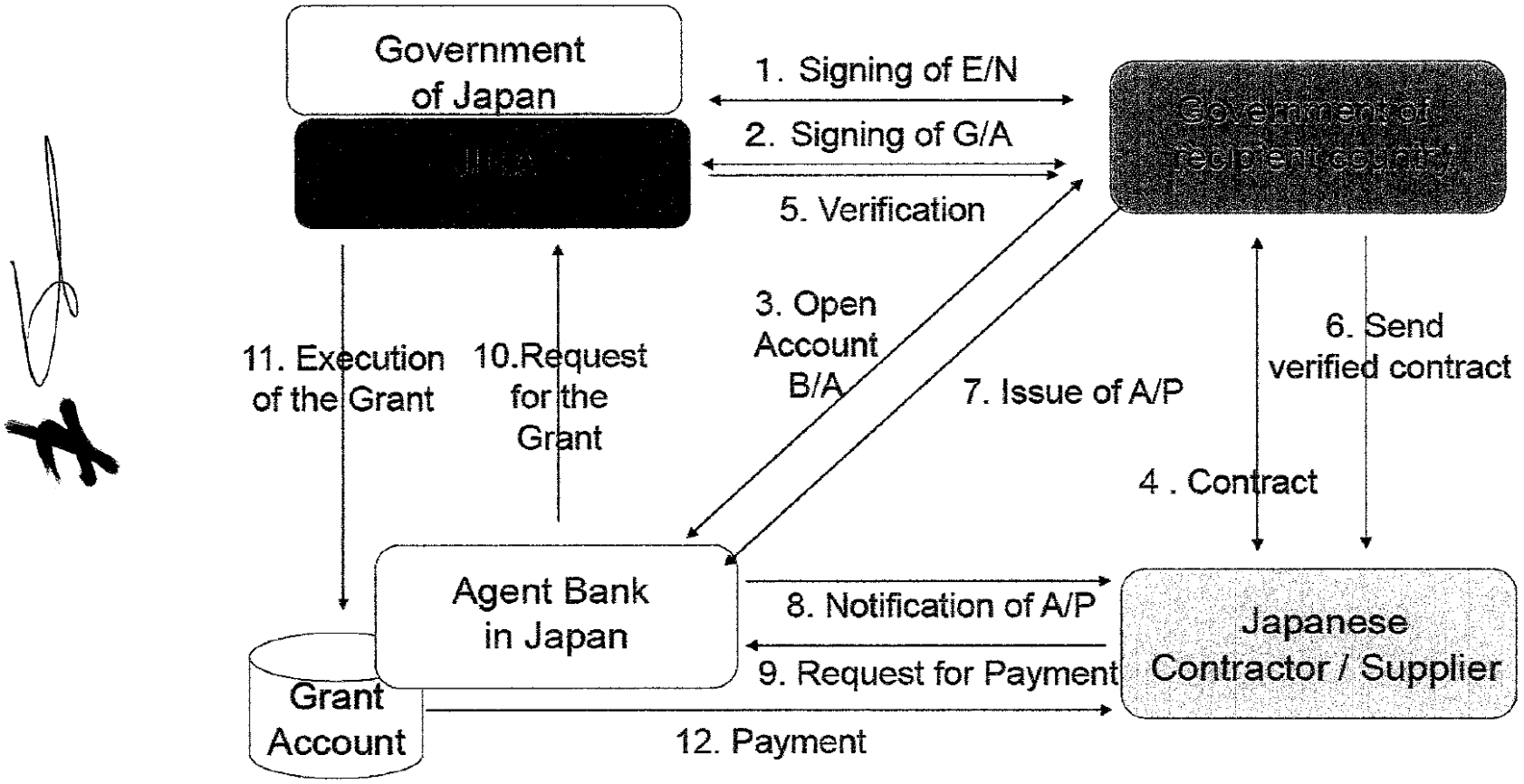
Stage	Procedures	Remarks	Recipient Government	Japanese Government	JICA	Consultants	Contractors	Agent Bank
Official Request	Request for grants through diplomatic channel	Request shall be submitted before appraisal stage.	x	x				
1. Preparation	(1) Preparatory Survey Preparation of outline design and cost estimate		x		x	x		
2. Appraisal	(2)Preparatory Survey Explanation of draft outline design, including cost estimate, undertakings, etc.		x		x	x		
	(3)Agreement on conditions for implementation	Conditions will be explained with the draft notes (E/N) and Grant Agreement (G/A) which will be signed before approval by Japanese government.	x	x (E/N)	x (G/A)			
	(4) Approval by the Japanese cabinet			x				
3. Implementation	(5) Exchange of Notes (E/N)		x	x				
	(6) Signing of Grant Agreement (G/A)		x		x			
	(7) Banking Arrangement (B/A)	Need to be informed to JICA	x					x
	(8) Contracting with consultant and issuance of Authorization to Pay (A/P)	Concurrence by JICA is required	x			x		x
	(9) Detail design (D/D)		x			x		
	(10) Preparation of bidding documents	Concurrence by JICA is required	x			x		
	(11) Bidding	Concurrence by JICA is required	x			x	x	
	(12) Contracting with contractor/supplier and issuance of A/P	Concurrence by JICA is required	x				x	x
	(13) Construction works/procurement	Concurrence by JICA is required for major modification of design and amendment of contracts.	x			x	x	
	(14) Completion certificate		x			x	x	
4. Ex-post monitoring & evaluation	(15) Ex-post monitoring	To be implemented generally after 1, 3, 10 years of completion, subject to change	x		x			
	(16) Ex-post evaluation	To be implemented basically after 3 years of completion	x		x			

notes:

1. Project Monitoring Report and Report for Project Completion shall be submitted to JICA as agreed in the G/A.

2. Concurrence by JICA is required for allocation of grant for remaining amount and/or contingencies as agreed in the G/A.

FINANCIAL FLOW OF JAPANESE GRANT



Annex 6
G/A NO. XXXXXXX
PMR prepared on DD/MM/YY

Project Monitoring Report
on
Project Name
Grant Agreement No. XXXXXXX

20XX, Month

Organizational Information

Signer of the G/A (Recipient)	Person in Charge	(Designation)
	Contacts	Address: Phone/FAX: Email:
Executing Agency	Person in Charge	(Designation)
	Contacts	Address: Phone/FAX: Email:
Line Ministry	Person in Charge	(Designation)
	Contacts	Address: Phone/FAX: Email:

General Information:

Project Title	
E/N	Signed date: Duration:
G/A	Signed date: Duration:
Source of Finance	Government of Japan: Not exceeding JPY _____ mil. Government of (_____): _____

1: Project Description

1-1 Project Objective

1-2 Project Rationale

- Higher-level objectives to which the project contributes (national/regional/sectoral policies and strategies)
- Situation of the target groups to which the project addresses

1-3 Indicators for measurement of "Effectiveness"

Quantitative indicators to measure the attainment of project objectives		
Indicators	Original (Yr)	Target (Yr)
Qualitative indicators to measure the attainment of project objectives		

2: Details of the Project

2-1 Location

Components	Original *(proposed in the outline design)*	Actual
1.		

2-2 Scope of the work

Components	Original* *(proposed in the outline design)*	Actual*
1.		

Reasons for modification of scope (if any).

(PMR)

2-3 Implementation Schedule

Items	Original		Actual
	(proposed in the outline design)	*(at the time of signing the Grant Agreement)*	

Reasons for any changes of the schedule, and their effects on the project (if any)

2-4 Obligations by the Recipient

2-4-1 Progress of Specific Obligations

See Attachment 2.

2-4-2 Activities

See Attachment 3.

2-4-3 Report on RD

See Attachment 11.

2-5 Project Cost

2-5-1 Cost borne by the Grant(Confidential until the Bidding)

Components			Cost (Million Yen)	
	Original *(proposed in the outline design)*	Actual *(in case of any modification)*	Original[1),2)] *(proposed in the outline design)*	Actual
	1.			
Total				

Note: 1) Date of estimation:
2) Exchange rate: 1 US Dollar = Yen

2-5-2 Cost borne by the Recipient

Components			Cost	
	Original *(proposed in the outline design)*	Actual *(in case of any modification)*	Original[1),2)] *(proposed in the outline design)*	Actual
	1.			

Note: 1) Date of estimation:
2) Exchange rate: 1 US Dollar =

Reasons for the remarkable gaps between the original and actual cost, and the countermeasures (if any)

(PMR)

2-6 Executing Agency

- Organization's role, financial position, capacity, cost recovery etc,
- Organization Chart including the unit in charge of the implementation and number of employees.

Original *(at the time of outline design)* name: role: financial situation: institutional and organizational arrangement (organogram): human resources (number and ability of staff):
Actual *(PMR)*

2-7 Environmental and Social Impacts

- The results of environmental monitoring based on Attachment 5 (in accordance with Schedule 4 of the Grant Agreement).
- The results of social monitoring based on in Attachment 5 (in accordance with Schedule 4 of the Grant Agreement).
- Disclosed information related to results of environmental and social monitoring to local stakeholders (whenever applicable).

3: Operation and Maintenance (O&M)

3-1 Physical Arrangement

- Plan for O&M (number and skills of the staff in the responsible division or section, availability of manuals and guidelines, availability of spareparts, etc.)

Original *(at the time of outline design)*
Actual *(PMR)*

3-2 Budgetary Arrangement

- Required O&M cost and actual budget allocation for O&M

Original *(at the time of outline design)*

Actual *(PMR)*

4: Potential Risks and Mitigation Measures

- Potential risks which may affect the project implementation, attainment of objectives, sustainability
- Mitigation measures corresponding to the potential risks

Assessment of Potential Risks *(at the time of outline design)*

Potential Risks	**Assessment**
1. (Description of Risk)	Probability: High/Moderate/Low
	Impact: High/Moderate/Low
	Analysis of Probability and Impact:
	Mitigation Measures:
	Action required during the implementation stage:
	Contingency Plan (if applicable):
2. (Description of Risk)	Probability: High/Moderate/Low
	Impact: High/Moderate/Low
	Analysis of Probability and Impact:
	Mitigation Measures:
	Action required during the implementation stage:
	Contingency Plan (if applicable):
3. (Description of Risk)	Probability: High/Moderate/Low
	Impact: High/Moderate/Low
	Analysis of Probability and Impact:
	Mitigation Measures:
	Action required during the implementation stage:

	Contingency Plan (if applicable):
Actual Situation and Countermeasures	
(PMR)	

5: Evaluation and Monitoring Plan (after the work completion)

5-1 Overall evaluation

Please describe your overall evaluation on the project.

5-2 Lessons Learnt and Recommendations

Please raise any lessons learned from the project experience, which might be valuable for the future assistance or similar type of projects, as well as any recommendations, which might be beneficial for better realization of the project effect, impact and assurance of sustainability.

5-3 Monitoring Plan of the Indicators for Post-Evaluation

Please describe monitoring methods, section(s)/department(s) in charge of monitoring, frequency, the term to monitor the indicators stipulated in 1-3.

Attachment

1. Project Location Map
2. Specific obligations of the Recipient which will not be funded with the Grant
3. Monthly Report submitted by the Consultant

Appendix - Photocopy of Contractor's Progress Report (if any)
- Consultant Member List
- Contractor's Main Staff List

4. Check list for the Contract (including Record of Amendment of the Contract/Agreement and Schedule of Payment)
5. Environmental Monitoring Form / Social Monitoring Form
6. Monitoring sheet on price of specified materials (Quarterly)
7. Report on Proportion of Procurement (Recipient Country, Japan and Third Countries) (PMR (final)only)
8. Pictures (by JPEG style by CD-R) (PMR (final)only)
9. Equipment List (PMR (final)only)
10. Drawing (PMR (final)only)
11. Report on RD (After project)

Attachment 6

Monitoring sheet on price of specified materials

1. Initial Conditions (Confirmed)

	Items of Specified Materials	Initial Volume A	Initial Unit Price (¥) B	Initial total Price C=A×B	1% of Contract Price D	Condition of payment	
						Price (Decreased) E=C－D	Price (Increased) F=C－D
1	Item 1	●●t	●	●	●	●	●
2	Item 2	●●t	●	●	●		
3	Item 3						
4	Item 4						
5	Item 5						

2. Monitoring of the Unit Price of Specified Materials

(1) Method of Monitoring : ●●

(2) Result of the Monitoring Survey on Unit Price for each specified materials

	Items of Specified Materials	1st ●month, 2015	2nd ●month, 2015	3rd ●month, 2015	4th	5th	6th
1	Item 1						
2	Item 2						
3	Item 3						
4	Item 4						
5	Item 5						

(3) Summary of Discussion with Contractor (if necessary)

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Attachment 7

Report on Proportion of Procurement (Recipient Country, Japan and Third Countries)

(Actual Expenditure by Construction and Equipment each)

	Domestic Procurement (Recipient Country) A	Foreign Procurement (Japan) B	Foreign Procurement (Third Countries) C	Total D
Construction Cost	(A/D%)	(B/D%)	(C/D%)	
Direct Construction Cost	(A/D%)	(B/D%)	(C/D%)	
others	(A/D%)	(B/D%)	(C/D%)	
Equipment Cost	(A/D%)	(B/D%)	(C/D%)	
Design and Supervision Cost	(A/D%)	(B/D%)	(C/D%)	
Total	(A/D%)	(B/D%)	(C/D%)	

Annex 7

Major Undertakings to be taken by the Government of Iran

1. Specific Obligations of the Government of Iran which will not be Funded with the Grant

(1) Before the Bidding

No.	Items	Deadline	In charge	Estimated Cost	Ref.
1	To open bank account (B/A)	3 month after G/A	MOHME (HOA)		
2	To issue A/P to a bank in Japan (the Agent Bank) for the payment to the consultant	within 1 month after the signing of the contract	MOHME (HOA/IAD)		
3	To submit Project Monitoring Report No. 1 (with the result of Detailed Design)	before preparation of bidding documents	MOHME (IAD)		

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

(2) During the Project Implementation

No.	Items	Deadline	In charge	Estimated Cost	Ref.
1	To issue A/P to a bank in Japan (the Agent Bank) for the payment to the Supplier(s)	within 1 month after the singing of the contract	MOHME (HOA/ IAD)		
2	To bear the following commissions to a bank in Japan for the banking services based upon the B/A 1) Advising commission of A/P 2) Payment commission for A/P	within 1 month after the singing of the contract every payment	MOHME (HOA/ IAD)		
3	To ensure prompt customs clearance and to assist the Supplier(s) with inland transportation in recipient country	during the Project	MOHME (HOA)		
4	To accord Japanese nationals and/or physical persons of third countries whose services may be required in connection with the supply of the products and the services such facilities as may be necessary for their entry into the country of the Recipient and stay therein for the performance of their work	during the Project	MOHME (IAD) /MOFA		
5	To ensure that customs duties, internal taxes and other fiscal levies which may be imposed in the country of the Recipient with respect to the purchase of the products and/or the services be exempted	during the Project	MOHME (HOA/IAD)		
6	To submit Project Monitoring Report No. 2 after the signing of contract	during the Project	MOHME (IAD)		
7	To submit Project Monitoring Report No. 3 after handover the equipment	during the Project	MOHME (IAD)		
8	To ensure that the maintenance and safe operation training costs(daily allowance, transportation, lodging, etc.) for staff will be covered under the Project	during the Project	MOHME		
9	To submit Project Monitoring Report No. 4(final)	within 2 weeks after the completion of technical trainings	MOHME (IAD)		

(IAD : International Affairs Department, FAD : Financial Affairs Department)

(3) After the Project

No.	Items	Deadline	In charge	Estimated Cost	Ref.
1	To register the equipment provided under the Project	After completion of the Project	MOHME (HOA)		
2	To maintain and use properly and effectively the equipment provided under the Grant 1) Allocation of operation and maintenance cost 2) Organization of operation and maintenance 3) Routine check/Periodic inspection	After completion of the Project	MOHME		
3	To ensure that the maintenance and safe operation training costs for service staff are covered	After completion of the Project	MOHME		

(2) Field Survey II

Minutes of Discussions
on the Preparatory Survey II for the Project for
Improvement of Medical Equipment in Tehran,
in the Islamic Republic of Iran

In response to the request from the Government of the Islamic Republic of Iran (hereinafter referred to as "Iran"), Japan International Cooperation Agency (hereinafter referred to as "JICA"), dispatched the Preparatory Survey Team for the Outline Design(second field survey) (hereinafter referred to as"the Team") of the Project for Improvement of Medical Equipment in Tehran (hereinafter referred to as "the Project") to Iran, headed by Dr. Mitsuo Isono, Senior Advisor for Health, Human Development Department, JICA, from 1st May to 26th May, 2017. The Team held a series of discussions with the officials of the Government of Iran and conducted a field survey. In the course of the discussions, both sides have confirmed the main items described in the attached sheets.

Tehran, 10th May, 2017

Dr. Mitsuo Isono	Dr. Ali Maher
Leader	Vice Deputy of Curative Affairs
Preparatory Survey Team	Ministry of Health and Medical Education
Japan International Cooperation Agency	Islamic Republic of Iran
Japan	

ATTACHMENT

1. Objective of the Project

   The objective of the Project is to strengthen the function of the selected hospitals (Imam Hossein Educational Hospital and Ruin Tan Arash Hospital) in Tehran by providing of the medical equipment for early detection and treatment of cancer and cardiovascular diseases, thereby contributing to improving quality of clinical service for cancer and cardiovascular diseases in the Islamic Republic of Iran.

2. Items requested by Iran

   2-1. The Team explained that the Japanese side selected the medical equipment to be procured in accordance with the Confirmed Equipment List requested by the Iranian side on the Preparatory Survey I in March 2017.

   2-2. Both sides confirmed that procurement of some major Medical Equipment such as MRI, CT and Angiography machines will include the maintenance service contract in total of 3 years under this Japan's Grant Aid.

   2-3. Both sides confirmed that list of optional accessory items and application software for requested medical equipment shall be defined in the Technical Notes between the Iranian side and the consultant team of the Japanese side. Final results of procurement of these optional accessory items and application software for requested medical equipment shall be decided by the Japanese side considering budget availability.

   2-4. The Japanese side will report the results of this survey to the Government of Japan and the final items of the Project will be decided by the Government of Japan.

As a result of discussions, both sides confirmed that the items requested by Ministry of Health and Medical Education (hereinafter referred to as "MOHME") are as shown in the Annex 1.

3. Procedures for elaborated Major Undertakings

   The Iranian side agreed to take necessary measures, as described in Annex 2, for smooth implementation of the Project as a condition for the Japanese Grant to be implemented. The contents of Annex 2 will be elaborated and refined during the Preparatory Survey and be agreed in the mission dispatched for the explanation of the Draft Preparatory Survey Report. The contents of Annex 2 will be updated as

the Preparatory Survey Progress, and eventually be used as an attachment to the Grant Agreement.

4. Schedule of the Survey

4-1. The Team will proceed with further survey in Iran until 26th May, 2017.

4-2. JICA will prepare a draft Preparatory Survey Report in English and dispatch a mission to Iran in order to explain its contents around August, 2017.

4-3. When the contents of the draft Preparatory Survey Report are accepted and the undertakings for the Project are fully agreed by the Iranian side, JICA will finalize the Preparatory Survey Report and send it to the Iranian side around October, 2017.

4-4. The above schedule is tentative and subject to change.

5. Expected outcomes and indicators

Both sides agreed with key indicators for expected outcomes as follows. The Iranian side has responsibility to monitor the progress of the indicators and achieve the targets in year 2021 (3 years after the Project completion). The numerical values for baseline and goal will be elaborated and refined during the survey and shall be agreed no later than the Explanation of the Draft Preparatory Survey Report.

[Quantitative indicators at Imam Hossein Educational Hospital]

	Indicators	Baseline (Year 2016)	Goal (Year 2021)
1	The number of Primary PCI patients per year.		
2	The number of hospital deaths due to ischemic heart diseases per year		
3	The number of cardiac echo examination per year		
4	The number of endosonography examination per year		

[Quantitative indicators at Ruin Tan Arash Hospital]

	Indicators	Baseline (Year 2016)	Goal (Year 2021)
1	The number of MRI examinations exceeds 200 per month.		
2	The number of CT examinations exceeds 300 per month.		
3	The number of upper and lower digestive endoscope examinations per year		
4	The incident rates of breast cancer in early stage per year		
5	The number of cancer operations using Laparoscope per year		

[Qualitative indicators at Imam Hossein Educational Hospital and Ruin Tan Arash Hospital]

1	The perceived trust and accessibility of hospitals by people living in the catchment area increased due to improved availability of necessary and quality clinical services in the hospitals.
2	The motivation to study clinical services of residents and higher level clinicians increased due to the improvement of educational environment (e.g. can be dealt with variety of cases) by improved medical equipment.

6. Other Relevant Issues

6-1. The Iranian side agreed to allocate budget (operational and maintenance costs) and human resources (health service providers and any other personnel) necessary for the proper and sustainable operation and maintenance of the equipment under the Project.

6-2. The Iranian side agreed to prepare rooms and necessary facilities to install and operate properly all equipment, especially MRI and CT.

6-3. The Iranian side shall avoid the duplication among the medical equipment to be procured by the project, the MOHME and other donors.

6-4. Both sides noted that the Iranian side shall ensure that customs duties, internal taxes and other fiscal levies which may be imposed in the country of the Recipient with respect to the purchase of the products and/or the services be exempted.

6-5. Both sides confirmed that the equipment list and other technical information related to the Project shall not be released before the tender to be held in the implementation stage.

6-6. Both sides confirmed that the Project Sites and the Organization Chart remain the same as attached in the Minutes of Discussions signed on 11th March, 2017.

END

Annex 1 Confirmed Equipment List requested by Iran

Annex 2 Major Undertakings to be taken by the Government of Iran

Annex 1

Confirmed Equipment List requested by Iran

Name of Hospital	Priority by Iran	Description	Q'ty
Imam Hossein Educational Hospital	1	Angiography machine (for cardiac diseases)	1
	2	Angiography machine (for peripheral vessels)	1
	3	ERCP and C-arm X-ray machine	1
	4	Endosonography	1
	5	Echo cardiography	1
Ruin Tan Arash Hospital	1	CT 16-slice	1
	2	MRI 1.5 Tesla	1
	3	Digital mammography machine with flat panel and stereotaxy system including workstation	1
	4	Laparoscopy system (consisting of hysteroscopy, resectorsope and morcellator)	2
	5	Endoscope and colonoscopy with scope cleaner	1
	6	DDR (Digital X-ray machine)	1
	7	Digital portable X-ray machine	1

Annex 2

Major Undertakings to be taken by the Government of Iran

1. Specific Obligations of the Government of Iran which will not be Funded with the Grant

(1) Before the Bidding

No.	Items	Deadline	In charge	Estimated Cost	Ref.
1	To open bank account (B/A)	3 month after G/A	MOHME (HOA)		
2	To issue A/P to a bank in Japan (the Agent Bank) for the payment to the consultant	within 1 month after the signing of the contract	MOHME (HOA/IAD)		
3	To submit Project Monitoring Report No. 1 (with the result of Detailed Design)	before preparation of bidding documents	MOHME (IAD)		

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

(2) During the Project Implementation

No.	Items	Deadline	In charge	Estimated Cost	Ref.
1	To issue A/P to a bank in Japan (the Agent Bank) for the payment to the Supplier(s)	within 1 month after the singing of the contract	MOHME (HOA/ IAD)		
2	To bear the following commissions to a bank in Japan for the banking services based upon the B/A 1) Advising commission of A/P 2) Payment commission for A/P	within 1 month after the singing of the contract every payment	MOHME (HOA/ IAD)		
3	To ensure prompt customs clearance and to assist the Supplier(s) with inland transportation in recipient country	during the Project	MOHME (HOA)		
4	To accord Japanese nationals and/or physical persons of third countries whose services may be required in connection with the supply of the products and the services such facilities as may be necessary for their entry into the country of the Recipient and stay therein for the performance of their work	during the Project	MOHME (IAD) /MOFA		
5	To ensure that customs duties, internal taxes and other fiscal levies which may be imposed in the country of the Recipient with respect to the purchase of the products and/or the services be exempted	during the Project	MOHME (HOA/IAD)		
6	To submit Project Monitoring Report No. 2 after the signing of contract	during the Project	MOHME (IAD)		
7	To refurbish the rooms ready for installation of the equipment, especially Angiographies and C-arm. This work includes electrical work, air conditioning, shielding and all other necessary works.	1 month before the commencement of the Equipment installation	Imam Hossein Educational Hospital		
8	To construct and prepare the rooms ready for installation of the equipment, especially MRI and CT. This work includes electrical work, air conditioning, plumbing and all other necessary works.	1 month before the commencement of the Equipment installation	Ruin Tan Arash Hospital		
9	To ensure the room(s) with lock and air conditioning to store the procured equipment tentatively before its setting and/or installation.	Before the arrival of the Equipment to each site	Imam Hossein Educational Hospital/ Ruin Tan Arash Hospital		
10	To submit Project Monitoring Report No. 3 after handover the equipment	during the Project	MOHME (IAD)		
11	To ensure that the maintenance and safe operation training costs(daily allowance, transportation, lodging, etc.) for staff will be covered under the Project	during the Project	MOHME		
12	To submit Project Monitoring Report No. 4(final)	within 2 weeks after the completion of technical trainings	MOHME (IAD)		

(IAD : International Affairs Department, FAD : Financial Affairs Department)

(3) After the Project

No.	Items	Deadline	In charge	Estimated Cost	Ref.
1	To register the equipment provided under the Project	After completion of the Project	MOHME (HOA)		
2	To maintain and use properly and effectively the equipment provided under the Grant 1) Allocation of operation and maintenance cost 2) Organization of operation and maintenance 3) Routine check/Periodic inspection	After completion of the Project	MOHME		
3	To ensure that the maintenance and safe operation training costs for service staff are covered	After completion of the Project	MOHME		

(3) Explanation of Draft Final Report

Minutes of Discussions
on the Preparatory Survey Ⅲ for the Project for
Improvement of Medical Equipment in Tehran,
in the Islamic Republic of Iran
(Explanation on Draft Preparatory Survey Report)

With reference to the minutes of discussions signed between the Ministry of Health and Medical Education (hereinafter referred to as "MOHME") and the Japan International Cooperation Agency (hereinafter referred to as "JICA") on 11th March and 10th May, 2017 and in response to the request from the Government of the Islamic Republic of Iran (hereinafter referred to as "Iran") dated 5th February, 2017, JICA dispatched the Preparatory Survey Team (hereinafter referred to as "the Team") for the explanation of Draft Preparatory Survey Report (hereinafter referred to as "the Draft Report") for the Project for Improvement of Medical Equipment in Tehran (hereinafter referred to as "the Project"), headed by Dr. Mitsuo Isono, Senior Advisor for Health, JICA from 1st to 6th September, 2017.

As a result of the discussions, both sides agreed on the main items described in the attached sheets.

Tehran, 5th September, 2017

Dr. Mitsuo Isono
Leader
Preparatory Survey Team
Japan International Cooperation Agency
Japan

Dr. Ali Maher
Vice Deputy of Curative Affairs
Ministry of Health and Medical Education
Islamic Republic of Iran

ATTACHMENT

1. Objective of the Project
   The objective of the Project is to strengthen the function of the selected hospitals (Imam Hossein Educational Hospital and Ruin Tan Arash Hospital) in Tehran by providing of the medical equipment for early detection and treatment of cancer and cardiovascular diseases, thereby contributing to improving quality of clinical service for cancer and cardiovascular diseases in the Islamic Republic of Iran.

2. Contents of the Draft Report
   After the explanation of the contents of the Draft Report by the Team, the Iranian side agreed to its contents. The equipment list in the selected hospitals is shown in Annex 1.

3. Project Cost Estimate
   Both sides confirmed that the cost estimate described in the Draft Report and Annex 2 is provisional and will be examined further by the Government of Japan for its approval.

4. Confidentiality of the Cost Estimate and Technical Specifications
   Both sides confirmed that the cost estimate and technical specifications in the Draft Report and Annex 2 should never be duplicated or disclosed to any third parties until all the contracts under the Project are concluded.

5. Timeline for the project implementation
   The Team explained to the Iranian side that the expected timeline for the Project implementation is as attached in Annex 3.

6. Expected outcomes and indicators
   Both sides agreed that key indicators for expected outcomes are as follows. The Iranian side will be responsible for the achievement of agreed key indicators targeted in the Iranian financial year 2021 and shall monitor the progress based on those indicators.

M A

[Quantitative indicators at Imam Hossein Educational Hospital]

	Indicator	Baseline (Year 2016)	Target (Year 2021)
1	The number of cases who received coronary angiography with/without interventions. (cases/year)	1,400	2,100
2	The number of cardiac echo examinations. (cases/year)	16,959	25,000
3	The number of endosonography examination. (cases/year)	0	600

[Quantitative indicators at Ruin Tan Arash Hospital]

	Indicator	Baseline (Year 2016)	Target (Year 2021)
1	The number of MRI examinations. (cases/year)	0	2,400
2	The number of CT examinations. (cases/year)	0	3,600
3	The number of upper and lower digestive endoscope examinations. (cases/year)	469	600
4	The number of cancer operations using Laparoscope. (cases/year)	1,896	2,700

[Qualitative indicators at Imam Hossein Educational Hospital and Ruin Tan Arash Hospital]

1	The perceived trust and accessibility of hospitals by people living in the catchment area increased due to improved availability of necessary and quality clinical services in the hospitals.
2	The motivation to study clinical services of residents and higher level clinicians increased due to the improvement of educational environment (e.g. can be dealt with variety of cases) by improved medical equipment.

7. Undertakings of the Project

Both sides confirmed the undertakings of the Project as described in Annex 4 and those schedules as shown in Annex 3. With regard to exemption of customs duties, internal taxes and other fiscal levies as stipulated in No. 5 of "(2) During the Project Implementation" of Annex 4, both sides confirmed that such customs duties, internal taxes and other fiscal levies include VAT, commercial tax, income

tax and corporate tax, which shall be clarified in the bid documents by MOHME during the implementation stage of the Project. The Iranian side assured to take the necessary measures and coordination including allocation of the necessary budget which is preconditions of implementation of the Project. It is further agreed that the costs are indicative, i.e. at Outline Design level. More accurate costs will be calculated at the Detailed Design stage.
Both sides also confirmed that the Annex 4 will be used as an attachment of G/A.

8. Monitoring during the implementation
The Project will be monitored by the Executing Agency and reported to JICA by using the form of Project Monitoring Report (PMR) attached as Annex 5. The timing of submission of the PMR is described in Annex 4.

9. Project completion
Both sides confirmed that the project completes when all the equipment procured by the grant are in operation. The completion of the Project will be reported to JICA promptly, but in any event not later than six months after completion of the Project.

10. Ex-Post Evaluation
JICA will conduct an ex-post evaluation after three (3) years from the project completion, in principle, with respect to five evaluation criteria (Relevance, Effectiveness, Efficiency, Impact, and Sustainability). The result of the evaluation will be publicized. The Iranian side is required to provide necessary support for the data collection.

11. Schedule of the Study
JICA will finalize the Preparatory Survey Report based on the confirmed items. The report will be sent to the Iranian side around December, 2017.

12. Environmental and Social Considerations
The Team explained that 'JICA Guidelines for Environmental and Social Considerations (April 2010)' (hereinafter referred to as "the Guidelines") is applicable for the Project. The Project is categorized as C because the Project is likely to have minimal adverse impact on the environment under the Guidelines.

13. Disclosure of Information

Both sides confirmed that the Preparatory Survey Report from which project cost is excluded will be disclosed to the public after completion of the Preparatory Survey. The comprehensive report including the project cost will be disclosed to the public after all the contracts under the Project are concluded.

14. Other Relevant Issues

Both sides confirmed that Iranian side has already started the procedure in order to construct new building and refurbish for installation of the equipment as allocating necessary budgets.

END

Annex 1 Equipment List
Annex 2 Project Cost Estimation (confidential)
Annex 3 Project Implementation Schedule (tentative)
Annex 4 Major Undertakings to be taken by the Government of Iran
Annex 5 Project Monitoring Report (template)

Annex 1

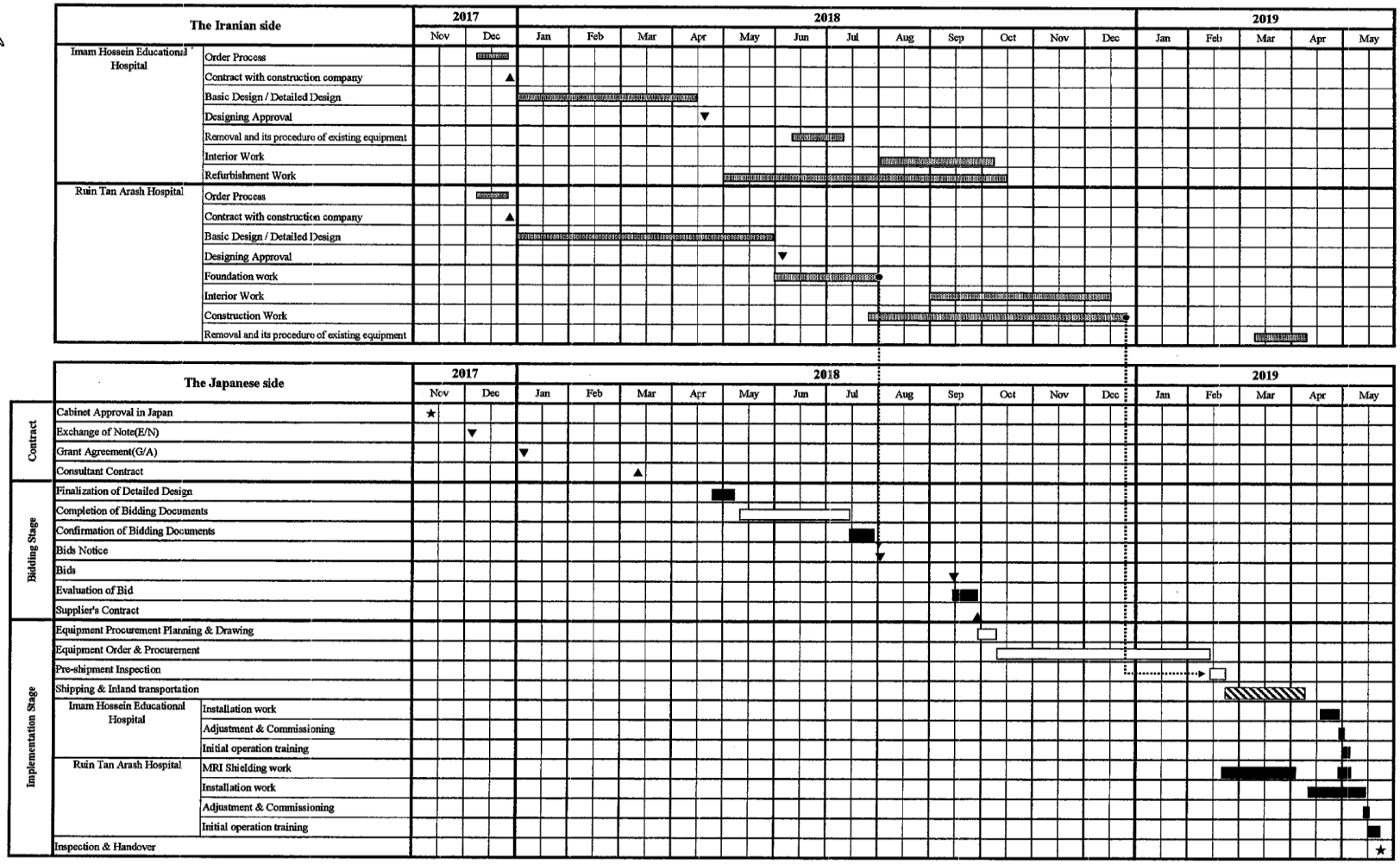
Confirmed Equipment List requested by Iran

Name of Hospital	Priority by Iran	Description	Q'ty
Imam Hossein Educational Hospital	1	Angiography system (for coronary vessels)	1
	2	Angiography system (for neuro/peripheral vessels)	1
	3	ERCP and Surgical Mobile C-arm X-ray unit	1
	4	Endo-sonography system	1
	5	Echocardiography unit	1
Ruin Tan Arash Hospital	1	Computed Tomography 16-slice	1
	2	Magnetic Resonance Imaging 1.5 Tesla	1
	3	Digital mammography unit (with flat panel and stereotaxy system including workstation)	1
	4	Laparoscope set	2
	5	Gastroscope and Colonoscope set	1
	6	Digital X-ray machine unit	1
	7	Digital mobile X-ray unit	1

Annex 2: Project Cost Estimation

This page is closed due to the confidentiality.

Annex3 Project Implementation Schedule(tentative)



Annex 4

Major Undertakings to be taken by the Government of Iran

1. Specific Obligations of the Government of Iran which will not be Funded with the Grant

(1) Before the Bidding

No.	Items	Deadline	In charge	Estimated Cost in USD	Ref.
1	To open bank account (B/A)	3 month after G/A	MOHME (HOA)	This part is closed due to the confidentiality.	
2	To issue A/P to a bank in Japan (the Agent Bank) for the payment to the consultant	within 1 month after the signing of the contract	MOHME (HOA/IAD)		
3	To submit Project Monitoring Report No. 1 (with the result of Detailed Design)	before preparation of bidding documents	MOHME (IAD)		
4	To secure necessary budget for refurbishment/construction works and distribute to each hospital	After E/N has been singed	MOHME (IAD)		
5	To complete the foundation work of the new building where MRI and CT are to be installed	Before the bids notice	Tehran University of Medical Sciences/ Ruin Tan Arash Hospital		

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

(2) During the Project Implementation

No.	Items	Deadline	In charge	Estimated Cost in USD	Ref.
1	To issue A/P to a bank in Japan (the Agent Bank) for the payment to the Supplier(s)	within 1 month after the singing of the contract	MOHME (HOA/ IAD)	This part is closed due to the confidentiality.	
2	To bear the following commissions to a bank in Japan for the banking services based upon the B/A 1) Advising commission of A/P 2) Payment commission for A/P	within 1 month after the singing of the contract every payment	MOHME (HOA/ IAD)		
3	To ensure prompt customs clearance and to assist the Supplier(s) with inland transportation in recipient country. Customs clearance fee to be borne by Iranian side.	during the Project	MOHME (HOA)	As necessary	the Draft Report
4	To accord Japanese nationals and/or physical persons of third countries whose services may be required in connection with the supply of the products and the services such facilities as may be necessary for their entry into the country of the Recipient and stay therein for the performance of their work	during the Project	MOHME (IAD) /MOFA	As necessary	
5	To ensure that customs duties, internal taxes and other fiscal levies which may be imposed in the country of the Recipient with respect to the purchase of the products and/or the services be exempted	during the Project	MOHME (HOA/IAD)	-	the Draft Report
6	To bear all the expenses, other than those to be borne by the Grant Aid, necessary for the implementation of the Project	during the Project	MOHME	As necessary	
7	To submit Project Monitoring Report No. 2 after the signing of contract	during the Project	MOHME (IAD)	-	
8	To refurbish the rooms ready for installation of the equipment, especially Angiographies and C-arm. This work includes electrical work (including power supply with generator backup), air conditioning, shielding and all other necessary works.	1 month before the commencement of the Equipment installation	Shahid Beheshti University of Medical Sciences/Imam Hossein Educational Hospital	65,000	the Draft Report
9	To complete the construction of the new building where MRI and CT are to be installed except for the delivery entrance of the equipment.	before the pre-shipment inspection	Tehran University of Medical Sciences/ Ruin Tan Arash Hospital	350,000	the Draft Report
	To complete electrical work (including power supply with generator backup), air conditioning, plumbing and all other necessary works to prepare the rooms ready for installation of the equipment, especially MRI and CT.	1 month before the commencement of the Equipment installation			
	To finish the construction work of the new MRI and CT building, including filling the delivery entrance of the MRI and CT and installation of a quench duct.	during the Project			
10	To ensure the room(s) with lock and air conditioning to store the procured equipment tentatively before its setting and/or installation including removal of unnecessary equipment.	before the arrival of the Equipment to each site	Imam Hossein Educational Hospital/ Ruin Tan Arash Hospital	300	the Draft Report
11	To submit Project Monitoring Report No. 3 after handover the equipment	during the Project	MOHME (IAD)	-	

No.	Items	Deadline	In charge	Estimated Cost in USD	Ref.
12	To ensure that proper personnel will be allocated for utilizing equipment effectively including maintenance and safe operation training costs(daily allowance, transportation, lodging, etc.) for staff will be covered under the Project	during the Project	MOHME	-	
13	To submit Project Monitoring Report No. 4(final)	within 2 weeks after the completion of technical trainings	MOHME (IAD)	-	

(IAD : International Affairs Department, FAD : Financial Affairs Department)
* The estimated costs to be borne by by the Executing Agency will be calculated in the later stage.

(3) After the Project

No.	Items	Deadline	In charge	Estimated Cost in thousand USD	Ref.
1	To register the equipment provided under the Project	After completion of the Project	MOHME (HOA)	As necessary	
2	To maintain and use properly and effectively the equipment provided under the Grant 1) Allocation of operation and maintenance cost 2) Organization of operation and maintenance 3) Routine check/Periodic inspection 4) Spare parts and Consumables	After completion of the Project	MOHME	Imam Hossein Educational Hospital · up to 3rd year: 3,624 · 4th year and onwards: 3,673 Ruin Tan Arash Hospital · up to 3rd year: 286 · 4th year and onwards: 348	the Draft Report
3	To ensure that the maintenance and safe operation training costs for service staff are covered	After completion of the Project	MOHME	As necessary	

Annex 5
G/A NO. XXXXXXX
PMR prepared on DD/MM/YY

Project Monitoring Report
on
The Project for Improvement of Medical Equipment in Tehran
Grant Agreement No. XXXXXXX

20XX, Month

Organizational Information

Signer of the G/A (Recipient)	Person in Charge (Designation) Contacts Address: Phone/FAX: Email:
Executing Agency 1	Person in Charge (Designation) Shahid Beheshti University of Medical Sciences Contacts Address: Phone/FAX: Email:
Executing Agency 2	Person in Charge (Designation) Tehran University of Medical Sciences Contacts Address: Phone/FAX: Email:
Line Ministry	**Dr. Jalal Naeli** Person in Charge Ministry of Health and Medical Education International Affairs Department Contacts Address: Block A, Eyvanak Blow, Shahrak -e Ghods,Tehran, Iran Phone/FAX: +98 (912) 3844247 Email: jalalnaeli@gmail.com

General Information:

Project Title	The Project for Improvement of Medical Equipment in Tehran
E/N	Signed date: Duration:
G/A	Signed date: Duration:
Source of Finance	Government of Japan: Not exceeding JPY _____ mil. Government of Iran: _____

1: Project Description

1-1 Project Objective

The Project for Improvement of Medical Equipment in Tehran (the Project) aims to strengthen the function of the diagnosis and treatment of CVD and cancer at two tertiary hospitals in eastern Tehran, namely, Imam Hossein Educational Hospital (IHEH) and Ruin Tan Arash Hospital (RTAH) through the provision of medical equipment necessary for early detection and treatment of CVD and cancer.

1-2 Project Rationale

- Higher-level objectives to which the project contributes (national/regional/sectoral policies and strategies)
- Situation of the target groups to which the project addresses

In recent years, the Islamic Republic of Iran (Iran) has seen an increasing trend in mortality due to Non-Communicable Diseases (NCD(s)). NCDs make up 76% of the overall cause of deaths and it is higher than the global average of 65.5%. The top two causes of deaths among NCDs were Cardiovascular Diseases (CVD(s)) accounting for 46%, and cancer accounting for 13% (World Health Organization 2016). Based on this situation, the Ministry of Health and Medical Education (MOHME) developed the National Action Plan for Prevention and Control of Non-Communicable Diseases and the Related Risk Factors in the Islamic Republic of Iran, 2015-2025 (the National NCDs Action Plan) and is working on strengthening the provision of medical services following this National NCDs Action Plan to promote early detection and treatment of NCD, which are becoming more prevalent due to the extended life expectancy of the population.

Since the capital city, Tehran, has increased the population growth in the latter part of the 20th century, in addition, economic disparities in the city have been expanding, so it becomes more important, and there is a permanently demand, to provide medical services at public medical facilities that have lowered out-of-pocket expenses for services. MOHME is now strengthening the provision and function of medical diagnosis and treatment in order to provide prompt and adequate medical services to the population at 24 medical facilities designated for CVDs and cancers (15 CVD facilities and 9 cancer centers: 6 of Type 2 and 3 of Type 3) in Tehran; such enhancement is preferentially necessary to be taken since, in the eastern part of Tehran, there is a high demand for medical services provided by public medical facilities.

1-3 Indicators for measurement of "Effectiveness"

Quantitative indicators to measure the attainment of project objectives			
Target hospitals	Indicators	Original (Yr 2016)	Target (Yr 2021)
Imam Hossein Educational Hospital	The number of cases who received coronary angiography with/without interventions(cases/year)	1,400	2,100
	The number of cardiac echo examination (cases/year)	16,959	25,000
	The number of endosonography examination (cases/year)	0	600
Ruin Tan Arash Hospital	The number of MRI examinations per year (cases/year)	0	2,400
	The number of CT examinations per year (cases/year)	0	3,600
	The number of upper and lower digestive endoscope examinations (cases/year)	469	600
	The number of cancer operations using Laparoscope (cases/year)	1,896	2,700

Qualitative indicators to measure the attainment of project objectives

1. The perceived trust and accessibility of hospitals by people living in the catchment area increased due to improved availability of necessary and quality clinical services in the hospitals.
2. The motivation to study clinical services of residents and higher level clinicians increased due to the improvement of educational environment (e.g. can be dealt with variety of cases) by improved medical equipment.

2: Details of the Project

2-1 Location

	Original: *(M/D)*	**Actual:** *(PMR)*
Location	Imam Hossein Educational Hospital (IHEH) and Ruin Tan Arash Hospital (RTAH)	
	Attachment(s):Map	**Attachment(s):Map**

2-2 Scope of the work

Components	Original* *(proposed in the outline design)*	Actual*
1. Equipment	12 items of medical equipment for early detection and treatment of CVD and cancer	
2. Maintenance Contract	- Angiography system (for coronary vessels) - Angiography system (for neuro/peripheral vessels) - CT 16-slice - MRI 1.5 Tesla - Digital mammography unit	

Reasons for modification of scope (if any).

(PMR)

2-3 Implementation Schedule

Items	Original		Actual
	(proposed in the outline design)	*(at the time of signing the Grant Agreement)*	
Cabinet Approval	11/2017		
E/N	12/2017		
G/A	1/2018		
Detailed Design	4-7/2018		
Bid Notice	7/2018		
Bidding	9/2018		
Procurement of the Equipment	10/2018-3/2019		
Installation of the Equipment	1-5/2019		
Handover	5/2019		
Manufacturer's Warranty Period	5/2020		
Period of the 2nd-year Maintenance Contract	5/2021		
Period of the 3rd-year Maintenance Contract	5/2022		

Reasons for any changes of the schedule, and their effects on the project (if any)

2-4 Obligations by the Recipient

2-4-1 Progress of Specific Obligations

See Attachment 2.

2-4-2 Activities

See Attachment 3.

2-5 Project Cost

This page is closed due to confidentiality.

(PMR)

2-6 Executing Agency

- Organization's role, financial position, capacity, cost recovery etc,
- Organization Chart including the unit in charge of the implementation and number of employees.

Original *(at the time of outline design)*

Executing Agency 1: Shahid Beheshti University of Medical Sciences

Role:

Shahid Beheshti University of Medical Science is responsible for assigning medical personnel, distributing necessary budget and monitoring refurbishment work schedule by conducting periodic checks by the supervisor.

Financial situation:

Revenue and Expenditure of Imam Hossein Educational Hospital (IHEH) are mentioned in the below table;

Table 1 Revenue of IHEH over the past three years

	Unit	FY 2013	FY 2014	FY 2015	Year-on-year rate of increase
Government budget	thousand IRR	229,326,773	302,977,152	325,277,159	+7.36%
	thousand JPY	787,278	1,040,120	1,116,676	
Hospital income	thousand IRR	764,279,014	1,472,924,212	1,723,564,071	+17.01%
	thousand JPY	2,623,769	5,056,548	5,916,995	

Source: Answers to the questionnaire from IHEH
Exchange Rate: 1 IRR = 0.003433 JPY (July 2017)

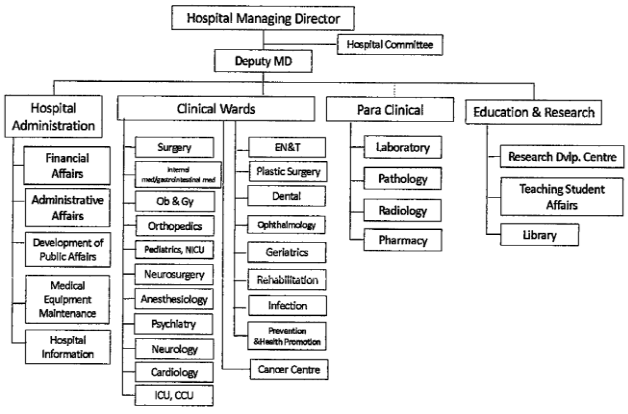
Table 2 Expenditure of IHEH over the past three years

Item	Unit	FY 2013	FY2014	2015FY
Salary	Thousand IRR	249,879	316,264,148	358,634,650
	Thousand JY	858	1,085,735	1,231,193
Medical equipment	Thousand IRR	631,225,446	973,108,708	1,522,087,432
	Thousand JY	2,166,997	3,340,682	5,225,326
Medicine	Thousand IRR	246,982,914	347,734,832	446,173,855
	Thousand JY	847,892	1,193,774	1,531,715
Medical equipment maintenance	Thousand IRR	7,000,000	9,000,000	7,500,000
	Thousand JY	24,031	30,897	25,748
Depreciation	Thousand IRR	10,007,285	20,578,121	78,572,498
	Thousand JY	34,355	70,645	269,739
others	Thousand IRR	98,127,566	110,463,354	156,905,189
	Thousand JY	336,872	379,221	538,656

Source: Answers to the questionnaire from IHEH
Exchange Rate: 1 IRR = 0.003433 JPY (July 2017)

Institutional and organizational arrangement (organogram):

IHEH is under control of Shahid Beheshti UMS. Below is organization chart of IHEM.



Human resources (number and ability of staff): Below table shows No. of medical personnel assigned at each target department under the Project.

Table 3 Assigned staff at target departments

Name of department	Doctor	Co-medicals and other supportiv staffs
Radiology	Radiologist 3	Radiographer 20
Internal medicine and GI	Prof. 1, GI doctor 3	Nurse 3
Cardiology	Cardiologist 7 (4 are interventional cardiologist) , interventional neurologist 1	Nurse 11 、 ward servant 3 radiographer 4

Source: Answers to the questionnaire from IHEH

Executing Agency 2: Tehran University of Medical Sciences

Role: Tehran University of Medical Science is responsible for assigning medical personnel, distributing of necessary budget and monitoring construction work schedule by conducting periodic checks by the supervisor.

Financial situation:

Revenue and Expenditure of Ruin Tan Arash Hospital (RTAH) are mentioned in the below table;

Table4 Revenue of RTAH over the past three years

	Unit	FY 2013	FY 2014	FY 2015	Year-on-year rate of increase
Government budget	thousand IRR	37,000,000	78,000,000	65,000,000	- 16.67%
	thousand JPY	127,021	267,774	223,145	
Hospital income	thousand IRR	54,624,000	79,835,000	94,700,000	+18.61%
	thousand JPY	187,524	274,073	325,105	

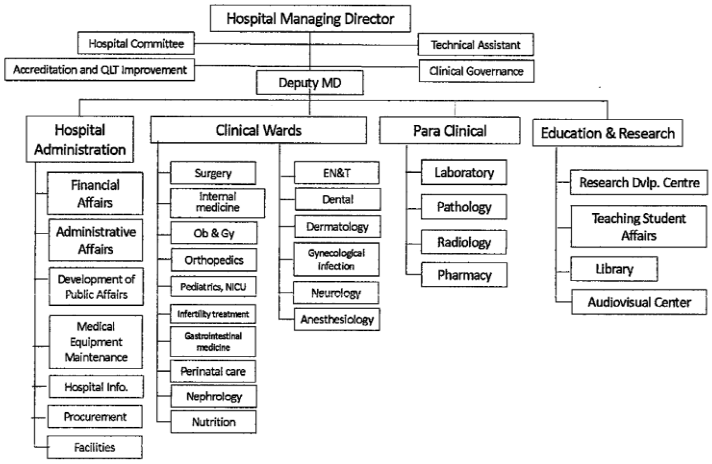
Source: Answers to the questionnaire from RTAH
Exchange Rate: 1 IRR = 0.003433 JPY (July 2017)
Note: Since new building construction was carried out in 2014 but not in 2015, the Government budget has decreased. On the other hand, hospital income has increased for three consecutive years.

Table 5 Expenditure of RTAH over the past three years

Item	Unit	FY 2013	FY 2014	FY 2015
Salary	Thousand IRR	37,000,000	47,000,000	55,000,000
	Thousand JY	127,021	161,351	188,815
Medical equipment	Thousand IRR	2,000,000	3,200,000	8,000,000
	Thousand JY	6,866	10,986	27,464
Medicine	Thousand IRR	24,000,000	28,000,000	32,000,000
	Thousand JY	82,392	96,124	109,856
Medical equipment maintenance	Thousand IRR	690,000	480,000	930,000
	Thousand JY	2,369	1,648	3,193
Depreciation	Thousand IRR	4,350	30,000,000	11,000,000
	Thousand JY	15	102,990	37,763

Source: Answers to the questionnaire from RTAH
Exchange Rate: 1 IRR = 0.003433 JPY (July 2017)

Institutional and organizational arrangement (organogram):
RTAH is under control of Tehran UMS. Below is organization chart of RTAH.



Human resources (number and ability of staff): Below table shows No. of medical personnel assigned at each target department under the Project.

Table 6 Assigned staff at target departments

Name of department	Doctor	Co-medical and other supportive staff
Radiology	Radiologist 4	Technician (radiographer ar sonographist) 7
Endoscopic department	Endoscope fellowship Dr. 5 (Dr. who is in clinical training process after resident period)、Oncologist 1、Anesthesist 2、Resident Dr.1	Endocsope specialist 1 Chief nurse 1、technician 1
OT(Ob/Gy)	Gy fellowship Dr. 5 (Dr. who is in training process after obtaining master of Ob/Gy)、Infertility Dr. 2、Surgeon 1、Anesthetist 1、Urologist 1	Nurse 5、Anesthetic technician 4

Source: Answers to the questionnaire from RTAH

Actual *(PMR)*

3: Operation and Maintenance (O&M)

3-1 Physical Arrangement
- Plan for O&M (number and skills of the staff in the responsible division or section, availability of manuals and guidelines, availability of spare parts, etc.)

Original *(at the time of outline design)*

1. Medical equipment user
Although there are newly refurbished and constructed parts in consideration of the installation environment for some medical equipment, the equipment procured under this cooperation will be basically placed in existing facilities and departments. Therefore, medical equipment could be operated and maintained by allocated staffs such as specialists, nurses and co-medicals like radiographer and laboratory technicians. CT and MRI installed at RTAH could be operated and maintained by radiologist who had experience to operate and maintain.
Therefore, procured medical equipment could be used properly by the Iranian side after handover.

2. Engineer in maintenance management of medical equipment
The BME in the Maintenance Department is assigned to daily check and management of medical equipment to be procured. For that reason, the BME shall conduct operational guidance and maintenance management training on troubleshooting methods and daily check to end-users in case equipment might break down or an equipment malfunction occurs before the commissioning of the equipment. For this reason, it is possible for both target facilities to maintain and manage the procured medical equipment properly after the Cooperation is completed.

3. Management of medical equipment
Regarding consumable and spare parts of medical equipment, necessary amount would calculate based on previous usage of each clinical department, and apply it to HOA through the UMS they belong and HOA provides such items at a very lower cost to hopsitals. If some specific consumable and spare parts of medical equipment are needed, each clinical department requests to hospital management department. Hospital management department which receives request would procure necessary consumables and spare parts from each local agent trough medical equipment maintenance department. In Iran, public hospital could manage operational budget from hospital revenue. In case budget is in short tentatively, the hospital will borrow and return it from the UMS when there is sufficient revenue.
For the above reasons, there are existing purchase routes for spare parts and consumables, and there is also flexibility in securing the maintenance budget. Therefore, operational management of medical equipment in both targeted facilities can be done properly even after the Cooperation is completed.

Actual *(PMR)*

3-2 Budgetary Arrangement
- Required O&M cost and actual budget allocation for O&M

Original *(at the time of outline design)*

Annual operation and maintenance cost for the procured equipment is estimated as follows;

Table: Estimated Annual Fees of Operation and Maintenance Costs for IHEM

Unit: thousand JPY

Year after Completion of the Project / Costs by Item	Up to 2nd year	3rd year	4th year and onwards
1) Medicine	30,729	30,729	30,729
2) Medical devices	367,516	367,516	367,516
3) Consumables and maintenance contract	11,717	11,717	17,217
Total	409,962	409,962	415,462

Table: Estimated Annual Fees of Operation and Maintenance Costs for RTAH

Unit: thousand JPY

Year after Completion of the Project / Costs by Item	Up to 2nd year	3rd year	4th year and onwards
1) Medicine	20,842	20,842	20,842
2) Medical devices	0	0	0
3) Consumables and maintenance contract	11,407	11,487	18,487
Total	32,249	32,329	39,329

Exchange rate: 1 US Dollar = 113.11 Yen, 1 Euro=121.23Yen

(1) Imam Hossein Educational Hospital

Based on the estimation result of IHEH, the annual increase in management and maintenance costs will be approximately from 409,962 thousand JPY in the three years after completion of this cooperation, and 415,462 thousand JPY in the four years and onwards. However, these increases are accounted for a small percentage of the total income of the target facility which falls under Table 1. Therefore, it would be possible to cover the expenses necessary for the maintenance of the equipment since the number of patients and income will increase through procurement of the equipment under the Cooperation.

(2) Ruin Tan Arash Hospital

Based on the estimation result of RTAH, the annual increase in management and maintenance costs required at a minimum will be approximately 32,249 thousand yen in the two years after completion of this cooperation. In the third year, it will be 32,329 thousand yen per year since the maintenance contract fee for digital mammography will be added. About 39,329 thousand yen will be newly required from the fourth year, as the maintenance fee for CT and MRI will be added. These increases accounted for 10 percentage of the total income of the RTAH facility, and it's increase range is large. Therefore, it will be possible to cover the expenses necessary for the maintenance of the equipment since the number of patients and the income will increase through procurement of MRI and CT this time.

Actual *(PMR)*

4: Potential Risks and Mitigation Measures

- Potential risks which may affect the project implementation, attainment of objectives, sustainability
- Mitigation measures corresponding to the potential risks

Assessment of Potential Risks *(at the time of outline design)*

Potential Risks	**Assessment**
1. Delay in the construction schedule of new MRI and CT's building in Ruin Tan Arash Hospital (RTAH)	Probability: High/Moderate/Low
	Impact: High/Moderate/Low
	Analysis of Probability and Impact:
	Since MOHME has agreed to ensure the budget for the construction after signing of the E/N and G/A, the probability of the risk is basically low if such budget is to be disbursed properly. The schedule delay will affect badly on the Project because of the conditions below; 1. The bids notice of the Project will be realized when the completion of the foundation work of the new building is confirmed; 2. The pre-shipment inspection will be carried out when the completion of the construction work of the new building except for the delivery entrance is confirmed.
	Mitigation Measures:
	Proper supervision of the construction schedule by Tehran University of Medical Sciences
	Action required during the implementation stage:
	Ensure the budget of the new building construction immediately.
	Contingency Plan (if applicable):
	NIL

Actual Situation and Countermeasures
(PMR)

5: Evaluation and Monitoring Plan (after the work completion)

5-1 Overall evaluation

Please describe your overall evaluation on the project.

5-2 Lessons Learnt and Recommendations

Please raise any lessons learned from the project experience, which might be valuable for the future assistance or similar type of projects, as well as any recommendations, which might be beneficial for better realization of the project effect, impact and assurance of sustainability.

5-3 Monitoring Plan of the Indicators for Post-Evaluation

Please describe monitoring methods, section(s)/department(s) in charge of monitoring, frequency, the term to monitor the indicators stipulated in 1-3.

Attachment

1. Project Location Map
2. Specific obligations of the Recipient which will not be funded with the Grant
   Appendix = Progress Control Report with photographs
3. Monthly Report submitted by the Consultant
   Appendix - Photocopy of Contractor's Progress Report (if any)
   - Consultant Member List
   - Contractor's Main Staff List
4. Check list for the Contract (including Record of Amendment of the Contract/Agreement and Schedule of Payment)
5. Environmental Monitoring Form / Social Monitoring Form
6. Monitoring sheet on price of specified materials (Quarterly)
7. Report on Proportion of Procurement (Recipient Country, Japan and Third Countries) (PMR (final)only)
8. Pictures (by JPEG style by CD-R) (PMR (final)only)
9. Equipment List (PMR (final)only)
10. Drawing (PMR (final)only)
11. Report on RD (After project)

Attachment 7

Report on Proportion of Procurement (Recipient Country, Japan and Third Countries)
(Actual Expenditure by Construction and Equipment each)

	Domestic Procurement (Recipient Country) A	Foreign Procurement (Japan) B	Foreign Procurement (Third Countries) C	Total D
Construction Cost	(A/D%)	(B/D%)	(C/D%)	
Direct Construction Cost	(A/D%)	(B/D%)	(C/D%)	
others	(A/D%)	(B/D%)	(C/D%)	
Equipment Cost	(A/D%)	(B/D%)	(C/D%)	
Design and Supervision Cost	(A/D%)	(B/D%)	(C/D%)	
Total	(A/D%)	(B/D%)	(C/D%)	

Appendix 5. References

No.	Title	Size	Page	Original / Copy	Issuance	Issue year	Donation / Purchase
1	Healthcare Transformation Plan	A4	128	Original	Ministry of Health and Medical Education	2015	Donation
2.	National action plan for prevention and Control of Non-Communicable Diseases and the Related Risk Factors in the Islamic Republic of Iran, 2015-2025	A4	192	Original	Iran National Committee for the prevention and control of NCDs	2015	Donation
3	ECO Countries Health Profile	A4	100	Original	Economic Cooperation Organization	2015	Donation
4	National and Sub-National Burden of Diseases, Injuries, and Risk Factors (NASBOC) 2015	A4	452	Soft Copy	Ministry of Health and Medical Education	2015	Donation
5	Iran Health System	A4	26	Soft Copy	Ministry of Health and Medical Education	2015	Donation
6	National Cancer Control Program Presentation materials	A4	41	Soft Copy	Ministry of Health and Medical Education, Cancer office	2016	Donation
7	Acute Myocardial Infarction Guidelines	A4	72	Original	Ministry of Health and Medical Education, Curative Dept.	2015	Donation