

**PALESTINIAN AUTHORITY
MINISTRY OF HEALTH**

**PREPARATORY SURVEY REPORT
ON
THE PROJECT FOR IMPROVEMENT OF
MEDICAL EQUIPMENT
IN
THE PALESTINIAN AUTHORITY**

JANUARY 2020

**JAPAN INTERNATIONAL COOPERATION AGENCY
(JICA)**

INTEM CONSULTING, INC.

SUMMARY

SUMMARY

① Overview of the Country

Palestinian territories (hereinafter referred to as “Palestine”) is divided into the Jordan River West Bank (hereinafter referred to as the “West Bank”) in the East, next to Jordan, and Mediterranean in the West, and the Gaza strip in the South, next to Egypt. The land area is approximately 6,020 square kilometers, and the West Bank area is approximately 5,655 square kilometers (about the same as Mie Prefecture) and the Gaza Strip is approximately 365 square kilometers (slightly wider than Fukuoka City)¹. The Palestine climate is a midpoint between the Mediterranean climate and the desert climate, and has a rainy season (October-April) and dry season (May-September). The population of Palestine is approximately 4.85 million; the population of the West Bank is approximately 2.92 million and that of the Gaza Strip is approximately 1.93 million.

Many Palestinians became refugees due to the founding of Israel in 1948, and there are about 850,000 refugees in the West Bank, about 1.42 million refugees in the Gaza Strip, and about 2.24 million refugees in Jordan, about 560,000 in Syria and about 480,000 in Lebanon as of in 2018. According to the United Nations Relief and Works Agency for Palestine Refugees in the Near East (The United Nations Relief and Works Agency for Palestine Refugees in the Near East, hereinafter referred to as “UNRWA”), the number of refugees reaches approximately 5.55 million². Regarding the economy of the whole of Palestine, the support from international agencies was reduced and the severe restrictions by Israel have been continued because of the political instability, thus economic growth has been restrained.

The growth rate of the actual Gross Domestic Product (hereinafter referred to as “GDP”) in 2018 was 0.9%, which was lower than the GDP (3.1% in 2017). In Palestine, GDP per capita displayed a decreasing tendency throughout 2017 and 2018; slight positive growth was obtained of 0.8% in the West Bank while negative growth was seen by 9.5% in the Gaza Strip, which has resulted in a significant disparity in living standard between in the West Bank and the Gaza Strip.

② Background, History and Outline of the Project

In Palestine, as of 2017, the maternal mortality rate became 15.7 (per 100,000 births), the under-five mortality rate was 13.9 (per 1000 births) and the average life expectancy became 73.13, which are remarkable improvements compared to 1990 (118, 43, 68.08, respectively). On the other hand, because of changes in disease patterns, non-communicable diseases (hereinafter referred to as “NCDs”) including cardiovascular diseases, cancer, cerebrovascular diseases, etc. account for higher than 70% of

¹ “Palestine basic information”, Ministry of Foreign Affairs, Japan (<https://www.mofa.go.jp/mofaj/area/plo/data.html>)

² Health department annual report 2018. UNRWA 2019.

the causes of death and are confirmed to be higher than that due to maternal and child health-related diseases.

Delays in NCDs countermeasures mean that medical services are not being provided properly due to the lack of developing medical care environments, etc., which make patients be unavoidably referred and transferred to medical institutions outside the Palestinian territories. And the number of referred patients has been increasing. The medical expenses spent outside the Palestinian territories are paid from the health fund of the Palestinian Interim Self-Government and they accounted for 37% of the public health spending in 2017, thus becoming a major factor in the stringency of the health fund.

Under these circumstances, the Palestinian government has formulated a National Health Strategy (NHS) (2017-2022) to promote awareness of NCDs prevention, to reduce of NCDs mortality rates, to detect NCDs early to prevent them from becoming severe, and to improve medical services preferentially. As those specific measures, infrastructure development in secondary and tertiary hospitals was proposed, and the NHS aims to normalize the health fund with reduction of the transfer costs to the suburbs in result of the infrastructure improvement.

The implementation purpose of this plan is to provide necessary medical equipment mainly used for examination of NCDs at the Palestinian-based hospitals. By strengthening medical services and improving the quality of medical services, the Project will enable early detection and treatment of NCDs, contribute to the soundness of healthcare financing along with a decrease in the number of out-of-Palestinian referrals, and contribute to Palestinian healthcare. And the Project is expected to contribute to the promotion of Palestine people's health.

③ Outline of the Survey Results and Description of the Project

Japan International Cooperation Agency (hereinafter referred to as “JICA”) dispatched the team for the preparatory survey in 5th of April, 2019 to 4th of May, 2019. The survey team discussed with the Palestinian government and related institutions and confirmed the situation at the targeted area. After the review and analysis in Japan, the explanatory mission of the Preparatory Survey Report (draft) from 11th of October, 2019 to 26th of October, 2019 was conducted. After that, the Preparatory Survey report was compiled.

The overview of the assistance components is as below.

<Targeted project site>

The Project targets 4 hospitals: Rafidia Surgical Hospital in the West Bank, Europe Gaza Hospital and Nasser Medical Complex and Indonesian Hospital in the Gaza Strip, for which medical equipment is supplied.

<Equipment plan>

The following tables show the plan overview of the equipment supplied in the Project.

Outline of the Project

Hospital	Major Department and Equipment	Target diseases for treatment and testing enhanced by equipment
West Bank Rafidia Surgical Hospital	Enhancement of the medical services for diagnostic imaging, examination and surgery related to cardiovascular disease	Cardiovascular disease
	Target Department: Cardiac Catheterization Center, MRI Room, Cardiovascular Department (Cardiac Surgery, Vascular Surgery, CCU), X-ray Rooms	
	Equipment: Angiograph, MRI, Patient Monitor, Contrast Medium Injector, Perfusion System, C-arm, ICU Bed, Central Monitor, etc.	
Gaza Strip Europe Gaza Hospital	Enhancement of the medical service for basic diagnostic imaging, endoscopic examination & therapy and ophthalmic treatment related to NCDs.	Cardiovascular disease, Diabetic complications, Cancer, Respiratory disease
	Target Department: X-ray Room, Endoscopy Unit, Operating Theater, Clinical Laboratory, Blood Bank , Ophthalmology Department, CSSD	
	Equipment: Digital Basic X-ray, Portable X-ray Machine, Ultrasound Machine, Endoscopic System (fiberscope), Autoclave, Ophthalmic Surgical Microscope, Washing Machine, etc.	
Gaza Strip Nasser Medical Complex	Enhancement of medical service for MRI imaging, basic diagnostic imaging, endoscopic examination & therapy and hemodialysis treatment related to NCDs	Cardiovascular disease, Diabetic complications, Cancer, Respiratory disease, Cerebrovascular disease
	Target Department: MRI Room, X-ray Room, Endoscopy Unit, Operating Theater, Clinical Laboratory, Blood Bank, CSSD	
	Equipment: MRI, Digital Basic X-ray, Ultrasound Machine, Endoscopic System (fiberscope/rigid), Autoclave, Auto Chemistry Analyzer, Washing Machine, etc.	
Gaza Strip Indonesian Hospital	Enhancement of medical service for basic diagnostic imaging, endoscopic examination & therapy and clinical laboratory test related to NCDs	Cardiovascular disease, Diabetic complications, Cancer, Respiratory disease
	X-ray Room, Endoscopy Unit, Operating Theater, Clinical Laboratory, Blood Bank, CSSD	
	Equipment: Digital Basic X-ray, Portable X-ray Machine, Ultrasound Machine, Endoscopic System (fiberscope/rigid), Autoclave, Washing Machine, etc.	

<Soft Component>

The medical equipment to be procured under the Project includes the equipment which will be newly

introduced at the hospitals and/or will be a different operation method from the existing equipment. Although equipment users (end users) and engineers in maintenance departments are recognized to have basic operation and maintenance techniques, they tend to rely on their own knowledge and experience, and standardized format for inspections are required. Currently there is no format, and there are no regular trainings for acquiring usage knowledge or skills, thus there are differences in operation and maintenance skills between hospitals and departments. In addition, each hospital has an equipment inventory list, but it needs to be improved. Therefore, it is required to improve the quality of medical services through introducing standardized formats, improving equipment operation skills and daily checks by the end users and improving the regular inspections and repairing skills of technical engineers.

In the Project, the technical assistance shall be provided through the “Soft Component” of the Project as guidance for maintenance management of medical equipment and appropriate maintenance skills. By conducting this technical assistance, it is expected that scheduled and standardized maintenances will be implemented, and medical equipment will be effectively utilized and maintained, and that effective medical services will be provided.

< Maintenance Service of the Equipment >

The maintenance services of the Project shall ensure the periodic inspection and on-call service for 2 additional years after a 1 year guarantee period for equipment that requires long-term maintenance such as MRI, CT scan and Angiography. If the user failed to use the equipment according to the manual, the repaired part will be included. Parts that require periodic replacement recommended by the manufacturer are also included in the maintenance service. On the other hand, all repair parts which have failed due to the defect of the user, and consumables such as reagents and disposable parts, shall be borne by the user.

④ Project Schedule and Cost Estimation

The implementation schedule of the Project will be about 6 months for detailed design and about 15 months for procurement and installation of equipment. Furthermore, the first Soft Component will be carried out for about 1.7 months after the installation of the equipment, and three months after the first Soft Component, the second Soft Component will be implemented for about 1.2 months. The total amount to be borne by Palestine for the Project is estimated as 0.12 billion yen.

⑤ Project Evaluation

The relevance of the Project is confirmed in respect of the following:

<Relevance>

(1) Viewpoint of reducing the burden on the referral hospitals

In the West Bank area, the two major hospitals, Palestine Medical Complex (hereinafter referred to as “PMC”) in Ramallah and Queen Alia Hospital in Hebron, have the largest number of departments and the biggest concentration of patients. The bed occupancy rates of these two hospitals are 100% and 139% respectively, and the hospitals receive patients over their capacity. As a result, there are cases where patients are rejected and waiting for a long time before medical treatment or surgery. In addition, these two hospitals have catheter labs and are accepting many heart disease patients (Queen Alia Hospital will establish a catheter lab within the next few months), and the number of cardiovascular patients is expected to increase continually in the future by MoH and hospital staffs. Therefore, the development of catheter labs and advanced diagnostic imaging equipment, etc. in the Rafidia Surgical Hospital, which is the third largest hospital in the West Bank area will lead to distribution of patients to other hospitals. This will contribute to not only the improvement of access to medical services, but also the quality of medical services.

In the Gaza Strip, Al-Shifa Hospital, which also functions as a tertiary referral hospital, has the most complete departments and equipment possession, and also accepts many referred patients from the hospital and 70% of patients in Gaza Strip are concentrated in Al-Shifa hospital. The Gaza MoH plans to restore Al-Shifa Hospital as a top referral hospital and establish appropriate referral system within the Gaza Strip. Thus, it is necessary to strengthen the functions and medical services of each regional referral hospital. As a result the regional referral hospitals at Northern Gaza (Indonesian Hospital), Rafa (Europe Gaza Hospital), and Hanunis (Nasser Medical Complex) were selected.

(2) Viewpoint of improving geographic access to advanced medical services on NCDs

Among the NCDs that include cardiovascular disease, cancer, cerebrovascular disease, etc., regarding heart disease, PMC is located in the central part in the West Bank, Queen Alia Hospital in the southern part, and northern part (Nablus, Jenin, Tulkarm, Qulqilya, Salfit, and Tubas) are designated as base hospitals. Because Rafidia Surgical Hospital is not capable of catheterization and Queen Alia Hospital has not yet started catheterization, thoracotomy surgery that places a heavy burden on postoperative quality of life is performed, as a result many patients in the north area are forced to refer to PMC. However, the capacity of PMC to receive this treatment has already reached saturation, and patients have to wait months for treatment.

In addition, the only governmental hospital with an MRI which use for diagnosis of cancer or cerebrovascular disease is the PMC in the West Bank, and patients who are not able to be treated due to overcapacity at PMC are referred to private hospitals. The cost of medical services at private hospitals is about three times higher than that of governmental hospitals, and patients are required to pay more than the prescribed amount paid by the MoH (the ratio varies depending on the treatment and operation, but the about 80 to 90% of the cost is burned by MoH).

From the above, by installing advanced diagnostic imaging equipment such as a catheter lab and an MRI at the Rafidia Surgical Hospital, access to diagnosis and treatment by these advanced medical equipment for approximately 1 million people in the northern area will be improved. It is also expected to reduce patient costs.

In the Gaza Strip, residents must go to a hospital in their residential area (administrative district) to receive a first diagnosis, and if the hospital in their residential area cannot receive the patient, the patient will be referred to hospitals in other administrative districts. Therefore, strengthening the service contents, facilities, and capacity of the regional referral hospitals in each administrative district will improve the convenience of medical services for patients in each region and improve the efficiency of the medical service provision system for the entire Gaza Strip.

(3) Consistency with Palestine development plan

Under the situation that death caused by NCDs has become a large number, the disease structure has changed greatly. NCDs countermeasures have been delayed due to inadequate medical care environment. As a result, the spending on referrals to NCDs patients outside the Palestine and private hospitals has tightened health finances. Under this situation, the Palestinian government formulated the “National Health Strategy 2017-2022” in 2017 and pushed measures for NCDs to increase the expertise of governmental hospitals and allow more patients to be treated in the region.

The Project is planned for the purpose of providing equipment necessary for the examination, diagnosis and treatment which are needed for NCDs countermeasures, and is consistent with the policy of the Palestinian government. Additionally, especially in Gaza Strip, many of the applications for referral to the out-of-Palestine (Referred from West Bank to outside Jerusalem, from Gaza Strip to outside, West Bank, East Jerusalem) who have cancer and heart disease have been rejected by the Israeli side, and there are some cases of death without proper treatment. For this reason, it is judged that this is appropriate from the humanitarian perspective as well as support for the advancement of medical technology in governmental hospitals related to NCDs and support for appropriate health financing.

<Effectiveness>

(1) Quantitative Effects

The followings are expected outputs from the Project and the quantitative indicators for measuring the outputs. The target year is set to 2024, about three years after starting the use of equipment (2021).

Output indicators of the Project

Gaza Strip

Output indicator	Base line (Actual number in 2018)	Target (2024) 【3 years after the hand over】
The number of referral patients excluding cancer patients (Decreased number of person/ Year)	21,266	16,266

*Exclude cancer patients because early detection of cancer is expected with the introduction of diagnosis equipment

West Bank

Rafidia Surgery Hospital

Output indicator	Base line (Actual number in 2018)	Target (2024) 【3 years after the hand over】
Number of MRI examinations (Number/ Year)	0	5,000
Number of cardiac surgeries (including open heart surgery and catheterization surgery) (Number/ Year)	0	1,000

Europe Gaza Hospital

Output indicator	Base line (Actual number in 2018)	Target (2024) 【3 years after the hand over】
The number of CT examinations (Number/Year)	9,499	11,677
The number of patients with coronary artery disease diagnosed by CT (Number of person / Year)	100	120

Nasser Medical Complex

Output indicator	Base line (Actual number in 2018)	Target (2024) 【3 years after the hand over】
The number of MRI examinations (Number/ Year)	0	5,000

Indonesian Hospital

Output indicator	Base line (Actual number in 2018)	Target (2024) 【3 years after the hand over】
The number of endoscopy examinations (Number/Year)	0	500

(2) Qualitative effects

1) Improvement of patients' satisfaction with hospital services

By up-grading medical equipment for regional hospitals such as Rafidia, European, Nasser and Indonesian hospital, the accessibility to health services with high-level equipment is expected to be improved so that some patients will no longer be required to visit central hospitals like PMC and Al-Shifa which are more equipped but might be far from their residences. This will also reduce extreme concentration in the above central hospitals. In addition, patients will benefit from saving time and cost spent for the movement to the hospital as well as from decrease in waiting time at the central

hospitals due to deconcentration of patients.

2) Improving healthcare services delivered by medical personnel

With the development of advanced medical diagnostic equipment and treatment equipment, patients who have been referred to other hospitals will be able to be examined, diagnosed, and treated at each regional referral hospital, thus improving the quality of medical service provided by medical professionals.

In conclusion, as described above, the relevance of the Project as well as its anticipated effectiveness is high.

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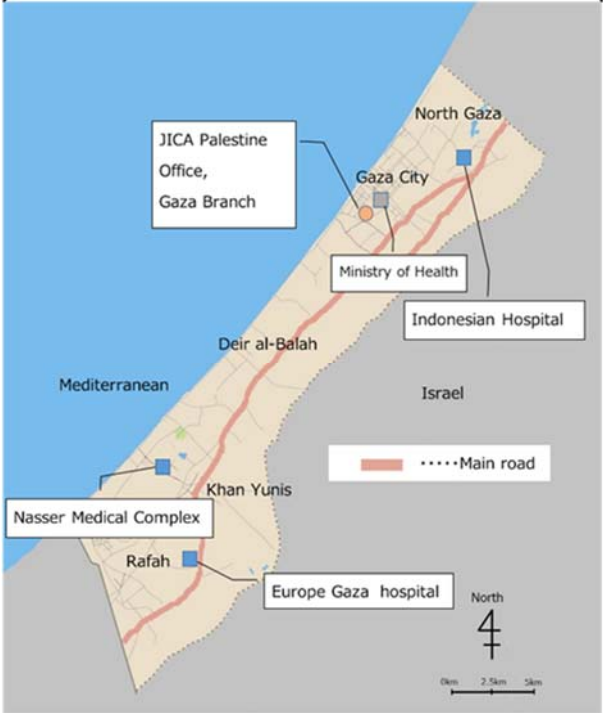
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ABBREVIATIONS

Abbreviations	English
A/P	Authorization to Pay
AVR	Automatic Voltage Regulator
B/A	Banking Arrangement
CSSD	Central Supply and Sterilisation Department
COGAT	Coordination of Government Activities in the Territories
CT	Computed Tomography
DAC	Development Assistance Committee
ECG	Electrocardiogram
EGH	Europe Gaza Hospital
E/N	Exchange of Notes
G/A	Grant Agreement
GDP	Gross Domestic Product
ICU	Intensive Care Unit
ISO	International Organization for Standardization
JICA	Japan International Cooperation Agency
JIS	Japanese Industrial Standards
MMR	Maternal Mortality Ratio
MRI	Magnetic Resonance Imaging
NICU	Neonatal Intensive Care Unit
ODA	Official Development Assistance
OECD	Organisation for Economic Co-operation and Development
PMC	Palestine Medical Complex
U5MR	Under-five Mortality Rate
UHC	Universal Health Coverage
UNDP	United Nations Development Programme
UNRWA	United Nations Relief and Works Agency

UPS	Uninterruptible Power Supply
USAID	United States Agency for International Development
VAT	Value Added Tax
WHO	World Health Organization

CHAPTER 1 BACKGROUND OF THE PROJECT

CHAPTER 1 Background of the Project

1-1 Background, History and Outline of the Requested Japanese Grant Aid Project

In Palestine, as of 2017, the maternal mortality rate became 15.7 (per 100,000 births), the under-five mortality rate was 13.9 (per 1000 births) and the average life expectancy became 73.13, which are remarkable improvements compared to 1990 (118, 43, 68.08 respectively). On the other hand, because of changes in disease patterns, non-communicable diseases (hereafter refer to as “NCDs”) including those such as cardiovascular diseases, cancer and cerebrovascular diseases, account for more than 70% of the causes of death and are confirmed to represent a higher percentage than those due to maternal and child health-related diseases.

Measures for NCDs have been delayed, and cases in which patients are unavoidably referred and transferred to medical institutions outside the Palestinian territories due to the lack of maintenance of the medical examination environment are regularized and increasing. Those facts are considered to be backgrounds. The medical expenses spent outside the Palestinian territories are paid from the health fund of the Palestinian Interim Self-Government and accounted for 37% of the public health spending in 2017, becoming a main factor in the stringency of the health fund. Under these circumstances, the Palestinian government has formulated the National Health Strategy (2017-2022) to promote awareness of NCDs prevention, reduce of NCDs mortality rates, detect NCDs early to prevent them from becoming severe, and improve medical services. In addition, infrastructure development in secondary and tertiary hospitals was proposed, and it aims to normalize the health fund with reduction of the transfer costs to the suburbs.

Implementation of this plan will provide necessary medical equipment mainly used for examination of NCDs at the Palestinian-based hospitals. By strengthening medical services and improving its quality, the Project is expected to contribute to health promotion of people in Palestinian, enabling early detection and early treatment of NCDs for the purpose of problem-solving related to NCDs measures.

JICA dispatched the team for the preparatory survey in 5th of April, 2019 to 4th of May, 2019. The survey team had discussions with the Palestinian government and related institutions and confirmed the situation at the targeted area. After the review and analysis in Japan, the explanatory mission of the Preparatory Survey Report (draft) from 11th of October, 2019 to 26th of October, 2019 was conducted. After that, the Preparatory Survey report was compiled.

1-2 Natural Conditions

The Palestine has a climate midway between a Mediterranean climate and a Desert climate, and has a rainy season and a dry season. The rainy season is from October to April, when the temperature falls and a cold wind blows. Sometimes the temperature falls below zero degrees. The dry season is from May to September, with many sunny days and occasional temperatures up to 35 ° C.

Nablus City

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Average highest temperature	12.4°C	12.1°C	16.1°C	20.8°C	25.5°C	28.1°C	29.6°C	28.0°C	26.6°C	25.7°C	21.6°C	16.4°C
Average lowest temperature	6.2°C	6.1°C	8.2°C	11.8°C	15.2°C	17.4°C	18.8°C	19.1°C	17.5°C	16.4°C	13.8°C	9.3°C
Average Precipitation	155mm	135mm	90mm	34mm	5mm	0mm	0mm	0mm	2mm	17mm	60mm	158mm
Average Humidity	74%	75%	66%	55%	47%	50%	65%	62%	73%	62%	54%	69%

Gaza City

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Average highest temperature	18.3°C	18.9°C	21.1°C	24.4°C	27.2°C	29.4°C	30.6°C	31.7°C	30.6°C	28.9°C	25.0°C	20.6°C
Average lowest temperature	9.4°C	10.0°C	11.6°C	13.8°C	16.4°C	19.5°C	21.4°C	22.2°C	20.5°C	17.7°C	14.5°C	11.6°C
Average Precipitation	104mm	76mm	30mm	13mm	3mm	1mm	0mm	1mm	3mm	18mm	64mm	81mm
Average Humidity	85%	84%	83%	82%	84%	87%	86%	87%	86%	74%	78%	81%

1-3 Environmental and Social Considerations

The Project is categorized as Category C (a project likely to have minimal or no adverse environmental impacts) according to the “JICA Guidelines for Environmental and Social Considerations” (April 2010), from the following considerations: not located in a sensitive area, does not have sensitive characteristics, or fall into sensitive sectors under the Guidelines, and its potential adverse impacts on the environment are not likely to be significant.

CHAPTER 2 CONTENTS OF THE PROJECT

CHAPTER 2 Contents of the Project

2-1 Basic Concept of the Project

2-1-1 Overall Goal and Project Purpose

In the Palestinian Authority (hereinafter referred to as "Palestine"), the maternal mortality ratio as of 2017 was 15.7 deaths (per 100,000 live birth), the under-13 mortality rate was 13.9 deaths (per 1,000 live births) and the life expectancy at birth was 73.13 years, which has been improved since the year of 1990. However, due to a change in the disease structure, NCDs combined with cardiovascular disease, cancer, cerebrovascular disease, etc. account for more than 70% of the causes of death and exceeds that of maternal and child health related diseases (WHO, 2016). In order to confirm such health and medical situation, JICA conducted the "Survey on basic information collection and confirmation of health and medical sectors" in 2017. As a result, it had been recognized that the cases that NCDs patients who have to be referred to the medical institutions outside the autonomous regions have been steadily increasing because of the slow progress of countermeasures against NCDs and inadequate medical care infrastructure. Medical expenses outside the autonomous regions had been paid from the budget of Ministry of Health, which accounted for 37% of the public health expenditure in 2017, and it has been the main factor of the tightening of health finance.

Under these circumstances, the government has drawn up the “National Health Sector Strategy 2017-2022.” The objectives of the National Health Sector Strategy are summarized as follows;

1. Ensure the provision of comprehensive health services to all Palestinians, towards localization of health services in Palestine
2. Promote the management of NCDs, preventive health care, community health awareness and gender related programs
3. Institutionalize quality systems in all aspects of health services
4. Promote and develop health workforce management systems
5. Strengthen health governance, including effective health sector management, laws and legislation development and enforcement, cross-sectoral coordination, intra-sectoral coordination and integration towards achieving the localization of services and universal health coverage. Enhance the health financing system and protection of citizens against financial hardship of paying health care costs

This Grant Aid for the Project for the Improvement of Medical Equipment (hereinafter referred to as “the Project”) will contribute to the health promotion of Palestinian people, mainly at the core hospitals in Palestine, realizing the early detection and rapid cure of NCDs. The purpose of the Project is to solve the issues related to the countermeasures against NCDs by procuring the necessary medical equipment required mainly for NCDs treatment at the core hospitals in Palestine. The overall objective of the Project is to realize early detection and treatment of NCDs and to contribute to health promotion for Palestinian people by strengthening and improving the quality of medical services.

2-1-2 Outline of the Project

In order to achieve the goals noted above, the Project will procure equipment for the improvement of medical services for 4 hospitals, namely Rafidia Surgical Hospital in the West Bank, European Gaza Hospital, Nasser Medical Complex and Indonesian Hospital in the Gaza Strip.

The equipment procured under the Project is outlined below.

< Equipment >

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equipment. Although equipment users (end users) and engineers in maintenance departments are recognized to have basic operation and maintenance techniques, they tend to rely on their own knowledge and experience, and standardized format for inspections are required. Currently there is no format, and there are no regular trainings for acquiring usage knowledge or skills, thus there are differences in operation and maintenance skills between hospitals and departments. In addition, each hospital has an equipment inventory list, but it needs to be improved. Therefore, it is required to improve the quality of medical services through introducing standardized formats, improving equipment operation skills and daily checks by the end users and improving the regular inspections and repairing skills of technical engineers.

In the Project, the technical assistance shall be provided through the “Soft Component” of the Project as guidance for maintenance management of medical equipment and appropriate maintenance skills. By conducting this technical assistance, it is expected that scheduled and standardized maintenances will be implemented, and medical equipment will be effectively utilized and maintained, and that effective medical services will be provided.

< Maintenance Service of the Equipment >

The maintenance services of the Project shall ensure the periodic inspection and on-call service for 2 additional years after a 1 year guarantee period for equipment that requires long-term maintenance such as MRI, CT scan and Angiography. If the user failed to use the equipment according to the manual, the repaired part will be included. Parts that require periodic replacement recommended by the manufacturer are also included in the maintenance service. On the other hand, all repair parts which have failed due to the defect of the user, and consumables such as reagents and disposable parts, shall be borne by the user.

2-2. Outline Design of the Japanese Assistance

2-2-1 Design Policy

(1) Basic Principles

The Project will provide necessary medical equipment for the strengthening and improvement of medical services of NCDs treatment at 4 core hospitals, Rafidia Surgical Hospital in West Bank, Europe Gaza Hospital, Nasser Medical Complex and Indonesian Hospital in the Gaza Strip.

1) Examination of Validity of the Project

As the diseases structure has changed significantly, the deaths caused by NCDs have become more prevalent in Palestine. The expenditures on referrals of NCDs patients to the hospitals outside Palestine or private hospitals have put pressure on health financial situations. In order to improve the expertise of public hospitals and enable them to provide medical treatment to the patients inside of their regions, the Palestinian government announced a policy to promote the formulated “National Health Strategy 2017-2022” in 2017. This announcement expressed the government strategy to promote more efforts for NCDs treatment.

The Project will be implemented for the purpose of providing equipment necessary for the examination, diagnosis and treatment for NCDs countermeasures, which is consistent with the Palestinian government policy. Many applications for out-of-region referrals of cancer and heart disease patients have been rejected by the Israeli side, and there are many cases of deaths before proper medical treatment. For this reason, it is judged that the Project is appropriate from the humanitarian perspective as well as support for the advancement of medical skills in public hospitals related to NCDs disease and support for sound health financing.

2) Confirmation of Validity of Target Area

The validity of target areas and hospital selections can be confirmed from two points below.

(1) Viewpoint of reducing the burden on the referral hospitals

(2) Viewpoint of improving geographic access to advanced medical services on NCDs

(3) Consistency with Palestine development plan

Under the situation that death caused by NCDs has become a large number, the disease structure has changed greatly. NCDs countermeasures have been delayed due to inadequate medical care environment. As a result, the spending on referrals to NCDs patients outside the Palestine and private hospitals has tightened health finances. Under this situation, the Palestinian government formulated the “National Health Strategy 2017-2022” in 2017 and pushed measures for NCDs to increase the expertise of governmental hospitals and allow more patients to be treated in the region.

The Project is planned for the purpose of providing equipment necessary for the examination, diagnosis and treatment which are needed for NCDs countermeasures, and is consistent with the policy of the Palestinian government. Additionally, especially in Gaza Strip, many of the applications for referral to the out-of-Palestine (Referred from West Bank to outside Jerusalem, from Gaza Strip to outside, West Bank, East Jerusalem) who have cancer and heart disease have been rejected by the Israeli side, and there are some cases of death without proper treatment. For this reason, it is judged that this is appropriate from the humanitarian perspective as well as support for the advancement of medical technology in governmental hospitals related to NCDs and support for appropriate health financing.

① Viewpoint of reducing the burden on the regional hospital

In the West Bank area, the two major hospitals, Palestine Medical Complex (hereinafter referred to as “PMC”) in Ramallah and Queen Alia Hospital in Hebron, have the largest number of departments and the biggest concentration of patients. The bed occupancy rates of these two hospitals are 100% and 139% respectively, and the hospitals receive patients over their capacity. As a result, there are cases where patients are rejected and waiting for a long time before medical treatment or surgery. In addition, these two hospitals have catheter labs and are accepting many heart disease patients (Queen Alia Hospital will establish a catheter lab within the next few months), and the number of cardiovascular patients is expected to increase continually in the future by MoH and hospital staffs. Therefore, the development of catheter labs and advanced diagnostic imaging equipment, etc. in the Rafidia Surgical Hospital, which is the third largest hospital in the West Bank area will lead to distribution of patients to other hospitals. This will contribute to not only the improvement of access to medical services, but also the quality of medical services.

In the Gaza Strip, Al-Shifa Hospital, which also functions as a tertiary referral hospital, has the most complete departments and equipment possession, and also accepts many referred patients from the hospital and 70% of patients in Gaza Strip are concentrated in Al-Shifa hospital. The Gaza MoH plans to restore Al-Shifa Hospital as a top referral hospital and establish appropriate referral system within the Gaza Strip. Thus, it is necessary to strengthen the functions and medical services of each regional referral hospital. As a result the regional referral hospitals at Northern Gaza (Indonesian Hospital), Rafa (Europe Gaza Hospital), and Hanunis (Nasser Medical Complex) were selected.

② Viewpoint of Improvement of Geographical Access of High-Level Medical Service

Among the NCDs that include cardiovascular disease, cancer, cerebrovascular disease, etc., regarding heart disease, PMC is located in the central part in the West Bank, Queen Alia Hospital in the southern part, and northern part (Nablus, Jenin, Tulkarm, Qulqilya, Salfit, and Tubas) are designated as base hospitals. Because Rafidia Surgical Hospital is not capable of catheterization and Queen Alia Hospital has not yet started catheterization, thoracotomy surgery that places a heavy burden on postoperative quality of life is performed, as a result many patients in the north area are

forced to refer to PMC. However, the capacity of PMC to receive this treatment has already reached saturation, and patients have to wait months for treatment.

In addition, the only governmental hospital with an MRI which use for diagnosis of cancer or cerebrovascular disease is the PMC in the West Bank, and patients who are not able to be treated due to overcapacity at PMC are referred to private hospitals. The cost of medical services at private hospitals is about three times higher than that of governmental hospitals, and patients are required to pay more than the prescribed amount paid by the MoH (the ratio varies depending on the treatment and operation, but the about 80 to 90% of the cost is burned by MoH).

From the above, by installing advanced diagnostic imaging equipment such as a catheter lab and an MRI at the Rafidia Surgical Hospital, access to diagnosis and treatment by these advanced medical equipment for approximately 1 million people in the northern area will be improved. It is also expected to reduce patient costs.

In the Gaza Strip, residents must go to a hospital in their residential area (administrative district) to receive a first diagnosis, and if the hospital in their residential area cannot receive the patient, the patient will be refereed to hospitals in other administrative districts. Therefore, strengthening the service contents, facilities, and capacity of the regional referral hospitals in each administrative district will improve the convenience of medical services for patients in each region and improve the efficiency of the medical service provision system for the entire Gaza Strip.

(1) Policy on Natural Conditions

The climate in Palestine has intermediate conditions between the Mediterranean and the desert climates with rainy and dry seasons. The rainy season is from October to April, when the temperature drops and a cold wind blows, sometimes the temperature falls below zero degrees C. The dry season is from May to September and sunny days continue and temperature can reach 35 degrees C.

Since the equipment to be procured under the Project is mainly used indoors, there is no influence on the equipment by the usage environment (temperature, humidity). Even for existing equipment, no major concerns were recognized due to the operating environment.

(2) Policy on Social and Economic Conditions

Regarding the electric power supply in the West Bank, although the possibility of significant impact on the operation of procured equipment is relatively low, the voltage fluctuation is severe. On the other hand, in the Gaza Strip, the electric power supply is unstable and the emergency generators are operating almost every day. In addition, the burden on the electrical circuit of the equipment is large because the voltage fluctuation is also large.

In this manner, considering the fact that there are many power outages and sudden voltage

fluctuations, an Automatic Voltage Regulator (AVR) and/or Uninterruptible Power Supply (UPS) will be procured in order to avoid the interruption of medical activities due to power outages and the breakdown of equipment due to voltage fluctuations as much as possible.

(3) Policy on Procurement Conditions

As the Project is limited to Japanese products, the number of manufacturers of the target equipment will be limited. There is a risk that the appropriate bidding process will not be ensured because a fair competition is not ascertained. Thus, the condition to allow the procurement of products from the third country will be applicable. Procurement of equipment from either Japanese or third country manufacturers for which local agents can provide after-sales service will be applied.

Regarding products that extend the scope of procurement to third countries, these products can be procured in the Palestine market, can be secured for after-sales service by the local agents and are widely used at hospitals. The range of third countries will be limited to the companies whose headquarter is located in DAC countries, OECD countries, European countries and/or USA. These requirements will be applied to ensure the quality of the products and to make sure they are not adopted only based on the price.

Regarding the procurement of spare parts, etc. there was no particular problem in the West Bank. In the Gaza Strip the spare parts can also be purchased without problems, but when ordering them when out of stock, it takes time to obtain an Israeli import permission to bring them into the Gaza Strip. In particular, the replacement parts for X-ray apparatus and/or reagents for laboratory equipment sometimes take more than 3 months even for donor projects. The period from import license application to acquisition is not fixed, and this period will be changed depending on the timing and political situations between Israel and Gaza, so such local special conditions shall be watched carefully when procuring.

(4) Policy on Utilization of Local Agent

It has been confirmed that the manufacturers of the medical equipment to be procured under the Project have local agents in the West Bank and Gaza Strip. It has been also confirmed that such local agents had hired experienced engineers with the sufficient operating and installing skills and experience. These agents are able to provide spare parts and other after-sales services for the planned equipment under the Project. Even if equipment is procured in Japan or third countries, it is possible to expedite the processes of repair and supply of replacement parts after handing-over of the equipment.

Thus, it is planned to make full use of these local agents for installation and instruction of operation. Additionally, to ensure proper operation and maintenance of the equipment procured under the Project, the Japanese side will conclude maintenance contracts for a period of 2 years

after the expiration of the warranty period. This equipment will include high cost equipment, lifesaving equipment, and precision equipment.

(5) Policy on Operation and Maintenance Capacity

West Bank

There is a medical equipment maintenance unit, Biomedical Engineering Unit (hereinafter referred to as “BMEU”), in MoH of the West Bank. This unit supervises the medical equipment maintenance in the public hospitals in the West Bank. This unit consists of 2 divisions, one is for controlling specifications and procurement of equipment and the other is for maintaining equipment. The former division prepares the technical specifications for the bidding and its procurement section calls for bids and procures equipment for the hospitals. The latter division, on the other hand, organizes a subordinate section at each hospital to maintain the equipment after procurement.

The number of staff of the maintenance section of Rafidia Surgical Hospital is summarized below. The technicians stand-by 24 hours in order to respond sudden failure of the equipment. The regular inspections of all equipment are not conducted by the engineers and technicians but high-level equipment at department of obstetrics and gynecology, diagnostic imaging and surgery is inspected every 6 months.

Table 2-2 Number of Staff of Maintenance Section of Rafidia Surgical Hospital

Hospital Name	Staff Name	Number of Staff			
		Medical Equipment	Electrical	Civil	Mechanica 1
Rafidia Surgical Hospital	Engineer	3	0	0	1
	Technician	2	3	2	0

In the West Bank, the Hospital Information System, with the main server located at PMC, has been introduced in all public hospitals. Requests for repair and procurement of spare parts and consumables can be ordered through this system. In case of the equipment failure, the medical staff inputs information about equipment name, date of failure and condition into this system. The Maintenance division of MoH and hospitals can grasp such information and dispatch maintenance staff immediately. In case the spare parts need to be replaced, the current condition of stock of the warehouse of MoH can be checked in the system and if there is a stock, the replacement parts can be delivered soon. If there is no stock, it is necessary to follow a certain procedure to procure, which may take 3 to 4 months.

Gaza Strip

There is a medical equipment maintenance unit, Engineering Maintenance Department in MoH of the Gaza Strip. This unit supervises the medical equipment maintenance in the public

hospitals in the Gaza Strip. A maintenance division has been set up in regional hospitals (Indonesian Hospital, Al-Shifa Hospital, Al-Aqsa Hospital, Nasser Gaza Complex and European Gaza Hospital) in 5 administrative districts. This maintenance division provides their services to the public hospitals and clinics in jurisdictional area. Each division has a medical equipment section, electrical section, civil section and mechanical section. The number of engineers and technicians are summarized below.

Table 2-3 Number of Staff of Maintenance Section of 3 Hospitals in Gaza

Hospital Name	Staff Name	Number of Staff			
		Medical Equipment	Electrical	Civil	Mechanica 1
European Gaza Hospital	Engineer	5	2	1	1
	Technician	10	12	14	12
Nasser Medical Complex	Engineer	3	1	1	2
	Technician	5	9	9	17
Indonesian Hospital	Engineer	3	1	1	0
	Technician	1	3	1	1

In the Gaza Strip, in case of equipment failure, technicians and engineers of the maintenance divisions in the regional hospitals try to repair first. If repair is difficult, Engineering Maintenance Department in MoH is called for repair. In case that the spare parts need to be replaced, the current condition of stock of warehouse of MoH can be checked and if there is a stock, the replacement parts can be delivered soon. But if there is no stock, it is necessary for the maintenance division to request the procurement department and International Cooperation Department to purchase necessary parts. The procurement department calls for bids for necessary parts by using the budget of MoH (spare parts the cost under US\$500 do not need bidding.). If the budget is short, the International Cooperation Department will find a donor to provide fund for procurement.

There is no hospital information system in the Gaza Strip. Maintenance of existing medical equipment relies on each hospital. Thus, MoH of the Gaza Strip cannot recognize and manage the usage and maintenance conditions of medical equipment installed in each hospital.

The Project is aiming at procuring new equipment and replacement of obsolete equipment. Since there is no end-user who is familiar with the operation of procured equipment, the initial operation training will be provided by the engineers from the local agents before the time of handing-over. Moreover, the necessary supports (soft component/technical assistance) for the maintenance management of procured equipment will be conducted to standardize daily checks, regular inspections and equipment management approach, which improves operation and maintenance capabilities of target hospitals.

(6) Policy on Grade Setting for Equipment

The planned equipment is a necessary item for medical treatment of NCDs as higher medical facilities. Regarding equipment grade setting, the current medical activities, the level of anticipated medical care and the usage status of existing equipment at 4 target hospitals and other similar levels of medical facilities will be taken into account.

Moreover, the maintenance system and technical level of medical equipment maintenance department in each hospital and local agents and the analyses of procurement route of spare parts and consumables will be carefully analyzed. Besides these analyses, the equipment will be planned to be utilized appropriately and continuously.

(7) Policy on Procurement Method and Schedule

Precision equipment that could have a huge effect on human life is abundant among medical equipment. Thus, equipment of high quality and precision must be selected and procured and engineers familiar with said equipment must install and adjust it. It follows that careful consideration will be given such that equipment for the Project is procured by experts with a wealth of experience procuring medical equipment for Japanese grant aid projects. In addition, in the Project, it is necessary to secure the space for equipment installation and conduct pre-installation work (shielding work, etc.). So, procurement and installation schedules of equipment will be planned appropriately according to the progress of the preparatory work by the Palestine side and said pre-installation work.

2-2-2 Basic Plan (Equipment Plan)

(1) Overall Plan

The planned equipment is crucial for medical treatment of NCDs, but it differs greatly between Rafidia Surgical Hospital in the West Bank and 3 hospitals in the Gaza Strip. The equipment for Rafidia Surgical Hospital is planned in order to procure the medical apparatus for the MRI room, Cath-lab and operating theater for cardiac surgery, which are functioning as a unit. On the other hand, the equipment for 3 hospitals in the Gaza Strip is planned in order to procure the necessary equipment for NCDs treatment in various department in the hospitals.

(2) Equipment Plan

1) Examination of Requested Equipment

The equipment listed in the final requested equipment list has been carefully discussed, examined and confirmed with the doctors in charge of each department regarding the equipment contents, quantity, location and priority. Thus, this equipment is basically highly relevant. During the analysis in Japan, the appropriateness of the procurement of each equipment is studied and reflected in the equipment plan, by taking into account the maintenance and usage conditions of existing equipment and the floor plan (draft) obtained in the field survey. The equipment has been studied and examined by following selection criteria below.

Table 2-4 Evaluation Criteria of Equipment Selection

①	Equipment that is not inappropriate as a Japanese Grant Aid scheme (exclude general furniture/personal equipment)
②	Equipment for clinical use (exclude research equipment)
③	Equipment that matches clinical skills in hospitals
④	Equipment that can expect sufficient patient use
⑤	Equipment that matches current and future plans of medical services (positioning function, etc.) of hospitals (In case of future plans, decide by confirming the concrete implementation plan.)
⑥	Equipment that matches the current status of existing equipment or future plans (avoid duplication)
⑦	Equipment that does not require excessive budgetary burden for operation
⑧	Equipment that can correspond technically to equipment operation and maintenance
⑨	Equipment of which spare parts and consumables can be easily procured in the local market
⑩	Existence of rooms/spaces where equipment can be installed

Based on the criteria above, each piece of equipment was evaluated with the following five-point allocation.

[Evaluation Criteria and Point]

- 5 point: No problem
- 4 point: Generally no problem
- 3 point: Relevance is recognized, with some minor concerns
- 2 point: Many concerns (minor and major)
- 1 point: No relevance

For the comprehensive evaluation of each item of equipment, the above evaluation points for all items were summed up and those at 80% (40 points) out of a full score (50 points) were adopted. The evaluation results are summarized in “Appendix 6. Evaluation Chart of Requested Equipment.”

2) Examination of Equipment Quantity

For the planned equipment selected based on the above criteria, the quantity of each piece of equipment will be drafted by taking into account the frequency of use, the status of existing equipment, and future medical activities. After the determination of the budget for equipment procurement of the Project, the final quantity adjustment of each piece of equipment was made based on the priority of quantity of each piece equipment, procurement environment of the hospitals, etc. The remarks on Evaluation Chart of Requested Equipment of Appendix shows the equipment whose quantity was adjusted.

3) Planned Equipment

As a result of the above examination and project cost estimation, some equipment was deleted from the planned equipment list due to budgetary reasons. The remarks on Evaluation Chart of Requested Equipment of Appendix shows the equipment which was deleted due to budget limitations.

The planned equipment is shown below.

Table 2-5 Planned Equipment List

No.	Req. No.	Equipment Name	Europe Gaza Hospital	Nasser Medical Complex	Indonesian Hospital	Rafidia Surgical Hospital
1	G-2	Multi-slice CT	1			
2	G-3	MRI		1		
3	G-4	Digital x-ray apparatus	1	2	2	
4	G-5	Digital fluoroscopy	1			
5	G-7	Mobile x-ray apparatus	2	1	2	
6	G-9	UPS for CT			1	
7	G-10	Doppler ultrasound scanner with TEE probe		1	1	
8	G-11	Color doppler ultrasound scanner	2	2		
9	G-12	Portable color doppler ultrasound scanner	1	1	1	
10	G-13	ECG	3	3	3	
11	G-15	Holter ECG		1	1	
12	G-16	Treadmill			1	
13	G-17	Hemodialysis machine		10		
14	G-18	Mobile digital C-arm	1			
15	G-19	Video endoscopic system for digestive system	1		1	
16	G-20	Video endoscopic system for bronchial tube		1		
17	G-21	Endoscopic washer machine	1	1	1	
18	G-22	Surgical laparoscope set		1	1	

No.	Req. No.	Equipment Name	Europe Gaza Hospital	Nasser Medical Complex	Indonesian Hospital	Rafidia Surgical Hospital
19	G-24	Cystoscope system		1	1	
20	G-25	Autoclave	1	2	1	
21	G-26	Nephroscope		1	1	
22	G-27	Urethroscope		1	1	
23	G-28	Resectoscope		1	1	
24	G-29	Pneumatic lithotripsy		1		
25	G-30	Laser lithotripsy		1		
26	G-31	Defibrillator	2			
27	G-32	ENT surgical microscope	1			
28	G-33	Auto chemistry analyzer	1	2		
29	G-34	Blood bank refrigerated centrifuge	1	1		
30	G-35	Centerifuge	1	1	1	
31	G-36	Blood bank deep freezer		2	1	
32	G-37	Serofuge centrifuge			1	
33	G-38	Patient monitor	10	13	10	
34	G-39	EMG machine		1		
35	G-40	Autoclave for lab.	1	1	1	
36	G-42	Pulse oximeter	15	15	10	
37	G-43	Ophthalmic surgical microscope	1			
38	G-44	Fundus fluorescein angiography (FFA)	1			
39	G-45	Optical coherence tomography (OCT)	1			
40	G-46	Ophthalmic ultrasonic diagnostic (A&B scan)	1			
41	G-47	Slit lamp	5			
42	G-48	Phaco- surgery machine	1			
43	G-49	Patient bed	15	50	25	
44	G-50	Recovery sliding trolley	7	7	5	
45	G-51	Biomexer and blood bank chair		2	2	
46	G-52	ENT unit	2	2		
47	G-53	CO2 incubator	1		1	
48	G-54	Syringe pump	10	20	10	
49	G-55	Infusion pump	10	20	10	
50	G-57	Laundry machine	2	4	1	
51	G-58	Calendar-roller iron for sheet	1	1		
52	G-59	Dryer	1	2	1	
53	G-63	External storage device	1	1	1	
54	W-1	MRI				1
55	W-2	MRI pressure injector				1
56	W-3	Anesthesia machine, MRI compatible				1
57	W-4	Vital sign monitor, MRI compatible				1
58	W-5	MRI peripheral equipment set				1
59	W-13	Angiography				1
60	W-14	Catheterization injector				1
61	W-15	Anesthesia workstation				1
62	W-16	Intra-Aortic balloon pump				1
63	W-17	Echocardiograph with TEE probes				1
64	W-18	Treadmill with stress test				1

No.	Req. No.	Equipment Name	Europe Gaza Hospital	Nasser Medical Complex	Indonesian Hospital	Rafidia Surgical Hospital
65	W-19	Holter ECG				1
66	W-20	Fraction flow reserve				1
67	W-21	X-ray protective apron				5
68	W-22	Perfusion system				1
69	W-23	Ice machine				1
70	W-24	SSI single-chamber cardiac pacemaker				1
71	W-25	Dual chamber external pulse generator				1
72	W-26	Sternum and redo saw				1
73	W-27	Portable echocardiograph				1
74	W-28	Operating light				1
75	W-29	Peripheral vascular diagnostic system				1
76	W-30	Digital x-ray C-arm				1
77	W-31	Radiolucent top operating table				1
78	W-32	Injector for vascular application				1
79	W-33	Ultrasound with color doppler				1
80	W-34	Hand held doppler for blood flow				1
81	W-38	ICU bed				15
82	W-39	ICU ventilator				12
83	W-40	Central monitoring unit for 5 beds				1
84	W-41	Central monitoring unit for 7 beds				1
85	W-42	Infusion station				15
86	W-43	Warming mattress				2
87	W-44	Bedside cabinet				15
88	W-45	Over bed table				15
89	W-46	Oxygen flowmeter				15
90	W-47	Suction unit, wall mounted				15
91	W-48	Medication trolley				2
92	W-49	Emergency trolley				2
93	W-50	Defibrillator monitor				2
94	W-51	ECG machine				2
95	W-52	Medication cabinet				2
96	W-53	NIBP with SpO2				2
97	W-54	Digital mobile x-ray				1
98	W-55	X-ray protective apron				2
99	W-56	Wheel chair for adult				1
100	W-57	Linen trolley				2

4) Maintenance Contracts after Expiration of Warranty Period

In order to prevent the situation where the equipment is left unattended due to equipment failure relatively early after delivery and in order to match the bid conditions of Palestine MoH as much as possible, the maintenance service for 3 years after delivery of the equipment are included in the Project. The maintenance services of the Project shall ensure the periodic inspection and on-call service for 2 additional years after a 1 year guarantee period for equipment. During these

periods, the repair parts and replacement parts shall be included in these services without any charge.

The criteria for selecting equipment for maintenance service contracts are;

- 1) equipment whose failure has a major impact on medical care in the hospitals,
- 2) equipment that can only be repaired by the technicians at local agents.

The contents of maintenance service per year are summarized as follows.

Table 2-6 Target Equipment for Maintenance Service Contract

No.	Req. No.	Equipment Name	Q'ty	Regular Service (times)	On-call Service (times)
1	G-2	Multi-slice CT	1	4	No limit
2	G-3	MRI	1	4	No limit
4	G-5	Digital fluoroscopy	1	2	No limit
13	G-17	Hemodialysis machine	10	2	No limit
15	G-19	Video endoscopic system for digestive system	2	1	No limit
16	G-20	Video endoscopic system for bronchial tube	1	1	No limit
17	G-21	Endoscopic washer machine	3	1	No limit
18	G-22	Surgical laparoscope set	2	1	No limit
20	G-25	Autoclave	4	2	No limit
24	G-29	Pneumatic lithotripsy	1	2	No limit
28	G-33	Auto chemistry analyzer	3	2	No limit
42	G-48	Phaco-surgery machine	1	1	No limit
46	G-52	ENT units	4	1	No limit
48	G-54	Syringe pumps	40	1	No limit
49	G-55	Infusion pumps	40	1	No limit
54	W-1	MRI	1	4	No limit
55	W-2	MRI pressure injector	1	1	No limit
56	W-3	Anesthesia machine, MRI compatible	1	2	No limit
59	W-13	Angiography	1	2	No limit
60	W-14	Catheterization injector	1	1	No limit
61	W-15	Anesthesia workstation	1	2	No limit
62	W-16	Intra-Aortic balloon pump	1	2	No limit
66	W-20	Fraction flow reserve	1	2	No limit
68	W-22	Perfusion system	1	2	No limit
78	W-32	Injector for vascular applications	1	1	No limit
82	W-39	ICU ventilator	12	2	No limit
85	W-42	Infusion station	15	1	No limit

2-2-3 Outline Design Drawing

1) Rafidia Surgery Hospital

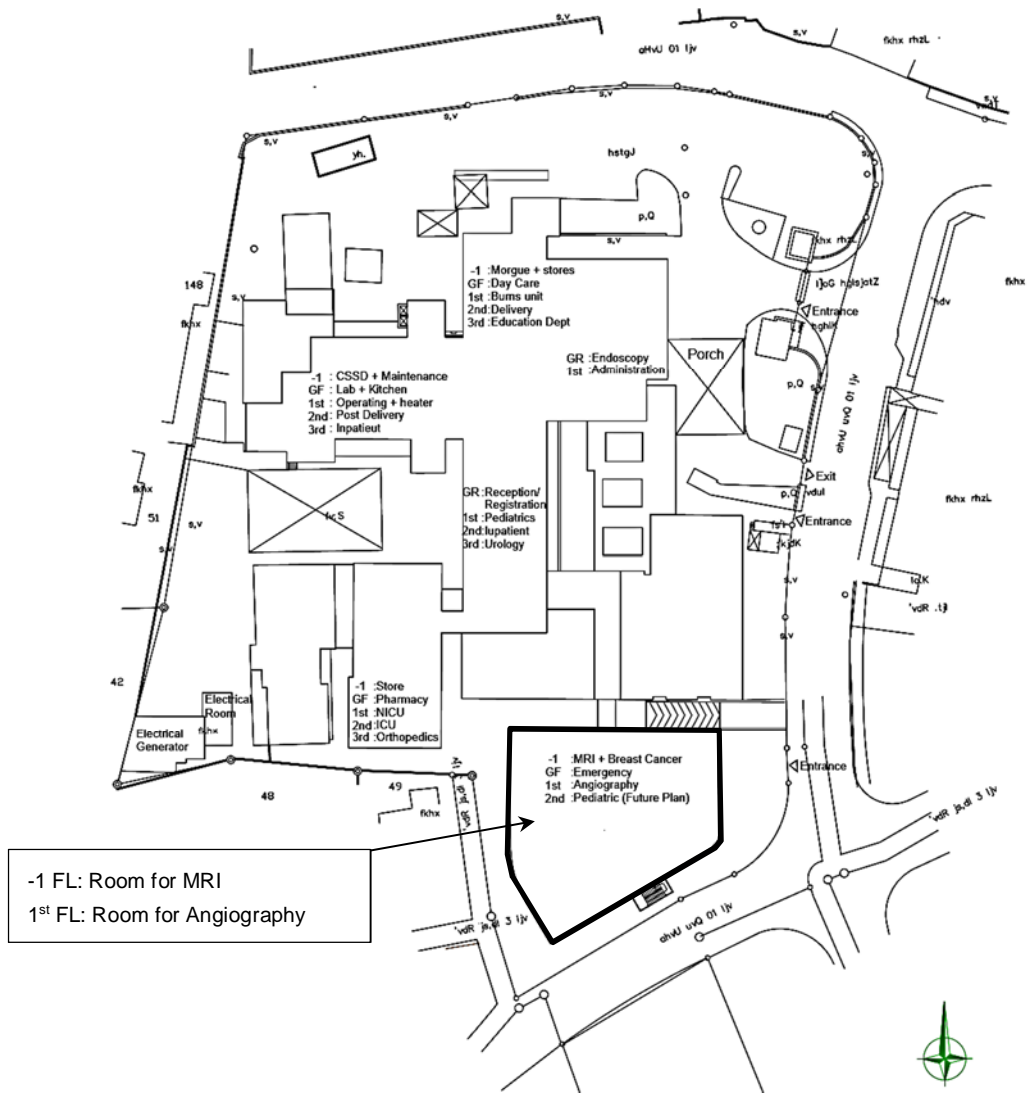


Figure 2-1 Layout plan of Rafidia Surgery Hospital

2) Europe Gaza Hospital

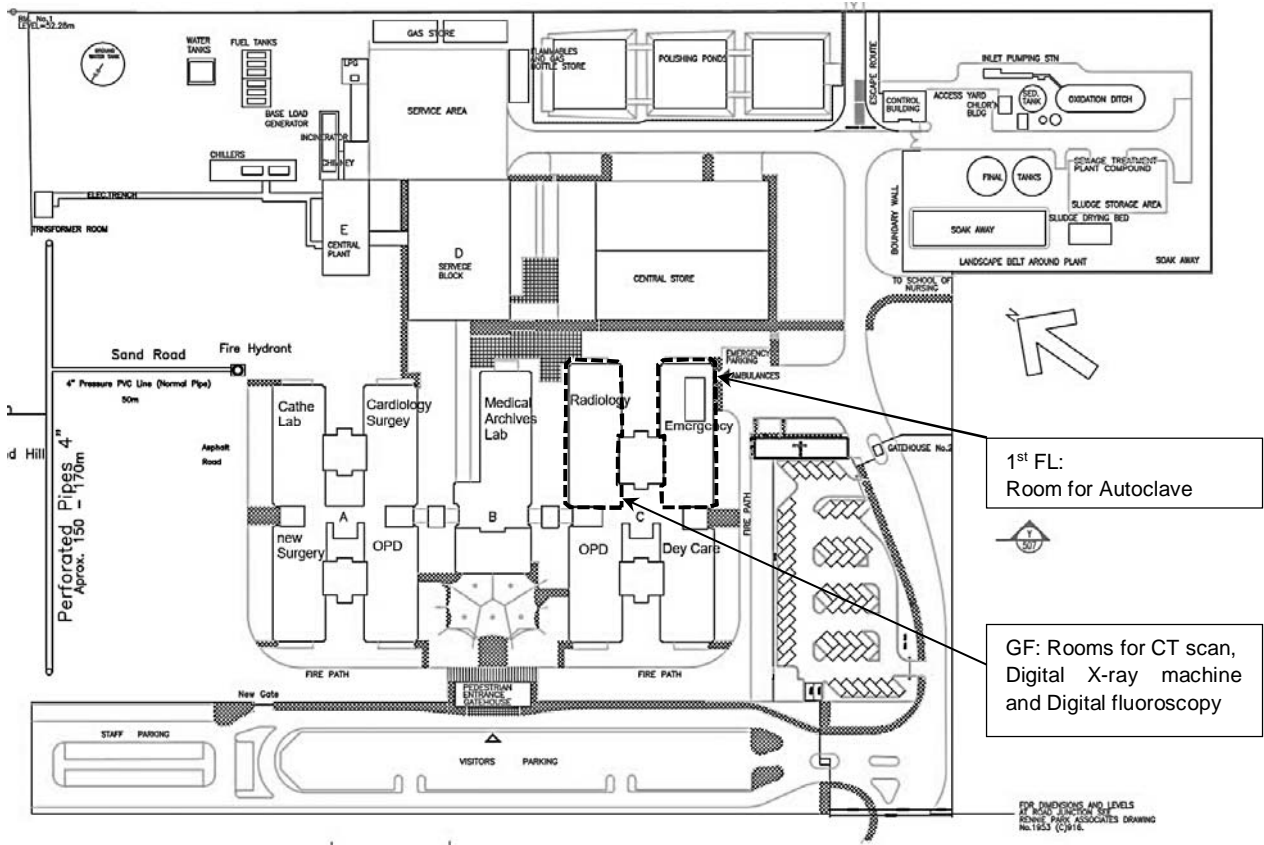


Figure 2-4 Layout plan of European Gaza Hospital

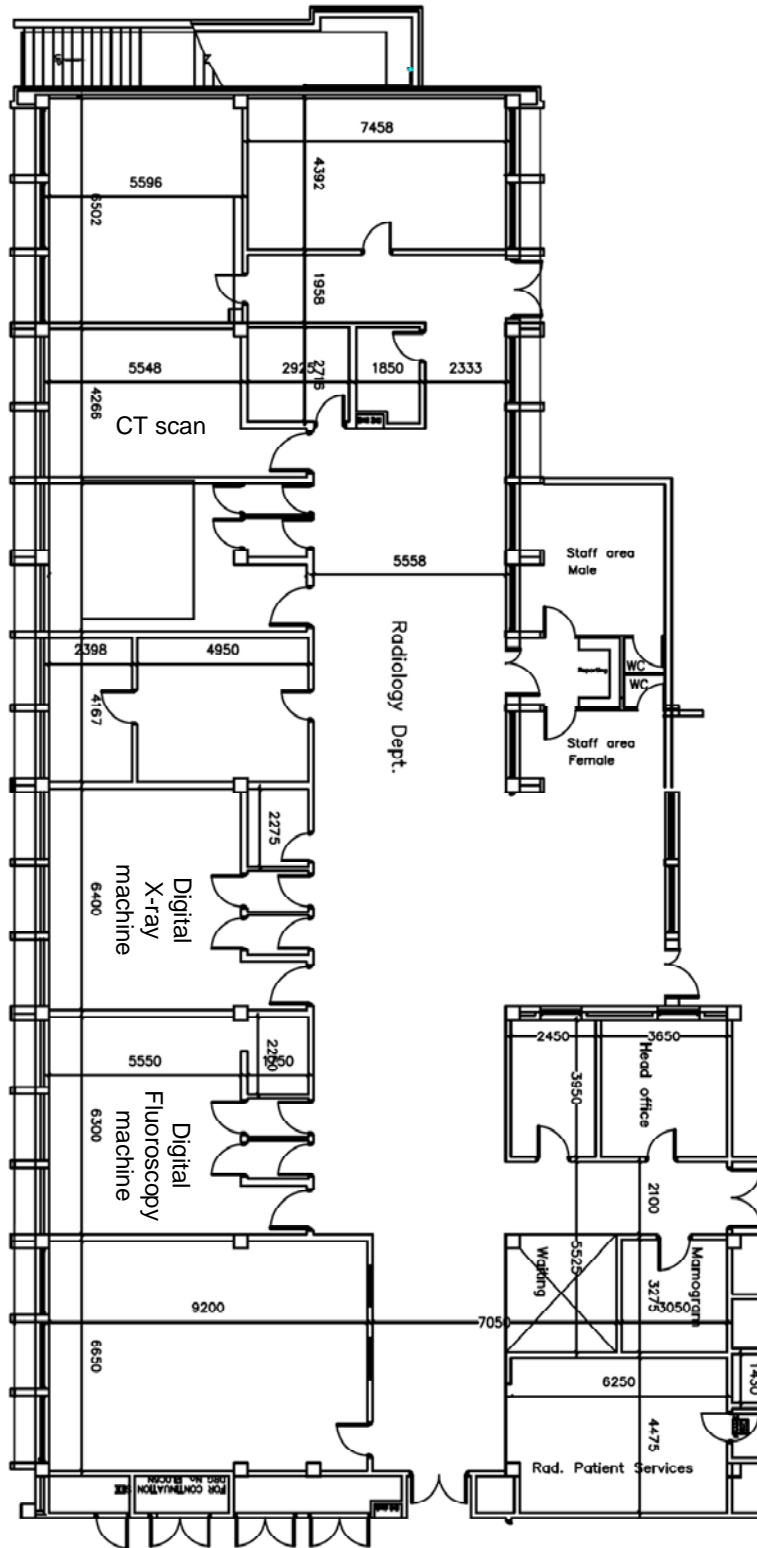


Figure 2-5 Floor plan of Radiology department

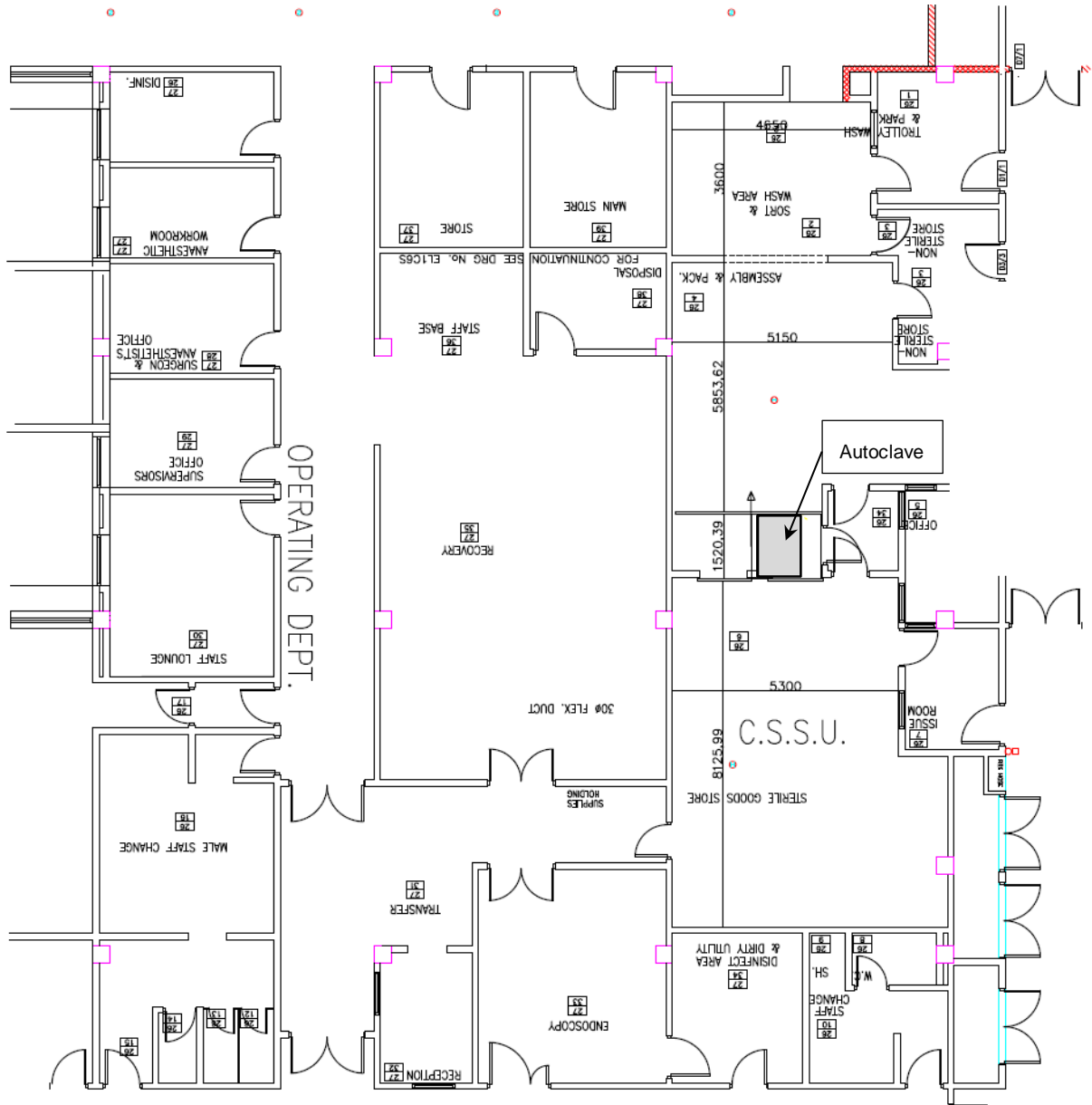


Figure 2-6 Floor plan of Autoclave (1st FL in Emergency building)

3) Nasser Medical Complex



Figure 2-7 Layout plan of Nasser Medical Complex

4) Indonesian Hospital

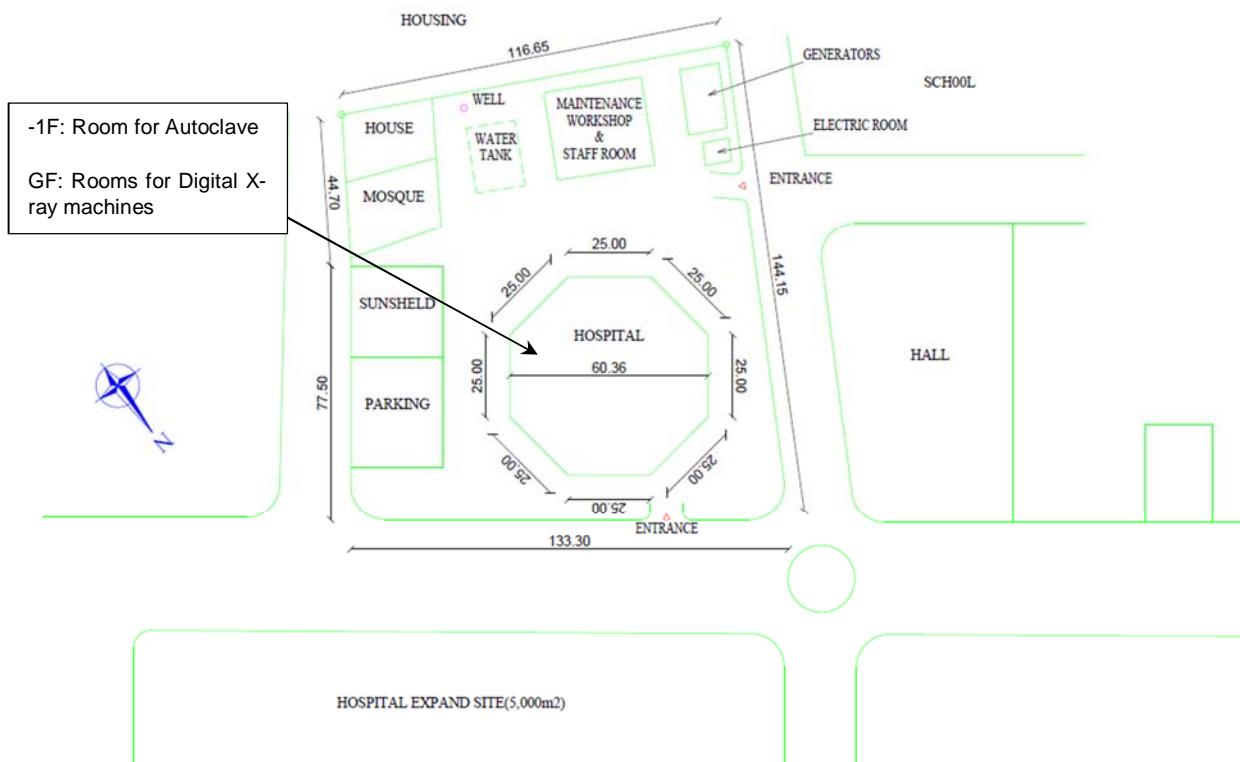


Figure 2-9 Layout plan of Indonesian Hospital

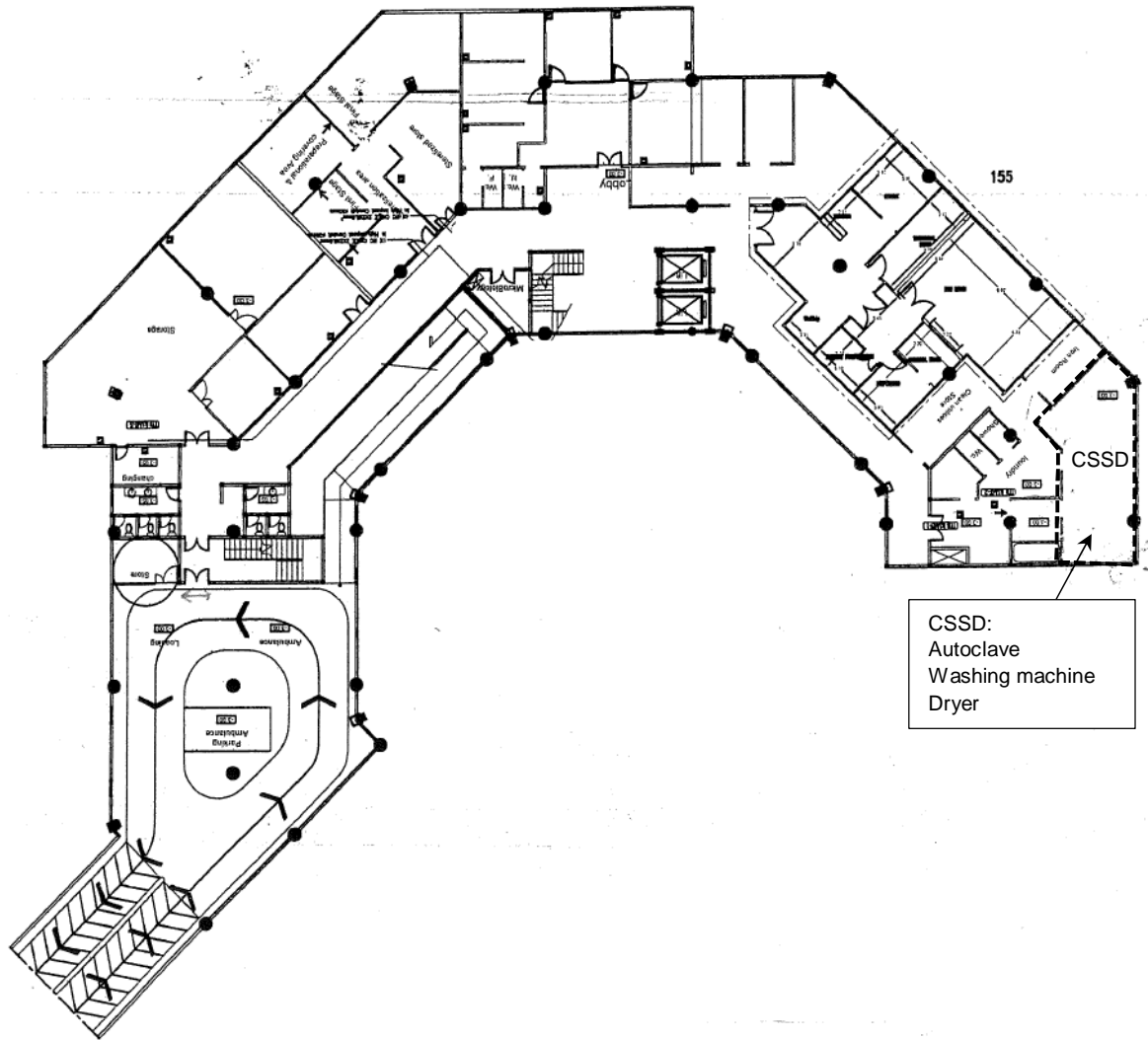


Figure 2-11 Floor plan of Autoclave (-1F)

2-2-4 Implementation Plan

2-2-4-1 Implementation Policy

Implementation of the Project shall be initiated officially only after it is approved by the Governments of both countries and the exchange of notes (E/N) and the grant agreement (G/A) is signed. Immediately after signing of the E/N and the G/A, the Palestine organization that is responsible for implementation of the Project and the Japanese consultant firms shall enter an agreement and initiate the detailed design work of the Project. When the detail design is completed, the Japanese equipment supply and installation companies participate in the tender for their works. The successful tenderers and Palestine organization shall enter a contract and proceed for supply and installation of the equipment.

(1) Implementing Organizations

1) Executing Agency

The Executing Agency for the Project is the Ministry of Health (MoH) of the West Bank. The MoH of the West Bank and the Gaza Strip will be responsible for operation and maintenance of the equipment provided by Japan.

2) Japan International Cooperation Agency (JICA)

JICA will sign a G/A with the Government of Palestine, and will review and monitor the Project for proper implementation in accordance with the Japanese Grant schemes.

3) Consultant

After signing of E/N and G/A for the Project, the Executing Agency of the Project and a Consultant in Japan will sign an agreement for the consulting services. The Consultant will carry out the following works;

a. Detailed Design Stage

Final confirmation of the Project, preparation of design documents (specifications and technical reference materials on the medical equipment included in the Project)

b. Bidding Stage

Assistance to the Executing Agency in the bidding and contractual procedures (including preparation of bidding documents, bid openings, bid evaluation, contracts with Contractor and the Supplier)

c. Procurement Supervision

Supervisory works for equipment procurement, delivery, installation, operational guidance and maintenance guidance of equipment

d. Inspection before expiration of manufacturer's warranty

Inspection before expiration of manufacturer's warranty of 1 year for supplied equipment
e. Inspection of maintenance services

Inspection of implementation status of additional 2-year maintenance service and equipment conditions

The detailed design involves determining the details of the equipment plans according to the Preparatory Survey Report, in order to compile the tender documents that will include the specifications, tender conditions, draft conditions of contracts for supply and installation of medical equipment, and to estimate equipment costs. The tender and contract assistance include attendance to the tendering for the selection of the medical equipment supplier, assistance in the procedures for concluding a contract, and reporting to JICA, etc.

The supervision of the equipment work involves ensuring that the supplier has effectively carried out the medical equipment supply and installation work in accordance with the contractual terms, and to confirm that they have properly met their contractual obligations. For the successful completion of the Project, the Consultant will, from a true and fair perspective, extend advice and instructions, and coordinate the activities of the persons concerned. Specifically, the supervisory services of the consultant include the following:

- i) Review and approval of the work program, equipment specifications and other documents prepared and submitted by the medical equipment supplier.
- ii) Inspection and approval of the pre-shipment inspection and approval of the quality, quantity and performance of medical equipment.
- iii) Confirmation of the delivery and installation of equipment for the medical equipment, and their operation manuals.
- iv) Supervision of the work progress and reporting.
- v) Final inspections of the medical equipment, and attendance during the handover.

In addition to the aforementioned services, the Consultant will report to the Japanese authorities concerned regarding the progress of the Project, payment procedures, completion of the Project and handing-over, etc.

4) Equipment Supplier

The work orders pertaining to the Japanese assistance will be limited to Japanese companies satisfying the eligibility requirements. Supplier will be selected by public tender with restricted eligibility.

Based on the contract, the selected equipment supplier will procure, supply and install medical

equipment. They will also give technical instructions to the Palestine side concerning the operation and maintenance of the supplied equipment. Once the equipment is handed over, the equipment supplier will, in cooperation with the agency of the equipment manufacturers, support the continuous supply of spare parts and consumables for major equipment during the guarantee period, either free of charge or on a chargeable basis.

(2) Project Implementation Diagram

The consultant will form a project team to conduct the above-mentioned services in Japan and Palestine.

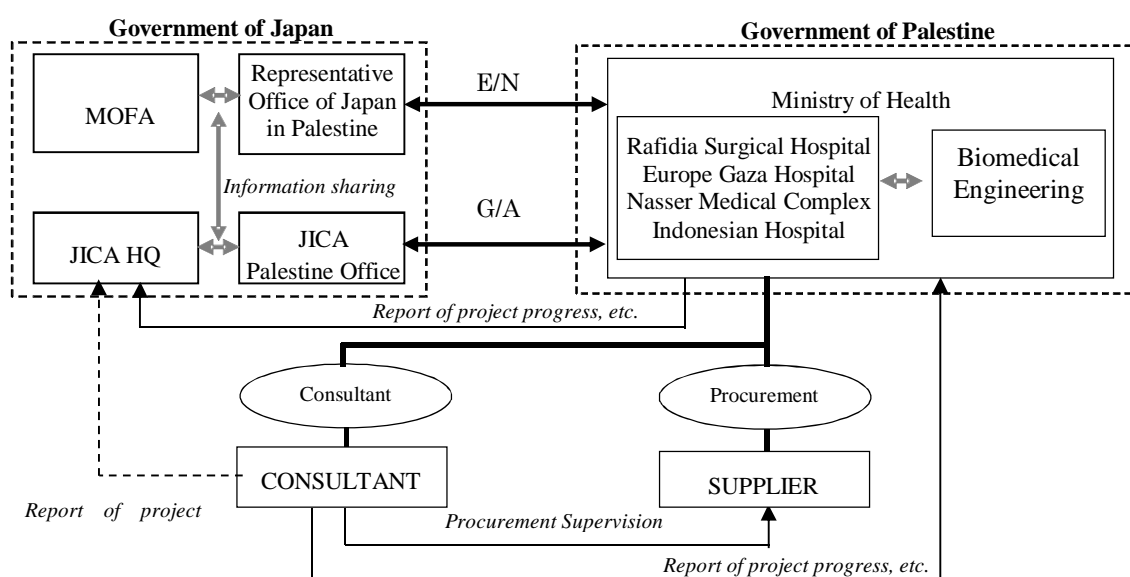


Figure 2-12 Project Implementation Diagram

2-2-4-2 Implementation Conditions

(1) Schedule Management

Although the Project aims at equipment procurement for Palestine, import permissions are required and the transportation of equipment is controlled and restricted by the Israeli government. Furthermore, these procedures are complicated and the length of time from applications to obtaining permission largely depend on the Israeli side. Thus, it is important to prepare necessary documents for the above process in advance.

There are 4 hospitals for the Project and 3 of which are located in the Gaza Strip. In addition to the above permissions, as the local agents in the Gaza Strip which provide engineers for installation and trainings are limited, the schedule management regarding imports of equipment,

inland transportation and installation of equipment is carefully organized and controlled.

(2) Dispatch of Technicians for Equipment Installation

It is extremely important to impart knowledge and skills regarding appropriate operation and maintenance of the equipment so as to contribute to medical services through continuous proper operation of the procured equipment after implementation of the Project. That being the case, technicians who are thoroughly familiar with the operation of the each piece of equipment will be selected as the equipment installation technicians, and sufficient time will be allotted for them to explain the operation thereof (operation techniques, simple repair techniques, inspection methods, etc.) and to make sure that those concerned on the receiving side acquire sufficient understanding concerning their operation and maintenance.

(3) Tax Exemption

In the field survey, the discussion was made with MoH regarding tax exemption related to the implementation of the Project as follows. Since the right to collect some certain type of taxes (Custom and VAT for imported items) in Palestine is on the Israel side. Thus, the actual tax exemption procedure shall be paid special attention.

< Commencing Time >

After the equipment supplier is decided.

< Application Institution >

Israeli Tax Authority (via Palestine Ministry of Finance and Planning)

< Process >

- ① After the Japanese supplier is determined, MoH in West Bank submits a request form for donation number issuance to the Palestinian Ministry of Finance and Planning along with the necessary documents. The Palestine Ministry of Finance and Planning consults with the Israeli Tax Authority and obtains a donation number (the Israeli Tax Authority will consult with the Coordination of Government Activities in the Territories (hereinafter referred to as “COGAT”), but the Japanese side cannot participate in this consultation process)
- ② A donation number is issued and the Israeli Tax Authority notifies the Palestine Ministry of Finance and Planning of the approval.
- ③ After the procedure of ② is completed, the Supplier can ship only the products with the donation number from Japan and/or the third countries.
- ④ Import tax and VAT are exempted by adding donation numbers.

< Necessary Document >

- Copy of G/A or E/N

- Request Letter for Tax Exemption from Ministry of Finance and Planning
- Letter from JICA to the MoH and Palestine Ministry of Finance and Planning (indicating that this agreement is for the donor project)

< Note >

When equipment is shipped from multiple countries, a donation number is required for each shipment. If the shipping is different even from the same country, a donation number is required for each shipment.

< Time Needed >

Approximately 1-2 months at least.

(4) Import application

< Commencing Time >

After getting the donation number.

< Application Institution >

COGAT (via a local clearance agent)

< Process >

- ① Submit the necessary documents to COGAT from the equipment supplier via a local clearance agent.
- ② When permission from COGAT is issued, start transportation.

(only for equipment for Gaza Strip)

- ③ Online application to COGAT along with equipment specifications and catalogs regarding which equipment will go to which hospital, usage, etc.
- ④ Additional necessary information may be requested by COGAT for each equipment. The Supplier will be notified of the import permit by e-mail, which will allow the Supplier to import into Gaza Strip.

< Necessary Document >

- Packing list, Invoice, Bill of Lading
- Letter from Israeli Tax Authority with the donation number

< Note >

The cost of storage in Israeli port and airport is very expensive. Thus, in order not to store equipment at there, it is desirable the Supplier progress the process appropriately and ship equipment after getting the permission from Israeli side.

< Time Needed >

Approximately 2-3 weeks, Equipment for Gaza Strip takes about 1week additionally.

(5) Safety Control

Regarding security management in the Gaza Strip and entry into the Gaza Strip, each person engaged in work in the Gaza Strip shall follow the code of conduct for safety measures of JICA with the support and judgement of JICA Palestine office on advance preparation, security of bulletproof vehicles, emergency evacuation, etc. This security measure shall be applied to the Consultants and Suppliers, and the following safety measures shall be taken within the Gaza Strip. In addition, a safety adviser consultant (to be hired locally) will be assigned to collect and analyze safety information when the Consultant is dispatched for long time.

The status of entry into Palestine and the Gaza Strip will be communicated closely with the JICA Palestine office. During the preparatory study stage, some measures are under discussion, and information will be continuously arranged before the implementation of the Project. The current direction is basically to obtain a “West Bank Visa” and a “Permission for Gaza Strip”, but this will respond flexibly depending on the frequency of entry. JICA is also working on obtaining an “Israeli working Visa”.

<<< Safety Measures in the Gaza Strip >>>

1. Working Hours: 9:00am – 3:00pm (curfew: 5:00pm – 8:00am)
2. Working Days: Sunday – 12:00pm, Thursday (prohibition of stay: Friday and Saturday)
3. Accommodation: Hotel, designated by JICA
4. Transportation: Bulletproof car (arranged with UNDP via JICA)
5. Code of travelling: More than one person
6. Communication: Mobile phone and iridium satellite-telephone

2-2-4-3 Scope of Works

It is mutual cooperation between Japan and Palestine that makes implementation of the Project successful. As the Project is implemented under the Japan's grant aid, the scopes of works undertaken by the governments of both countries shall be as described below.

Table 2-7 Scope of Works

Items	Japan	Palestine
<input type="checkbox"/> Equipment work		
- Procurement	✓	
- Installation work (including shielding work)	✓	
- Trial run and adjustment	✓	
- Operation guidance	✓	
- Legal procedures and inspections concerning installation		✓
<input type="checkbox"/> Utility work		
- Utility systems work in the building	✓	✓
- Connection of power, etc. to the procured equipment	✓	
<input type="checkbox"/> Securing space for equipment storage		✓
<input type="checkbox"/> Transportation and customs clearance		
- Transportation of equipment to the site	✓	
- Customs clearance	✓	✓
- Tax exemption		✓
<input type="checkbox"/> Procedures for B/A and payment of commission fees		✓
<input type="checkbox"/> Provision of convenience to the Japanese and/or physical persons of third countries concerned to the Project necessary for their embarkation, disembarkation and stay in Palestine		✓
<input type="checkbox"/> Effective use and management of the procured equipment		✓
<input type="checkbox"/> Application for and acquisition of permits necessary for the Project implementation		✓
<input type="checkbox"/> Payment of all the costs of related tasks that are not covered by the Japanese Grant Aid		✓

2-2-4-4 Consultant Supervision

(1) Procurement Supervision Policy

Under the grant aid policy of the government of Japan, the consultant forms, based on the concept of the outline design, a team that is consistently responsible for executing the Project including preparation of the detail design to achieve smooth and successful implementation. The procurement supervision policy for the Project is outlined below.

- ① To keep close contact with those who are in charge of the Project and representing related organizations of both countries so that installation of equipment will be completed without delay.
- ② To provide quick and appropriate advice and suggestions from a neutral standpoint to the supplier(s) and others concerned.
- ③ To provide appropriate guidance and suggestions regarding operation and management after handing over.
- ④ To confirm that procurement work has been completed and terms of contract are fulfilled and to observe handing over the equipment and obtain an approval of receipt from the Palestine side.

(2) Procurement Supervision Plan

The countries of procurement of the Project are Japan, Palestine and third countries. When shipping in Japan or a third country, the pre-shipment inspection(s) shall be conducted by the third-party inspection agent at the port of embarkation. The consultant shall confirm the contents of inspection certificate submitted by the inspection agent in writing. The consultant shall issue the inspection report and report to MoH of the West Bank right after the completion of pre-shipment inspection(s). The person in charge of MoH, Supplier and Consultant shall conduct the acceptance inspection for all procured equipment after installation and initial operation training and hand them over. Model name, country of origin, manufacturer name, ODA sticker, appearance of the equipment shall be checked during the acceptance inspection(s).

2-2-4-5 Quality Control Plan

Under the Project, in addition to Japanese manufacturers, the scope of procurement will be expanded to third countries. However, elements and factors such as versatility and after-sales service will be considered essential to avoid easy selection of equipment based only on low price. The quality of equipment will be ensured by putting in place certain restrictions, such as a limitation of products from only DAC or OECD member countries and/or designated countries, and equipment complying with JIS, CE, IEC, ISO and other international standards.

As ready-made medical equipment will be procured for the Project, the quality control of procured equipment will be also secured through factory acceptance inspections and pre-shipment

inspections. The factory acceptance inspections will be carried out on the equipment that requires specific packaging, precision machines and large/heavy machines that cannot be checked for quality only at the pre-shipment inspections. The pre-shipment inspection will be conducted at designated warehouses at the seaport (or airport) for equipment procured in Japan and third countries.

2-2-4-6 Procurement Plan

Since there are no medical equipment manufacturers in Palestine, Japanese or third country products will be procured. In Ramallah city and Gaza city, there are many local agencies specialized in dealing in medical equipment. A survey conducted on the agencies showed that they have experience in procuring almost all the equipment listed in the request and they do not seem to have any particular problem as for procurement of spare parts and the like. In the same way, it was confirmed that after-sales services can also be handled in Palestine by making requests to each manufacturer directly from or via the local agency.

The transportation plan for the equipment to be procured from Japan and third countries will consist of the sea transportation to the Ashdod Port and the air transportation to the Ben Gurion International Airport in Israel and the inland transport from the ports to the Rafidia Surgical Hospital in the West Bank and 3 hospitals in Gaza Strip separately. Regarding the inland transportation, the local special circumstances will be carefully considered to determine a smooth and safe manner.

2-2-4-7 Operation Guidance Plan

Special consideration will be necessary for operating and maintaining the equipment to be planned in the Project, because it is mostly used for medical purpose and it can cause fatal accidents. Therefore, it is essential to provide adequate instruction and training of operation and maintenance of the equipment by sending a skillful engineer from the equipment maker or its local agent at the time of delivery. The Consultant will check if the guidance is properly performed. The Consultant shall also confirm if the persons in charge at each hospital understand the equipment sufficiently through the guidance.

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

During the site survey, the maintenance departments of MoH of the West Bank and the Gaza Strip requested technical assistance related to inspections and maintenance necessary for continuous utilization of procured equipment. The person in charge in these departments recognize that daily checking by end-users and regular inspections by engineers and the maintenance department and/or local agents are important for continuous use of procured equipment. The Team accepted their requests and decided to plan soft component/technical assistance for equipment maintenance.

In both areas, the development of format (checklist) for the inspection methods of before/after-use and daily maintenance and skill practice will be provided to the staff of maintenance department and end-users of the equipment at the hospitals. At the same time, simple manuals will be created and technical skills will be instructed in order to check operation skills and trouble shooting. This assistance will support the establishment of the reporting framework from the staff of each department to the hospital manager (such as Hospital Director and/or Head Nurse) about the current equipment utilization and maintenance conditions regularly in order to estimate a budget for maintenance and procurement of necessary parts for next year.

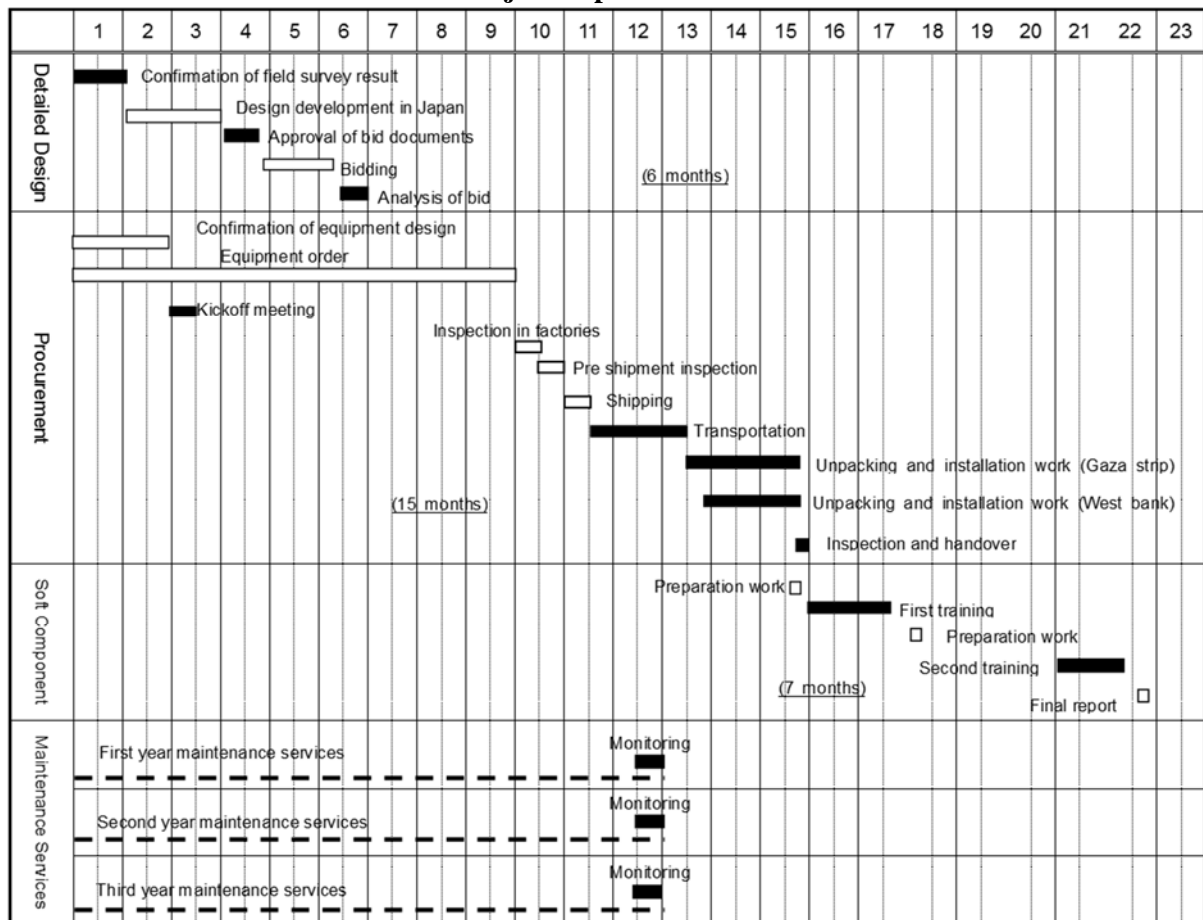
The target equipment of this scheme is patient monitor, syringe pump, infusion pump, ventilator, anesthesia machine, incubator, IABP, hemodialysis machine, equipment related to the catheterization laboratory, etc.

The detailed plan is attached as an appendix of this report.

2-2-4-9 Implementation Schedule

The period needed for the detailed design (from the filed survey to the approval and concurrence of the bidding documents) is estimated as 4 months, and the bidding (from the bid notice to the contract with the Supplier) is 3 months, and the procurement after the contract with the Supplier is 9 months. The provisional Project implementation schedule is shown below.

Table 2-8 Project Implementation Schedule



2-3 Obligations of the Recipient Country

(1) Work Borne by the Palestinian Side

Specific obligations of the Palestinian side which were confirmed during the site survey are described below.

Table 2-9 Work Borne by the Palestinian side

Before Bidding	<ul style="list-style-type: none"> ▪ To open bank account (B/A) ▪ To issue A/P to a bank in Japan (the Agent Bank) for the payment to the consultant. ▪ To bear the following commissions to a bank in Japan for the banking services based upon the B/A. <ul style="list-style-type: none"> ➢ Advising commission of A/P ➢ Payment commission for A/P
During the Project Implementation until handing-over	<ul style="list-style-type: none"> ▪ To issue A/P to a bank in Japan (the Agent Bank) for the payment to the Supplier(s). ▪ To bear the following commissions to a bank in Japan for the banking services based upon the B/A. <ul style="list-style-type: none"> ➢ Advising commission of A/P ➢ Payment commission for A/P ▪ To ensure prompt unloading and customs clearance at ports of disembarkation and to assist the Supplier(s) with internal transportation therein. ▪ 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. ▪ 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. ▪ To bear all the expenses, other than those covered by the Grant, necessary for the implementation of the Project, such as tables and chairs for general use, etc. ▪ To remove existing equipment and to rehabilitate facilities and utilities (electricity, water supply and drainage system and LAN network). ▪ To prepare and submit the Project Monitoring Report (PMR). ▪ To prepare and submit the final PMR when completion of the works. ▪ To allocate necessary medical staff.
After the Project	<ul style="list-style-type: none"> ▪ To secure maintenance budget for proper use and management of procured equipment. ▪ To organize operation and maintenance structure. ▪ To implement daily check and regular inspection of procured equipment.

2-4 Project Operation Plan

(1) Operation Structure and Organization

Although MoH of the West Bank is the supervisory and executing body of the Project, both MoH of the West Bank and the Gaza Strip and hospitals are responsible for its operation and maintenance after delivery. The purpose of the Project is to procure the medical equipment necessary for the treatment of NCDs, which strengthens the medical functions in the field of cardiovascular surgery at Rafidia Surgical Hospital and in the fields of radiology, endoscopy urology and ophthalmology at 3 hospitals in the Gaza Strip. Thus, both West Bank MoH and Gaza Strip MoH are planning to increase and allocate medical staff to the above departments and also planning to provide training to existing staff in order to manage hospitals smoothly after handing-over the equipment.

(2) Personnel Plan

In Palestine, it is not financially easy for either the West Bank or Gaza to secure medical workers and engineers. However, because both MoHs manage the placement of medical staff and technicians at each hospital, they can play a central role in increasing the medical staff by relocating workers when necessary. So, there is no concern regarding increasing the number of staff in the departments that are the targets of the Project.

(3) Maintenance Management Plan

MoH of the West Bank and the Gaza Strip possess the medical equipment maintenance divisions and supervise the medical equipment maintenance of the hospitals. Under these divisions, there are subordinate divisions with engineers and technicians at each hospital or regional hospital to check and repair the medical equipment.

Not only end-users in the hospitals but also engineers and technicians of maintenance divisions will be invited to attend the initial operational training at the stage of equipment installation.

In order to use the procured equipment continuously, it is necessary to conduct daily checks and regular inspections. So, soft components/technical assistance shall be conducted to demonstrate the technical skills of daily checks to the end-users and those of regular inspections to the engineers and technicians of maintenance divisions. This support will also give guidance on procurement and budgetary plans of the necessary replacement and repair parts for operation and maintenance of the procured equipment. These 2 assistances can provide necessary support to create an environment for continuous utilizations of procured equipment.

In addition, the maintenance contract shall be extended for 2 years, after a 1-year manufacturer's guarantee, at the expense of Japan in order to secure the proper operation and maintenance of the equipment procured in the Project.

2-5 Project Cost Estimation

2-5-1 Initial Cost Estimation

With the conditions of expenditure projection in (3) below, breakdowns of the expenditures borne by Japan and Palestine under the said classification can be estimated as follows. This cost estimation is provisional.

(1) Costs to be borne by the Palestinian Side

Item	Cost Estimation (in 1000)	
	USD	JPY Equivalent
1) Wiring work of electrical cable for radiology department. (Nasser Medical Complex)	38	4,260
2) Removal of existing equipment.	28	3,139
3) Procurement of Equipment/Furniture	9	1,009
4) Banking Commissions	34	3,812
Total	109	12,220

(2) Calculation Conditions

- 1) Time of Estimation : as of May, 2019
- 2) Conversion Rate : US\$1.00 = JPY 104.59
- 3) Procurement Period : As shown the Project Implementation Schedule
- 4) Others : ① Project implementation intended to be in compliance with the Grant Aid scheme of the GOJ.
② The application of the contingency and its ratio will be determined by the GOJ.

2-5-2 Operation and Maintenance Cost

(1) Annual operation and maintenance costs

The equipment maintenance cost consists of repair fee and the costs of the spare-parts and consumables. Although the cost of consumables are required right after handing-over of the equipment, the repair fee and replacement cost of spare-parts are covered by a 1 year guarantee of the manufacturers. The maintenance contract fees for designated equipment will be borne by the Japanese side for 2 years after the end of the 1 year guarantee of the manufacturers, while the repair costs of other equipment will be incurred and charged. The Palestinian side will be responsible for the necessary equipment maintenance expenses from the 4th year after the equipment is procured. Thus, it is necessary for MoH to extend the maintenance contract and/or call the local agents for repair of the equipment.

< Annual required maintenance costs for each fiscal year >

Gaza Strip

(Unit: USD)

	Initial fiscal year	2 nd and 3 rd year	4 th year and after
Repair fee	0	675,417	1,232,937
Spare parts and consumables	208,482	208,482	208,482
Total	208,482	883,899	1,441,419

West Bank

(Unit: USD)

Item	Initial fiscal year	2 nd and 3 rd year	4 th year and after
Repair fee	0	138,232	695,482
Spare parts and consumables	52,267	52,267	52,267
Total	52,267	190,499	747,749

Cost for consumables are expected to be as shown below.

Table 2-10 Annual cost for consumables

No.	Equipment Name	Qty (Gaza)	Qty (West Bank)	Spare parts and consumables	Qty/ year	Unit price (USD)	Sub-total (USD)
3	Digital x-ray apparatus	5		X-ray film	3	374	5,610
5	Mobile x-ray apparatus	5		X-ray film	3	374	5,610
7	Doppler ultrasound scanner with TEE probe	2		Gel	2	12	48
				Recording paper	10	8	160
8	Color doppler ultrasound scanner	4		Gel	2	12	96
				Recording paper	10	8	320
9	Portable color doppler ultrasound scanner	3		Gel	2	12	72
				Recording paper	10	8	240
10	ECG	9		Gel	2	12	216
				Recording paper	10	8	720
11	Holter ECG	2		Battery	1	2	4
13	Hemodialysis machine	10		Dialyzer	1400	8	112,000
				Blood circuit	1400	3	42,000
				Puncture needle	1400	1	14,000
17	Endoscopic washer machine	3		Filter	2	13	78
18	Surgical laparoscope set	2		Pump tube	5	161	1,610
20	Autoclave	4		Filter	1	19	76
				Pre-filter	1	48	192
				Recording paper	3	2	24
				Recording ink	1	38	152
				Salt	1	23	92
				Gasket	1	139	556
23	Resetroscope	2		Electrode	20	40	1,600
27	ENT surgical microscope	1		Halogen lamp	1	7	7
				Fuse	5	1	5

No.	Equipment Name	Qty (Gaza)	Qty (West Bank)	Spare parts and consumables	Qty/ year	Unit price (USD)	Sub-total (USD)
28	Auto chemistry analyzer	3		Reagent			
31	Blood bank deep freezer	3		Recording paper	10	5	150
33	Patient monitor	33		Probe	1	214	7,062
				Electrode	50	1	1,650
				Recording paper	10	2	660
34	EMG machine	1		Recording paper	10	2	20
35	Autoclave for lab.	3		Gasket	1	27	81
36	Pulse oximeter	40		Battery	2	1	80
37	Ophthalmic surgical microscope	1		Halogen lamp	1	8	8
42	Phaco- surgery machine	1		Hand piece	1	187	187
				Tip	3	112	336
46	ENT unit	4		Spray set	1	97	388
				Lamp	1	8	32
				Filter	1	11	44
				Compressor hose	1	13	52
				Vacuum hose	1	13	52
47	CO2 incubator	2		CO2 gas, 40L	12	8	192
49	Infusion pump	40		Infusion set, 20 drop/ml	2	44	3,520
				Infusion set, 60 drop/ml	4	53	8,480
56	Anesthesia machine, MRI compatible		1	Anesthesia gas	1	16	16
				Soda lime	1	19	19
57	Vital sign monitor, MRI compatible		1	Probe	1	214	214
				Electrode	50	1	50
				Recording paper	10	2	20
61	Anesthesia workstation		1	Anesthesia gas	1	16	16
				Soda lime	1	19	19
62	Intra-aortic balloon pump		1	Balloon kit	300	79	23,700
63	Echocardiograph with TEE probes		1	Gel	2	12	24
				Recording paper	10	8	80
65	Holter ECG		1	Battery	2	2	4
68	Perfusion system		1	Tube set	500	2	1,000
73	Portable echocardiograph		1	Gel	2	12	24
				Recording paper	10	8	80
74	Operating light		1	Handle	3	75	225
79	Ultrasound with color doppler		1	Gel	2	12	24
				Recording paper	10	8	80
80	Hand held doppler for blood flow		1	Gel	1	12	12
82	ICU ventilator		15	Breathing circuit set, adult	2	412	12,360
				Bacteria filter	2	11	330
83	Central monitoring unit for 5 beds		1	Probe	5	214	1,070
				Electrode	250	1	250
				Recording paper	50	2	100
84	Central monitoring unit for 7 beds		1	Probe	7	214	1,498
				Electrode	350	1	350
				Recording paper	70	2	140

No.	Equipment Name	Qty (Gaza)	Qty (West Bank)	Spare parts and consumables	Qty/ year	Unit price (USD)	Sub-total (USD)
85	Infusion station		15	Infusion set, 20 drop/ml	6	44	3,960
				Infusion set, 60 drop/ml	8	53	6,360
89	Oxygen flowmeter		15	Battery	1	2	30
94	ECG machine		2	Gel	2	12	48
				Recording paper	10	8	160
96	NIBP with SpO2		2	Battery	1	2	4
Total (Gaza Strip)							208,482
Total (West Bank)							52,267

CHAPTER 3 PROJECT EVALUATION

CHAPTER 3 Project Evaluation

3-1 Preconditions

For the appropriate implementation of this plan, the Palestinian side needs to conduct management of tax exemptions”, provision of convenience for imported materials and equipment, issuance of bank arrangement and payment authorization to pay, arrangement of infrastructure for provided equipment, renovation and expansion of existing buildings, renovation of existing utilities, removal of existing equipment and furniture, etc. as explained on “2-3 Obligations of the Recipient Country”. It is assumed that the necessary procedures and works by the Palestinian side shall be carried out without delay.

3-2 Necessary Inputs by the Recipient Country

Issues the Palestinian side should tackle for the emergence and continuation of effects of the Project are listed below.

(1) Recruit and allocate appropriate human resources

In order to properly operate and maintain the equipment newly provided in the Project, new staff will be required. MoH needs these staff to be assigned before starting the installation of equipment to participate in initial operation training and soft component. It is necessary to formulate a recruitment plan including budgetary plan in advance, and to proceed with systematic recruitment, allocation, and training.

(2) Securing a budget for facility operation and equipment maintenance

In order to achieve the effects of the Project, the West Bank MoH and Gaza MoH need to secure the increased amount described in “2-5-2 Operation and Maintenance Cost” and operate and maintain the provided equipment appropriately. In particular, the Gaza Strip is subject to restrictions from the Israeli side, and there are limitations on obtaining spare parts, consumables and fuel for generators. Therefore, it is important to prepare a procurement plan (budget plan, etc.) with consideration of these situations, and take care not to delay the procurement.

(3) Capacity improvement of human resources

In order for the target hospitals to continue appropriate maintenance management, it is necessary to improve the maintenance management skills of the engineers in the maintenance department and the healthcare professionals of each hospital. It is planned to improve maintenance techniques in Soft Component, etc.. It is important for each hospital to implement appropriate maintenance management using the skills learned through the Soft Component and technical cooperation (to be implemented). In addition, some measures are needed to sustain the effects, such as in-hospital training and regional training to transfer technique to medical staffs in other hospitals.

3-3 Important Assumptions

External conditions are that the security situation will not be significantly degraded, and that the parties involved in the Project can stay in Palestine as planned.

3-4 Project Evaluations

3-4-1 Relevance

(1) Viewpoint of reducing the burden on the referral hospitals

In the West Bank area, the two major hospitals, PMC in Ramallah and Queen Alia Hospital in Hebron, have the largest number of departments and the highest concentration of patients. The bed occupancy rates of these two hospitals are over 100%, and the hospitals receive patients over than their capacity. In addition, these two hospitals have catheter labs and are accepting many heart disease patients (Queen Alia Hospital will establish a catheter lab within the next few months), and the number of patients is expected to increase continuingly in the future. Therefore, the development of catheter labs and advanced diagnostic imaging equipment, etc. in the Rafidia Surgical Hospital, which is the third largest hospital in the West Bank area will lead to distribution of patients to other hospitals. Also, this will contribute to not only the improvement of access to medical services, but also the quality of medical services.

In the Gaza Strip, Al-Shifa Hospital, which also functions as a tertiary referral hospital, has the most complete departments and equipment possession, and also accepts many referred patients from the hospital and 70% of patients in Gaza Strip are concentrated in the Al-Shifa hospital. The Gaza MoH plans to restore Al-Sifa Hospital as a top referral hospital and establish appropriate referral system within the Gaza Strip. Thus, it is necessary to strengthen the functions and medical services of each regional referral hospital, so the regional referral hospitals at Northern Gaza (Indonesian Hospital), Rafa (Europe Gaza Hospital), and Hanunis (Nasser Medical Complex) were selected.

(2) Viewpoint of improving geographic access to advanced medical services

The center of heart disease treatment in the West Bank is defined as PMC located in the central area, Queen Alia Hospital located in the south area, and Rafidia Surgical Hospital located in the north area (including Nablus, Jenin, Tulkarm, Qulqilya, Salfit, and Tubas). Because Rafidia Surgical Hospital is not capable of catheterization and Queen Alia Hospital has not yet started catheterization, many patients in the north area must be referred to the PMC. However, the capacity of the PMC to offer this treatment has already reached saturation, and patients have to wait months for treatment.

In addition, the only governmental hospital with an MRI is the PMC in the West Bank, and patients

who are not able to be treated due to PMC exceeding its capacity are referred to private hospitals. The cost of medical services at private hospitals is higher than that of governmental hospitals, and patients are required to pay more than the prescribed amount paid by the MoH.

Based on the above background, by installing advanced diagnostic imaging equipment such as a catheter lab and MRI at the Rafidia Surgical Hospital, access to diagnosis and treatment by these types of advanced medical equipment for approximately 1 million people in the northern area will be improved. It is also expected to reduce patient costs.

In the Gaza Strip, residents must go to a hospital in their residential area (administrative district) to receive a first diagnosis, and if the hospital in their residential area cannot receive the patient, the patient will be referred to hospitals in other administrative districts. Therefore, strengthening the service contents, facilities, and capacity of the regional referral hospitals in each administrative district will improve the convenience of medical services for patients in each region and improve the efficiency of the medical service provision system for the entire Gaza Strip.

(3) Consistency with Palestine development plan

Under the situation where the death caused by NCDs has become a large number, the disease structure has changed greatly, and the spending on referrals to NCDs patients outside Palestine and private hospitals has tightened health finances, the Palestinian government formulated the “National Health Strategy 2017-2022” in 2017 and pushed measures for NCDs to increase the expertise of governmental hospitals and allow more patients to be treated in the region.

The Project is planned for the purpose of providing equipment necessary for the examination, diagnosis and treatment which is needed for NCDs countermeasures, and is consistent with the policy of the Palestinian government. Additionally, many of the applications for referral to the out-of-Palestine who have cancer and heart disease have been rejected by the Israeli side, and there are some cases of death without proper treatment. For this reason, it is judged that this is appropriate from the humanitarian perspective as well as support for the advancement of medical technology in governmental hospitals related to NCDs and support for appropriate health financing.

3-4-2 Effectiveness

The following are expected outputs from the Project and the quantitative indicators for measuring the outputs. The target year is set to 2024, about three years after starting the use of equipment (2021).

Table 3-1 Output indicators of the Project

Gaza Strip

Output indicator	Base line (Actual number in 2018)	Target (2024) 【3 years after the hand over】
The number of referral patients excluding cancer patients (Decreased number of person/ Year)	21,266	16,266

*Exclude cancer patients because early detection of cancer is expected with the introduction of diagnosis equipment

West Bank

Rafidia Surgery Hospital

Output indicator	Base line (Actual number in 2018)	Target (2024) 【3 years after the hand over】
Number of MRI examinations (Number/ Year)	0	5,000
Number of cardiac surgeries (including open heart surgery and catheterization surgery) (Number/ Year)	0	1,000

Europe Gaza Hospital

Output indicator	Base line (Actual number in 2018)	Target (2024) 【3 years after the hand over】
The number of CT examinations (Number/Year)	9,499	11,677
The number of patients with coronary artery disease diagnosed by CT (Number of person / Year)	100	120

Nasser Medical Complex

Output indicator	Base line (Actual number in 2018)	Target (2024) 【3 years after the hand over】
The number of MRI examinations (Number/ Year)	0	5,000

Indonesian Hospital

Output indicator	Base line (Actual number in 2018)	Target (2024) 【3 years after the hand over】
The number of endoscopy examinations (Number/Year)	0	500

1) The base line numbers

These numbers were calculated based on the interviews of each hospital.

- ① The number of “MRI examinations” and “Number of cardiac surgeries” at Rafidia Surgical Hospital and the number of “MRI examinations” at Nasser Medical Complex were set to 0 because the equipment was not yet installed. In addition, “The number of endoscopy examinations” at an Indonesian hospital was set to 0 because all equipment was out of order.
- ② “Number of applicants for referral from Gaza to outside of Gaza” was obtained from the “Right to Health 2019” annual report on the health situation of Palestine by WHO.
- ③ “The number of CT examinations” and “The number of patients with coronary artery disease diagnosed by CT” at Europe Gaza Hospital were referred from the annual report of the hospital.

2) The target numbers

- ① The target value for “The number of MRI examinations” at Rafidia Surgical Hospital and Nasser Medical Complex is about 20 patients a day who need MRI examinations based on discussions with MoH. It is calculated by multiplying (20 people / day) by 250 days of the annual working day.
- ② The target value for “The number of cardiac surgeries (including open heart surgery and catheterization surgery)” at Rafidia Surgical Hospital is set based on the number of patients per year diagnosed by Rafidia Surgical Hospital as necessary for cardiac examination and surgery.
- ③ The target value of ”The number of applications for referral from Gaza to outside of Gaza” is based on the actual total number in 2018, and from the total number, eliminate 3% of the referrals for the purpose of diagnostic imaging and 0.5% of the referrals for the purpose of endoscopes.^{3 4}
- ④ “The number of CT examinations” at Europe Gaza Hospital is calculated by multiplying the number of CT examination in Gaza (36,649) in 2018 by the catchment ratio of Europe Gaza Hospital (Rafah and Khan Younis) (31.86%). Also, “The number of patients with coronary surgery diagnosed by CT” is calculated based on “The number of CT examinations” and 20% of this number is expected as the number of patients with coronary surgery diagnosed by CT.
- ⑤ “The number of endoscopy examination” at the Indonesian hospital is based on the number of patients who need stomach/colon endoscopy diagnosis per month (about 40 to 45 patients, currently all are referred to other hospitals). The number is set with expectation that all these patients will be examined at an Indonesian hospital.

(2) Qualitative effects

1) Improvement of patients’ satisfaction with hospital services

By upgrading medical equipment for regional hospitals such as Rafidia, European, Nasser and Indonesian hospital, the accessibility to health services with high-level equipment is expected to be improved so that some patients will no longer be required to visit central hospitals like PMC and Al-Shifa which are more equipped but might be far from their residences. This will also improve extreme concentration in the above central hospitals. In addition, patients will benefit from saving time and cost spent for the movement to the hospital as well as from decrease in waiting time at the central hospitals due to deconcentration of patients.

³ Ibid.

⁴ There is no data about breakdown of applicant number for referral from Gaza to outside of Gaza. Thus, it was based on the number of approved applicants for referral from Gaza.

2) Improving healthcare services delivered by medical personnel

With the development of advanced medical diagnostic equipment and treatment equipment, patients who have been referred to other hospitals will be able to be examined, diagnosed, and treated at each regional referral hospital, improving the quality of medical service provided by medical professionals.

3-4-3 Conclusion

With the installment of advanced medical diagnostic equipment and equipment for treatment, the quality of service provided by medical personnel is expected to be improved at the target hospitals.

APPENDICES

1. Member List of Survey Team
2. Survey Schedule
3. List of Parties Concerned in the Recipient Country
4. Minutes of Discussions
5. Technical Note
6. Evaluation Chart of Requested Equipment
7. Soft Component (Technical Assistance) Plan

Appendix 1 Member List of Survey Team

1-1 Field Survey 1 (April 4 – May 4, 2019)

Name	Specialty	Title, Organization
Dr. ISONO Mitsuo	Team Leader	Senior Advisor of Health Section, Human Development Department, JICA
Dr. KANSAKU Rei	Technical Advisor	Senior Advisor of Health Section, Human Development Department, JICA
Ms. AOKI Yu	Program Coordinator	Health Team 1, Health Group 1, Human Development Department, JICA
Mr. MORITA Takashi	Chief Consultant/ Equipment Planning/ Healthcare Planning 2	INTEM Consulting, Inc.
Ms. SATO (ONO) Nobuko	Health Planning1	Asuka World Consultants Co., Ltd.
Ms. OHARA Misato	Procurement Planning/ Cost Estimation	INTEM Consulting, Inc.
Mr. HAMANO Osamu	Facility Planning	EARL Consultants Incorporated

1-2 Draft Outline Design Explanatory Mission (October 11 – October 26, 2019)

Name	Specialty	Title, Organization
Dr. ISONO Mitsuo	Team Leader	Senior Advisor of Health Section, Human Development Department, JICA
Dr. KANSAKU Rei	Technical Advisor	Senior Advisor of Health Section, Human Development Department, JICA
Mr. YUSA Tsuyoshi	Program Coordinator	Health Team 1, Health Group 1, Human Development Department, JICA
Mr. MORITA Takashi	Project manager/Equipment planning/Health planning 2	INTEM Consulting, Inc.
Ms. OHARA Misato	Procurement planning/ Cost estimation (Voluntary)	INTEM Consulting, Inc.
Mr. HAMANO Osamu	Facility planning	EARL Consultants Incorporated

Appendix 2 Survey Schedule

2-1. Field Survey 1 (April 4 – May 4, 2019)

Date	JICA member	Stay	Project manager/Equipment planning/Health planning 2		Health planning1		Procurement planning/ Cost estimation		Facility planning	
			Mr. Takashi Morita	Stay	Ms. Nobuko Sato	Stay	Ms. Misato Ohara	Stay	Mr. Osamu Hamano	Stay
	13	10	30	27	12	10	30	27	21	18
5-Apr	Fri	Japan→Hong kong								
6-Apr	Sat	→Airport→Ramallah	Jerusalem	→Airport→Ramallah	Ramallah			→Airport→Ramallah	Ramallah	
7-Apr	Sun	MoH, JICA, MoH (financial, procurement dep.)	Jerusalem	MoH, JICA, MoH (financial, procurement dep.)	Ramallah			MoH, JICA, MoH (financial, procurement dep.)	Ramallah	
8-Apr	Mon	Move to Gaza, Gaza MoH, Indonesian Hospital, Move to Ramallah	Ramallah	Move to Gaza, Gaza MoH, Indonesian Hospital, Move to Ramallah	Ramallah			Move to Gaza, Gaza MoH, Indonesian Hospital, Move to Ramallah	Ramallah	
9-Apr	Tue	Rafidia hospital, Ramallah medical hospital	Jerusalem	Rafidia hospital, Ramallah medical hospital	Ramallah			Rafidia hospital, Ramallah medical hospital	Ramallah	
10-Apr	Wed	Move to Gaza, Nassel hospital, European hospital	Gaza	Move to Gaza, Nassel hospital, European hospital	Gaza			Move to Gaza, Nassel hospital, European hospital	Gaza	
11-Apr	Thu	WHO in Gaza, Gaza MoH, Move to Ramallah	Ramallah	WHO in Gaza, Gaza MoH, Move to Ramallah	Ramallah			WHO in Gaza, Gaza MoH, Move to Ramallah	Ramallah	
12-Apr	Fri	WHO in Jerusalem, Italian Cooperation, Augusta Victoria hospital	Ramallah	WHO in Jerusalem, Italian Cooperation, Augusta Victoria hospital	Ramallah			WHO in Jerusalem, Italian Cooperation, Augusta Victoria hospital	Ramallah	
13-Apr	Sat	Drafting M/D	Ramallah	Drafting M/D	Ramallah			Drafting M/D	Ramallah	
14-Apr	Sun	Al-deila hospital Discussion of M/D with Gaza MoH, Discussion of M/D with West bank MoH	Ramallah	Al-deila hospital Discussion of M/D with Gaza MoH, Discussion of M/D with West bank MoH	Ramallah			Al-deila hospital Discussion of M/D with Gaza MoH, Discussion of M/D with West bank MoH	Ramallah	Japan→Hong kong
15-Apr	Mon	Rafidia hospital, Discussion of M/D with MoH	Ramallah	Rafidia hospital, Discussion of M/D with MoH	Ramallah			Rafidia hospital	Ramallah	→Airport→Ramallah →Rafidia hospital
16-Apr	Tue	Signing M/D with MoH, JICA Ramallah→Airport→Hong Kong		Signing M/D with MoH, JICA	Ramallah			Procurement survey	Ramallah	Rafidia hospital, Procurement survey
17-Apr	Wed	→Japan		Rafidia hospital	Ramallah			Rafidia hospital	Ramallah	Procurement survey (Electricity, water, IT companies)
18-Apr	Thu			Rafidia hospital	Ramallah			Rafidia hospital	Ramallah	Rafidia hospital
19-Apr	Fri			Team meeting	Ramallah			Team meeting	Ramallah	Team meeting
20-Apr	Sat			Team meeting	Ramallah	Japan→Hong kong		Team meeting	Ramallah	Team meeting
21-Apr	Sun			Move to Gaza, Gaza MoH, Al shifa hospital	Gaza	→Airport (CX675 7:55) →Ramallah West bank MoH Rafidia hospital	Ramallah	Move to Gaza, Gaza MoH, Al shifa hospital	Gaza	Move to Gaza, Gaza MoH, Al shifa hospital
22-Apr	Mon			Indonesian hospital, Private hospital	Gaza	Move to Gaza, Gaza MoH, Indonesian hospital	Gaza	Indonesian hospital, Private hospital	Gaza	Indonesian hospital, Private hospital
23-Apr	Tue			Nasser hospital	Gaza	Nassel hospital	Gaza	Nasser hospital	Gaza	Nasser hospital
24-Apr	Wed			European Gaza hospital	Gaza	European gaza hospital	Gaza	Procurement survey	Gaza	Procurement survey
25-Apr	Thu			Al Shifa hospital, Gaza MoH, Move to Ramallah	Ramallah	Al Shifa hospital, Gaza MoH, Move to Ramallah	Ramallah	Al Shifa hospital, Gaza MoH, Move to Ramallah	Ramallah	Al Shifa hospital, Gaza MoH, Move to Ramallah
26-Apr	Fri			Italian Corporation	Ramallah	Italian Corporation	Ramallah	Italian Corporation	Ramallah	Italian Corporation
27-Apr	Sat			Drafting Technical notes	Ramallah	Drafting Technical notes	Ramallah	Drafting Technical notes	Ramallah	Drafting Technical notes
28-Apr	Sun			Move to Gaza, Al-haya hospital Procurement survey	Gaza	Move to Gaza, Al-haya hospital Discussion with local consultant	Gaza	Move to Gaza, Al-haya hospital Procurement survey	Gaza	Move to Gaza, Al-haya hospital Procurement survey
29-Apr	Mon			Visiting hospitals, Gaza MoH	Gaza	Move to Ramallah, PMC, Private hospital, MoH, Meeting with local consultant	Ramallah	Procurement survey	Gaza	Procurement survey
30-Apr	Tue			Move to Ramallah, Discussion on Technical notes with MoH Procurement survey	Ramallah	Discussion with MoH, Move to Airport → Airport →Hong Kong	Ramallah	Move to Ramallah, Discussion on Technical notes with MoH Procurement survey	Ramallah	Move to Ramallah, Discussion on Technical notes with MoH Procurement survey
1-May	Wed			Discussion on Technical notes with MoH	Ramallah	→Japan		Procurement survey	Ramallah	Procurement survey
2-May	Thu			Signing Technical notes, JICA report, Procurement survey	Ramallah			Signing Technical notes, JICA report, Procurement survey	Ramallah	Signing Technical notes, JICA report, Procurement survey
3-May	Fri			Ramallah→Airport→Hong Kong				Ramallah→Airport→Hong Kong		Ramallah→Airport→Hong Kong
4-May	Sat			→Japan				→Japan		→Japan

2-2. Draft Outline Design Explanatory Mission (October 11 – October 26, 2019)

Date		JICA member (not Consultant)	Stay	Project manager/ Equipment planning/ Health planning 2 Mr. Takashi Morita	Stay	Procurement planning/ Cost estimation Ms. Misato Ohara	Stay	Facility planning Mr. Osamu Hamano	Stay
		5	5	16	13	16	13	9	6
11-Oct	Fri			Japan→Hong kong		Japan→Hong kong		Japan→Hong kong	
12-Oct	Sat			→Airport→Ramallah	Ramallah	→Airport→Ramallah	Ramallah	→Airport→Ramallah	Ramallah
13-Oct	Sun			MoH, JICA	Ramallah	MoH, JICA	Ramallah	MoH, JICA	Ramallah
14-Oct	Mon			Rafidia hospital	Ramallah	Rafidia hospital	Ramallah	Rafidia hospital	Ramallah
15-Oct	Tue			Move to Gaza, Gaza MOH	Gaza	Move to Gaza, Gaza MOH	Gaza	Move to Gaza, Gaza MOH	Gaza
16-Oct	Wed			Nassel hospital, European hospital	Gaza	Nassel hospital, European hospital	Gaza	Nassel hospital, European hospital	Gaza
17-Oct	Thu			Indonesian hospital, Move to Ramallah	Ramallah	Indonesian hospital, Move to Ramallah	Ramallah	Indonesian hospital, Move to Ramallah	Ramallah
18-Oct	Fri			Team meeting	Ramallah	Team meeting	Ramallah	Ramallah→Airport→Hong Kong	
19-Oct	Sat			Drafting MoD	Ramallah	Drafting MoD	Ramallah	→Japan	
20-Oct	Sun	MoH, JICA	Ramallah	MoH, JICA	Ramallah	Transportation company	Ramallah		
21-Oct	Mon	Rafidia hospital	Ramallah	Rafidia hospital	Ramallah	Rafidia hospital	Ramallah		
22-Oct	Tue	Move to Gaza, Gaza MOH, Move to Ramallah	Ramallah	Move to Gaza Gaza MOH, Move to Ramallah	Ramallah	Move to Gaza, Gaza MOH, Move to Ramallah	Ramallah		
23-Oct	Wed	MoH	Ramallah	MoH	Ramallah	Transportation company	Ramallah		
24-Oct	Thu	MoH, Sign on MoD, JICA	Ramallah	MoH, Sign on MoD, JICA	Ramallah	Transportation company	Ramallah		
25-Oct	Fri			Ramallah→Airport→Hong Kong		Ramallah→Airport→Hong Kong			
26-Oct	Sat			→Japan		→Japan			

Appendix 3 List of Parties Concerned in the Recipient Country

Institution	Name	Department, Position
Ministry of Health, West Bank	Ramlawi Asad	Deputy Minister of Health
	Ibrahim Elian	Director of BMEU
	Khalid Mattour	Director of Procurement
	Maria Yousef Al-Aqura	Director of International Cooperation
	Abdel Kareem Hamadneh	Director of Financial Affairs
Rafidia Surgery Hospital	Qasem Daghlass	Hospital director
	Rawda Assaf	Director of Administrative affairs
	Othman Abu Salah	M. Director
	Ihab Shraideh	Vascular surgeon
	Salem Hanani	Biomedical Engineering Unit (BMEU), Biomedical Engineer
	Nabil Mausour	Biomedical Engineering Unit (BMEU), Biomedical Engineer
	Mana Shalahi	Nursing director
Ministry of Health, Gaza	Ashraf AbuMhadi	Director General of International Cooperation Directorate
	Kseniia El-Kafarha	Director General of International Cooperation Directorate
	Abdullatif Alhaj	Director General Hospital
	Ahmed Shatat	Deputy Director of General Hospital
	Ibrahim Abbass	Manager Imaging GHA (General Hospital Administration)
	Raid Kashkash	Director of foreign relation department
	Abdul Hamed Seyam	Engineering and Maintenance Unit, Biomedical Engineer
	Hazem Al Qassas	Engineering and Maintenance Unit, Biomedical Engineer
	Majgi abu Sido	Engineering and Maintenance Unit, Electrical Engineer
	Qasem Alyazji	Engineering and Maintenance Unit, Biomedical Engineer
	Shadi A. Hon	Engineering and Maintenance Unit, Civil Engineer
	J Abu Amra	Engineering and Maintenance Unit. Civil Engineering
	Feras Hamdah	Engineering and Maintenance Unit, Biomedical Engineer
Ahmed Basher	Engineering and Maintenance Unit, Biomedical Engineer	

Institution	Name	Department, Position
Europe Gaza Hospital	Yousif F. El Akkad	Director of Hospital
	Kamal Mousa	Administrative Manager
	Atta L. Jabazi	Nursing director
	Hassan A. Zammar	Consultant Cardiologist, Director of Cathlab, EGH
Indonesian Hospital	Shoqi Salem	Director of Indonesian hospital
	Mohammed Al Atawi	Biomedical Engineering Department, Biomedical Engineer
Nasser Medical Complex	Mohammed Khalil Zaqout	General Director of Nasser hospital
	Ayman L. Farra	Manager of Nasser building
	Tareq aha mustafa	Head of radiology
	Bassam Abuusasda	Neurosurgeon
	Alaa elmasirry	Medical Director
	Sofia Zorob	Lab director
	Sobhi Keshta	Head of Maintenance
	Omar Awad	Civil Engineer
	Mahmoud Duboor	Electrical Engineer
	Esmail abu Nemmer	Equipment engineer
WHO	Mahmoud Daher	Head of WHO Gaza sub-office
	Mahmoud Al Halabi	Supply Assistant
Italian Cooperation	Francesco Ribolzi	Medical Project Staff
Palestine Medical Complex	Nadia Eideh	Director of Internal Medicine Department
	Sami Solieman	Head Nurse of CCU
	Pania Aljallaol	Nursing director of Nursing office
	Rawya Abojber	Director of Paramedic services
	Ayad Salin	Head of Anaesthesia
	Ghadi Aman	Inpatient Control
Beit Jala Governmental Hospital	Mohammad Thweib	Administrative Manager
	Sa'ed Ahmad Basheer	Head of Engineering & Maintenance Dep.
	Nabil Rayyan	Paramedical Director
	Mohmoud Ibrahim	Surgeron

Appendix 4 Minutes of Discussions

4-1. Field Survey 1

**MINUTES OF DISCUSSIONS
ON THE PREPARATORY SURVEY FOR
THE PROJECT FOR IMPROVEMENT OF MEDICAL EQUIPMENT**

Based on the several preliminary discussions between Ministry of Health and Ministry of Finance and Planning of the Palestinian Authority (hereinafter referred to as “Palestine”) and Japan International Cooperation Agency (hereinafter referred to as “JICA”) Palestine Office, JICA dispatched the Preparatory Survey Team for the Outline Design (hereinafter referred to as “the Team”) of THE PROJECT FOR IMPROVEMENT OF MEDICAL EQUIPMENT (hereinafter referred to as “the Project”) to Palestine. The Team held a series of discussions with the officials of Palestine and conducted a field survey. In the course of the discussions, both sides have confirmed the main items described in the attached sheets.

Ramallah, 16th April, 2019



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



Dr. Mai AlKaila
Minister
Ministry of Health
The Palestinian Authority



Dr. Shukry Bishara
Minister

Ministry of Finance and Planning
The Palestinian Authority

ATTACHMENT

1. Objective of the Project

The objective of the Project is to improve the quality of health care services for Non-Communicable Diseases (NCDs) at Rafidia Hospital in West Bank, European Hospital, Nasser Hospital and Indonesian Hospital in Gaza, through strengthening the capacity of diagnosis and treatment of NCDs by the supply of equipment for countermeasures against NCDs.

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”.

3. Project site

Both sides confirmed that the site of the Project is Rafidia Hospital in the West Bank, and European Hospital and Naser Hospital and Indonesian Hospital in Gaza, which are shown in Annex 1.

4. Responsible authority for the Project

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

- 4-1. The Ministry of Health will be the executing agency for the Project (hereinafter referred to as “the Executing Agency”). The Executing Agency 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.

5. Items requested by Palestine

- 5-1. As a result of discussions, both sides confirmed that the items requested by Palestine are as follows:

MRI
Angiography unit
CT scan
Digital X-ray unit
Ultrasound machine etc.

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Both sides agreed that the essential equipment to diagnose and manage NCDs have priorities in the Project.

5-2. The detailed lists of recommended equipment for each facility with prioritizations will be submitted as a technical note by the Team through further discussions with the Palestinian side by the end of this survey.

5-3. JICA will assess the feasibility of the above requested items through the survey and will report the findings to the Government of Japan. The final scope of the Project will be decided by the Government of Japan.

5-4. The Palestinian Authority shall submit an official request to the Government of Japan through a diplomatic channel before the appraisal of the Project, which is scheduled in September 2019.

6. Procedures and Basic Principles of Japanese Grant

6-1. The Palestinian side agreed that the procedures and basic principles of Japanese Grant as described in Annex 2 shall be applied to the Project.

As for the monitoring of the implementation of the Project, JICA requires Palestinian side to submit the Project Monitoring Report, the form of which is attached as Annex 4.

6-2. The Palestinian side agreed to take the necessary measures, as described in Annex 5, for smooth implementation of the Project. The contents of the Annex 5 will be elaborated and refined during the Preparatory Survey and be agreed in the mission dispatched for explanation of the Draft Preparatory Survey Report.

The contents of Annex 5 will be updated as the Preparatory Survey progresses, and eventually, will be used as an attachment to the Grant Agreement.

7. Schedule of the Survey

7-1. The Team will proceed with further survey in Palestine until May 3rd 2019.

7-2. JICA will prepare a draft Preparatory Survey Report in English and dispatch a mission to Palestine in order to explain its contents around September 2019.

7-3. If the contents of the draft Preparatory Survey Report is accepted and the undertakings for the Project are fully agreed by the Palestinian side, JICA will finalize the Preparatory Survey Report and send it to Palestine around December 2019.

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

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8. Environmental and Social Considerations

8-1. The Palestinian side confirmed to give due environmental and social considerations before and during implementation, and after completion of the Project, in accordance with the JICA Guidelines for Environmental and Social Considerations (April, 2010).

8-2. The Project is categorized as “C” from the following considerations:

The project is not located in a sensitive area, nor has sensitive characteristics, nor falls into sensitive sectors under the JICA Guidelines for Environmental and Social Considerations (April, 2010), and its potential adverse impacts on the environment are not likely to be significant.

9. Other Relevant Issues

9-1. The Palestinian side agreed to allocate a budget (operational and maintenance costs) and human resources (health service providers and any other personnel) essential for the proper and sustainable operation and maintenance of the equipment to be provided under the Project. The Palestinian side agreed to submit the plan human resource allocation for effective operation of the provided equipment before the appraisal of the Project.

9-2. The Palestinian side agreed to train all existing and incoming staff in relevant hospitals on accurate and effective utilization of the equipment.

9-2. Exemption of customs duties, internal taxes and other fiscal levies

Both sides confirmed that customs duties, internal taxes and other fiscal levies, which may be imposed in Palestine with respect to the purchase of the products and/or the services, are to be exempted.

10. Technical Assistance (“Soft Component” of the Project)

Both sides agreed to explore the necessity of assistance in developing the technical skills of the target hospitals in order to operate and utilize the equipment. The assistance may include training on basic maintenance of equipment for existing and incoming staffs. The technical assistance shall be provided through the "Soft Component" of the Project.



Annex 1 Project Site

Annex 2 Japanese Grant

Annex 3 Financial Flow of Japanese Grant Procedures

Annex 4 Project Monitoring Report (template)

Annex 5 Major Undertakings to be taken by the Palestinian Authority

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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 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 signed 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.

9) Construction Quality Control Meeting

Construction Quality Control Meeting (hereinafter referred to as the "Meeting") will be held for quality assurance and smooth implementation of the Works at each stage of the Works. The member of the Meeting will be composed by the Recipient (or executing agency), the Consultant, the Contractor and JICA. The functions of the Meeting are as followings:

a) Sharing information on the objective, concept and conditions of design from the Contractor, before start of

construction.

- b) Discussing the issues affecting the Works such as modification of the design, test, inspection, safety control and the Client's obligation, during of construction.

(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

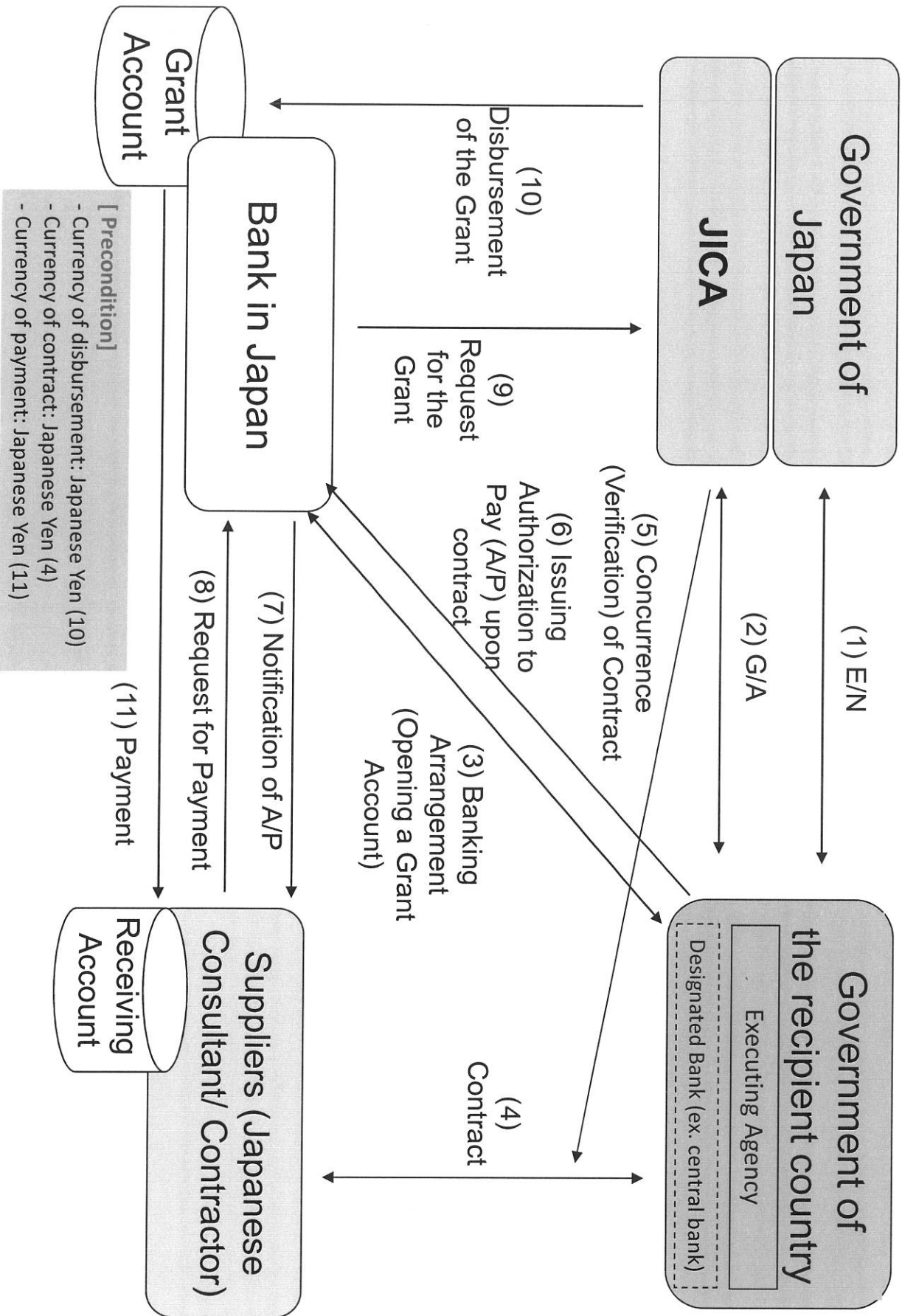
The products purchased under the Japanese Grant should not be exported or re-exported from the Recipient.

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Financial Flow of Japanese Grant (A/P Type)

Annex 3



3

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Project Monitoring Report
on
Project Name
Grant Agreement No. XXXXXXXX
 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 (_____): _____

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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 <i>(proposed in the outline design)</i>	Actual
1.		

2-2 Scope of the work

Components	Original* <i>(proposed in the outline design)</i>	Actual*
1.		

Reasons for modification of scope (if any).

(PMR)

04

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2-3 Implementation Schedule

Items	Original		Actual
	<i>(proposed in the outline design)</i>	<i>(at the time of signing the Grant Agreement)</i>	

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 <i>(proposed in the outline design)</i>	Actual <i>(in case of any modification)</i>	Original ^{(1),(2)} <i>(proposed in the outline design)</i>	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 (1,000 Taka)	
	Original <i>(proposed in the outline design)</i>	Actual <i>(in case of any modification)</i>	Original ^{(1),(2)} <i>(proposed in the outline design)</i>	Actual
1.				

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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:
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:
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)



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	2nd	3rd	4th	5th	6th
		●month, 2015	●month, 2015	●month, 2015			
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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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%)	

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Major Undertakings to be taken by both Governments of Palestine and Japan

No	Items	Responsibility		Major Undertakings to be taken by Recipient			
		To be covered by Grant Aid	To be covered by recipient side	Deadline	In charge	Cost	Remarks
	Before Tender						
1	To Open Bank Account (B/A)		●		MoFP		
2	To bear the following commissions paid to the Japanese bank for banking services based upon the B/A						
	1) Advising commission of A/P		●		MoH		
	2) Payment commission for A/P		●		MoH		
3	To submit Project Monitoring Report (with the result of Detail Design)		●		MoH		
	During the Project						
4	To bear the following commissions to a bank of Japan for the banking services based upon the B/A						
	1) Advising commission of A/P		●		MoH		
	2) Payment commission for A/P		●		MoH		
5	To ensure prompt unloading and customs clearance of the products at ports of disembarkation in the recipient country and to assist internal transportation of the products						
	1) Marine (air) transportation of the Products from Japan to the recipient country	●					
	2) Tax exemption and customs clearance of the products at the port of disembarkation		●		MoH /MoFP		
	3) Internal transportation from the port of disembarkation to the project site	●					
6	To accord Japanese nationals 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 recipient country and stay therein for the performance of their work		●		MoH		
7	(To exempt Japanese nationals from/to bear, without using the Grant,) customs duties, internal taxes and other fiscal levies such as VAT(Value Added Tax), Personal Income Tax, Corporate Income Tax, Remittance Tax, Economic Service Charge, which may be imposed in the recipient country with respect to the supply of the products and services under the verified contract		●		MoFP		
8	To bear all the expenses, other than those to be borne by the Grant Aid, necessary for construction of the facilities as well as for the transportation and installation of the equipment		●		MoH		
9	To provide facilities for distributing electricity, water supply and drainage, and other incidental facilities necessary for the implementation of the Project for the procured equipment		●		MoH, Each hospital		
	1) Room						
	a. The preparation of room with enough space and appropriate environment for the procured equipment		●		MoH, Each hospital		
	b. The removal work of existing equipment before shipment of procured equipment		●		MoH, Each hospital		
	c. The removal work of existing walls if the room space is not enough for the procured equipment		●				

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	c. MRI: The installation of coppershield, the preparation of control room, machine room for cooling unit and preparation room, the preparation of pit for duct for liquid helium and cables in the room, the installation of AC		●		MoH, Each hospital		
	d. CT, Fluoroscopy, General X-ray and Angiography: The preparation of control room, The installation of lead-plated wall/doors and lead grass		●		MoH, Each hospital		
	e. The preparation of delivery route for procured equipment and the recovery work after the installation if any.		●		MoH, Each hospital		
	1) Electricity						
	a. The distribution power line to the room for the procured equipment with enough electric power capacity required by the Project		●		MoH, Each hospital		
	b. The Installation of power plug or power box to the appropriate location in the room where the procured equipment is installed		●		MoH, Each hospital		
	c. The connection between the procured equipment and the power plug and/or distribution board	●					
	d. The main circuit breaker and isolation transformer		●		MoH, Each hospital		
	e. The preparation of the generator, fuels for the generator and the wiring to the room for the MRI, CT and other critical equipment		●		MoH, Each hospital		
	2) Water Supply						
	a. The water distribution main to the site with water consumption and pressure required by the Project		●		MoH, Each hospital		
	b. The water supply to the room where the procured equipment is installed		●		MoH, Each hospital		
	c. The connection between the procured equipment and water supply	●					
	3) Drainage						
	a. The city drainage main (for storm sewer and others to the site)		●		MoH, Each hospital		
	b. The drainage system from the room where the procured equipment is installed		●		MoH, Each hospital		
	c. The connection between the procured equipment and drainage system	●					
	4) IT						
	a. The installation work of LAN cable and Wi-Fi system if necessary		●				
	5) Furniture and Equipment						
	a. General furniture		●		MoH, Each hospital		
	b. Project equipment	●					
10	To allcate medical staffs who can use procured equipment appropriately		●		MoH, Each hospital		
	After the Project						
11	To ensure that the equipment be maintained and used properly and effectively for the implementation of the Project		●		MoH, Each hospital		
12	To bear all the expenses, other than those covered by the Grant, necessary for the implementation of the Project		●		MoH		
13	To maintain and use properly and effectively the equipment provided under the Grant Aid.						
	1) Allocation of maintenance cost		●		MoH		

2)	Operation and maintenance organization and staff		●		MoH, Each hospital		
3)	Routine check/periodical maintenance		●		MoH, Each hospital		
4)	Renew the maintenance contract of medical equipment after Japan side takes care of the maintenance contract		●		MoH		

(B/A: Banking Arrangement, A/P: Authorization to pay)

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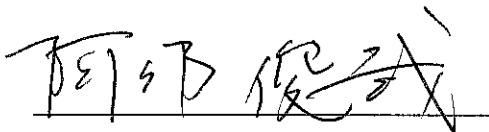
4-2. Draft Outline Design Explanatory Mission

Minutes of Discussions
on the Preparatory Survey for the Project for
IMPROVEMENT OF MEDICAL EQUIPMENT
(Explanation on Draft Preparatory Survey Report)

With reference to the minutes of discussions signed between the Ministry of Health of the Palaestian Authoirity and the Japan International Cooperation Agency (hereinafter referred to as "JICA") on 16th April 2019 and in response to the request from the Government of Palestinian Authority (hereinafter referred to as "Palestine") dated 3rd October 2019 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 (hereinafter referred to as "the Project").

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

Ramallah, 31st October 2019



Mr. Toshiya Abe
Chief Representative
Palestine Office
Japan International Cooperation
Agency
Japan



Dr. Mai Salem Alkaila
Minister
Ministry of Health
The Palestinian Authority



Dr. Shukry Bishara
Minister
Ministry of Finance
The Palestinian Authority

ATTACHEMENT

1. Objective of the Project

The objective of the Project is to improve the quality of health care services for Non-Communicable Diseases (NCDs) at four core hospitals, namely Rafidia Surgical Hospital in the West Bank, European Gaza Hospital, Nasser Medical Complex and Indonesian Hospital in the Gaza Strip, through strengthening the capacity of diagnosis and treatment of NCDs by the supply of equipment for countermeasures against NCDs.

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”.

3. Project site

Both sides confirmed that the site of the Project is Rafidia Surgical Hospital in the West Bank, and European Gaza Hospital and Nasser Medical Complex and Indonesian Hospital in the Gaza Strip, which are shown in Annex 1

4. Responsible authority for the Project

Both sides confirmed the authorities responsible for the Project is Palestinian Ministry of Health will be the executing agency for the Project (hereinafter referred to as “the Executing Agency”). The Executing Agency 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.

5. Contents of the Draft Report

After the explanation of the contents of the Draft Report by the Team, the Palestinian side agreed to its contents. JICA will finalize the Preparatory Survey Report based on the confirmed items. The report will be sent to palestinian side around 1st November 2019 to review and to send comment by 8th November 2019. JICA will send Final Report to palestinian side by 18th November 2019.

6. Cost estimate

Both sides confirmed that the cost estimate including the contingency and technical



specifications explained by the Team as Draft Report and attached Annex 6-1 and 6-2 are provisional and will be examined further by the Government of Japan for its approval. The contingency would cover the additional cost against unexpected conditions.

7. Confidentiality of the cost estimate and technical specifications

Both sides confirmed that the cost estimate and technical specifications of the Project in the Draft Report, Annex 6-1 and 6-2 should never be disclosed to any third parties until all the contracts under the Project are concluded.

8. Procedures and Basic Principles of Japanese Grant

The Palestine side agreed that the procedures and basic principles of Japanese Grant (hereinafter referred to as “the Grant”) as described in Annex 2 shall be applied to the Project. In addition, palestinian side agreed to take necessary measures according to the procedures.

9. Timeline for the project implementation

The Team explained to palestinian side that the expected timeline for the project implementation is as attached in Annex 3.

10. Expected outcomes and indicators

Both sides agreed that key indicators for expected outcomes are as follows. Palestinian side will be responsible for the achievement of agreed key indicators targeted in year 2024 and shall monitor the progress for Ex-Post Evaluation based on those indicators.

[Quantitative indicators]

West Bank

Rafidia Surgical Hospital

Indicator	Baseline 2018	Target Year in 2024
Annual Number of MRI examined Patients	0	5,000
Annual Number of Heart Operation(including open heart and catheterization)	0	1,000

Gaza Strip

Indicator	Baseline 2018	Target Year in 2024
Annual Referral Number of Patients referred to out side of the Gaza Strip (excluding cancer cases and cases for diagnosis by nuclear medicine)	to be defined except cancer related	Reffered number – (minus) 4,000

European Gaza Hospital

Indicator	Baseline 2018	Target Year in 2024
Annual Number of CT examined Patients	9,499	11,677
Annual cases with coronary artery disease examined by CT	100	120

Nasser Medical Complex

Indicator	Baseline 2018	Target year in 2024
Annual Number of MRI examinations	0	5,000

Indonesian Hospital

Indicator	Baseline 2018	Target year in 2024
Annual Number of endoscopy (diganosis ,examination and surgery)	0	500

11. Ex-Post Evaluation

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

12. Technical assistance (“Soft Component” of the Project)

Considering the sustainable operation and maintenance of the products and services granted through the Project, following technical assistance is planned under the Project. The Palestinian side confirmed to deploy necessary number of counterparts

who are appropriate and competent in terms of its purpose of the technical assistance as described in the Draft Report.

13. Undertakings of the Project

Both sides confirmed the undertakings of the Project as described in Annex 4. With regard to exemption of customs, duties, internal taxes and other fiscal levies as stipulated in 1(2)No.5 of Annex 4, both sides confirmed that such customs, duties, internal taxes and other fiscal levies, which shall be clarified in the bid documents by Ministry of Health during implementation stage of the Project.

The Palestine side assured to take the necessary measures and coordination including allocation of the necessary budget which are 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 5 will be used as an attachment of G/A.

Security Measures

Both sides confirmed that Palestinian Ministry of Health shall take necessary measures to ensure and maintain the security and safety of the Project site and the persons related to the implementation of the Project, in cooperation with relevant authorities during the Project period. Such security measures shall reasonably reflect needs of the Consultant/the Contractor engaging in the Project, as shown in Annex 4.

Both sides agreed that in case the additional security cost would be necessary for the implementation of the Project, such cost shall be borne by the Recipient without by the Grant.

14. 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 Annex5. The timing of submission of the PMR is described in Annex 4.

15. Project completion

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



16. Environmental and Social Considerations

16-1 General Issues

16-1-1 Environmental Guidelines and Environmental Category


The Palestinian side confirmed to give due environmental and social considerations before and during implementation, and after completion of the Project, in accordance with the JICA Guidelines for Environmental and Social Considerations (April, 2010).

16-2. The Project is categorized as "C" from the following considerations:

The project is not located in a sensitive area, nor has sensitive characteristics, nor falls into sensitive sectors under the JICA Guidelines for Environmental and Social Considerations (April, 2010), and its potential adverse impacts on the environment are not likely to be significant.

17. 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.

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Annex 1 Project Site

Annex 2 Japanese Grant (Including “the Financial Flow of Japanese Grant (A/P Type)”)

Annex 3 Project Implementation Schedule

Annex 4 Major Undertakings to be taken by the Government of Palestinian Authority

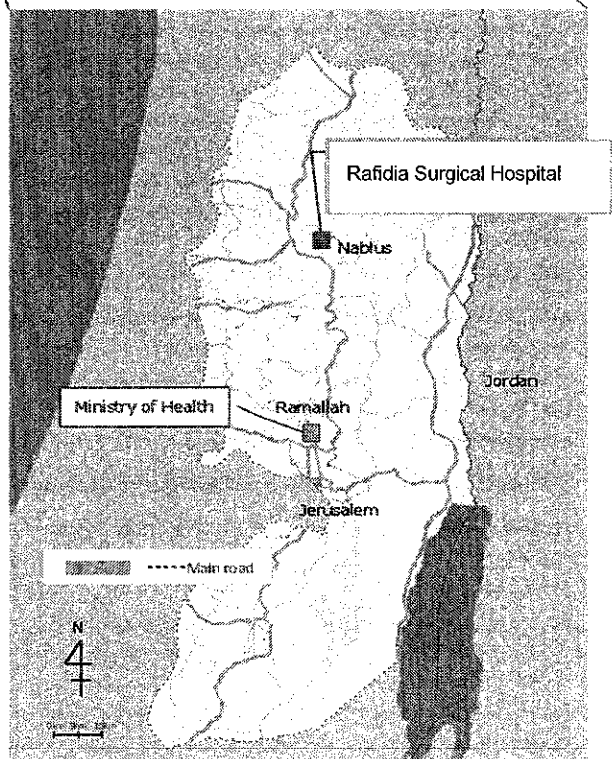
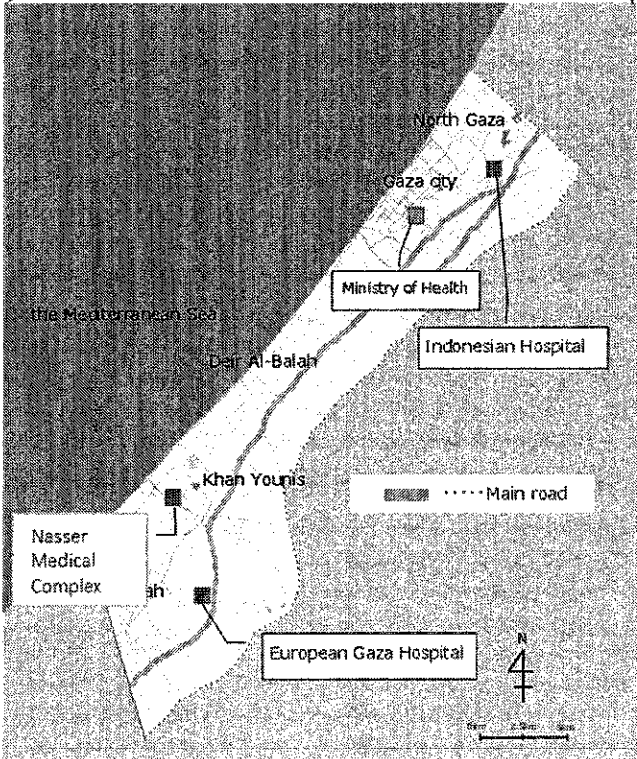
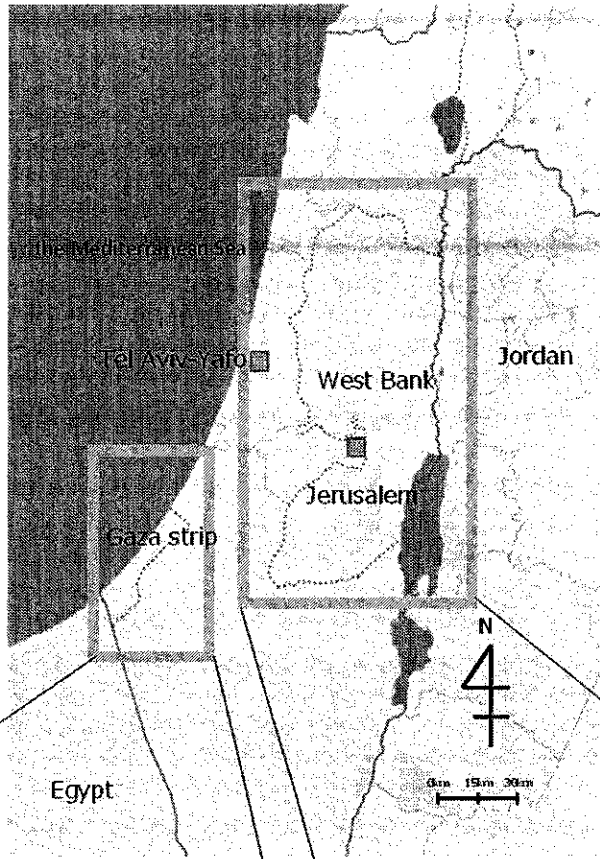
Annex 5 Project Monitoring Report (template)

Annex 6 Contents of the Project

6-1 Equipment List

6-2 Soft Component

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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 signed 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)."

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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.

9) Construction Quality Control Meeting

Construction Quality Control Meeting (hereinafter referred to as the “Meeting”) will be held for quality assurance and smooth implementation of the Works at each stage of the Works. The member of the Meeting will be composed by the

Recipient (or executing agency), the Consultant, the Contractor and JICA. The functions of the Meeting are as followings:

- a) Sharing information on the objective, concept and conditions of design from the Contractor, before start of construction.
- b) Discussing the issues affecting the Works such as modification of the design, test, inspection, safety control and the Client's obligation, during of construction.

(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.

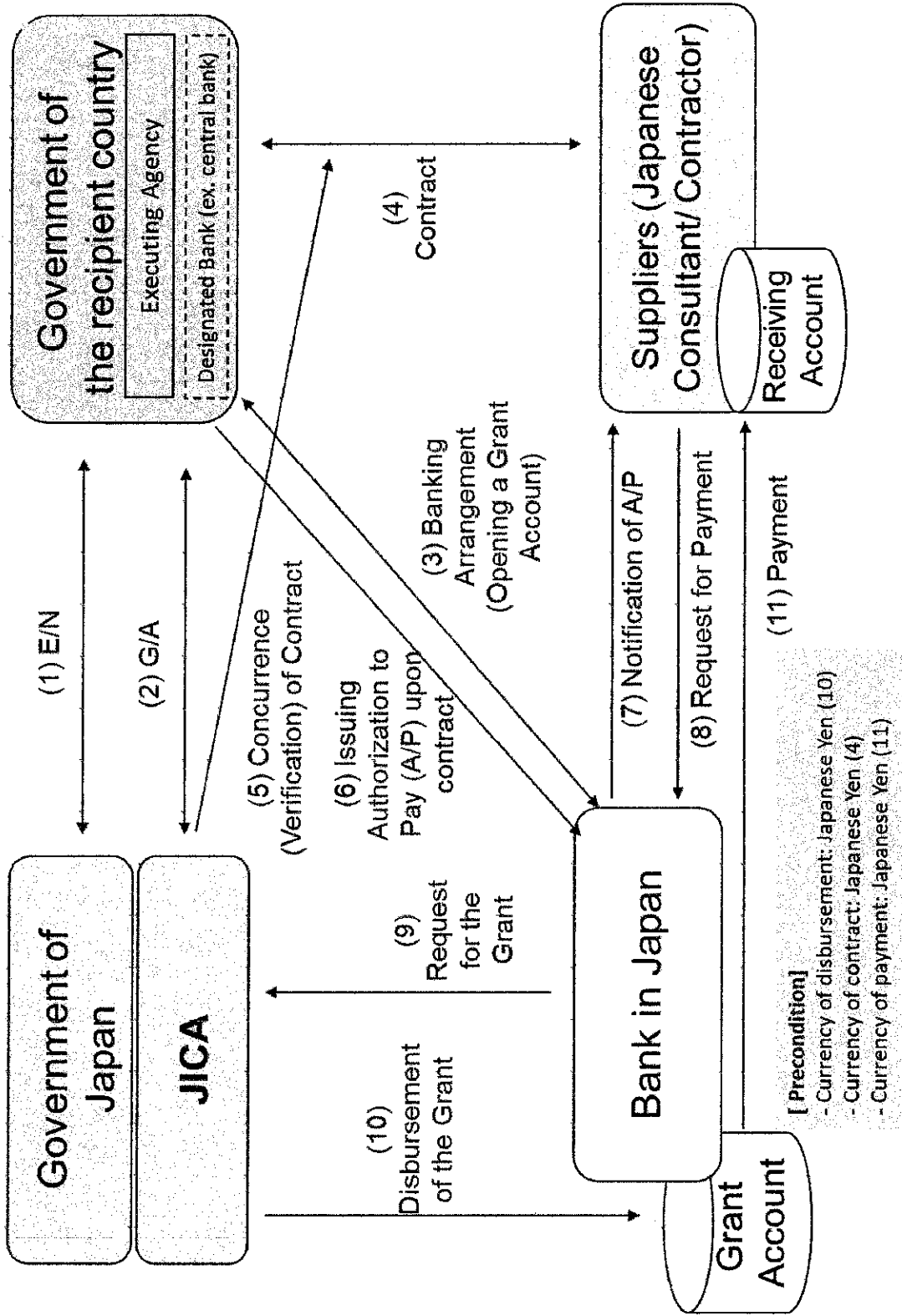


4) Export and Re-export

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

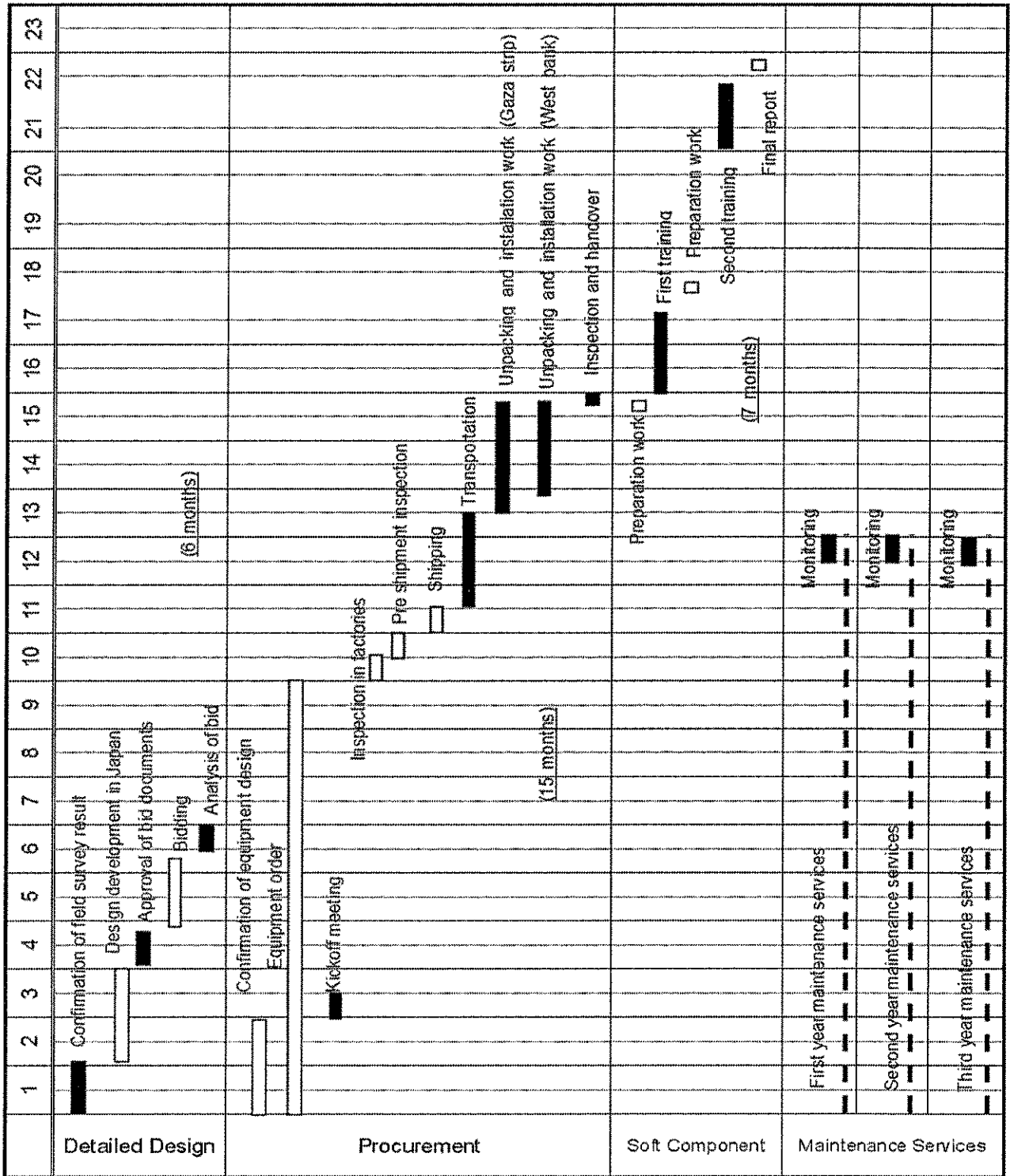
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Financial Flow of Japanese Grant (A/P Type)



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ANNEX 3 Project Implementation Plan



TSB MC

Major Undertakings to be taken by the Government of Palestine

1. Specific obligations of the Government of Palestine which will not be funded with the Grant

(1) Before the Bidding

NO	Items	Deadline	In charge	Estimated Cost
1	To open bank account (B/A)	within 1 month after the signing of the G/A	MOH/ MOF	N/A
2	To issue Authorization to Pay (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(s)	MOH/ MOF	N/A
3	To bear the following commissions to the Agent Bank for the banking services based upon B/A		MOH/ MOF	
	1) Advising commission of A/P	within 1 month after the signing of the contract(s)		50 – 60 per A/P or A/P amend
	2) Payment commission for A/P	every payment		0.2% of remittance amount
4	To submit Project Monitoring Report (with the result of Detailed Design)	before preparation of the bidding documents	MOH	N/A

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

(2) During the Project Implementation

NO	Items	Deadline	In charge	Estimated Cost
1	To issue A/P to the Agent Bank for the payment to the Supplier(s)	within 1 month after the signing of the contract(s)	MOH/ MOF	N/A
2	To bear the following commissions to the Agent Bank for the banking services based upon the B/A		MOH/ MOF	
	1) Advising commission of A/P	within 1 month after the signing of the contract(s)		50 – 60 per A/P or A/P amend
	2) Payment commission for A/P	every payment		0.2% of remittance amount
3	To ensure prompt customs clearance and to assist the Supplier(s) with internal transportation in the country of the Recipient	during the Project	MOH/ MOF	N/A
4	To accord Japanese physical persons 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	MOH	N/A
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	MOH/ MOF	N/A

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6	To take necessary actions regarding import and delivery of the procured equipment to Gaza Strip, such as coordination with Coordinator of Government Activities in the Territories (COGAT) of Israel	during the Project	MOH	N/A
7	To bear all the expenses, other than those covered by the Grant, necessary for the implementation of the Project	during the Project	MOH	-
8	To remove existing equipment and to rehabilitate facilities and utilities	before starting installation	MOH	Approx. \$66,000
9	To allocate necessary medical staff	before starting installation	MOH	N/A
10	To submit Project Monitoring Report after each work under the contract(s) such as shipping, hand over, installation and operational training	within 1 month after completion of each work	MOH	N/A
	To submit Project Monitoring Report (final) (including as-built drawings, equipment list, photographs, etc.)	within 1 month after issuance of Certificate of Completion for the works under the contract(s)	MOH	N/A
11	To submit a report concerning completion of the Project	within 6 months after completion of the Project	MOH	N/A

(3) After the Project

NO	Items	Deadline	In charge	Estimated Cost
1	To maintain and use properly and effectively the equipment provided under the Grant Aid 1) Allocation of maintenance cost 2) Operation and maintenance structure 3) Routine check/Periodic inspection 4) Contracting with agents for maintenance of specialized medical equipment	After completion of the procurement	MOH	Approx. \$2,190,000 per year

2. Other obligations of the Government of Palestine funded with the Grant

NO	Items	Deadline	Amount (Million Japanese Yen)*
1	1) To renovate facility 2) To conduct the following transportation a) Marin (Air) transportation of the products from Japan to the country of the Recipient b) Internal transportation from the port of disembarkation to the project site		/
2	To implement detailed design, bidding support and procurement supervision (Consulting Service)		
3	Contingencies		
	Total		XXX

*The Amount is provisional. This is subject to the approval of the Government of Japan.


Project Monitoring Report
 on
Project Name
Grant Agreement No. XXXXXXXX
 20XX, Month

Organizational Information

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

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 <i>(proposed in the outline design)</i>	Actual
1.		

2-2 Scope of the work

Components	Original* <i>(proposed in the outline design)</i>	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 (1,000 Taka)	
	Original (proposed in the outline design)	Actual (in case of any modification)	Original ^{1),2)} (proposed in the outline design)	Actual
	1.			

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- 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)

PLM MY

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)

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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	Condition of payment Price (Increased) F=C+D
Item 1	●●t	●	●	●	●	●
Item 2	●●t	●	●	●		
Item 3						
Item 4						
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
Item 1	●	●	●			
Item 2						
Item 3						
Item 4						
Item 5						

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

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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%)	

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Planned Equipment List

No.	Req. No.	Equipment Name	European Gaza Hospital	Nasser Medical Complex	Indonesian Hospital	Rafidia Surgical Hospital
1	G-2	Multi-slice CT	1			
2	G-3	MRI		1		
3	G-4	Digital x-ray apparatus	1	2	2	
4	G-5	Digital fluoroscopy	1			
5	G-7	Mobile x-ray apparatus	2	1	2	
6	G-9	UPS for CT			1	
7	G-10	Doppler ultrasound scanner with TEE probe		1	1	
8	G-11	Color doppler ultrasound scanner	2	2		
9	G-12	Portable color doppler ultrasound scanner	1	1	1	
10	G-13	ECG	3	3	3	
11	G-15	Holter ECG		1	1	
12	G-16	Treadmill			1	
13	G-17	Hemodialysis machine		10		
14	G-18	Mobile digital C-arm	1			
15	G-19	Video endoscopic system for digestive system	1		1	
16	G-20	Video endoscopic system for bronchial tube		1		
17	G-21	Endoscopic washer machine	1	1	1	
18	G-22	Surgical laparoscope set		1	1	
19	G-24	Cystoscope system		1	1	
20	G-25	Autoclave	1	2	1	
21	G-26	Nephroscope		1	1	
22	G-27	Uretroscope		1	1	
23	G-28	Resetroscope		1	1	
24	G-29	Pneumatic lithotripsy		1		
25	G-30	Laser lithotripsy		1		
26	G-31	Defibrillator	2			
27	G-32	ENT surgical microscope	1			
28	G-33	Auto chemistry analyzer	1	2		
29	G-34	Blood bank refrigerated centrifuge	1	1		
30	G-35	Centerifuge	1	1	1	
31	G-36	Blood bank deep freezer		2	1	
32	G-37	Serofuge centrifuge			1	
33	G-38	Patient monitor	10	13	10	
34	G-39	EMG machine		1		
35	G-40	Autoclave for lab.	1	1	1	
36	G-42	Pulse oximeter	15	15	10	
37	G-43	Ophthalmic surgical microscope	1			
38	G-44	Fundus fluorescein angiography (FFA)	1			
39	G-45	Optical coherence tomography (OCT)	1			
40	G-46	Ophthalmic ultrasonic diagnostic (A&B scan)	1			
41	G-47	Slit lamp	5			
42	G-48	Phaco- surgery machine	1			

No	Req. No	Equipment Name	European Gaza Hospital	Nasser Medical Complex	Indonesian Hospital	Rafidia Surgical Hospital
43	G-49	Patient bed	15	50	25	
44	G-50	Recovery sliding trolley	7	7	5	
45	G-51	Biomexer and blood bank chair		2	2	
46	G-52	ENT unit	2	2		
47	G-53	CO2 incubator	1		1	
48	G-54	Syringe pump	10	20	10	
49	G-55	Infusion pump	10	20	10	
50	G-57	Laundry machine	2	4	1	
51	G-58	Calendar-roller iron for sheet	1	1		
52	G-59	Dryer	1	2	1	
53	G-63	External storage device	1	1	1	
54	W-1	MRI				1
55	W-2	MRI pressure injector				1
56	W-3	Anesthesia machine, MRI compatible				1
57	W-4	Vital sign monitor, MRI compatible				1
58	W-5	MRI peripheral equipment set				1
59	W-13	Angiography				1
60	W-14	Catheterization injector				1
61	W-15	Anesthesia workstation				1
62	W-16	Intra-Aortic balloon pump				1
63	W-17	Echocardiograph with TEE probes				1
64	W-18	Treadmill with stress test				1
65	W-19	Holter ECG				1
66	W-20	Fraction flow reserve				1
67	W-21	X-ray protective apron				5
68	W-22	Perfusion system				1
69	W-23	Ice machine				1
70	W-24	SSI single-chamber cardiac pacemaker				1
71	W-25	Dual chamber external pulse generator				1
72	W-26	Sternum and redo saw				1
73	W-27	Portable echocardiograph				1
74	W-28	Operating light				1
75	W-29	Peripheral vascular diagnostic system				1
76	W-30	Digital x-ray C-arm				1
77	W-31	Radiolucent top operating table				1
78	W-32	Injector for vascular application				1
79	W-33	Ultrasound with color doppler				1
80	W-34	Hand held doppler for blood flow				1
81	W-38	ICU bed				15
82	W-39	ICU ventilator				12
83	W-40	Central monitoring unit for 5 beds				1
84	W-41	Central monitoring unit for 7 beds				1
85	W-42	Infusion station				15
86	W-43	Warming mattress				2
87	W-44	Bedside cabinet				15

No.	Req. No.	Equipment Name	European Gaza Hospital	Nasser Medical Complex	Indonesian Hospital	Rafidia Surgical Hospital
88	W-45	Over bed table				15
89	W-46	Oxygen flowmeter				15
90	W-47	Suction unit, wall mounted				15
91	W-48	Medication trolley				2
92	W-49	Emergency trolley				2
93	W-50	Defibrillator monitor				2
94	W-51	ECG machine				2
95	W-52	Medication cabinet				2
96	W-53	NIBP with SpO2				2
97	W-54	Digital mobile x-ray				1
98	W-55	X-ray protective apron				2
99	W-56	Wheel chair for adult				1
100	W-57	Linen trolley				2

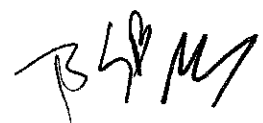
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PREPARATORY SURVEY
ON
THE PROJECT FOR IMPROVEMENT
OF
MEDICAL EQUIPMENT
IN
PALESTINE

SOFT COMPONENT (TECHNICAL ASSISTANCE)
PLAN

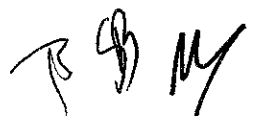
September 2019

INTEM Consulting, Inc.

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1. Background of Soft Component

“The Project for Improvement of Medical Equipment in Palestine” (hereinafter referred to as “the Project”) is the project which procures medical equipment necessary for the diagnosis and treatment of non-communicable diseases (hereinafter referred to as “NCDs”) at the Palestinian regional hospitals. By improving said medical services, early diagnosis and treatment of NCDs will be realized, and the health level of Palestinian people will be improved.

The targeted equipment of the Project is MRI and X-ray Cath-lab, endoscope and equipment for CSSD, etc. for the West Bank (Rafidia Hospital) and Gaza Strip (European Hospital, Nasser Hospital and Indonesian Hospital) and their safety and stable operation is necessary. For this purpose, medical staffs (doctors, nurses, midwives, medical technologists, etc.) and technical engineers in the maintenance department (Biomedical Engineering Unit) need to find and deal with medical equipment malfunctions and abnormalities at an early stage. It is also required to develop the budget plan for reagents, spare parts and consumables and to establish a system for procurement of necessary parts properly. If these systems can be implemented quickly and accurately, equipment can be used more continuously, and higher quality and stable medical services can be provided.

The medical equipment to be procured under this Project includes the equipment which will be newly introduced at the hospitals and/or will be different operation method from the existing equipment.

Although equipment users (end users) and engineers in maintenance departments are recognized to have basic operation and maintenance techniques, they tend to rely on their own knowledge and experience, and standardized format for inspections are required. Currently there is no format, and there are no regular trainings for acquiring usage knowledge or skills, thus there are differences in operation and maintenance skills between hospitals and departments. In addition, each hospital has a equipment inventory list, but it needs to be improved. Therefore, it is required to improve the quality of medical services throughout introducing standardized formats, improving equipment operation skills and daily checks by the end users and improving the regular inspections and repairing skills for technical engineers.

The Palestinian side also mentioned that it is necessary to acquire the operation and maintenance techniques and standardization of formats to be developed in the Project. During the preparatory survey conducted from April to May 2019, Palestinian side requested a soft component/technical assistance related to maintenance and operation skills.

Since the basic operation training of the procured equipment will be implemented when installation by the Supplier and the agents of the manufacturer, this soft component will focus on the acquisition of maintenance management skills for the equipment newly introduced by the Project. In implementation of this soft component, the plans and contents will be compiled through participatory workshops from the viewpoint of sustainability. In addition, this soft component will target not only the technical engineers but also the end users who actually use the equipment and motivate them to organize a maintenance system of equipment.

In this soft component, the following works will be standardized, ① daily check (operation check before & after use, cleaning, washing, disinfection, etc.) and ② regular inspection (regular performance check and replacement of consumables, etc.). In order to check and inspect equipment in a short time, the participants for this training will share common understandings of necessity of such works and make standardized inspection manuals and check sheets together. In the second training after a while, check whether the inspection technique has been implemented correctly, whether the format has been used correctly, managed, and reported, etc., and refresh training and improvement of format will be implemented. In addition, the guidance how to compile daily check records, equipment inventory list and draft of maintenance management plan (including budget plan for next financial year) will be provided. The guidance will also contribute to organize to report to and discuss with the hospital director and the person in charge of MOH regarding the current equipment conditions and the maintenance management plan for next year.

2. Objectives of Soft Component

The achievement of the following three objectives can be expected after implementation soft component in case of the effectiveness in continued after the implementation.

1. The capacity for operation and maintenance of equipment is improved and planned inspection work can be carried out.
2. The status of all equipment can be grasped in one inventory list by regular inspection reports from Maintenance Engineering Unit and daily check records from each department of hospital.
3. An annual maintenance management plan is prepared, and the outline of inspection timing, replacement timing and costs of spare parts and cost of operation and maintenance can be grasped.

3. Output of Soft Component

The outputs to be achieved at the completion of soft component are as follows.

Contents	Direct Output
Training in strengthening equipment maintenance and management capacity	<ul style="list-style-type: none"> • Daily check skills will be acquired through training for end users. • Contents and records of daily check conducted by the end users will be unified, which makes it easier to grasp the status of equipment. • Engineers of maintenance department will acquire regular maintenance and inspection skills, and an appropriate cooperation system with the local agency will be established.
Formulation of maintenance management plan and budget plan with equipment data management	<ul style="list-style-type: none"> • It will be possible to make and manage inspection records of equipment (usage history, replacement history of spare parts/consumables, daily check/regular inspection/repair records, etc.). • The names, quantities and costs of spare parts/consumables necessary for the next inspection and reagents necessary for next financial year will be grasped. • Annual equipment maintenance management plan will be prepared, and a budget plan including maintenance contracts with local agents and costs necessary for operation and maintenance of equipment will be prepared.

4. Method for Confirming the Degrees of Achievement of Outputs

Achievement of the soft component will be confirmed in the following manner.

Contents	Method of confirming achievements	Items of confirming achievements
Training in strengthening equipment maintenance and management capacity	<ul style="list-style-type: none"> • Confirm the work flowchart related to equipment maintenance. • Confirm the daily check record for daily checks complied by the end users. • Confirm the regular inspection plan and regular inspection report compiled by the maintenance department. • Confirm the equipment inventory list made by the maintenance department. 	<ul style="list-style-type: none"> • Work flowchart • Maintenance inspection plan • Daily check sheet • Daily check record book * 1 • Regular inspection plan • Regular inspection sheet • Regular inspection report * 2 • Equipment inventory list
Formulation of maintenance management plan and budget plan with equipment data management	<ul style="list-style-type: none"> • Confirm the management system for procurement of consumables, spare parts and reagents necessary for maintenance. • Confirm the equipment maintenance plan for the next financial year, including maintenance contracts with local agents. 	<ul style="list-style-type: none"> • Spare parts, consumables, reagent storage history (stock management) • Procurement plan for spare parts and consumables

*1: A record book of check sheets after daily inspections.

*2: A record book of check sheets after periodic inspections.

5. Activities of Soft Component (Input Plan)

Activities to achieve each output (Input Plan) are as follows.

(1) Trainers

- 1) Consultant for operation and maintenance technique: Japanese expert, 1 person
- 2) Local consultant : Palestinian, 2 persons (1 person each in West bank and Gaza Strip)

(2) Plan of operation

Activities: ①Preparation works in Japan, ②First training in Palestine, ③Interim works in Japan, ④Second training in Palestine, ⑤Post works in Japan.

Details are as follows.

5-1 Preparation works in Japan

Consultant for operation and maintenance technique will prepare materials, each format, work flowcharts, etc. necessary for the training in the preparation works in Japan, and will be able to show them as samples in the first training. Prior to the implementation of training, the Japanese consultant and local consultant will arrange the implementation schedules, training places and training groups of candidates with the hospital directors, maintenance departments and MoH. At the same time, the

consultants will prepare the training materials. The number of days required for these domestic preparations is 5 days.

The target equipment for training will be the following equipment installed by the Project.

<u>West bank (Rafidia Hospital)</u>	
MRI, related equipment	MRI (C), Injector (C), Anesthesia machine (C), Patient monitor (C)
Cath-lab, related equipment	Catheterization lab (C), Injector (C), Anesthesia machine (C), Intra-aortic balloon pump (C), ECG (C), Treadmill for stress test (C), Holter ECG (C), Fraction Flow Reserve (C)
Vascular equipment	Perfusion system (C), Temporary cardiac pacemaker (C), Portable Echocardiograph (C), Operation light (A)
Cardio vascular equipment	Peripheral vascular diagnostic system (C), Digital C-arm (C), Operation table (A), Injector (C), Ultrasound machine (B), Hand held doppler for blood flow (C)
CCU related equipment	Ventilator (B), Central monitor unit (B), Infusion station stackable (B), Defibrillator (B), ECG machine (A)
<u>Gaza strip (European Hospital, Nassel Hospital, Indonesian Hospital)</u>	
Imaging equipment	MRI(C), CT scan(B), Digital X-ray machine(B), Digital fluoroscopy (B), Mobile X-ray machine (B), Ultrasound machine (B), C-ram (B)
Diagnosis equipment	ECG (A), Holter ECG (C), Treadmill (C), EMG machine (C)
Endoscope equipment	Endoscope system (C), Endoscope washer (C), Surgical laparoscope (C), Pneumatic lithotripsy (C)
Hemodialysis equipment	Hemodialysis machine (B)
Laboratory equipment	Auto Chemistry Analyzer (A), Blood Bank Refrigerated Centrifuge (A), Autoclave for lab (A)
Ophthalmology equipment	Ophthalmic Surgical Microscope (A), Fundus Fluorescein Angiography (FFA) (C), Optical Coherence Tomography (OCT) (C), Ophthalmic Ultrasonic Diagnostic (A&B scan) (C), Slit lamp (A)
Others	Syringe pump (B), Infusion pump (B), Patient monitor (B), Autoclave (A)

(A): Equipment has already introduced in the target hospital, with slight differences in maintenance method due to different manufacturers

(B): Equipment has already been introduced to the target hospital, but it is necessary to re-instruct the maintenance method for advanced medical equipment or equipment deeply related to human life.

(C): Equipment newly introduced for the target hospital

5-2 First training in Palestine

Divided into West bank area and Gaza area, end users who use equipment, and engineers in maintenance department will be trained about the maintenance management system development through workshops. At the workshops, the consultant will teach how to make the equipment maintenance inspection plan, inspection check sheet for daily and periodical inspection and manuals, and also train how to maintain the equipment with these formats. In addition, it will provide training on preparation of inspection reports and equipment inventory list and preparation of equipment maintenance management plans. These training is carried out by the consultant for operation and

maintenance technique dispatched from Japan.

Target candidates are medical staffs such as doctors, nurses, and engineers in each hospital. Therefore, in addition to making sure that normal their work is not hindered, the consultant will consider the shift of hospital staff participating in each training, and make an environment where staffs can participate easily.

As for trainings to the three Gaza hospitals, the consultant will implement trainings on equipment that is installed only at the hospital. On the other hand, for equipment that is installed in 2 or 3 hospitals, the consultant will pick up one hospital, gather candidates from other hospitals, and jointly implement trainings for efficiency.

No		Contents of training	Target equipment	Target hospital/ Target department	No. of candidates *3
1	Fri	Move from Tokyo →Hong Kong			
2	Sat	Move from Hodgkin →Tokyo			
3	Sun	<ul style="list-style-type: none"> • Seminar on the importance of equipment maintenance management • About schedule and contents of soft component • Creation of equipment maintenance system flow • Preparation of maintenance inspection plan 		【Rafidia Hospital】 Hospital Director (Deputy director), Director of dep., End users, Engineers in maintenance dep., etc.	Approx . 15
4	Mon	• Preparation of daily inspection check sheet	All target equipment	【Rafidia Hospital】 End users, Engineers in maintenance dep.	Approx . 10
5	Tue	• Organize daily inspection manual (including self-made)			
6	Wed	• Demonstration training for daily inspection			
7	Thu	• Preparation of daily inspection record book			
8	Fri	Document works			
9	Sat	Document works			
10	Sun	• Preparation of periodic inspection plan (including check sheet)	All target equipment	【Rafidia Hospital】 End users, Engineers in maintenance dep.	Approx . 10
11	Mon	• Preparation of periodic inspection report			
12	Tue	• Demonstration training for periodic inspections			
13	Wed	• Revision / creation of equipment inventory list			
14	Thu				
15	Fri	Document works			
16	Sat	Document works			
17	Sun	• Drafting equipment maintenance plan	All target equipment	【Rafidia Hospital】 Hospital Director (Deputy director), Director of dep., End users, Engineers in maintenance dep., etc.	Approx . 10
18	Mon	• Establishing a system for reporting to the hospital director using an equipment inventory list and equipment maintenance plan			
19	Tue				
20	Wed	• Report and discussion about schedule for next training (questionnaire, Q & A, etc.)			
21	Thu				
22	Fri	Document works			
23	Sat	Document works			
24	Sun	<ul style="list-style-type: none"> • Seminar on the importance of equipment maintenance management • About schedule and contents of soft component 	Equipme nt install for 3 hospitals	【Gaza MoH】 Hospital Director (Deputy director), Director of dep., End	Approx . 15

No		Contents of training	Target equipment	Target hospital/ Target department	No. of candidates *3
		<ul style="list-style-type: none"> Creation of equipment maintenance system flow Preparation of maintenance inspection plan 		users, Engineers in maintenance dep., etc.	
25	Mon	<ul style="list-style-type: none"> Preparation of daily inspection check sheet Organize daily inspection manual (including self-made) Demonstration training for daily inspection Preparation of daily inspection record book 	Equipment install for 3 hospitals	【Gaza Strip】 End users and engineers in maintenance dep. from 3 hospitals	Approx . 10
26	Tue				
27	Wed				
28	Thu				
29	Fri	Document works			
30	Sat	Document works			
31	Sun	<ul style="list-style-type: none"> Preparation of periodic inspection plan (including check sheet) Preparation of periodic inspection report Demonstration training for periodic inspections Revision / creation of equipment inventory list 	Equipment install for 3 hospitals	【Gaza Strip】 End users and engineers in maintenance dep. from 3 hospitals	Approx . 10
32	Mon				
33	Tue				
34	Wed				
35	Thu				
36	Fri	Document works			
37	Sat	Document works			
38	Sun	<ul style="list-style-type: none"> Preparation of daily inspection check sheet Organize daily inspection manual (including self-made) Demonstration training for daily inspection Preparation of periodic inspection plan (including check sheet) Demonstration training for periodic inspections 	Equipment install for only 1 hospital	【Gaza Strip】 End users and engineers in maintenance dep. from the hospital	Approx . 10
39	Mon				
40	Tue				
41	Wed				
42	Thu				
43	Fri	Document works			
44	Sat	Document works			
45	Sun	<ul style="list-style-type: none"> Drafting equipment maintenance plan Establishing a system for reporting to the hospital director using an equipment inventory list and equipment maintenance plan Report and discussion about schedule for next training (questionnaire, Q & A, etc.) 	All target equipment	【Gaza MoH】 Hospital Director (Deputy director), Director of dep., End users, Engineers in maintenance dep., etc.	Approx . 10
46	Mon				
47	Tue				
48	Wed				
49	Thu	Summary		West bank MoH	
50	Fri	Move			
51	Sat	Move			

* 3: Not the same participants all day, but participants will vary depending on the equipment type and field. The number of people listed is the average number of candidates. However, engineers in maintenance department of the target hospital should participate all day, and the maintenance department will grasp the whole so that there is no difference in the work of each training. The target equipment for each day will be shown to the hospital in advance and participants will be listed by the hospital and MoH.

5-3 Interim works in Japan

- Summarize the result of first trainings (1 day).
- Prepare for the second training (2 days).

Before the second technical training, the consultant confirm the situation of equipment usage and made manual usage, comments from end users and engineers in maintenance department, and prepare and arrange the training materials.

5-4 Second training in Palestine

In the second on-site guidance, the consultant will confirm the maintenance management status of the equipment actually performed by the hospital staff based on the first training. If inappropriate points are found in their skills of daily inspection and periodic inspection, refresh technical training will be implemented. The end users and engineers in the maintenance department will discuss problems and unclear points that they felt using the checklist, and make necessary corrections. In addition, the candidates will summaries data based on the inspection record book and reports, check the equipment maintenance management plan and implement refresh training if necessary.

The second training will aim to instill inspection technique, maintenance technique, and how to draft equipment maintenance management plan into the medical staffs. Since the first training has already been conducted for all staff, the second time direct instruction by the consultant will be kept in the minimum and encourages the medical staffs to reconfirm maintenance methods while teaching each other within hospital staffs. The consultant will make supplementary explain on actual skills and correct knowledge / inspection techniques as needed, and reconfirm the importance of technology transfer between hospital staffs and revise the inspection check sheets and manuals if necessary.

The consultant will report the completion of this soft component to both MoH in the West Bank and Gaza strip.

No		Contents of training	Target equipment	Target hospital/ Target department	No. of candidates
1	Fri	Move from Tokyo →Hong Kong			
2	Sat	Move from Hong Kong →Tokyo			
3	Sun	<ul style="list-style-type: none"> About schedule and contents of soft component Discussion on revision of maintenance inspection plan 	All target equipment	【Rafidia Hospital】 Hospital Director (Deputy director), Director of dep., End users, Engineers in maintenance dep., etc.	Approx. 15
4	Mon	<ul style="list-style-type: none"> Consultation on revision of daily inspection check sheet and manual Technical confirmation and re-instruction for daily inspection 			
5	Tue	<ul style="list-style-type: none"> Discussion on revision of daily inspection record book Discussion on revision of periodic inspection plan (including check sheet) 	All target equipment	【Rafidia Hospital】 End users, Engineers in maintenance dep.	Approx. 10
6	Wed	<ul style="list-style-type: none"> Discussion on revision of periodic inspection report Technical confirmation and re-instruction for periodic inspection 			
7	Thu	<ul style="list-style-type: none"> Discussion on revision of equipment inventory list 			

No		Contents of training	Target equipment	Target hospital/ Target department	No. of candidates
8	Fri	Document works			
9	Sat	Document works			
10	Sun	<ul style="list-style-type: none"> Discussion on revision of equipment maintenance plan Revision of reporting system to hospital director using equipment inventory list and equipment maintenance plan General discussion (Q & A, etc.) 	All target equipment	【Rafidia Hospital】 Hospital Director (Deputy director), Director of dep., End users, Engineers in maintenance dep., etc.	Approx. 10
11	Mon				
12	Tue				
13	Wed	<ul style="list-style-type: none"> About schedule and contents of soft component Discussion on revision of maintenance inspection plan 	All target equipment	【Gaza MoH】 Hospital Director (Deputy director), Director of dep., End users, Engineers in maintenance dep., etc.	Approx. 15
14	Thu				
15	Fri	Document works			
16	Sat	Document works			
17	Sun	<ul style="list-style-type: none"> Consultation on revision of daily inspection check sheet and manual Technical confirmation and re-instruction for daily inspection Discussion on revision of daily inspection record book Discussion on revision of periodic inspection plan (including check sheet) Discussion on revision of periodic inspection report Technical confirmation and re-instruction for periodic inspection Discussion on revision of equipment inventory list 	All target equipment	【Gaza Strip】 End users and engineers in maintenance dep. from 3 hospitals	Approx. 10
18	Mon				
19	Tue				
20	Wed				
21	Thu				
22	Fri	Document works			
23	Sat	Document works			
24	Sun	<ul style="list-style-type: none"> Consultation on revision of daily inspection check sheet and manual Technical confirmation and re-instruction for daily inspection Discussion on revision of daily inspection record book Discussion on revision of periodic inspection plan (including check sheet) Discussion on revision of periodic inspection report Technical confirmation and re-instruction for periodic inspection Discussion on revision of equipment inventory list 	All target equipment	【Gaza Strip】 End users and engineers in maintenance dep. from the hospital	Approx. 10
25	Mon				
26	Tue				
27	Wed			<ul style="list-style-type: none"> Discussion on revision of equipment maintenance plan 	
28	Thu				
29	Fri	Document works			
30	Sat	Document works			
31	Sun	<ul style="list-style-type: none"> Discussion on revision of equipment maintenance plan 	All target equipment	【Gaza MoH】	Approx. 10

No		Contents of training	Target equipment	Target hospital/ Target department	No. of candidates
32	Mon	<ul style="list-style-type: none"> • Revision of reporting system to hospital director using equipment inventory list and equipment maintenance plan • General discussion (Q & A, etc.) • Report of the result of soft component 		Hospital Director (Deputy director), Director of dep., End users, Engineers in maintenance dep., etc.	
33	Tue	<ul style="list-style-type: none"> • Report of the result of soft component 			
34	Wed	Move from Tel-Aviv → Hong Kong			
35	Thu	Move from Hong Kong →Tokyo			

The period of dispatch for each training session is as bellow.

1) Consultant for operation and maintenance technique: Japanese expert, 1 person

First training in Palestine: A total 1.70MM (Travel x 4days, Trainings x 46days, Report and discussion on schedule x 1 day)

Second training in Palestine: A total 1.17MM (Travel x 4days, Trainings x 30days, Report and summary 1day)

2) Local consultant : Palestinian, 2 persons (1 person each in West bank and Gaza strip)

West bank First training 0.53MM (A total of 16days)

Second training 0.27MM (A total of 8days)

Gaza strip First training 0.63MM (A total of 19days)

Second training 0.47MM (A total of 14days)

*Translator works is divided from the interpreter works

3) Consultant for security control : Japanese , 1 person

Works in Palestine: A total 0.33MM (Travel x 4days, Trainings x 6days,)

(3) Safety Control

For safety management in the Gaza Strip, each person engaged in work in the Gaza Strip shall follow the code of conduct for safety measures of JICA. The code of conduct shall be applied to the Consultants and Suppliers, and the following safety measures shall be taken within the Gaza Strip.

<<< Safety Measures in the Gaza Strip >>>

1. Working Hour: 9:00am – 3:00pm (curfew: 5:00pm – 8:00am)

2. Working Day: Sunday – 12:00pm, Thursday (prohibition of stay: Friday and Saturday)

3. Accommodation: Hotel, designated by JICA

4. Transportation: Bulletproof car (arranged with UNDP via JICA)

5. Code of travelling: More than one person

6. Communication: Mobile phone and iridium satellite-telephone

- ④ Periodic inspection check sheet
- ⑤ Daily inspection record book
- ⑥ Periodic inspection report
- ⑦ Equipment inventory list
- ⑧ Equipment maintenance plan
- ⑨ Soft component completion report

9. Responsibility of Implementing Agencies of Recipient Country

This soft component will be implemented to improve the operation and maintenance system and ensure safety and sustainability of equipment which will be installed to the targeted 4 hospitals. For this reason, each training will use a method that encourages voluntary activities by MoH and the target hospitals.

Prior to the implementation of the soft component, the MoH and each hospital selected the candidates while actively coordinating with the Japanese consultant and local consultant. Each department is responsible for staffs to participate in trainings.

Additionally, in order to establish and become routine works which are trained in this soft component, it is preferable that the hospital directors and deputy directors oversee the works of maintenance department as well as demonstrate leadership that the maintenance works are very important works in hospital management. In addition, it is important for the head of each department to ensure and supervise the daily and periodic inspection works in order to provide the safety medical services continuously to patients.

The equipment targeted by this soft component is limited to the equipment provided in this project, but the techniques and methods acquired here are sufficiently applicable to other equipment and clinical departments. If inspection works are introduced in all other departments and the maintenance and management system for equipment is improved, it is possible to improve the medical services in the area centered on the four target hospitals. Using this soft component as a model case, the leadership of the hospital director and deputy director is expected to spread the systems and techniques throughout the hospital.

In addition, securing a budget for purchasing consumables and spare parts is an important factor for the continuous operation of the equipment. It is also important for each hospital director and MoH to know the operating status of equipment, the inventory status of consumables and spare parts, and to secure a budget based on the budget plan for the next year.



**TECHNICAL NOTES
ON THE PREPARATORY SURVEY FOR
THE PROJECT FOR IMPROVEMENT OF MEDICAL EQUIPMENT**

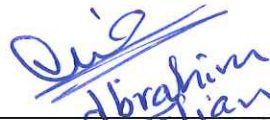
This Technical Notes is made to technically follow up the Minutes of Discussions (hereinafter referred to as “M/D”), which was signed between the Minister of the Ministry of Health (hereinafter referred to as “MOH”) and the Team Leader of the Preparatory Survey Team (hereinafter referred to as “the Team”) on 16th of April, 2019. M/D prevails this Technical Notes. And this Technical Notes is signed by MOH and the Consultant of the Team.

It is noted that attached issues concerning the Project for Improvement of Medical Equipment (hereinafter referred to as “the Project”) may be changed subject to the further analysis and cost study in Japan.

Ramallah, 2nd of May, 2019



Mr. Takashi Morita
Chief Consultant / Equipment
Planning / Healthcare Planning 2
Preparatory Survey Team
INTEM Consulting, Inc.



Eng. Ibrahim Elfan
Director of Biomedical Engineering Unit
Ministry of Health
The Palestinian Authority

ATTACHMENT

1. Equipment Planning

- 1) The Team will plan the procurement of equipment based on the requested equipment lists and status of the existing equipment of the four hospitals, namely Rafidia Hospital in West Bank, Indonesian Hospital, Nasser Hospital and European Hospital in Gaza Strip, where the Consultant Team has conducted the field survey. Provisional equipment list for this Project is shown in Appendix-1.
- 2) The types and numbers of equipment to be procured by Japanese side under the Project will be determined after careful examination of the current procurement conditions in Palestine.
- 3) The equipment plan will be made by further analysis conducted in Japan based on the information collected through the field survey.

2. Major Undertakings to be taken by Palestinian Side

- 1) Infrastructure and room preparation

Both parties confirmed the major undertakings and responsibilities stated on M/D that Palestinian side will provide utilities for distributing electricity, water supply and drainage, and other incidental facilities necessary for the implementation of the Project for the procured equipment (before delivery of procured equipment). The detail works of each hospital are shown in Appendix 2.

The items of the infrastructure and room preparation stated on M/D will be reviewed and modified by further analysis conducted in Japan based on the information collected through the field survey. The modifications of the infrastructure and room preparation to be done by Palestinian side under the Project will be determined after careful examination of the current procurement and infrastructure conditions of hospitals.

3. Others

The implementation schedule and rough cost estimation of each item shall be informed to the Ministry of Health during the Explanation of the Draft Report to be conducted in September 2019 by the Preparatory Survey Team.

Appendix-1 Requested Equipment List

Appendix-2 Recipient Country Side Works



Appendix-1 Requested Equipment List

WEST BANK (Rafidia Hospital)

1- MRI Unit Equipment List

No.	Item Description	Q'ty	Priority
1	MRI 1.5 T	1	A
2	MRI pressure injector	1	A
3	Anesthesia machine, MRI compatible	1	A
4	Vital Sign Monitor ,MRI compatible	1	A
5	Patient Transfer Trolley ,MRI compatible	1	B+
6	Oxygen Flowmeter ,MRI compatible	1	B+
7	Suction unit complete wall mounted ,MRIcompatible	1	B+
8	Metal detector (Hand Held)	1	B+
9	Oxygen monitor with sensor and alarm system.	1	A
10	Fire extinguisher (MR Compatible)	1	A
11	Foot step (MR Compatible)	1	B+
12	Wheel chair(MR Compatible)	1	B+

2- Angiography Equipment List

No.	Item Description	Q'ty	Priority
1	Catheterization lab (Single-Plane)	1	A
2	Catheterization injector	1	A
3	Anesthesia workstation	1	B+
4	Intra-Aortic balloon pump	1	A
5	Echocardiograph with TEE probes for adult and Pediatric	1	A
6	Treadmill with Stress test	1	A
7	Halter Monitor +Analyzer system(4+1)	1	B+
8	Fraction Flow Reserve	1	B-
9	X-ray protective aprons	5	A

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3- Cardiovascular Equipment List

No.	Item Description	Q'ty	Priority
3-1- Cardiac Surgery Equipment List			
1	Perfusion System (Heart Lung machine) + Heater Cooler for Perfusion system	1	A
2	Ice Machine	1	A
3	SSI Single-chamber temporary cardiac pacemaker	1	B+
4	Dual chamber external (temporary) pulse generator	1	B+
5	Sternum and Redo Saws	1	A
6	Portable Echocardiograph	1	B-
7	Operating light (main + sub)	1	A
3-2- Vascular Surgery Equipment List			
1	Peripheral Vascular Diagnostic Systems for Ankle Brachial Index (ABI) Studies ,PPG Toe Pressures and Toe Brachial Index Studies (TBI),Venous Reflux,Post Exercise Arterial Testing,Foot Temperature Studies for Hot Spot Detection,Thoracic Outlet Syndrome (TOS)	1	B-
2	Digital X-Ray C-Arm with Vascular Module and Road Mapping	1	A
3	Radiolucent top operating table for vascular	1	A
4	Injector for Vascular applications	1	B+
5	Ultrasound with color Doppler for vascular applications	1	B-
6	Hand Held Doppler for blood flow	1	A
7	Aortic instrument set	3	B-
8	Carotid instrument set	3	B-
9	Fistula instrument set	3	B-
3-3- CCU Unit Equipment List			
1	ICU bed	15	A
2	ICU ventilator	15	4A+4B+4C
3-1	Central monitoring unit for 5 beds	1	A
3-2	Central monitoring unit for 7 beds	1	A
4	Infusion Station steckable (3 syringe pump + 2 infusion pump)	15	A
5	Warming Mattress	2	1A+1B-
6	Bedside cabinet	15	B-
7	Over bed table	15	B-
8	Oxygen flowmeter wall mounted complete	15	B-
9	Suction unit wall mounted	15	B-
10	Medication trolley	2	B-
11	Emergency trolley	2	A
12	Defibrillator monitor	2	A
13	ECG Machine	2	A
14	Medication cabinet	2	B-
15	NIBP With SpO2	2	A
16	Digital Mobile X-Ray	1	A
17	X-Ray Protective Aprons	2	A
18	Wheel chair	1	B+
19	Linen Trolley D/C	2	B-

4- Neurosurgical Unit Equipment List

No.	Item Description	Q'ty	Priority
4-1-Operating Room Equipment			
1	Neurosurgical Operating Table with Mayfield	1	C
2	Surgical Microscope for Neurosurgery	1	C
3	Electric High Speed crantome	1	C
4	Ultrasonic Aspirator	1	C
5	Brain Retractor	1	C
6	Head light with Light source	1	C
7	Electrosurgical Unit for Neurosurgery	1	C
8	Alternating Pressure Warming Mattress	1	C
9	Tornuqate (Compression device)	1	C
10	Navigation System	1	C
11	Anterior Cervical Set Tray	3	C
12	Craniotomy Set Tray	3	C
13	Micro Neuro Set	3	C
14	VP Shunt Set	3	C
15	Hi Frequency C-arm System Digital	3	C
16	Intra Operative Monitor	3	C
4-2-ICU Equipment			
1	ICP monitor	1	C
2	ICU bed	5	C
3	Ventillator ICU	5	C
4	Defibrillator Monitor	1	C
6	Electrocardiograph	1	C
7	Oxygen flowmeter comp.	5	C
8	Suction unit complete wall mounted	5	C
9	Medication cabinet	1	C
10	Emergency trolley complete	1	C
15	Infusion station steckable (3 syringe pump + 2 infusion pump)	5	C
16	Medication trolley	1	C
17	Bedside cabinet with over bed table	5	C
18	Warming mattress	1	C
19	Linen trolley clean/dirty	1	C
20	Coagulation analyzer	1	C
21	Brake down suction units	5	C
22	Blood /saline warmer	1	C
4-3-Diagnostic Equipment			
1	EEG with photic stimulator	1	C
2	EMG evoked potential AND NCS (Nerve conduction study)	1	C

5- Additional Equipment needed

No.	Item Description	Q'ty	Priority
1	X-Ray Flouroscopy/Radiography Unit	1	C

WEST BANK (Beit Jala Hospital)

1- MRI Unit Equipment List

No.	Item Description	Q'ty	Priority
1	MRI 1.5 T	1	C
2	MRI pressure injector	1	C
3	Anesthesia machine, MRI compatible	1	C
4	Vital Sign Monitor ,MRI compatible	1	C
5	Patient Transfer Trolley ,MRI compatible	1	C
6	Oxygen Flowmeter ,MRI compatible	1	C
7	Suction unit complete wall mounted ,MRIcompatible	1	C
8	Metal detector (Hand Held)	1	C
9	Oxygen monitor with sensor and alarm system.	1	C
10	Fire extinguisher (MR Compatible)	1	C
11	Foot step (MR Compatible)	1	C
12	Wheel chair(MR Compatible)	1	C



Appendix-1 Requested Equipment List

GAZA STRIP (Nasser Hospital, Indonesian Hoospital, European Hospital)

No.	Item Description	Nasser Hospital		Indonesia Hospital		European Hospital	
		Q'ty	Priority	Q'ty	Priority	Q'ty	Priority
1	Cath-lab FPD					1	A
2	Multi-slice CT 128					1	A
3	MRI 1.5 Tesla	1	A	1	A		
4	Digital Basic X-ray	2	A	2	A	2	A
5	Digital Fluoroscopy					1	B
6	Digital Mammography	1	C			1	B
7	Portable X-ray Machine with CR	2	A	2	A	2	A
8	Digital Panoramic dental X-ray	1	B				
9	UPS 120 Kva (for CT)			1	A		
10	Ultrasound Echo Doppler with TEE probe	1	A	1	A	1	B
11	Ultrasound color Doppler	2	A			2	A
12	Portable Ultrasound Echo Doppler	1	B	1	A	1	A
13	ECG 12 Channel for Adult	3	A	3	A	3	A
14	ECG 6 Channel for Pediatric	3	A	3	A	3	A
15	5 Holter with ECG	1	A	1	A		
16	Treadmill			1	A		
17	Hemodialysis Machine with Lazy chair	13	A				
18	Digital Carm			1	B	1	A
19	Endoscopic system with Deodeno-Gastro-Colonoscopy full accessories	1	B	1 1	A B	1	A
20	Endoscopic system – Bronchoscope with EBUS	1	A	1	C	1	C
21	EndoscopicWasher Machine	1	A	1	A	1	A
22	Surgical Laparoscope complete accessories with harmonic scalp,Ligasure	1	A	1	A	1	B
23	Operating surgery urology table	1	B	1	B		
24	Cystoscope System (for adult and pediatric)	1	A	1	A		
25	Autoclave 500 liter	1	A	1	A	1	A
26	Nephroscope(flexible, for adult and pediatric)	1	A	1	A		
27	Uretroscope (fr 7,5,9,10)	1	A	1	A		
28	Resetroscope	1	A	1	A		
29	Pneumatic Lithotripsy	1	A	1	B		
30	LaserLithotripsy	1	A				
31	Defibrillator	2	C	2	B	2	A

No.	Item Description	Nasser Hospital		Indonesia Hospital		European Hospital	
		Q'ty	Priority	Q'ty	Priority	Q'ty	Priority
32	ENT Surgical microscope					1	A
33	Auto Chemistry Analyzer 300t/hr	2	A			2	A
34	Blood Bank Refrigerated Centrifuge 12 unit	1	A			1	A
35	Centerifuge 12,24,48, tube each type	2	A	2	A	2	A
36	Blood bank deep freezer -86	2	A	1	A		
37	Serofugecentrifuge			1	A		
38	Patient Monitor	15	A	15	B	20	A
39	EMG machine	1	A				
40	Autoclave (200 liter) for Lab	1	A	1	A	1	A
41	Ethylene Oxide Gas Sterilizer	1	A				
42	Pulse Oximeter	15	A	10	A	15	A
43	Ceiling Ophthalmic surgical Microscope					1	A
44	Fundus Fluorescein Angiography (FFA)					1	A
45	Optical Coherence Tomography (OCT)					1	A
46	Ophthalmic Ultrasonic Diagnostic (A&B) scan					1	A
47	Slit lamp					5	A
48	Phaco- surgery machine with sets					1	A
49	Patient Beds	100 50	A B	50	A	50	B
50	Recovery Sliding Trolley	7	A	5	A	7	A
51	Biomexer and Blood Bank chair	3	A	3	A		
52	ENT units	2	A			2	A
53	CO2 Incubator			1	A	1	A
54	Syringe pumps	15	A	10	A	15	A
55	Infusion pumps	15	A	10	A	25	A
56	Anesthesia Machine	2	B			2	B
57	Laundry 50 kg	5	A	1	A	2	A
58	Calendar-roller iron for sheets	1	A			1	A
59	Dryer	2	A	1	A	2	A
60	Central station with 5 monitors					1	B
61	Coronary flowmeter					1	A
62	Neuromicroscope					1	A
63	External storage device	1	A	1	A	1	A

Appendix-2 Recipient Country Side Works

Rafidia Hospital

● MRI

1. To close access road near MRI room during operation hours of MRI to get clear images.
2. To remove iron/steel materials near and inside of MRI room, including steel pipes, wires, cables, etc.
3. To secure electrical power supply to MRI room by installing electric power cable with switch gear for MRI.
4. To construct concrete or concrete bloc wall partitions for MRI room before delivery of unit.
5. To construct cable pit, independent concrete foundation before delivery of unit.
6. To construct doors and/or walls after delivery of unit.

● Catheterization laboratory

1. To secure delivery route to the Catheterization laboratory before delivery of unit.
2. To secure floor and ceiling strength before installation of angiography, reinforce if necessary.
3. To secure electrical power supply till Catheterization laboratory by installing electric power cable and other necessary utilities in the room.

Indonesian Hospital:

1. To complete construction of 2nd and 3rd floor before delivery of medical equipment.
2. To upgrade capacity of transformer before delivery of medical equipment.
3. To add new generator before delivery of medical equipment, if necessary.

● MRI

1. To secure electrical power supply to MRI room by installing electric power cable with switch gear for MRI.
2. To remove iron/steel materials like cooler ducting, iron manhole, re-bars from floor before delivery of unit.
3. To secure delivery route to MRI room by demolishing walls, doors, etc. before delivery of unit.
4. To construct cable pit, independent concrete foundation before delivery of unit.
5. To construct doors and/or walls after delivery of unit.



Nasser Hospital

1. To secure R/O water supply and drainage system to the rooms for hemodialysis.
2. To secure X-ray shielding conditions of floors, walls, ceilings and doors before delivery of unit.

● MRI

1. To secure electrical power supply to MRI room by installing electric power cable with switch gear for MRI.
2. To remove iron/steel materials like cooler ducting, iron manhole, re-bars from floor before delivery of unit.
3. To secure delivery route to MRI room by demolishing walls, doors, etc. before delivery of unit.
4. To construct cable pit, independent concrete foundation before delivery of unit.
5. To construct doors and/or walls after delivery of unit.

European Hospital

1. To secure X-ray shielding conditions of floors, walls, ceilings and doors of X-ray room, CT room and Catheterization center before delivery of units.
2. To secure delivery route to Catheterization center by demolishing walls, doors, etc. before delivery of unit, if necessary.
3. To construct doors and/or walls after delivery of unit, if necessary.



Appendix 6. Evaluation Chart of Requested Equipment

Rafidia Surgical Hospital

No.	Item Description	Req. Q'ty	priority	Evaluation Criteria												Remarks(Special Notation)	Planned Q'ty
				①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	Total			
MRI Unit Equipment																	
1	MRI 1.5 T	1	A	5	5	5	5	5	5	5	3	4	5	5	47	Plan 1 unit for new MRI room	1
2	MRI pressure injector	1	A	5	5	5	5	5	5	5	4	5	5	5	49	Plan 1 unit for new MRI room	1
3	Anesthesia machine, MRI compatible	1	A	5	5	5	5	5	5	5	5	5	5	5	50	Plan 1 unit for new MRI room	1
4	Vital Sign Monitor, MRI compatible	1	A	5	5	5	5	5	5	5	4	5	5	5	49	Plan 1 unit for new MRI room	1
5	Patient Transfer Trolley, MRI compatible	1	B+	5	5	5	5	5	5	5	5	5	5	5	50	Plan as MRI related equipment set	1
6	Oxygen Flowmeter, MRI compatible	1	B+	5	5	5	5	5	5	5	5	5	5	5	50	Plan as MRI related equipment set	1
7	Suction unit complete wall mounted, MRI compatible	1	B+	5	5	5	5	5	5	5	5	5	5	5	50	Plan as MRI related equipment set	1
8	Metal detector (Hand Held)	1	B+	5	3	3	3	3	3	4	5	5	5	5	41	Plan as MRI related equipment set	1
9	Oxygen monitor with sensor and alarm system.	1	A	5	3	3	3	3	3	4	5	5	5	5	41	Plan as MRI related equipment set	1
10	Fire extinguisher (MR Compatible)	1	A	5	3	3	3	3	3	4	5	5	5	5	41	Plan as MRI related equipment set	1
11	Foot step (MR Compatible)	1	B+	5	5	5	5	5	5	5	5	5	5	5	50	Plan as MRI related equipment set	1
12	Wheel chair(MR Compatible)	1	B+	5	5	5	5	5	5	5	5	5	5	5	50	Plan as MRI related equipment set	1
Angiography Equipment																	
1	Catheterization lab (Single-Plane)	1	A	5	5	5	5	5	5	5	4	4	5	5	48	Plan 1 unit for Cathe-Lab	1
2	Catheterization injector	1	A	5	5	5	5	5	5	5	4	5	5	5	49	Plan 1 unit for Cathe-Lab	1
3	Anesthesia workstation	1	B+	5	5	5	5	5	5	5	5	5	5	5	50	Plan 1 unit for Cathe-Lab	1
4	Intra-Aortic balloon pump	1	A	5	5	5	5	5	5	5	4	5	5	5	49	Plan 1 unit for Cathe-Lab	1
5	Echocardiograph with TEE probes for adult and Pediatric	1	A	5	5	5	5	5	5	5	5	5	5	5	50	Plan 1 unit for Cathe-Lab	1
6	Treadmill with Stress test	1	A	5	5	5	5	5	5	5	5	5	5	5	50	Plan 1 unit for Cathe-Lab	1
7	Halter Monitor +Analyzer system(4+1)	1	B+	5	5	5	5	5	5	5	5	5	5	5	50	Plan 1 unit for Cathe-Lab	1
8	Fraction Flow Reserve	1	B-	5	5	5	5	5	5	5	4	5	5	5	49	Plan 1 unit for Cathe-Lab	1
9	X-ray protective aprons	5	A	5	5	5	5	5	5	5	5	5	5	5	50	Plan 5 sets for Cathe-Lab	5

No.	Item Description	Req. Q'ty	priority	Evaluation Criteria												Remarks(Special Notation)	Planned Q'ty
				①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	Total			
Cardiovascular Equipment																	
Cardiac Surgery Equipment																	
1	Perfusion System (Heart Lung machine) + Heater Cooler for Perfusion system	1	A	5	5	5	5	5	5	5	4	5	5	5	49	Plan 1 unit for Ope. Theater	1
2	Ice Machine	1	A	5	5	5	5	5	5	5	5	5	5	5	50	Plan 1 unit for Ope. Theater	1
3	SSI Single-chamber temporary cardiac pacemaker	1	B+	5	5	5	5	5	5	5	4	5	5	5	49	Plan 1 unit for Ope. Theater	1
4	Dual chamber external (temporary) pulse generator	1	B+	5	5	5	5	5	5	5	4	5	5	5	49	Plan 1 unit for Ope. Theater	1
5	Sternum and Redo Saws	1	A	5	5	5	5	5	5	5	5	5	5	5	50	Plan 1 unit for Ope. Theater	1
6	Portable Echocardiograph	1	B-	5	5	5	5	5	5	5	5	5	5	5	50	Plan 1 unit for Ope. Theater	1
7	Operating light (main + sub)	1	A	5	5	5	5	5	5	5	5	5	5	5	50	Plan 1 unit for Ope. Theater	1
Avascular Surgery Equipment																	
1	Peripheral Vascular Diagnostic Systems for Ankle Brachial Index (ABI) Studies ,PPG Toe Pressures and Toe Brachial Index Studies (TBI),Venous Reflux,Post Exercise Arterial Testing,Hot Spot Detection,Thoracic Outlet Syndrome (TOS)	1	B-	5	5	5	5	5	5	5	5	5	5	5	50	Plan 1 unit for Ope. Theater	1
2	Digital X-Ray C-Arm with Vascular Module and Road Mapping	1	A	5	5	5	5	5	5	5	5	5	5	5	50	Plan 1 unit for Ope. Theater	1
3	Radiolucent top operating table for vascular	1	A	5	5	5	5	5	5	5	5	5	5	5	50	Plan 1 unit for Ope. Theater	1
4	Injector for Vascular applications	1	B+	5	5	5	5	5	5	5	5	5	5	5	50	Plan 1 unit for Ope. Theater	1
5	Ultrasound with color Doppler for vascular applications	1	B-	5	5	5	5	5	5	5	5	5	5	5	50	Plan 1 unit for Ope. Theater	1
6	Hand Held Doppler for blood flow	1	A	5	5	5	5	5	5	5	5	5	5	5	50	Plan 1 unit for Ope. Theater	1
7	Aortic instrument set	3	B-	5	5	5	5	5	5	5	5	5	5	5	50	Deleted due to low priority and budget limitation	0
8	Carotid instrument set	3	B-	5	5	5	5	5	5	5	5	5	5	5	50	Deleted due to low priority and budget limitation	0
9	Fistula instrument set	3	B-	5	5	5	5	5	5	5	5	5	5	5	50	Deleted due to low priority and budget limitation	0
CCU Unit Equipment																	
1	ICU bed	15	A	5	5	5	5	5	5	5	5	5	5	5	50	Plan 15 units for CCU unit	15
2	ICU ventilator	15	4A 4B 4C	5	5	5	5	5	5	5	5	5	5	5	50	Plan 12 units for CCU unit	12
3-1	Central monitoring unit for 5 beds	1	A	5	5	5	5	5	5	5	5	5	5	5	50	Plan 1 unit for CCU unit	1

No.	Item Description	Req. Qty	priority	Evaluation Criteria											Remarks(Special Notation)	Planned Qty	
				①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	Total			
3-2	Central monitoring unit for 7 beds	1	A	5	5	5	5	5	5	5	5	5	5	5	50	Plan 1 unit for CCU unit	1
4	Infusion Station steckable (3 syringe pump + 2 infusion pump)	15	A	5	5	5	5	5	5	5	5	5	5	5	50	Plan 15 units for CCU unit	15
5	Warming Mattress	1 1	A B-	5	5	5	5	5	5	5	5	5	5	5	50	Plan 2 sets for ICU beds	2
6	Bedside cabinet	15	B-	5	5	5	5	5	5	5	5	5	5	5	50	Plan 15 units for ICU unit	15
7	Over bed table	15	B-	5	5	5	5	5	5	5	5	5	5	5	50	Plan 15 units for ICU unit	15
8	Oxygen flowmeter wall mounted complete	15	B-	5	5	5	5	5	5	5	5	5	5	5	50	Plan 15 units for ICU unit	15
9	Suction unit wall mounted	15	B-	5	5	5	5	5	5	5	5	5	5	5	50	Plan 15 units for ICU unit	15
10	Medication trolley	2	B-	5	5	5	5	5	5	5	5	5	5	5	50	Plan 1 unit for each CCU unit	2
11	Emergency trolley	2	A	5	5	5	5	5	5	5	5	5	5	5	50	Plan 1 unit for each CCU unit	2
12	Defibrillator monitor	2	A	5	5	5	5	5	5	5	5	5	5	5	50	Plan 1 unit for each CCU unit	2
13	ECG Machine	2	A	5	5	5	5	5	5	5	5	5	5	5	50	Plan 1 unit for each CCU unit	2
14	Medication cabinet	2	B-	5	5	5	5	5	5	5	5	5	5	5	50	Plan 1 unit for each CCU unit	2
15	NIBP With SpO2	2	A	5	5	5	5	5	5	5	5	5	5	5	50	Plan 1 unit for each CCU unit	2
16	Digital Mobile X-Ray	1	A	5	5	5	5	5	5	5	5	5	5	5	50	Plan 1 unit for CCU unit	1
17	X-Ray Protective Aprons	2	A	5	5	5	5	5	5	5	5	5	5	5	50	Plan 2 unit for CCU unit	2
18	Wheel chair	1	B+	5	5	5	5	5	5	5	5	5	5	5	50	Plan 1 unit for CCU unit	1
19	Linen Trolley D/C	2	B-	5	5	5	5	5	5	5	5	5	5	5	50	Plan 1 unit for each CCU unit	2
Neurosurgical Unit Equipment																	
Operating Room Equipment																	
1	Neurosurgical Operating Table with Mayfield	1	C												0	Deleted due to low priority	0
2	Surgical Microscope for Neurosurgery	1	C												0	Deleted due to low priority	0
3	Electric High Speed crantome	1	C												0	Deleted due to low priority	0
4	Ultrasonic Aspirator	1	C												0	Deleted due to low priority	0
5	Brain Retractor	1	C												0	Deleted due to low priority	0
6	Head light with Light source	1	C												0	Deleted due to low priority	0
8	Alternating Pressure Warming Mattress	1	C												0	Deleted due to low priority	0

No.	Item Description	Req. Q'ty	priority	Evaluation Criteria										Remarks(Special Notation)	Planned Q'ty			
				①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩			Total		
9	Tornuqate (Compression device)	1	C													0	Deleted due to low priority	0
10	Navigation System	1	C													0	Deleted due to low priority	0
11	Anterior Cervical Set Tray	3	C													0	Deleted due to low priority	0
12	Craniotomy Set Tray	3	C													0	Deleted due to low priority	0
13	Micro Neuro Set	3	C													0	Deleted due to low priority	0
14	VP Shunt Set	3	C													0	Deleted due to low priority	0
15	Hi Frequency C-arm System Digital	3	C													0	Deleted due to low priority	0
16	Intra Operative Monitor	3	C													0	Deleted due to low priority	0
ICU Unit Equipment																		
1	ICP monitor	1	C													0	Deleted due to low priority	0
2	ICU bed	5	C													0	Deleted due to low priority	0
3	Ventillator ICU	5	C													0	Deleted due to low priority	0
4	Defibrillator Monitor	1	C													0	Deleted due to low priority	0
6	Electrocardiograph	1	C													0	Deleted due to low priority	0
7	Oxygen flowmeter comp.	5	C													0	Deleted due to low priority	0
8	Suction unit complete wall mounted	5	C													0	Deleted due to low priority	0
9	Medication cabinet	1	C													0	Deleted due to low priority	0
10	Emergency trolley complete	1	C													0	Deleted due to low priority	0
15	Infusion station steckable (3 syringe pump + 2 infusion pump)	5	C													0	Deleted due to low priority	0
16	Medication trolley	1	C													0	Deleted due to low priority	0
17	Bedside cabinet with over bed table	5	C													0	Deleted due to low priority	0
18	Warming mattress	1	C													0	Deleted due to low priority	0
19	Linen trolley clean/dirty	1	C													0	Deleted due to low priority	0
21	Brake down suction units	5	C													0	Deleted due to low priority	0
22	Blood /saline warmer	1	C													0	Deleted due to low priority	0

No.	Item Description	Req. Q'ty	priority	Evaluation Criteria											Remarks(Special Notation)	Planned Q'ty	
				①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	Total			
Diagnostic Equipment																	
1	EEG with photic stimulator	1	C												0	Deleted due to low priority	0
2	EMG evoked potential AND NCS (Nerve conduction study)	1	C												0	Deleted due to low priority	0
Additional Equipment needed																	
1	X-Ray Flouroscopy/Radiography Unit	1	C												0	Deleted due to low priority	0

European Gaza Hospital

No.	Item Description	Req. Q'ty	priority	Evaluation Criteria											Remarks(Special Notation)	Planned Q'ty	
				①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	Total			
1	Cath-lab FPD	1	A	5	5	5	5	5	5	5	5	5	5	5	50	Deleted due to budget limitation	0
2	Multi-slice CT	1	A	5	5	5	5	5	5	5	5	4	5	5	49	Plan 1 unit for updating old equipment	1
4	Digital Basic X-ray	1	A+	5	5	5	5	5	5	5	5	5	5	5	50	Plan 1 unit for updating old equipment	1
5	Digital Fluoroscopy	1	B	5	5	5	5	5	5	5	5	5	5	5	50	Plan 1 unit for updating old equipment	1
6	Digital Mammography	1	B	5	5	5	5	5	5	5	5	5	5	5	50	Deleted due to budget limitation	0
7	Portable X-ray Machine with CR	2	A+	5	5	5	5	5	5	5	5	5	5	5	50	Plan 2 units for updating old equipment	2
10	Ultrasound Echo Doppler with TEE probe	1	B	5	5	5	5	5	5	5	5	5	5	5	50	Deleted due to budget limitation	0
11	Ultrasound color Doppler	2	A+	5	5	5	5	5	5	5	5	5	5	5	50	Plan 2 units for updating old equipment	2
12	Portable Ultrasound Echo Doppler	1	A	5	5	5	5	5	5	5	5	5	5	5	50	Plan 1 unit for Emergency dep.	1
13	ECG, 12ch for adult	3	A	5	5	5	5	5	5	5	5	5	5	5	50	Plan 3 units for combination with pediatric	3
14	ECG, 6ch for pediatric	3	A+	5	5	5	5	5	5	5	5	5	5	5	50	Deleted due to combined with adults	0
18	Digital C-arm	1	A+	5	5	5	5	5	5	5	5	5	5	5	50	Plan 1 unit for Ope. Theater	1
19	Endoscopic system with Duedono-Gastro- Colonoscopy full accessories	1	A+	5	5	5	5	5	5	5	5	5	5	5	50	Plan 1 unit for updating old equipment	1
20	Endoscopic system – Bronchoscope with EBUS	1	C													Excluded from plan due to low priority	0
21	Endoscopic Washer Machine	1	A+	5	5	5	5	5	5	5	5	5	5	5	50	Plan 1 unit for Endoscopy room	1
22	Surgical Laparoscope complete accessories with harmonic scalp,Ligasure	1	B	5	5	5	5	5	5	5	5	3	5	5	48	Deleted due to budget limitation	0

No.	Item Description	Req. Q'ty	priority	Evaluation Criteria											Remarks(Special Notation)	Planned Q'ty	
				①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	Total			
25	Autoclave 500 liter	1	A+	5	5	5	5	5	5	5	5	5	5	5	50	Plan 1 unit for updating old equipment	1
31	Defibrillator	2	A	5	5	5	5	5	5	5	5	5	5	5	50	Plan 1 unit for Operating Theater and 1 unit for Emergency dep.	2
32	ENT Surgical microscope	1	A	5	5	5	5	5	5	5	5	5	5	5	50	Plan 1 unit for Operating Theater	1
33	Auto Chemistry Analyzer 300t/hr	2	A	5	5	5	5	5	5	5	5	5	5	5	50	Plan 1 unit for updating old equipment	1
34	Blood Bank Refrigerated Centrifuge 12 unit	1	A+	5	5	5	5	5	5	5	5	5	5	5	50	Plan 1 unit for updating old equipment	1
35	Centrifuge 12,24,48, tube each type	2	A+	5	5	5	5	5	5	5	5	5	5	5	50	Plan 1 unit for updating old equipment	1
38	Patient Monitor	10 10	A+ A	5	5	5	5	5	5	5	5	5	5	5	50	Plan 10 units for ward	10
40	Autoclave for Lab	1	A+	5	5	5	5	5	5	5	5	5	5	5	50	Plan 1 unit for Clinical laboratory	1
42	Pulse Oximeter	15	A+	5	5	5	5	5	5	5	5	5	5	5	50	Plan 15 units for ward and Examination room	15
43	Ophthalmic surgical Microscope	1	A+	5	5	5	5	5	5	5	5	5	5	5	50	Plan 1 unit for updating old equipment	1
44	Fundus Fluorescein Angiography	1	A+	5	5	5	5	5	5	5	5	5	5	5	50	Plan 1 unit for updating old equipment	1
45	Optical Coherence Tomography	1	A+	5	5	5	5	5	5	5	5	5	5	5	50	Plan 1 unit for updating old equipment	1
46	Ophthalmic Ultrasonic Diagnostic	1	A+	5	5	5	5	5	5	5	5	5	5	5	50	Plan 1 unit for updating old equipment	1
47	Slit lamp	3 2	A+ A	5	5	5	5	5	5	5	5	5	5	5	50	Plan 5 units for updating old equipment	5
48	Phaco- surgery machine with sets	1	A	5	5	5	5	5	5	5	5	5	5	5	50	Plan 1 unit for Operating Theater	1
49	Patient Beds	15 35	A+ A-	5	5	5	5	5	5	5	5	5	5	5	50	Plan 15 units for updating old equipment	15
50	Recovery Sliding Trolley	7	A+	5	5	5	5	5	5	5	5	5	5	5	50	Plan 7 units for patient transportation in the hospital	7
52	ENT units	2	A+	5	5	5	5	5	5	5	5	5	5	5	50	Plan 2 units for ENT dep. (Outpatient)	2
53	CO2 Incubator	1	A+	5	5	5	5	5	5	5	5	5	5	5	50	Plan 1 unit for Clinical laboratory	1
54	Syringe pumps	10 5	A+ A	5	5	5	5	5	5	5	5	5	5	5	50	Plan 10 units for ward	10

No.	Item Description	Req. Q'ty	priority	Evaluation Criteria											Remarks(Special Notation)	Planned Q'ty	
				①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	Total			
55	Infusion pumps	15 10	A+ A	5	5	5	5	5	5	5	5	5	5	5	50	Plan 10 units for ward	10
56	Anesthesia Machine	2	B	5	5	5	5	5	5	5	5	5	5	5	50		
57	Laundry machine	2	A+	5	5	5	5	5	5	5	5	5	5	5	50	Plan 2 units for updating old equipment	2
58	Calendar-roller iron for sheets	1	A+	5	5	5	5	5	5	5	5	5	5	5	50	Plan 1 unit for updating old equipment	1
59	Dryer	1 1	A+ A	5	5	5	5	5	5	5	5	5	5	5	50	Plan 1 unit for updating old equipment	1
60	Central station with 5 monitors	1	B	5	5	5	5	5	5	5	5	5	5	5	50	Deleted due to budget limitation	0
61	Coronary flowmeter	1	A-	5	5	5	5	5	5	5	5	5	5	5	50	Deleted due to budget limitation	0
62	Neuro-microscope	1	A-	5	5	5	5	5	5	5	5	5	5	5	50	Deleted due to budget limitation	0
63	External storage device	1	A+	5	5	5	5	5	5	5	5	5	5	5	50	Plan 1 unit for Server room	1

Nasser Medical Complex

No.	Item Description	Req. Q'ty	priority	Evaluation Criteria											Remarks(Special Notation)	Planned Q'ty
				①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	Total		
3	MRI	1	A+	5	5	4	5	5	4	3	3	3	5	42	Plan 1 unit for new MRI room.	1
4	Digital Basic X-ray	2	A+	5	5	5	5	5	5	3	4	4	5	46	Plan 1 unit for Radiology dep. and 1 unit for Outpatient building	2
6	Digital Mammography	1	C												Deleted due to low priority	0
7	Portable X-ray Machine with CR	2	A	5	5	5	5	5	4	3	5	4	5	46	Plan 1 unit for updating existing equipment	1
8	Digital Panoramic dental X-ray	1	B												Deleted due to having existing equipment	0
10	Ultrasound Echo Doppler with TEE probe	1	A	5	5	3	5	5	5	3	3	4	5	43	Plan 1 unit for Examination room	1
11	Ultrasound color Doppler	2	A+	5	5	5	5	5	5	3	5	4	5	47	Plan 2 sets for Ultrasound room	2
12	Portable Ultrasound Echo Doppler	1	B	5	5	5	5	5	5	3	5	4	5	47	Plan 1 unit for Emergency dep.	1
13	ECG, 12ch for adult	3	A	5	5	5	5	5	5	3	5	4	5	47	Plan 3 units for combination with pediatric	3
14	ECG, 6ch for pediatric	3	B												Deleted due to combined with adults	0
15	5 Holter with ECG	1	A+	5	5	5	5	5	5	5	5	4	5	49	Plan 1 unit for ECG room	1

No.	Item Description	Req. Q'ty	priority	Evaluation Criteria											Remarks(Special Notation)	Planned Q'ty
				①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	Total		
17	Hemodialysis Machine with Lazy chair	13	A	5	5	5	5	5	5	3	5	4	5	47	Plan 1 unit for updating existing equipment	10
19	Endoscopic system with Deodeno-Gastro- Colonoscopy full accessories	1	B												Deleted due to having existing equipment	0
20	Endoscopic system – Bronchoscope with EBUS	1	A+	5	5	5	5	5	5	5	5	5	5	50	Plan 1 unit for Endoscopy room	1
21	Endoscopic Washer Machine	1	A+	5	5	5	5	5	5	3	5	5	5	48	Plan 1 unit for Endoscopy room	1
22	Surgical Laparoscope complete accessories with harmonic scalp, Ligasure	1	A+	5	5	3	5	5	4	3	4	4	5	43	Plan 1 set for Operating Theater	1
23	Operating surgery urology table	1	B												Deleted due to having existing equipment	0
24	Cystoscope System	1	A+	5	5	4	5	5	4	3	4	4	5	44	Plan 1 set for Operating room	1
25	Autoclave 500 liter	1	A+	5	5	5	5	5	5	3	5	5	5	48	Plan 2 units for New central sterilization room	2
26	Nephroscope	1	A+	5	5	4	5	5	4	5	4	4	5	46	Plan 1 set for Urology dep.	1
27	Urethroscope	1	A+	5	5	4	5	5	4	5	4	4	5	46	Plan 1 set for Urology dep.	1
28	Resetroscope	1	A+	5	5	4	5	5	4	5	4	4	5	46	Plan 1 set for Operating Theater	1
29	Pneumatic Lithotripsy	1	A+	5	5	4	5	5	4	3	4	4	5	44	Plan 1 set for Operating Theater	1
31	Defibrillator	2	C												Deleted due to low priority	0
33	Auto Chemistry Analyzer 300t/hr	2	A+	5	5	5	5	5	5	3	5	3	5	46	Plan 1 unit for Clinical laboratory	2
34	Blood Bank Refrigerated Centrifuge 12 unit	1	A+	5	5	5	5	5	5	5	5	5	5	50	Plan 1 unit for Blood bank	1
35	Centrifuge 12,24,48, tube each type	2	A+	5	5	5	5	5	5	5	5	5	5	50	Plan 1 unit for Clinical laboratory	1
36	Blood bank deep freezer	2	A+	5	5	5	5	5	5	5	5	5	5	50	Plan 2 units for Clinical laboratory	2
38	Patient Monitor	13 2	A+ A	5	5	5	5	5	5	3	5	3	5	46	Plan 13 units for ward	13
39	EMG machine	1	A+	5	5	4	5	5	4	3	4	3	5	43	Plan 1 unit for Examination room	1
40	Autoclave for Lab	1	A	5	5	5	5	5	5	3	5	5	5	48	Plan 1 unit for Clinical laboratory	1
41	Ethylene Oxide Gas Sterilizer	1	A+												Deleted due to unavailability of EO gas	0
42	Pulse Oximeter	15	A+	5	5	5	5	5	5	5	5	5	5	50	Plan 15 units for ward and Examination room	15
49	Patient Beds	100 50	A B	5	5	5	5	5	5	5	5	5	5	50	Plan 50 units due to aging.	50

No.	Item Description	Req. Q'ty	priority	Evaluation Criteria											Remarks(Special Notation)	Planned Q'ty	
				①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	Total			
50	Recovery Sliding Trolley	7	A+	5	5	5	5	5	5	5	5	5	5	5	50	Plan 7 units for patient transportation in the hospital	7
51	Biomexer with chair	3	A+	5	5	5	5	5	5	5	5	5	5	5	50	Plan 2 units for Blood collection room	2
52	ENT units	2	A+	5	5	5	5	5	5	3	5	4	5	47	Plan 2 units for ENT dep. (Outpatient)	2	
54	Syringe pumps	15	A+	5	5	5	5	5	5	5	5	4	5	49	Plan 20 units for hospital ward	20	
55	Infusion pumps	15	A+	5	5	5	5	5	5	5	5	4	5	49	Plan 20 units for hospital ward	20	
56	Anesthesia Machine	2	B	5	5	5	5	5	5	3	5	3	5	46	Deleted due to budget limitation	0	
57	Laundry machine	5	A+	5	5	5	5	5	5	3	5	4	5	47	Plan 4 units due to aging.	4	
58	Calendar-roller iron for sheets	1	A+	5	5	5	5	5	5	5	5	4	5	49	Plan 1 unit for Laundry room	1	
59	Dryer	2	A+	5	5	5	5	5	5	5	5	4	5	49	Plan 2 units due to aging.	2	
63	External storage device	1	A+	5	5	5	5	5	5	5	5	5	5	50	Plan 1 unit for Server room	1	

Indonesian Hospital

No.	Item Description	Req. Q'ty	priority	Evaluation Criteria											Remarks(Special Notation)	Planned Q'ty
				①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	Total		
3	MRI	1	A+	5	5	3	5	4	5	4	4	5	5	45	Deleted due to budget limitation	0
4	Digital Basic X-ray	2	A+	5	5	5	5	5	5	5	5	5	5	50	Plan 1 unit for Radiology dep. and 1 unit for Outpatient building	2
7	Portable X-ray Machine with CR	2	A+	5	5	5	5	5	5	5	5	5	5	50	Plan 1 unit for updating existing equipment	2
9	UPS 120 Kva (for CT)	1	A+	5	5	5	5	5	5	5	5	5	5	50	Plan 1 unit for CT room	1
10	Ultrasound Echo Doppler with TEE probe	1	A+	5	5	5	5	5	5	5	5	5	5	50	Plan 1 unit for Examination room	1
12	Portable Ultrasound Echo Doppler	1	A+	5	5	5	5	5	5	5	5	5	5	50	Plan 1 unit for Emergency dep.	1
13	ECG, 12ch for adult	3	A+	5	5	5	5	5	5	5	5	5	5	50	Plan 3 units for combination with for pediatric	3
14	ECG, 6ch for pediatric	3	B												Deleted due to combined with adult	0
15	5 Holter with ECG	1	A+	5	5	5	5	5	5	5	5	5	5	50	Plan 1 unit for ECG room	1

No.	Item Description	Req. Q'ty	priority	Evaluation Criteria											Remarks(Special Notation)	Planned Q'ty	
				①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	Total			
16	Treadmill	1	A+	5	5	5	5	5	5	5	5	5	5	5	50	Plan 1 unit for update existing equipment	1
18	Digital C-arm	1	B													Deleted due to having existing equipment	0
19	Endoscopic system with Deodeno-Gastro- Colonoscopy full accessories	1 1	A+ B	5	5	5	5	5	5	5	5	5	5	5	50	Plan 1 unit for Endoscopy room	1
20	Endoscopic system – Bronchoscope with EBUS	1	C													Deleted due to low priority	0
21	Endoscopic Washer Machine	1	A+	5	5	5	5	5	5	5	5	5	5	5	50	Plan 1 unit for Endoscopy room	1
22	Surgical Laparoscope complete accessories with harmonic scalp, Ligasure	1	A+	5	5	5	5	5	5	5	5	5	5	5	50	Plan 1 set for Ope. Theater	1
23	Operating surgery urology table	1	B													Deleted due to having existing equipment	0
24	Cystoscope System	1	A+	5	5	5	5	5	5	5	5	5	5	5	50	Plan 1 set for Urology dep.	1
25	Autoclave 500 liter	1	A+	5	5	5	5	5	5	5	5	5	5	5	50	Plan 2 units for new central sterilization room	1
26	Nephroscope	1	A+	5	5	5	5	5	5	5	5	5	5	5	50	Plan 1 set for Urology dep.	1
27	Uretroscope	1	A+	5	5	5	5	5	5	5	5	5	5	5	50	Plan 1 set for Urology dep.	1
28	Resetroscope	1	A+	5	5	5	5	5	5	5	5	5	5	5	50	Plan 1 set for Ope. Theater	1
29	Pneumatic Lithotripsy	1	B	5	5	5	5	5	5	5	5	5	5	5	50	Deleted due to budget limitation	0
31	Defibrillator	2	B													Deleted due to having existing equipment	0
35	Centrifuge 12,24,48, tube each type	2	A+	5	5	5	5	5	5	5	5	5	5	5	50	Plan 1 unit for Clinical laboratory	1
36	Blood bank deep freezer	1	A+	5	5	5	5	5	5	5	5	5	5	5	50	Plan 1 unit for Clinical laboratory	1
37	Serofuge-centrifuge	1	A+	5	5	5	5	5	5	5	5	5	5	5	50	Plan 1 unit for Blood collection room	1
38	Patient Monitor	10 5	A+ B	5	5	5	5	5	5	5	5	5	5	5	50	Plan 10 units for ward	10
40	Autoclave for Lab	1	A	5	5	5	5	5	5	5	5	5	5	5	50	Plan 1 unit for Clinical laboratory	1
42	Pulse Oximeter	10	A	5	5	5	5	5	5	5	5	5	5	5	50	Plan 10 units for ward and Examination room	10
49	Patient Beds	50	A+	5	5	5	5	5	5	5	5	5	5	5	50	Plan 25 units due to aging.	25
50	Recovery Sliding Trolley	5	A	5	5	5	5	5	5	5	5	5	5	5	50	Plan 5 units for patient transportation in the hospital	5

No.	Item Description	Req. Q'ty	priority	Evaluation Criteria											Remarks(Special Notation)	Planned Q'ty	
				①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	Total			
51	Biomexer with chair	3	A+	5	5	5	5	5	5	5	5	5	5	5	50	Plan 2 units for Blood collection room	2
53	CO2 Incubator	1	A+	5	5	5	5	5	5	5	5	5	5	5	50	Plan 1 unit for Clinical laboratory	1
54	Syringe pumps	10	A+	5	5	5	5	5	5	5	5	5	5	5	50	Plan 10 units for ward	10
55	Infusion pumps	10	A+	5	5	5	5	5	5	5	5	5	5	5	50	Plan 10 units for ward	10
57	Laundry machine	1	A+	5	5	5	5	5	5	5	5	5	5	5	50	Plan 1 units due to aging.	1
59	Dryer	1	A+	5	5	5	5	5	5	5	5	5	5	5	50	Plan 1 units due to aging.	1
63	External storage device	1	A+	5	5	5	5	5	5	5	5	5	5	5	50	Plan 1 unit for server room	1

PREPARATORY SURVEY
ON
THE PROJECT FOR IMPROVEMENT
OF
MEDICAL EQUIPMENT
IN
PALESTINE

SOFT COMPONENT (TECHNICAL ASSISTANCE)
PLAN

September 2019

INTEM Consulting, Inc.

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1. Background of Soft Component

“The Project for Improvement of Medical Equipment in Palestine” (hereinafter referred to as “the Project”) is the project which procures medical equipment necessary for the diagnosis and treatment of non-communicable diseases (hereinafter referred to as “NCDs”) at the Palestinian regional hospitals. By improving said medical services, early diagnosis and treatment of NCDs will be realized, and the health level of Palestinian people will be improved.

The targeted equipment of the Project is MRI and X-ray Cath-lab, endoscope and equipment for CSSD, etc. for the West Bank (Rafidia Hospital) and Gaza Strip (European Hospital, Nasser Hospital and Indonesian Hospital) and their safety and stable operation is necessary. For this purpose, medical staffs (doctors, nurses, midwives, medical technologists, etc.) and technical engineers in the maintenance department (Biomedical Engineering Unit) need to find and deal with medical equipment malfunctions and abnormalities at an early stage. It is also required to develop the budget plan for reagents, spare parts and consumables and to establish a system for procurement of necessary parts properly. If these systems can be implemented quickly and accurately, equipment can be used more continuously, and higher quality and stable medical services can be provided.

The medical equipment to be procured under this Project includes the equipment which will be newly introduced at the hospitals and/or will be different operation method from the existing equipment.

Although equipment users (end users) and engineers in maintenance departments are recognized to have basic operation and maintenance techniques, they tend to rely on their own knowledge and experience, and standardized format for inspections are required. Currently there is no format, and there are no regular trainings for acquiring usage knowledge or skills, thus there are differences in operation and maintenance skills between hospitals and departments. In addition, each hospital has a equipment inventory list, but it needs to be improved. Therefore, it is required to improve the quality of medical services throughout introducing standardized formats, improving equipment operation skills and daily checks by the end users and improving the regular inspections and repairing skills for technical engineers.

The Palestinian side also mentioned that it is necessary to acquire the operation and maintenance techniques and standardization of formats to be developed in the Project. During the preparatory survey conducted from April to May 2019, Palestinian side requested a soft component/technical assistance related to maintenance and operation skills.

Since the basic operation training of the procured equipment will be implemented when installation by the Supplier and the agents of the manufacturer, this soft component will focus on the acquisition of maintenance management skills for the equipment newly introduced by the Project. In implementation of this soft component, the plans and contents will be compiled through participatory workshops from the viewpoint of sustainability. In addition, this soft component will target not only the technical engineers but also the end users who actually use the equipment and motivate them to organize a maintenance system of equipment.

In this soft component, the following works will be standardized; ① daily check (operation check before & after use, cleaning, washing, disinfection, etc.) and ② regular inspection (regular performance check and replacement of consumables, etc.). In order to check and inspect equipment in a short time, the participants for this training will share common understandings of necessity of such works and make standardized inspection manuals and check sheets together. In the second training after a while, check whether the inspection technique has been implemented correctly, whether the format has been used correctly, managed, and reported, etc., and refresh training and improvement of format will be implemented. In addition, the guidance how to compile daily check records, equipment inventory list and draft of maintenance management plan (including budget plan for next financial year) will be provided. The guidance will also contribute to organize to report to and discuss with the hospital director and the person in charge of MOH regarding the current equipment conditions and the maintenance management plan for next year.

2. Objectives of Soft Component

The achievement of the following three objectives can be expected after implementation soft component in case of the effectiveness in continued after the implementation.

1. The capacity for operation and maintenance of equipment is improved and planned inspection work can be carried out.
2. The status of all equipment can be grasped in one inventory list by regular inspection reports from Maintenance Engineering Unit and daily check records from each department of hospital.
3. An annual maintenance management plan is prepared, and the outline of inspection timing, replacement timing and costs of spare parts and cost of operation and maintenance can be grasped.

3. Output of Soft Component

The outputs to be achieved at the completion of soft component are as follows.

Contents	Direct Output
Training in strengthening equipment maintenance and management capacity	<ul style="list-style-type: none"> • Daily check skills will be acquired through training for end users. • Contents and records of daily check conducted by the end users will be unified, which makes it easier to grasp the status of equipment. • Engineers of maintenance department will acquire regular maintenance and inspection skills, and an appropriate cooperation system with the local agency will be established.
Formulation of maintenance management plan and budget plan with equipment data management	<ul style="list-style-type: none"> • It will be possible to make and manage inspection records of equipment (usage history, replacement history of spare parts/consumables, daily check/regular inspection/repair records, etc.). • The names, quantities and costs of spare parts/consumables necessary for the next inspection and reagents necessary for next financial year will be grasped. • Annual equipment maintenance management plan will be prepared, and a budget plan including maintenance contracts with local agents and costs necessary for operation and maintenance of equipment will be prepared.

4. Method for Confirming the Degrees of Achievement of Outputs

Achievement of the soft component will be confirmed in the following manner.

Contents	Method of confirming achievements	Items of confirming achievements
Training in strengthening equipment maintenance and management capacity	<ul style="list-style-type: none"> ▪ Confirm the work flowchart related to equipment maintenance. ▪ Confirm the daily check record for daily checks complied by the end users. ▪ Confirm the regular inspection plan and regular inspection report compiled by the maintenance department. ▪ Confirm the equipment inventory list made by the maintenance department. 	<ul style="list-style-type: none"> ▪ Work flowchart ▪ Maintenance inspection plan ▪ Daily check sheet ▪ Daily check record book * 1 ▪ Regular inspection plan ▪ Regular inspection sheet ▪ Regular inspection report * 2 ▪ Equipment inventory list
Formulation of maintenance management plan and budget plan with equipment data management	<ul style="list-style-type: none"> ▪ Confirm the management system for procurement of consumables, spare parts and reagents necessary for maintenance. ▪ Confirm the equipment maintenance plan for the next financial year, including maintenance contracts with local agents. 	<ul style="list-style-type: none"> ▪ Spare parts, consumables, reagent storage history (stock management) ▪ Procurement plan for spare parts and consumables

*1: A record book of check sheets after daily inspections.

*2: A record book of check sheets after periodic inspections.

5. Activities of Soft Component (Input Plan)

Activities to achieve each output (Input Plan) are as follows.

(1) Trainers

- 1) Consultant for operation and maintenance technique: Japanese expert, 1 person
- 2) Local consultant : Palestinian, 2 persons (1 person each in West bank and Gaza Strip)

(2) Plan of operation

Activities: ①Preparation works in Japan、②First training in Palestine、③Interim works in Japan、④Second training in Palestine、⑤Post works in Japan.

Details are as follows.

5-1 Preparation works in Japan

Consultant for operation and maintenance technique will prepare materials, each format, work flowcharts, etc. necessary for the training in the preparation works in Japan, and will be able to show them as samples in the first training. Prior to the implementation of training, the Japanese consultant and local consultant will arrange the implementation schedules, training places and training groups of candidates with the hospital directors, maintenance departments and MoH. At the same time, the

consultants will prepare the training materials. The number of days required for these domestic preparations is 5 days.

The target equipment for training will be the following equipment installed by the Project.

<u>West bank (Rafidia Hospital)</u>	
MRI, related equipment	MRI (C), Injector (C), Anesthesia machine (C), Patient monitor (C)
Cath-lab, related equipment	Catheterization lab (C), Injector (C), Anesthesia machine (C), Intra-aortic balloon pump (C), ECG (C), Treadmill for stress test (C), Holter ECG (C), Fraction Flow Reserve (C)
Vascular equipment	Perfusion system (C), Temporary cardiac pacemaker (C), Portable Echocardiograph (C), Operation light (A)
Cardio vascular equipment	Peripheral vascular diagnostic system (C), Digital C-arm (C), Operation table (A), Injector (C), Ultrasound machine (B), Hand held doppler for blood flow (C)
CCU related equipment	Ventilator (B), Central monitor unit (B), Infusion station stackable (B), Defibrillator (B), ECG machine (A)
<u>Gaza strip (European Hospital, Nassel Hospital, Indonesian Hospital)</u>	
Imaging equipment	MRI(C), CT scan(B), Digital X-ray machine(B), Digital fluoroscopy (B), Mobile X-ray machine (B), Ultrasound machine (B), C-ram (B)
Diagnosis equipment	ECG (A), Holter ECG (C), Treadmill (C), EMG machine (C)
Endoscope equipment	Endoscope system (C), Endoscope washer (C), Surgical laparoscope (C), Pneumatic lithotripsy (C)
Hemodialysis equipment	Hemodialysis machine (B)
Laboratory equipment	Auto Chemistry Analyzer (A), Blood Bank Refrigerated Centrifuge (A), Autoclave for lab (A)
Ophthalmology equipment	Ophthalmic Surgical Microscope (A), Fundus Fluorescein Angiography (FFA) (C), Optical Coherence Tomography (OCT) (C), Ophthalmic Ultrasonic Diagnostic (A&B scan) (C), Slit lamp (A)
Others	Syringe pump (B), Infusion pump (B), Patient monitor (B), Autoclave (A)

(A): Equipment has already introduced in the target hospital, with slight differences in maintenance method due to different manufacturers

(B): Equipment has already been introduced to the target hospital, but it is necessary to re-instruct the maintenance method for advanced medical equipment or equipment deeply related to human life.

(C): Equipment newly introduced for the target hospital

5-2 First training in Palestine

Divided into West bank area and Gaza area, end users who use equipment, and engineers in maintenance department will be trained about the maintenance management system development through workshops. At the workshops, the consultant will teach how to make the equipment maintenance inspection plan, inspection check sheet for daily and periodical inspection and manuals, and also train how to maintain the equipment with these formats. In addition, it will provide training on preparation of inspection reports and equipment inventory list and preparation of equipment maintenance management plans. These training is carried out by the consultant for operation and

maintenance technique dispatched from Japan.

Target candidates are medical staffs such as doctors, nurses, and engineers in each hospital. Therefore, in addition to making sure that normal their work is not hindered, the consultant will consider the shift of hospital staff participating in each training, and make an environment where staffs can participate easily.

As for trainings to the three Gaza hospitals, the consultant will implement trainings on equipment that is installed only at the hospital. On the other hand, for equipment that is installed in 2 or 3 hospitals, the consultant will pick up one hospital, gather candidates from other hospitals, and jointly implement trainings for efficiency.

No		Contents of training	Target equipment	Target hospital/ Target department	No. of candidates *3
1	Fri	Move from Tokyo →Hong Kong			
2	Sat	Move from Hodgkin →Tokyo			
3	Sun	<ul style="list-style-type: none"> ▪ Seminar on the importance of equipment maintenance management ▪ About schedule and contents of soft component ▪ Creation of equipment maintenance system flow ▪ Preparation of maintenance inspection plan 		【Rafidia Hospital】 Hospital Director (Deputy director), Director of dep., End users, Engineers in maintenance dep., etc.	Approx . 15
4	Mon	<ul style="list-style-type: none"> ▪ Preparation of daily inspection check sheet ▪ Organize daily inspection manual (including self-made) ▪ Demonstration training for daily inspection ▪ Preparation of daily inspection record book 	All target equipment	【Rafidia Hospital】 End users, Engineers in maintenance dep.	Approx . 10
5	Tue				
6	Wed				
7	Thu				
8	Fri	Document works			
9	Sat	Document works			
10	Sun	<ul style="list-style-type: none"> ▪ Preparation of periodic inspection plan (including check sheet) ▪ Preparation of periodic inspection report ▪ Demonstration training for periodic inspections ▪ Revision / creation of equipment inventory list 	All target equipment	【Rafidia Hospital】 End users, Engineers in maintenance dep.	Approx . 10
11	Mon				
12	Tue				
13	Wed				
14	Thu				
15	Fri	Document works			
16	Sat	Document works			
17	Sun	<ul style="list-style-type: none"> ▪ Drafting equipment maintenance plan ▪ Establishing a system for reporting to the hospital director using an equipment inventory list and equipment maintenance plan -Report and discussion about schedule for next training (questionnaire, Q & A, etc.) 	All target equipment	【Rafidia Hospital】 Hospital Director (Deputy director), Director of dep., End users, Engineers in maintenance dep., etc.	Approx . 10
18	Mon				
19	Tue				
20	Wed				
21	Thu				
22	Fri	Document works			
23	Sat	Document works			
24	Sun	<ul style="list-style-type: none"> ▪ Seminar on the importance of equipment maintenance management ▪ About schedule and contents of soft component 	Equipme nt install for 3 hospitals	【Gaza MoH】 Hospital Director (Deputy director), Director of dep., End	Approx . 15

No		Contents of training	Target equipment	Target hospital/ Target department	No. of candidates *3
		<ul style="list-style-type: none"> Creation of equipment maintenance system flow Preparation of maintenance inspection plan 		users, Engineers in maintenance dep., etc.	
25	Mon	<ul style="list-style-type: none"> Preparation of daily inspection check sheet Organize daily inspection manual (including self-made) Demonstration training for daily inspection Preparation of daily inspection record book 	Equipment install for 3 hospitals	【Gaza Strip】 End users and engineers in maintenance dep. from 3 hospitals	Approx . 10
26	Tue				
27	Wed				
28	Thu				
29	Fri	Document works			
30	Sat	Document works			
31	Sun	<ul style="list-style-type: none"> Preparation of periodic inspection plan (including check sheet) Preparation of periodic inspection report Demonstration training for periodic inspections Revision / creation of equipment inventory list 	Equipment install for 3 hospitals	【Gaza Strip】 End users and engineers in maintenance dep. from 3 hospitals	Approx . 10
32	Mon				
33	Tue				
34	Wed				
35	Thu				
36	Fri	Document works			
37	Sat	Document works			
38	Sun	<ul style="list-style-type: none"> Preparation of daily inspection check sheet Organize daily inspection manual (including self-made) Demonstration training for daily inspection Preparation of periodic inspection plan (including check sheet) Demonstration training for periodic inspections 	Equipment install for only 1 hospital	【Gaza Strip】 End users and engineers in maintenance dep. from the hospital	Approx . 10
39	Mon				
40	Tue				
41	Wed				
42	Thu				
43	Fri	Document works			
44	Sat	Document works			
45	Sun	<ul style="list-style-type: none"> Drafting equipment maintenance plan Establishing a system for reporting to the hospital director using an equipment inventory list and equipment maintenance plan -Report and discussion about schedule for next training (questionnaire, Q & A, etc.) 	All target equipment	【Gaza MoH】 Hospital Director (Deputy director), Director of dep., End users, Engineers in maintenance dep., etc.	Approx . 10
46	Mon				
47	Tue				
48	Wed			<ul style="list-style-type: none"> Summary 	
49	Thu				
50	Fri	Move			
51	Sat	Move			

* 3: Not the same participants all day, but participants will vary depending on the equipment type and field. The number of people listed is the average number of candidates. However, engineers in maintenance department of the target hospital should participate all day, and the maintenance department will grasp the whole so that there is no difference in the work of each training. The target equipment for each day will be shown to the hospital in advance and participants will be listed by the hospital and MoH.

5-3 Interim works in Japan

- Summarize the result of first trainings (1 day).
- Prepare for the second training (2 days).

Before the second technical training, the consultant confirm the situation of equipment usage and

made manual usage, comments from end users and engineers in maintenance department, and prepare and arrange the training materials.

5-4 Second training in Palestine

In the second on-site guidance, the consultant will confirm the maintenance management status of the equipment actually performed by the hospital staff based on the first training. If inappropriate points are found in their skills of daily inspection and periodic inspection, refresh technical training will be implemented. The end users and engineers in the maintenance department will discuss problems and unclear points that they felt using the checklist, and make necessary corrections. In addition, the candidates will summaries data based on the inspection record book and reports, check the equipment maintenance management plan and implement refresh training if necessary.

The second training will aim to instill inspection technique, maintenance technique, and how to draft equipment maintenance management plan into the medical staffs. Since the first training has already been conducted for all staff, the second time direct instruction by the consultant will be kept in the minimum and encourages the medical staffs to reconfirm maintenance methods while teaching each other within hospital staffs. The consultant will make supplementary explain on actual skills and correct knowledge / inspection techniques as needed, and reconfirm the importance of technology transfer between hospital staffs and revise the inspection check sheets and manuals if necessary.

The consultant will report the completion of this soft component to both MoH in the West Bank and Gaza strip.

No		Contents of training	Target equipment	Target hospital/ Target department	No. of candidates
1	Fri	Move from Tokyo →Hong Kong			
2	Sat	Move from Hong Kong →Tokyo			
3	Sun	<ul style="list-style-type: none"> ▪ About schedule and contents of soft component ▪ Discussion on revision of maintenance inspection plan 	All target equipment	【Rafidia Hospital】 Hospital Director (Deputy director), Director of dep., End users, Engineers in maintenance dep., etc.	Approx. 15
4	Mon	<ul style="list-style-type: none"> ▪ Consultation on revision of daily inspection check sheet and manual 	All target equipment	【Rafidia Hospital】 End users, Engineers in maintenance dep.	Approx. 10
5	Tue	<ul style="list-style-type: none"> ▪ Technical confirmation and re-instruction for daily inspection 			
6	Wed	<ul style="list-style-type: none"> ▪ Discussion on revision of daily inspection record book 			
7	Thu	<ul style="list-style-type: none"> ▪ Discussion on revision of periodic inspection plan (including check sheet) ▪ Discussion on revision of periodic inspection report ▪ Technical confirmation and re-instruction for periodic inspection ▪ Discussion on revision of equipment inventory list 			
8	Fri	Document works			

No		Contents of training	Target equipment	Target hospital/ Target department	No. of candidates
9	Sat	Document works			
10	Sun	<ul style="list-style-type: none"> ▪ Discussion on revision of equipment maintenance plan ▪ Revision of reporting system to hospital director using equipment inventory list and equipment maintenance plan ▪ General discussion (Q & A, etc.) 	All target equipment	【Rafidia Hospital】 Hospital Director (Deputy director), Director of dep., End users, Engineers in maintenance dep., etc.	Approx. 10
11	Mon				
12	Tue				
13	Wed	<ul style="list-style-type: none"> ▪ About schedule and contents of soft component ▪ Discussion on revision of maintenance inspection plan 	All target equipment	【Gaza MoH】 Hospital Director (Deputy director), Director of dep., End users, Engineers in maintenance dep., etc.	Approx. 15
14	Thu				
15	Fri	Document works			
16	Sat	Document works			
17	Sun	<ul style="list-style-type: none"> ▪ Consultation on revision of daily inspection check sheet and manual ▪ Technical confirmation and re-instruction for daily inspection ▪ Discussion on revision of daily inspection record book ▪ Discussion on revision of periodic inspection plan (including check sheet) ▪ Discussion on revision of periodic inspection report ▪ Technical confirmation and re-instruction for periodic inspection ▪ Discussion on revision of equipment inventory list 	All target equipment	【Gaza Strip】 End users and engineers in maintenance dep. from 3 hospitals	Approx. 10
18	Mon				
19	Tue				
20	Wed				
21	Thu				
22	Fri	Document works			
23	Sat	Document works			
24	Sun	<ul style="list-style-type: none"> ▪ Consultation on revision of daily inspection check sheet and manual ▪ Technical confirmation and re-instruction for daily inspection ▪ Discussion on revision of daily inspection record book ▪ Discussion on revision of periodic inspection plan (including check sheet) ▪ Discussion on revision of periodic inspection report ▪ Technical confirmation and re-instruction for periodic inspection ▪ Discussion on revision of equipment inventory list 	All target equipment	【Gaza Strip】 End users and engineers in maintenance dep. from the hospital	Approx. 10
25	Mon				
26	Tue				
27	Wed	<ul style="list-style-type: none"> ▪ Discussion on revision of equipment maintenance plan 		【Gaza MoH】 Hospital Director (Deputy director), Director of dep., End users, Engineers in maintenance dep., etc.	
28	Thu				
29	Fri	Document works			
30	Sat	Document works			
31	Sun	<ul style="list-style-type: none"> ▪ Discussion on revision of equipment maintenance plan 	All target	【Gaza MoH】	Approx. 10

No		Contents of training	Target equipment	Target hospital/ Target department	No. of candidates
32	Mon	<ul style="list-style-type: none"> ▪ Revision of reporting system to hospital director using equipment inventory list and equipment maintenance plan ▪ General discussion (Q & A, etc.) ▪ Report of the result of soft component 	equipment	Hospital Director (Deputy director), Director of dep., End users, Engineers in maintenance dep., etc.	
33	Tue	<ul style="list-style-type: none"> ▪ Report of the result of soft component 			
34	Wed	Move from Tel-Aviv → Hong Kong			
35	Thu	Move from Hong Kong →Tokyo			

The period of dispatch for each training session is as bellow.

- 1) Consultant for operation and maintenance technique: Japanese expert, 1 person
 - First training in Palestine: A total 1.70MM (Travel x 4days, Trainings x 46days, Report and discussion on schedule x 1 day)
 - Second training in Palestine: A total 1.17MM (Travel x 4days, Trainings x 30days, Report and summary 1day)

- 2) Local consultant : Palestinian, 2 persons (1 person each in West bank and Gaza strip)
 - West bank First training 0.53MM (A total of 16days)
 - Second training 0.27MM (A total of 8days)
 - Gaza strip First training 0.63MM (A total of 19days)
 - Second training 0.47MM (A total of 14days)

*Translator works is divided from the interpreter works

- 3) Consultant for security control : Japanese , 1 person
 - Works in Palestine: A total 0.33MM (Travel x 4days, Trainings x 6days,)

(3) Safety Control

For safety management in the Gaza Strip, each person engaged in work in the Gaza Strip shall follow the code of conduct for safety measures of JICA. The code of conduct shall be applied to the Consultants and Suppliers, and the following safety measures shall be taken within the Gaza Strip.

<<< Safety Measures in the Gaza Strip >>>

1. Working Hour: 9:00am – 3:00pm (curfew: 5:00pm – 8:00am)
2. Working Day: Sunday – 12:00pm, Thursday (prohibition of stay: Friday and Saturday)
3. Accommodation: Hotel, designated by JICA
4. Transportation: Bulletproof car (arranged with UNDP via JICA)
5. Code of travelling: More than one person
6. Communication: Mobile phone and iridium satellite-telephone

In addition, a consultant for safety control will be dispatched and the consultant will check and training the safety control during the trainings.

5-5 Post works in Japan

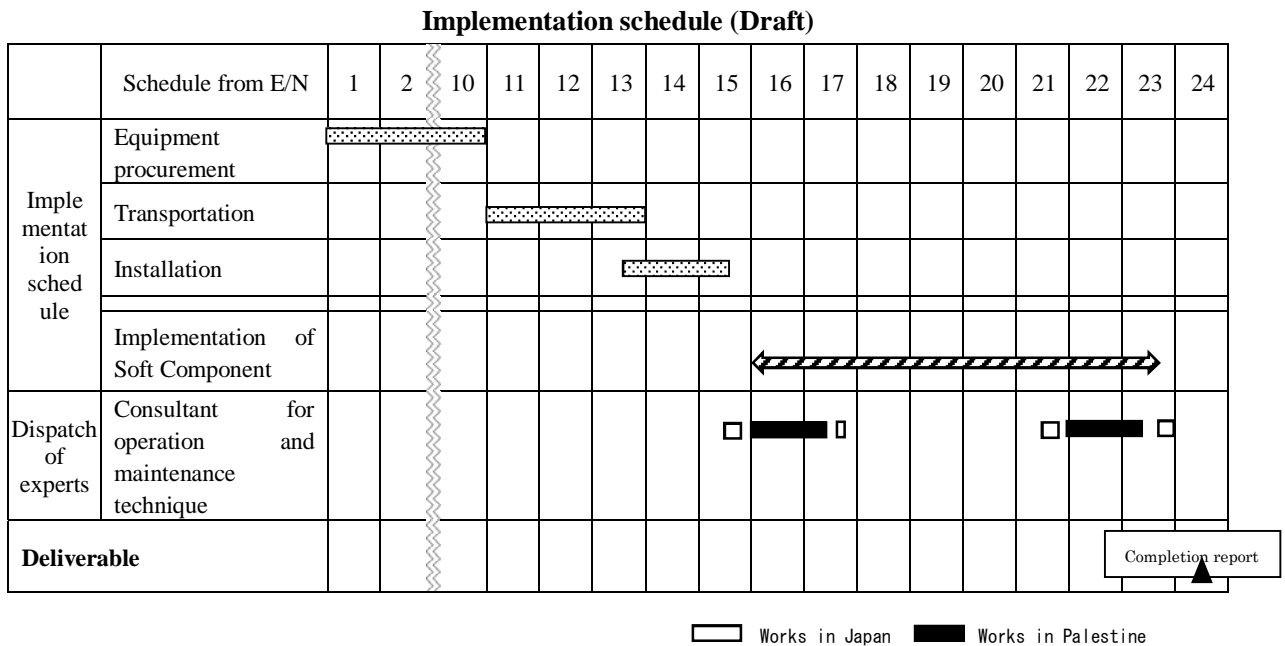
The consultant summarize the result of trainings and make the final soft component report. (3days)

6. Method for Procuring Resources for the Implementation of Soft Component

This soft component will be implemented by a consultant who has specialized knowledge of the installed equipment in general and can provide training on the maintenance and management of equipment. In Palestine, it is difficult to hire a local engineer who is familiar with the operation and maintenance of equipment.

7. Implementing Schedule of Soft Component

The implementation schedule (draft) at the present is as follows. For implementation, the final implementation schedule will be finalized based on discussions between MoH / hospitals and the consultant.



8. Deliverable of Soft Component

Other than the completion report the client and Japanese side, the following documents will be the deliverables of the soft component.

- ① Work flow chart
- ② Maintenance inspection plan
- ③ Daily inspection check sheet

- ④ Periodic inspection check sheet
- ⑤ Daily inspection record book
- ⑥ Periodic inspection report
- ⑦ Equipment inventory list
- ⑧ Equipment maintenance plan
- ⑨ Soft component completion report

9. Responsibility of Implementing Agencies of Recipient Country

This soft component will be implemented to improve the operation and maintenance system and ensure safety and sustainability of equipment which will be installed to the targeted 4 hospitals. For this reason, each training will use a method that encourages voluntary activities by MoH and the target hospitals.

Prior to the implementation of the soft component, the MoH and each hospital selected the candidates while actively coordinating with the Japanese consultant and local consultant. Each department is responsible for staffs to participate in trainings.

Additionally, in order to establish and become routine works which are trained in this soft component, it is preferable that the hospital directors and deputy directors oversee the works of maintenance department as well as demonstrate leadership that the maintenance works are very important works in hospital management. In addition, it is important for the head of each department to ensure and supervise the daily and periodic inspection works in order to provide the safety medical services continuously to patients.

The equipment targeted by this soft component is limited to the equipment provided in this project, but the techniques and methods acquired here are sufficiently applicable to other equipment and clinical departments. If inspection works are introduced in all other departments and the maintenance and management system for equipment is improved, it is possible to improve the medical services in the area centered on the four target hospitals. Using this soft component as a model case, the leadership of the hospital director and deputy director is expected to spread the systems and techniques throughout the hospital.

In addition, securing a budget for purchasing consumables and spare parts is an important factor for the continuous operation of the equipment. It is also important for each hospital director and MoH to know the operating status of equipment, the inventory status of consumables and spare parts, and to secure a budget based on the budget plan for the next year.