

Ministry of Tourism and Antiquities
Palestinian Authority

**PREPARATORY SURVEY REPORT
ON
THE PROJECT FOR THE CONSTRUCTION
OF THE PROTECTIVE SHELTER AND
THE PRESENTATION OF THE GREAT BATH
AT HISHAM'S PALACE, JERICHO**

MARCH 2016

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

MATSUDA CONSULTANTS INTERNATIONAL CO., LTD.

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Preface

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

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

I hope that this report will contribute to the promotion of the Project and to the enhancement of friendly relations between PA and the Government of Japan

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

March, 2016

Akira Nakamura
Director General
Infrastructure and Peacebuilding Department
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Summary

1. Outline of the Country

Palestinian territories are in the West Bank along the Hashemite Kingdom of Jordan and the Gaza Strip facing the Mediterranean Seas and have an area of 6,220 square kilometers¹. The Palestinian population is estimated to be 27.9 million for the West Bank and 17.6 million for the Gaza Strip in 2014².

Hisham's Palace (or Qasr Hisham, Khirbet al-Mafjar) is located 3km north of the town of Jericho in the West Bank. Jericho is located 260 meters below sea level in the Jordan Valley into the Dead Sea and has a Mediterranean climate with the dry season in May through October and the rainy season in November through April. Although the annual precipitation is 176mm³, the maximum average monthly rainfall is 137 mm and violent showers cause heavy storm water. Jericho has hot summers and warm winters and is famous as a winter resort. The mean monthly temperatures during January (coldest month) and July (hottest month) are around 13.1°C and 30.9°C respectively.

Agriculture, forestry and fishing sector account for 4.1%, mining, manufacturing, electricity and water sector for 20.2%, and other service industries for 63.4% in the Palestinian nominal GDP in 2013⁴. The nominal GDP per capita is estimated as 2,973 US dollars in 2014⁵.

Under National Development Plan (hereinafter referred to as “NDP”) 2011-13, real GDP growth was expected to reach 12.0% by the end of 2013 from 9.3% in 2010. However, actual GDP growth declined to 1.5% in 2013 compared to 12.3% in 2010. Considering this fact, GDP growth is projected to decrease to 1% in 2016 without tailwinds of economic growth and investments in NDP 2014-16. Therefore, the following objectives are designed in NDP 2014-16: “Investments creating employment opportunities have increased”, “An enabling environment for balanced economic growth and development is in place”, “National productive capacity and the competitiveness of Palestinian businesses has improved” and “Entrepreneurial and innovative initiatives among the youth and women in the economy sector have expanded, both quantitatively and qualitatively”. In consideration of the high rate of young people contemplating emigration due to poverty and unemployment and lack of workforce of women, NDP 2014-16 aims to provide decent employment opportunities to citizens and enhance their productivity by establishing more robust foundations for continuous national economy. To achieve those objectives, NDP 2014-16 aims to develop the potential possibilities of the region that can expect

¹ The World Fact Book, CIA, <https://www.cia.gov/library/publications/the-world-factbook/geos/we.html>

² Palestinian Central Bureau of Statistics, http://www.pcbs.gov.ps/Portals/_Rainbow/Documents/gover_e.htm

³ Jericho Meteorological Station, 1969-2014

⁴ PCBS, http://www.pcbs.gov.ps/Portals/_Rainbow/Documents/e-naconcur-1997-2014.htm

⁵ PCBS, http://www.pcbs.gov.ps/Portals/_Rainbow/Documents/e-napcapitacurr-1994-2014.htm

economic growth, as the target area is East Jerusalem and Area C⁶ which comprises 61% of the West Bank area.

2. Background and Outline of the Requested Assistance

Although Palestinian territories have a lot of cultural heritage sites with potential value as tourism resources, they cannot utilize those resources for tourism development due to lack of funds and human resources. Thus Palestinian Authority (hereinafter referred to as “PA”) has set tourism development and preservation and renewal of cultural heritages as priority issues in the NDP 2014-2016.

Hisham’s Palace in Jericho is one of the important early Islamic archaeological sites of the Umayyad period and a famous destination for domestic and overseas tourists. Although the Great Bath in Hisham’s Palace has a spectacular mosaic floor of 825 m² which is the biggest in the Middle East, visitors cannot see the mosaics except the Diwan due to the protection of sand and felt sheets.

Incidents where some visitors uncovered the protective sand covering to see the mosaic on the floor without permission have been reported recently as the number of the visitors to Hisham’s Palace increases. Construction of an appropriate protective shelter is an urgent issue in order to protect the mosaics with historical value from degradation and damage. It is also required to attract more visitors and enhance the worth of Hisham’s Palace by construction of an exhibition facility for the mosaics.

Ministry of Tourism and Antiquities(hereinafter referred to as “MOTA”) has developed “The Project for the Construction of the Protective Shelter and the Presentation of the Great Bath at Hisham's Palace, Jericho (hereinafter referred to as “the Project”)”. Italian cooperation, USAID and UNESCO have developed projects for a protective shelter, however they did not succeed in their projects. Under this situation, PA requested the Government of Japan (hereinafter referred to as “GoJ”) for provision of Grant Aid to construct the protective shelter to achieve the Project.

3. Summary of the Study Results and Contents of the Project

In response to this request, the Japan International Cooperation Agency (hereinafter referred to as “JICA”) dispatched a survey team from July 26 to August 21, 2015 to conduct the first field survey. MOTA and JICA reached basic consensus on the components of the request, the Project purpose and the methodology of the outline design development in the first field survey. And they discussed the requirements for the design, the visitor route, the concept of the shelter design and its impact on the surrounding scenery through two Advisory Committee Meetings (hereinafter referred to as “ACM”). JICA dispatched a survey team from September 12 to 22 for

⁶ the district that Israel holds substantially executive powers and the police authority

the second field survey after the discussion with Japanese experts and the study of the design in Japan. MOTA and JICA built a consensus of the shelter and the visitor walkway design through the third ACM and a workshop within MOTA in the second field survey. Based on this consensus, JICA developed the outline design and the cost estimation and organized a draft report. JICA conducted the third field survey for final discussion for the outline design of the Project from November 29 to December 10. This final report was organized based on the result of the field surveys. The contents of the Project are described as follows.

(1) Project purpose

The Project aims to achieve both protection and exhibition of cultural heritage with historical value and contribute to increase in the number of visitors and tourism promotion in Jericho by the construction of the protection and exhibition facility of the mosaics of the Great Bath in Hisham's Palace.

(2) Components and Scale of the Requested Japanese Assistance

The components and the scale of the Japanese Assistance are specified as follows to achieve the Project purpose mentioned on the preceding item.

- The protective shelter: The scale of the shelter is set to cover the hall and some northern bathrooms. The shelter is formed in “Cut-off dome” which is cuts away on the four sides with vertical faces and clad with metal roofing sheet, louvers and steel mesh to block direct sunlight, rain, birds, and other harmful factors to mosaics.
- The visitor walkway: The walkway makes visitors appreciate the floor mosaics from the surrounding wall as principle and has a high-level walkway on the pillars and a circular walkway around Diwan. The walkway is designed to make visitors move up and down with ramps and have glass balustrades and wooden and steel grating floors.
- Reinforcement of pillars: Sixteen existing pillars will be reinforced with re-bars in the center of each pillar and the re-bars will be connected to the ground to prevent collapse due to earthquake.
- Soft component (small-scale technical assistance): Assistance for environmental monitoring inside and perimeters of the shelter and for daily cleaning and maintenance in the shelter.

(3) Outline of the Facility Plan

Table 1 describes the content and the scale of facility.

Table 1 Outline of Facilities

Block	Stories and structure	Floor area	Remark
Protective shelter	Single story, Steel structure and individual footing	2,443m ²	- Light fixtures, firefighting services and other necessary services - Appreciation walkway and interpretation panel

4. Implementation Schedule and Project Cost Estimation

The period for the detailed design, the cost estimation and development of the tender documents is estimated at six months including exhibition planning, survey of the current situation of the mosaics and other elements, and review of the cost estimation by JICA. The period from the approval of the tender documents to the tender is estimated at three and half months including two months for the estimation by the bidders. The construction period is estimated at eighteen months in consideration of careful operation on a temporary platform, reinforcement work of pillars, unique structure without supports on the remains and preliminary review of imported materials and equipment by the Israeli authorities. The whole implementation period becomes 28 months with the soft component activity planned around the hand-over of the shelter. The Project cost to be borne by PA is estimated at 6 million yen.

5. Project Evaluation

The relevance of the Project is recognized as follows. First, the direct beneficiaries of the Project are staff of MOTTA and officials and business enterprises of tourism and cultural heritage sector in Jericho. As the indirect beneficiaries are residents in Jericho, the Project benefits the Palestinian people widely. Second, the Project aims to achieve both protection and exhibition of cultural heritage with historical value and contribute to increase in the number of visitors and tourism promotion in Jericho by a construction of a protection and exhibition facility of the mosaics of the Great Bath in Hisham's Palace. Because the Project also aims to stabilize people's livelihood through regional economic development, the Project is considered to be urgent. Third, since PA emphasizes tourism as a potential sector to contribute to high economic growth and creation of employment, and set preservation and renewal of cultural heritages to reintegrate Palestinian society under occupation by Israeli in NDP 2014-16, the Project meets these development policies. Last, GoJ set "Peace building through promoting economic & social self-reliance" as the basic aid policy to the Palestinians and has been assisting on three priority issues: a) Stability and betterment of people's livelihood, b) Reinforcement of governmental administrative capacity, and c) Promotion of continuous economic growth. This Project contributes to "c)" and assists the economic growth in Jericho by tourism development and

meets aid policies to the Palestinians.

The outputs of the expected quantitative effects by the Project are listed as follows.

- The floor area of the protected and exhibited mosaics of the Great Bath of Hisham's Palace will increase from the current 30m² in 2014 to targeted 825m² in 2021.
- The annual visitors to Hisham's Palace will increase from the current 40,845 in 2014 to targeted 68,120 in 2021.

And the outputs of the expected qualitative effects by the Project are listed as follows.

- The mosaics of the Great Bath of Hisham's Palace will be exhibited in safe condition from deterioration and damage.
- The satisfaction of visitors to Hisham's Palace will be improved.
- The value of tourism sector in Jericho will be improved.

Since the Project is expected to achieve those effects listed-above and support development in tourism sector and preservation and renewal of cultural heritages mentioned in the national policies of PA, the Project is considered to contribute to the stabilization of the Palestinian socioeconomic situation through economic development. Thus the application of Japanese Grant Aid to the requested assistance is sufficiently relevant and effective.

CONTENTS

Preface

Summary

Contents

Location Map / Perspective

List of Figures & Tables

Abbreviations

Chapter 1	Background of the Project.....	1
1-1	Background and Outline of the Request	1
1-1-1	Natural Conditions	1
1-2	Environmental and Social Conditions.....	8
1-2-1	Environmental and Social Conditions Study	8
1-2-1-1	Project components that have a Possibility of Environmental and Social impacts	8
1-2-1-2	Baseline Socio-environmental Conditions	9
1-2-1-3	Institution and Organization for Environmental and Social Considerations (ESC).....	9
1-2-1-4	Alternative Analysis	10
1-2-1-5	Scoping	12
1-2-1-6	TOR for the ESC Study (an IEE Study).....	12
1-2-1-7	Results of the ESC Study (an IEE Study)	13
1-2-1-8	Impact evaluation	13
1-2-1-9	Environmental Management Plan (Plan of Mitigation Measures)	14
1-2-1-10	Environmental Monitoring Plan.....	14
1-2-1-11	Stakeholder Meetings.....	15
Chapter 2	Contents of the Project.....	18
2-1	Basic Concept of the Project.....	18
2-2	Outline Design of the Japanese Assistance	18
2-2-1	Design Policy	18
2-2-2	Basic Plan.....	23
2-2-3	Outline Design Drawings.....	29
2-2-4	Implementation Plan	36
2-2-4-1	Implementation Policy	36
2-2-4-2	Implementation Conditions	38
2-2-4-3	Scope of Works	41
2-2-4-4	Consultant Supervision	42
2-2-4-5	Quality Control Plan	43
2-2-4-6	Procurement Plan	45
2-2-4-7	Operational Guidance Plan	46

2-2-4-8	Soft Component (Technical Assistance) Plan	46
2-2-4-9	Implementation Schedule.....	46
2-3	Obligations of the Recipient Country	49
2-4	Project Operation Plan	51
2-5	Project Cost Estimation.....	53
2-5-1	Initial Cost Estimation	53
2-5-2	Operation and Maintenance Costs	54
Chapter 3	Project Evaluation	56
3-1	Preconditions.....	56
3-2	Necessary Inputs by Recipient Country	56
3-3	Important Assumptions	57
3-4	Project Evaluation	57
3-4-1	Relevance	57
3-4-2	Effectiveness	58

APPENDICES

1. Member List of the Study Team
2. Study Schedule
3. List of Parties Concerned in the Recipient Country
4. Minutes of Discussions
 - 4-1. Field Survey 1
 - 4-2. Field Survey 2
 - 4-3. Field Survey 3 (Explanation of Draft Report)
5. Soft Component (Technical Assistance) Plan
6. Other Relevant Data
7. Reference
 - 【Natural Condition, Site Condition】**
 - 7-1. Topographical Survey Map
 - 7-2. Geotechnical Survey Report (excerpted)
 - 7-3. Immovable Property Registration
 - 7-4. Policies of Conserving Hisham Palace and its Surrounding (English Translation)
 - 【Environmental and Social Conditions】**
 - 7-5. Scoping Matrix
 - 7-6. TOR for JICA IEE Study
 - 7-7. Result of the IEE Study
 - 7-8. Result of IEE in comparison with Scoping
 - 7-9. Mitigation Measures

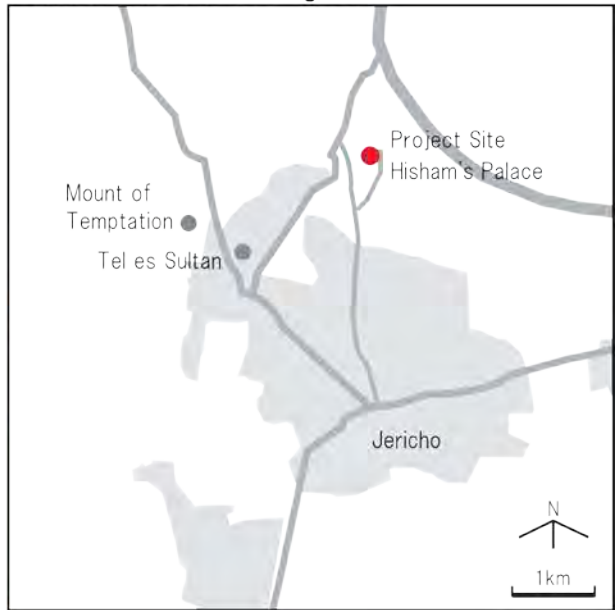
- 7-10. Monitoring Plan
- 7-11. Example of Monitoring Form
- 7-12. Environmental checklist
- 7-13. ACM Minutes of Meetings (ACM1–ACM4)
- 7-14. ACM Handout of Presentation
- 7-15. PC Minutes of Meetings (PC1,2)
- 7-16. Environmental Approval

LOCATION MAP

Map of Middle East



Jericho Central and Surrounding Area



Map of Palestinian Territories



PERSPECTIVE



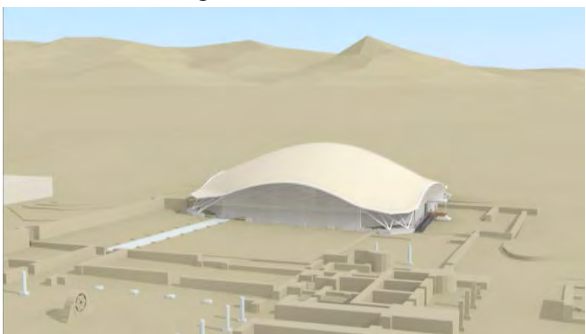
From the south-east



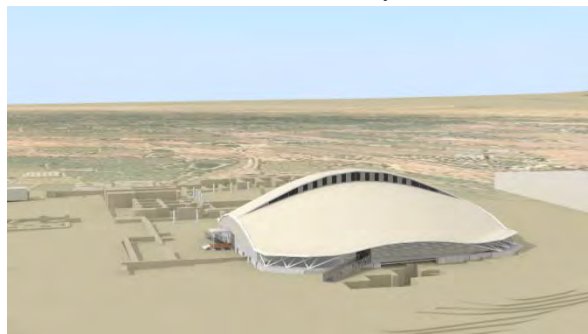
From the gate near the administrative office



From the courtyard of the Palace



Bird's eye view from the south



Bird's eye view from the north



Bird's eye view of interior (without the shelter)



Interior of the shelter

LIST OF FIGURES & TABLES

Table 1-1	Items of Geotechnical Survey	3
Table 1-2	Location of Micro Climate Logging Instruments.....	5
Table 1-3	Average, Maximum, Minimum and Diurnal Range of Temperature.....	6
Table 1-4	Average, Maximum, Minimum, and Diurnal Range of Humidity.....	6
Table 1-5	Results of ACMs	15
Table 1-6	Summary Results of the PCs.....	16
Table 2-1	Registration Category.....	22
Table 2-2	Summary of Firefighting and Safety Control System	27
Table 2-3	Building Material Plan	28
Table 2-4	Work to be Borne by each Government	41
Table 2-5	Supply Sources of Major Construction Materials	45
Table 2-6	Obligations to be Borne by PA.....	49
Table 2-7	Costs to be Borne by the PA.....	53
Table 2-8	Estimation of Facilities Maintenance Cost.....	55
Table 2-9	Estimation of Annual Operation and Maintenance Cost	55
Fig. 1-1	The Site and the Surrounding Area	2
Fig. 1-2	Water Content and Electric Conductivity in the Soil under the Mosaic Floor	4
Fig. 1-3	Monthly Temperature and Rainfall; Monthly Relative Humidity and Wind Speed of Jericho	5
Fig. 1-4	Diurnal Temperatures Range by 10 days.....	5
Fig. 1-5	Diurnal Humidity Range by 10 days	6
Fig. 1-6	Plots of Diurnal Temperature and Humidity Range	7
Fig. 1-7	Seismic Hazard Map	8
Fig. 1-8	Flowchart of Procedures for EIA / IEE	10
Fig. 1-9	Three Images of Shelters in Initial Study	11
Fig. 1-10	Three Images of Shelter Alternatives	12
Fig. 2-1	Reinforcement Section of Pillars.....	25
Fig. 2-2	Project Implementation Structure.....	38
Fig. 2-3	Implementation Schedule (Detailed Design, Tender).....	47
Fig. 2-4	Implementation Schedule (Construction).....	48

ABBREVIATION

ACM	Advisory Committee Meeting
ASTM	American Society for Testing and Materials
BS	British Standard
CG	Computer Graphics
CIF	Cost, Insurance and Freight
COGAT	Coordinator of Government Activities in the Territories Unit
DACH	Department of Antiquities and Cultural Heritage
DGL	Design Ground Level
E/N	Exchange of Notes
EIA	Environmental Impact Assessment
EN	European Norm
EQA	Environment Quality Authority
ESC	Environmental Social Consideration
G/A	Grant Agreement
IBC	International Building Code
IEE	Initial Environmental Examination
JDECO	Jerusalem District Electricity Company
JICA	Japan International Cooperation Agency
JIS	Japanese Industrial Standards
JOD	Jordanian Dinar
M/D	Minutes of Discussion
MOFP	Ministry of Finance and Planning
MOTA	Ministry of Tourism and Antiquities
NFPA	National Fire Protection Association
NIS	New Israel Shekel
ODA	Official Development Assistance
PA	Palestinian Authority
PC	Public Consultation
PCBS	Palestinian Central Statistics Bureau
PTDS	Palestinian Tourism Development Strategy
TOR	Terms of Reference
UBC	Uniform Building Code
UNESCO	United Nations Educational, Scientific and Cultural Organization
USAID	United States Agency for International Development
VAT	Value Added Tax

Chapter 1 Background of the Project

1-1 Background and Outline of the Request

Although Palestinian territories have a lot of cultural heritage sites with potential value as tourism resources, they cannot utilize those resources for tourism development due to lack of funds and human resources. Thus PA has set tourism development and preservation and renewal of cultural heritages as priority issues in the NDP 2014-2016.

The Project target of Hisham's Palace in Jericho (hereinafter referred to as "the Site") is one of the important early Islamic archaeological sites of the Umayyad period and a famous destination for domestic and overseas tourists. Although the Great Bath in Hisham's Palace has spectacular mosaic floor of 825/m², which is the biggest in the Middle East, visitors cannot see the mosaics except the Diwan due to protection by sand and felt sheets.

Incidents where some visitors uncovered the protective sand covering to see the floor mosaics without permission have been reported recently as the number of the visitors to Hisham's Palace increases. Construction of an appropriate protective shelter is an urgent issue in order to protect the mosaics with historical value from degradation and damage. Also, it is required to attract more visitors and enhance the worth of Hisham's Palace by a construction of an exhibition facility for the mosaics.

MOTA has developed "The Project for the Construction of the Protective Shelter and the Presentation of the Great Bath at Hisham's Palace, Jericho (hereinafter referred to as "the Project")". Italian cooperation, USAID and UNESCO even developed projects for a protective shelter, however, they did not realize their plans. Under the situation, PA requested GoJ of the Grant Aid for the construction of the protective shelter to achieve the Project.

1-1-1 Natural Conditions

(1) The Site and Surrounding Environment

Hisham's Palace is located on the northern bank of the Nueima Wadi (dried riverbed), about 3 kilometers north from the center of Jericho City. Jericho is in the Jordan Valley, and located about 10 kilometers north-west from the Dead Sea and the altitude of the town is 260 meters below sea level. It is less than one hour from Jerusalem and Ramallah by car taking the well-maintained highway.



Fig. 1-1 The Site and the Surrounding Area

The Site consists of the Great Bath, which is the target of the Project, the Palace, the Pavilion, the Mosque, the Northern Agricultural Estate, and the recently built facilities such as the administrative office, the museum, the toilets and the mosaic center. An underground investigation by the University of Chicago and MOTA indicates that undiscovered remains exist under the current ground surface.

The main gate is located in the southern side of the Site facing parking lots and roads toward the town. There are unpaved roads on the eastern and the western side of the Site. The surrounding area is basically used for agricultural land and there are no large buildings except a hotel located on the southeast 300 meters from the Site. Low mountains forming the Jordan Valley can be seen on the far west and north of the Site, agricultural lands and rock desert are spread down to the Jordan River on the east of the Site, and the east bank of Jordan Valley can be seen beyond the river.

(2) Topographical Conditions of the Site

The Site is located at $31^{\circ} 52' 53.7''$ North, $35^{\circ} 27' 38.2''$ East in the southeastern corner of the Site and has trapezoid-shaped grounds measuring 130 meters on east-west axis and 300 meters on north-south axis. The surface of the ground slopes gently from north-west to south-east for about 5 meters high and has a wadi (intermittent stream) passing across the Site from the west to east. The area of the premises identified by the topographical survey and the municipality of Jericho is 3.60 hectares.

The topographical survey was conducted on 4.2 hectare area including the Site and the

surrounding areas such as the parking and the roads. As for the Great Bath, measurement of existing walls and pillars in the remains was conducted so as to clarify the relation between the remains and the ground. (Refer to appendix 7-1)

(3) Geotechnical Conditions of the Site

A geotechnical survey in the Site was conducted by UNESCO in July 2011 to confirm the feasibility of the plan to build a shelter. The composition of the foundations of the existing pillars, the soil characteristics, the allowable load of the soil, the mechanical properties of the pillars have been investigated to confirm the feasibility of the shelter load on the pillars. This time, the items listed in Table 1-1 were investigated based on review of the previous survey after a walk-through confirmation of the Site.

Table 1-1 Items of Geotechnical Survey

Items	Specifications	Quantity	Purpose
Standard Penetration Test (SPT)	ASTM D1586 or BS EN ISO 22476 (BS1377) SPT every 1 m	2 sets of test and 40mat the deepest	To determine engineering property of the ground
Plate Load Bearing Test (PLT)	ASTM D1194 or BS EN ISO 22476 (BS1377)	2 sets	To determine the soil bearing capacity
Triaxial compression test on undisturbed samples		2 sets, 0.5-1.0m depth	To check the estimated soil bearing capacity
Water contents and chloride (electric conductivity) in the soil	water contents and chloride (electric conductivity) for each 20 cm layers	1 set at 2 m depth	To obtain basic data concerning archaeological study
Chloride salt	Existence of Na ⁺ , Ca ⁺ , Mg ⁺ , Cl ⁻ , S ₂ ⁻ ions	1No	Identifying causative substance of salt weathering
Structure and engineering properties of foundations of the pillars	Obtaining samples of the foundation by inclined drilling and laboratory test	3 sets	To check the possibility of pillars for the structure of the shelter To obtain basic data for study of the method of the reinforcement
Soil laboratory tests	Grain size distribution, water contents, specific gravity, atterberg limits	-	To obtain the mechanical properties and characters of the soil.

The results of the SPT, the PLT and the soil laboratory tests indicate that water content of the soil is 0.3-11%, specific gravity is 2.63-2.67, and the soil characteristics are described as “sandy lean clay to gravelly lean clay with sand” (Refer to appendix 7-2). The surveyor recommended applying 200kN/m² to the design bearing capacity of the ground.

The results of the test samples from the foundation of the pillars indicate that their compressive strength is 4.2-8.2Mpa (420-820kN/m²) and it is strong enough compared with the soil.

In order to identify the reason of the salt weathering observed at the remains, the water content and the amount of chloride (by electric conductivity) of the soil samples under the mosaic floor by depth were measured as shown in Fig. 1-2. The water content near the surface of the floor is 3.4%, which is relatively dry, and water content

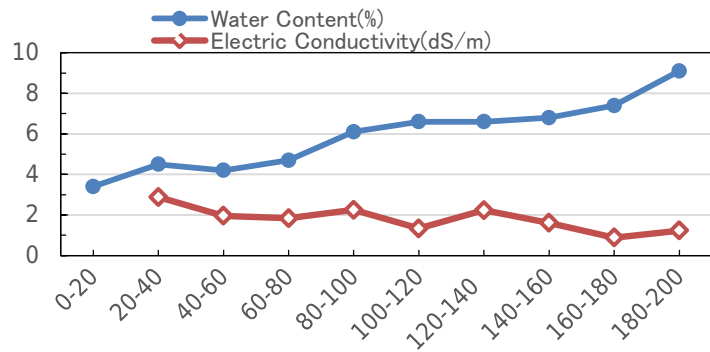


Fig. 1-2 Water Content and Electric Conductivity in the Soil under the Mosaic Floor

gets higher as depth increases (up to 9% at depth of 2 meters). The result of measurement of samples around the remains also indicates that dry soil is near the ground surface and water content is 8% at depth of 2 meters. There is no water table down to 10 meters in summer when the survey was conducted, and that indicates little effect on the remains.

The electric conductivity of soil at 20 to 40 centimeters near the surface is relatively high, where salts are likely to be concentrated because of repeat of condensation of water at night and evaporation in daytime. The result of ion chromatograph analysis indicates Na^+ , Ca^+ , Mg^+ as positive ion and Cl^- , S^{2-} as negative ion in soil.

(4) Weather Conditions

Jericho City is classified in the Mediterranean climate (CSa) of the Köppen Climatic Classification, and is characterized by the dry summer from May to October and the rainy winter from November to April. It often exceeds 40 degree Celsius ($^{\circ}\text{C}$) in summer while it is internationally known as a winter resort with mild climate in winter. Although mean annual precipitation is low at 176 mm⁷, the maximum monthly rainfall of 137 mm in January is recorded, which indicates that there are violent showers. The mean monthly temperatures during January (coldest month) and July (hottest month) are around 13.1 $^{\circ}\text{C}$ and 30.9 $^{\circ}\text{C}$ respectively. The mean monthly maximum temperature is 39.5 $^{\circ}\text{C}$ and the mean monthly minimum temperature is 8.8 $^{\circ}\text{C}$, while the difference between mean monthly maximum and minimum temperature (diurnal temperature range) varies from 11.2 to 15.4 $^{\circ}\text{C}$.

South to south-west wind in the morning and north-west to north wind in the afternoon respectively prevail throughout the year, and there are no records of storm and tornado. The recorded maximum wind speed in the past 50 years was 39 knot (20 m/s), which was recorded three times, namely in January and April 1979 and in December 1988.

Sandstorms are observed in the spring. The wind speed of the sandstorm is not a major issue but invasion and sedimentation of sand into the shelter should be noted for the prevention.

⁷ Data from 1964 to 2014 by Jericho Meteorological Station, which other information on this paragraph is based on.

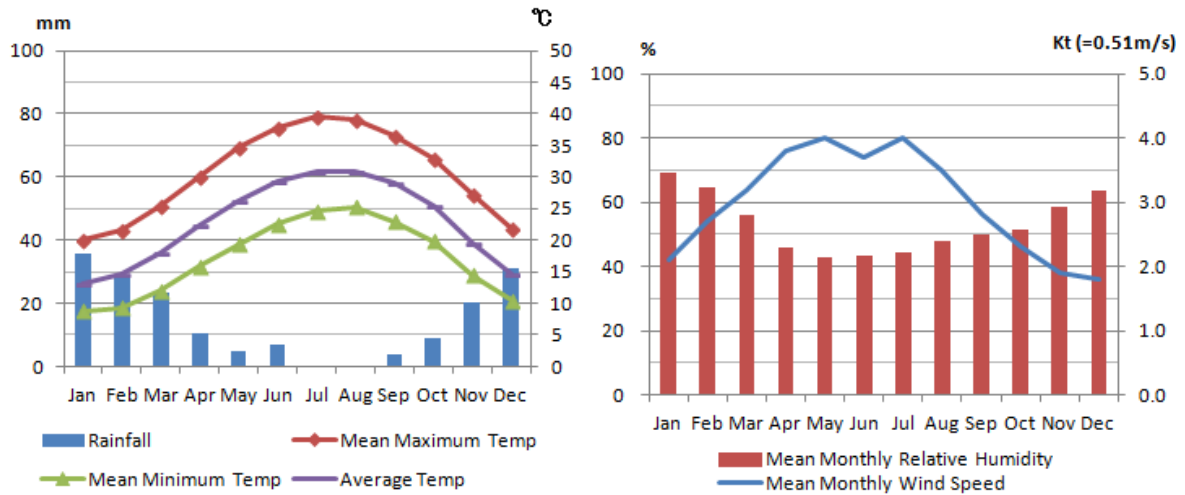


Fig. 1-3 Monthly Temperature and Rainfall; Monthly Relative Humidity and Wind Speed of Jericho

(5) Micro Climate

In order to obtain basic information about the environment of the mosaics, micro climate data such as temperature, humidity and luminance were observed with data logging instruments set as described in Table 1-2. The data from July to December during the survey is organized in Table 1-3, Table 1-4, Fig. 1-4, Fig. 1-5 and Fig. 1-6.

Table 1-2 Location of Micro Climate Logging Instruments

Location	Measurement items (Code of the instrument)	Remarks
Outside (near the administrative office)	temperature, humidity, luminance (P)	Outside of the building near the pergola (in shade)
Diwan	Temperature, humidity, luminance (D1) Temperature, humidity (D2)	Inside of existing shelter, on the surface of the floor (D1) and on the upper place (D2)
Sirdab	Temperature, humidity (S)	Inside of the underground room at the remain of the Palace

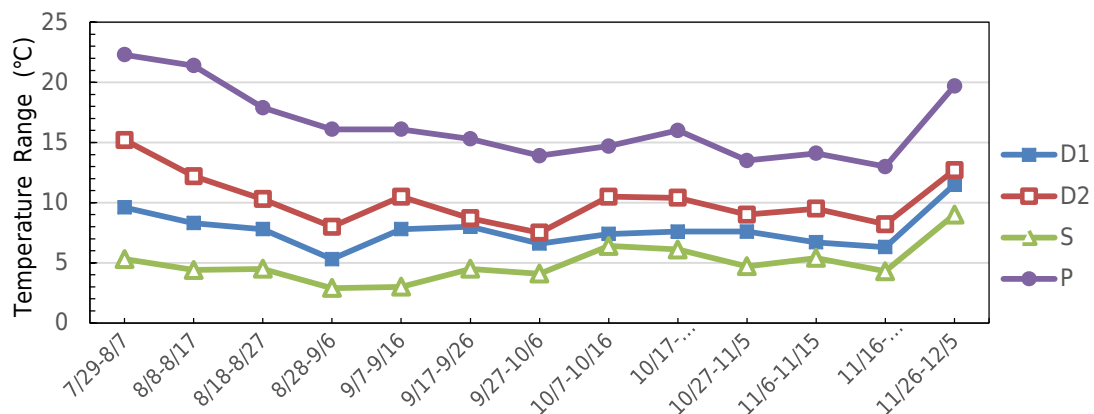


Fig. 1-4 Diurnal Temperatures Range by 10 days

Table 1-3 Average, Maximum, Minimum and Diurnal Range of Temperature

(°C)

Duration	7/29-8/7	8/8-8/17	8/18-8/27	8/28-9/6	9/7-9/16	9/17-9/26	9/27-10/6	10/7-10/16	10/17-10/26	10/27-11/5	11/6-11/15	11/16-11/25	11/26-12/5
Outside (Pergola) / P													
Average	36.0	35.2	33.9	33.0	35.0	32.3	30.8	29.3	27.7	24.2	22.1	22.0	19.4
Maximum	49.4	48.7	44.8	41.7	43.7	40.4	38.1	38.1	36.3	31.8	29.7	28.5	28.6
Minimum	27.1	27.3	26.9	26.8	27.6	25.1	24.2	23.4	20.3	18.3	15.6	15.5	8.9
Range	22.3	21.4	17.9	16.1	16.1	15.3	13.9	14.7	16.0	13.5	14.1	13.0	19.7
Diwan on the floor/ D1													
Average	34.5	34.2	33.6	32.9	34.5	32.4	31.0	29.8	28.5	25.0	23.2	22.9	20.7
Maximum	39.9	39.0	38.5	35.7	38.8	35.9	34.4	34.0	31.7	29.5	26.2	25.3	25.2
Minimum	30.3	30.7	30.7	30.4	31.0	27.9	27.8	26.6	24.1	21.9	19.5	19.0	13.7
Range	9.6	8.3	7.8	5.3	7.8	8.0	6.6	7.4	7.6	7.6	6.7	6.3	11.5
Diwan on the upper place (1.5 m above the floor) / D2													
Average	35.3	35.0	33.9	33.3	35.1	32.7	31.2	29.9	28.5	24.9	22.9	22.6	20.0
Maximum	44.8	42.6	40.7	38.0	41.3	36.9	35.4	36.0	33.5	30.0	27.8	26.6	25.4
Minimum	29.6	30.4	30.4	30.0	30.8	28.2	27.9	25.5	23.1	21.0	18.3	18.4	12.7
Range	15.2	12.2	10.3	8.0	10.5	8.7	7.5	10.5	10.4	9.0	9.5	8.2	12.7
Sirdab / S													
Average	33.7	33.6	33.6	32.8	33.7	32.2	31.3	29.9	28.9	25.4	23.4	22.9	21.2
Maximum	35.7	35.7	35.8	34.1	34.6	33.7	32.9	31.4	31.1	27.3	25.5	25.1	23.9
Minimum	30.4	31.3	31.3	31.2	31.6	29.2	28.8	27.7	25.0	22.6	20.1	19.8	14.9
Range	5.3	4.4	4.5	2.9	3.0	4.5	4.1	6.4	6.1	4.7	5.4	4.3	9.0

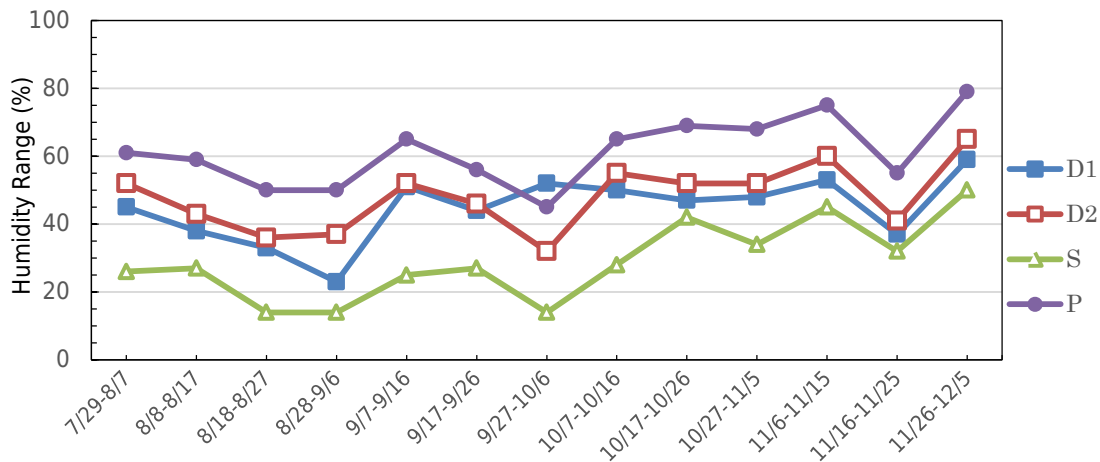


Fig. 1-5 Diurnal Humidity Range by 10 days

Table 1-4 Average, Maximum, Minimum, and Diurnal Range of Humidity

(%)

Duration	7/29-8/7	8/8-8/17	8/18-8/27	8/28-9/6	9/7-9/16	9/17-9/26	9/27-10/6	10/7-10/16	10/17-10/26	10/27-11/5	11/6-11/15	11/16-11/25	11/26-12/5
Outside (Pergola) / P													
Average	38	39	46	45	42	37	51	49	53	58	57	47	54
Maximum	72	69	67	68	73	67	71	82	94	91	94	79	96
Minimum	11	10	17	18	8	11	26	17	25	23	19	24	17
Range	61	59	50	50	65	56	45	65	69	68	75	55	79
Diwan on the floor/ D1													

Average	38	39	44	43	42	35	49	46	50	53	52	44	48
Maximum	60	56	58	57	61	57	86	72	74	74	77	62	76
Minimum	15	18	25	34	10	13	34	22	27	26	24	25	17
Range	45	38	33	23	51	44	52	50	47	48	53	37	59
Diwan on the upper place (1.5 m above the floor) / D2													
Average	37	39	44	43	40	35	49	46	48	56	53	49	50
Maximum	63	57	58	59	61	59	63	74	77	77	81	67	82
Minimum	11	14	22	22	9	13	31	19	25	25	21	26	17
Range	52	43	36	37	52	46	32	55	52	52	60	41	65
Sirdab / S													
Average	41	42	46	45	46	38	48	47	49	54	52	44	48
Maximum	52	53	52	52	57	52	55	60	70	69	73	59	68
Minimum	26	26	38	38	32	25	41	32	28	35	28	27	18
Range	26	27	14	14	25	27	14	28	42	34	45	32	50

In terms of conservation of the mosaics, it is essential to minimize diurnal temperature and humidity range in the shelter. The diurnal temperature ranges of Diwan and Sirdab are smaller than that of outside as shown on Fig. 1-4. Sirdab, which is below ground and enclosed with thicker wall (or soil) and ceiling, is more stable than Diwan. As for diurnal humidity range, there is the same tendency (Fig. 1-5). Since Diwan and Sirdab are not completely enclosed shelter, their diurnal temperature and humidity range are affected by the outside environment. However, these facts indicate that the shelter is sure to reduce the big temperature and humidity range of outside to an extent (Fig. 1-6).

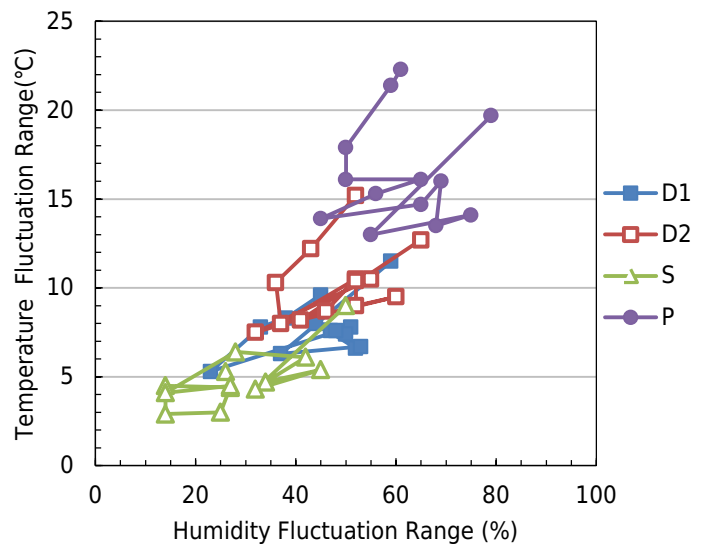


Fig. 1-6 Plots of Diurnal Temperature and Humidity Range

As for luminance, the luminance during the daytime outside (in shade) is 4,000 to 8,000 lux and the luminance inside of Diwan is 300 to 600 lux respectively. These are recommendable values in view of the preservation of mosaics according to the guidelines of the Illuminating Engineering Institute of Japan.

(6) Earthquakes

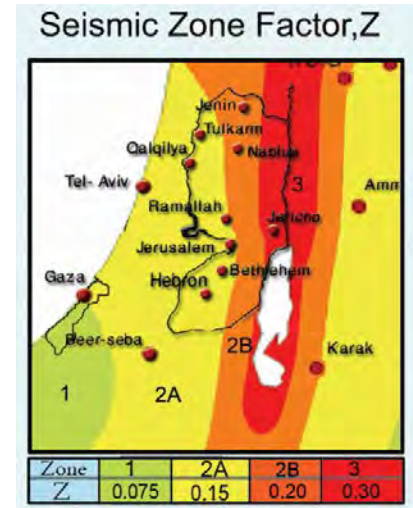
Jericho is located in Jordan Rift Valley where there is risk of earthquake. According to the record of earthquakes by IRIS⁸ around Jericho City, the biggest earthquake in the past century is one in 1926 with magnitude 6.3 and its seismic center was within 20 kilometers from Jericho, and it did

⁸ IRIS: Incorporated Research Institutions for Seismology <http://www.iris.edu/hq/>

not cause serious human suffering or property damage⁹. Generally, earthquakes with magnitude 4 to 5 happen every several years around Jericho City.

According to data from the Earth Sciences and Seismic Engineering Center, An-Najah National University, seven big earthquakes with more than magnitude 6 including the one in 749 which might cause the destruction of Hisham's Palace were recorded in this area. Large earthquakes with over magnitude 6 are likely to happen every 250 years according to these data.

The Center, An-Najah National University has formulated a seismic hazard map for Uniform Building Code and categorized four seismic zones with seismic factors. The area of Jordan Valley including Jericho is indicated as Zone 3 (factor: 0.3). Therefore, the structure of the shelter should be designed based upon this condition.



Source: ESSEC, An-Najah National University

Fig. 1-7 Seismic Hazard Map

1-2 Environmental and Social Conditions

The Project is categorized as B according to the JICA Environmental Guidelines, because the Project is not likely to have significant adverse impact on the environment under the JICA Environmental Guidelines in terms of sectors, characteristics and areas.

1-2-1 Environmental and Social Conditions Study

1-2-1-1 Project components that have a Possibility of Environmental and Social impacts

The components of the Project that might possibly affect the natural and social environment are the two items listed as follows.

- Construction of a protective shelter for the mosaics of the Great Bath in Hisham's Palace and installation of necessary services such as lighting and firefighting,
- Change of the current situation of the floor mosaics to be exposed to the air for visitors

The protective shelter (to be built) and the mosaic floor (existing) are located within Hisham's Palace managed by MOTA. The activities of the Project are the construction of the shelter and its accompanying works for protection of the remains of the Great Bath, such as reinforcement of the pillars. The floor area of the shelter is 2,443m² and its height is +14.5 meters at the center of the mosaic floor.

⁹ In Jerusalem more than 130 people died and around 450 were injured, and about 300 houses collapsed or were severely damaged. In Nablus 300 buildings were destroyed and more than 150 people died, while around 250 were injured. On the other hand, a number of houses collapsed and three tourists were killed in Jericho. <http://zadok.org/research/1927/landslides.html> and other sources

1-2-1-2 Baseline Socio-environmental Conditions

(1) Surrounding Environment around the Site

Refer to 1-2-2 “Natural Conditions”

(2) Climate

Refer to 1-2-2 “Natural Conditions”

(3) Local Economy

Jericho City has several cultural heritage sites and is a destination for tourism and study tours for school students. Especially in winter, tourists visit Jericho from all over the world, enjoying the mild climate.

1-2-1-3 Institution and Organization for Environmental and Social Considerations (ESC)

(1) Competent Authority for ESC and Environmental Impact Assessment (EIA)

Environment Quality Authority (hereinafter referred to as “EQA”) of PA, which is directly under the office of the prime minister, administers the affairs of overall environmental management, environmental and social considerations (hereinafter referred to as “ESC”) and environmental impact assessment (hereinafter referred to as “EIA”). In 1996, Palestinian Environmental Authority was established by a presidential decree. Then, it was incorporated into Ministry of Environmental Affairs (hereinafter referred to as “MEnA”) in 1998, and changed its name to EQA in 2003. While it once returned to MEnA within the Cabinet in 2012, now it is the EQA, directly under the office of the prime minister and within the Cabinet. Although the status in PA has gone through changes, the competent function as administrative authority has been kept continuously on the basis of the environmental laws listed as follows.

(2) Law, Regulations and Guidelines

Environment Law No.7 was enacted in 1999 as the basic law of environment and delegates’ responsibility of EIA to companies and related authorities. The Environmental Assessment Policy (hereinafter referred to as “EA Policy”) formulated in 2000, regulates the institutional scheme and applicable projects for the EIA.

(3) Type of Projects and Activities Requiring EIA or IEE

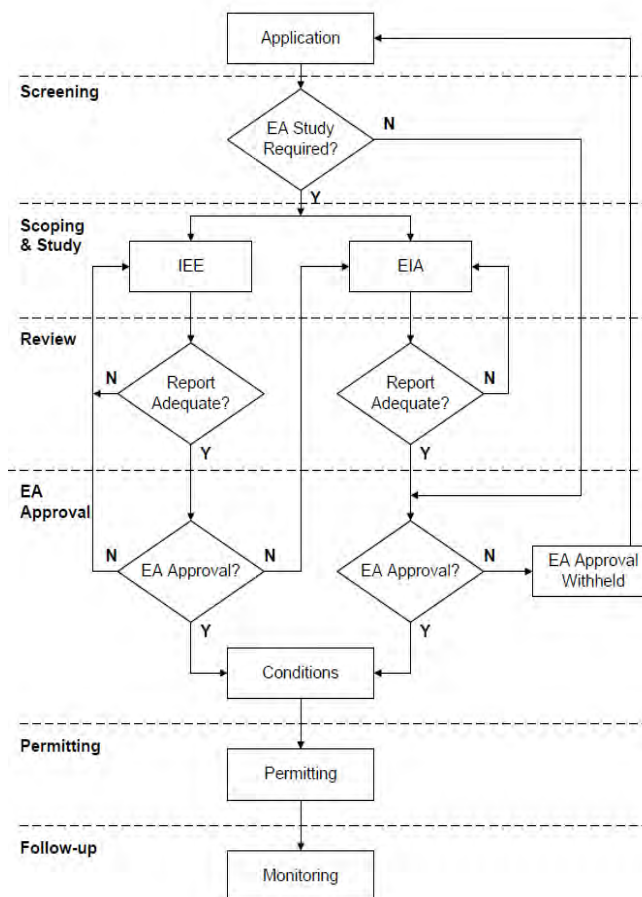
EA Policy lists 14 types of projects for which it is required to implement an EIA, and the Project is not applicable for EIA in the list. Application of Initial Environmental Evaluation (hereinafter referred to as “IEE”) is judged per project by ‘screening’ which is based on a field visit of EQA. If an IEE is required, ‘scoping’ will be conducted and Terms of Reference (hereinafter referred to as “TOR”) for the IEE study will be required by EQA.

(4) Application of EIA / IEE to the Project

EQA deems it necessary to conduct IEE for the Project. The project proponent, MOTA, deems it necessary to conduct the IEE study and the preparation of the IEE report, according to EA Policy.

(5) Procedures from Project application to Environmental Approval

EA Policy prescribes that the period from the scoping to the issuance of TOR is 21 business days at maximum. The flowchart for the procedure is shown in EA Policy (See Fig. 1-8). The environmental approval for the Project was already issued on February 2, 2016 by EQA.



Source: Palestinian Environmental Assessment Policy, EQA (MEEnA at the time), April 2000

Fig. 1-8 Flowchart of Procedures for EIA / IEE

1-2-1-4 Alternative Analysis

(1) Zero Option and Shelter Construction

Two options, “Zero option (without-the-Project option)” and “Construction of a protective shelter”, have been compared to look into the validity of the Project purpose.

- **Zero option (without-the-Project option):** where the floor mosaics will be kept under the covering protective sand, a protective shelter will not be built, and the mosaics will not be exhibited for appreciation.
- **Construction of a protective shelter:** where the mosaics will be exposed and exhibited for appreciation, a protective shelter will be built to protect the mosaics from any damage by solar radiation, rain and wind, sand, change in humidity and temperature, birds and small animals, and plant invasion.

Considering that the conservation of the mosaics is the sole purpose of the Project, the current situation in which the floor mosaics are under the ground is considered to minimize impacts and be best in terms of preservation. However, the public lose opportunities for appreciation and utilization of the mosaics as educational assets and cultural heritage. Considering the current high ratio of school-tour students to the visitors of Hisham’s Palace, to provide opportunity for appreciation of the mosaics in the Project is considered to be significant. This is why the Project has been planned,

in order to conserve the mosaics positively while utilizing them as cultural heritage. MOTA held two types of stakeholders' meetings to discuss these points. One of these was the ACM that MOTA organized to ask advice and opinions of the professional experts in the concerned sectors and the local community, and the other was the Public Consultation (hereinafter referred to as "PC") with Jericho community. In both meetings, participants had questions and opinions on the Project Policy and design, including zero option (without Project assumption). However, they have no objections to the very purpose of the Project.

(2) Alternatives for the Shelter Design

1) Initial study (Field Survey 1: Meetings, workshops, ACM1 and ACM2)

In the initial study, three basic options for the shelter were compared, namely a truss system, a dome system, and a suspended-roof system. As a result of comparison mainly from the viewpoints of weight of steel structures and shape of the shelter, it was decided to take the following approach: 1. Avoid the option of the truss-type shelter; and 2. Study several variations, based on the dome system and the suspended-roof system which are relatively lightweight and require less intervention to the existing remains. From the viewpoints of ESC, the Project impact on the surrounding environment is likely to be small for all three shelter options because the activities are limited within the heritage site and the Project will not discharge or emit pollutants. Considering possible adverse impacts on landscape, the sole concern of the Project, the majority of opinions supported an approach of further study of the shape of the shelter using a dome system so that the shelter will be harmonized with the entire heritage remains and the background view of mountain range.

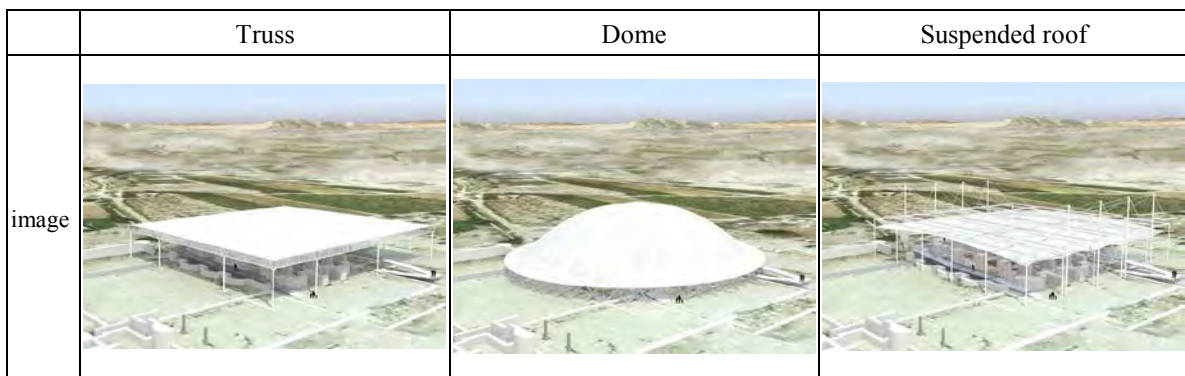


Fig. 1-9 Three Images of Shelters in Initial Study

2) Analysis of alternatives and an optimum (Field Survey 2: Meetings with MOTA, ACM3)

Based on the analysis of the initial study, three elaborated variations, i.e. suspended-roof system, suspended-arch system and cutoff-dome system, were compared with each other. Through a further study, problems which initial options such as visual volume, effective interior space for appreciation and foundation works to intervene remains are mitigated so that the three variations are all acceptable. Among three variations, the cutoff-dome system received the major support that it

would have less landscape impact and harmony with the surrounding area. For these reasons, the cutoff-dome system was selected as optimum for the outline design of the Project.

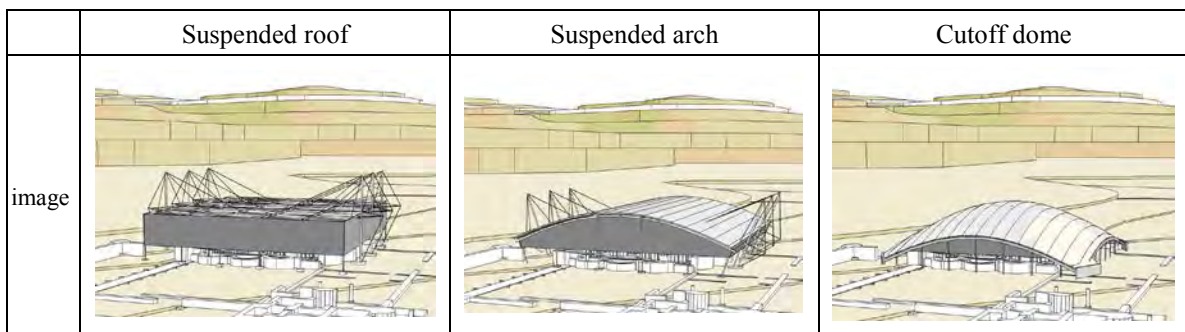


Fig. 1-10 Three Images of Shelter Alternatives

1-2-1-5 Scoping

EQA, MOTA and the JICA study team conducted a field survey at the Site, having observation over the remains of the Great Bath. The party conducted joint scoping and the results of the joint scoping were summarized in a scoping matrix, using the standard format of JICA (See Appendix 7-5: Scoping Matrix).

There will be no impacts on ambient environment except the items of ‘Air Quality’, ‘Wastes’, ‘Soil Contamination’ and ‘Noise and Vibration’ during the construction period, which are considered for small environmental consideration. As for natural environment, the Project does not have any source of impacts.

As for social environment, there will be certain positive impacts on ‘Local economies (employment generation)’ and ‘Local resources (utilization of mosaic worker and masons and of the mosaics as cultural heritage)’. With respect to any impacts on ‘Heritage’, certain impacts of the Project will be inevitable both during the construction and the operation because it will change the current situation of existing remains as cultural heritages. However, it is evaluated that positive effects will be expected by improvement of the current situation of the remains with preventive conservation measures. Regarding working environment and accident prevention measures during the construction, it will be necessary to take considerations on aspect of climatic conditions and the particularity of the construction site, which is in the heritage site.

1-2-1-6 TOR for the ESC Study (an IEE Study)

(1) TOR for the ESC Study

Based on the results of the joint scoping (see the previous section), the JICA study team prepared the TOR for the contents and methods of the ESC Study (See Appendix 7-6: TOR for JICA IEE Study). The TOR corresponds to the IEE level of study since the Project is classified as a Category B project mentioned at the beginning of this section. The items to be studied in the IEE are ones which are evaluated in the scoping as either ‘B-’, negative impacts are expected to some extent, or

‘C-’, extent of negative impacts is unknown, requiring a further examination.

(2) TOR for the IEE Study required by EQA

Based on the results of the joint scoping (see the previous section), EQA issued the TOR for the requirements of the IEE Study. MOTA, as the Project proponent, submitted the IEE report according to the TOR and obtained the environmental approval and the environmental permit for the Project by EQA. The study contents contain the description of baseline conditions, alternative analysis, environmental management, monitoring plans, and summary of stakeholders’ consultation, which are mostly equal to the ESC on this report since both are at IEE level and based on the same joint scoping.

1-2-1-7 Results of the ESC Study (an IEE Study)

The results of the IEE study are summarized in Appendix 7-7: Results of the IEE Study, based on the existing information, data and documents and the studies on other sectors in this JICA Preparatory Survey, namely on natural conditions, structural design of architecture and heritage conservation.

Regarding the items that need considerations during the construction, listed after scoping were the following items: Air Quality, Wastes, Soil Contamination, Noise and Vibration, Heritage, Working environment and Accident. The scale of the Project, which is limited to the construction of a shelter with the floor area of less than 2,443m², is small in comparison to the large scale of general infrastructure development projects. However, it requires special considerations on the ground since the Site is a heritage site. Especially, vibration impacts during the construction require protective measures with particular caution. In regard of landscape impacts, it is important to conduct consultation with Palestinian professional experts and local stakeholders to build consensus, with the majority of opinions in favor of the dome-system shelter. The reason why consultations and discussions should be emphasized is that landscape impacts depend not only on physical transformation, but on the cultural background where the Site stands. In addition, the shelter should be designed in harmony with the entire heritage site and the background landscape.

Since the Project is considered to cause little impact on the ambient environment during the operation of the shelter, mitigation measures are required only for the heritage site. Primary concern is protective measures and maintenance against deterioration of the floor mosaics due to their exposure to the air. Potential impacts of increase in visitors can be managed with the capacity of the existing facilities for the medium term, together with a proper management plan for the toilet facilities and wastes, and monitoring the change of social environment.

1-2-1-8 Impact evaluation

The evaluation results of impacts by the Project, based on the results of IEE study in comparison to the results at scoping, are summarized in Appendix 7-8: Result of IEE in comparison with Scoping. ‘18.Water usage’ is evaluated to be ‘D’, which requires no specific mitigation measures,

since the demand of water for the maintenance of the shelter can be supplied by municipal water system, and then it will not affect the usage of ambient surface water. For other items, the results of evaluation are not changed from that of scoping.

1-2-1-9 Environmental Management Plan (Plan of Mitigation Measures)

In order to avoid or minimize the potential negative impacts, as evaluated in the results of IEE, the key mitigation measures are summarized in Appendix 6 by respective stage: design, during the construction, and the operation stage, to clarify respective implementing agency, responsible agency and undertaking cost required for the measures. Activities for these measures can be conducted as normal management work in the design and the construction stage and does not require extra expense.

Regarding pollution-related items (Air Quality, Wastes, Soil Contamination and Vibration), preparation of a proper work plan and the constant maintenance of construction vehicles and heavy machines are important. As for waste management, although the Project will not generate a large amount of trash and very hazardous wastes, timely and regular management, segregation and removal of construction materials, and preparation and proper implementation of a waste management plan in the operation stage are required considering it is a heritage site.

In respect of social environment, as to impacts on heritage, since the Project will be executed in a heritage site, adequate measures to prevent existing remains and relics from deterioration and damage will be taken at respective stages of the design, the construction, and the operation (For details see Appendix 7-9: Mitigation Measures). Regarding the landscape impacts, the outline design of the shelter should be developed in harmony with the entire heritage site and the background landscape, to be reflected with the views and opinions of local stakeholders and based on the consensus with them. In addition to the above, the safety measures for works in hot season and high places will be taken by adequate site operation in accordance with safety management program.

1-2-1-10 Environmental Monitoring Plan

In order to monitor the implementation of environmental management plan, namely mitigation measures, the necessary monitoring activities both in the construction and the operation stage are summarized in Appendix 7-10: Monitoring Plan, to clarify indicators for respective monitoring, location of monitoring (monitoring point), method and frequency, reference standard or criteria, and implementer, responsible agency and cost for monitoring.

Since the prime purpose of the monitoring for the Project is to prevent deterioration and damage of cultural heritage, during the construction, it will be monitored whether construction vehicles and heavy machines are in well-maintained conditions and in good operation of construction works; during operation, the cultural heritage's conditions will be monitored through daily visual confirmation and measurement of microclimate at the site. In addition, the increase of visitors to

Hisham's Palace should be monitored to reflect into the waste management plan.

Monitoring during the construction should be implemented chiefly by the contractor under supervision by MOTA while monitoring during the operation stage should be implemented by Jericho and Ramallah office of MOTA. Costs for monitoring are contained in general expense of the contractor's budget and MOTA. The monitoring format for report to JICA in the construction and the operation stage is attached as Appendix 7-11: Example of Monitoring Form.

1-2-1-11 Stakeholder Meetings

MOTA held two types of stakeholders' meetings, ACM and PC, with local community, where personnel or parties concerned can discuss and exchange opinions on the Project policy, plan, requirements for design and other necessary considerations.

(1) Advisory Committee Meeting (ACM)

MOTA held the ACMs four times during this preparatory survey for the purpose of seeking advice on the Project policy and requirements from members selected among professional experts or engineers in archaeology, heritage conservation and architecture, environmental authority, local community and UNESCO office. The results of the respective ACMs held are summarized in Table 1-5 and attached Appendix 7-13: ACM Minutes of Meetings.

Table 1-5 Results of ACMs

	First	Second	Third	Fourth
Time	2015/8/3, 8:00- 15:00	2015/8/19, 10:00 - 16:00	2015/9/15, 10:00 - 16:00	2015/12/08, 10:00 - 14:30
Place	Ramallah (in Museum)	Jericho (in Hotel Conference Hall)	Jericho (in Hotel Conference Hall)	Ramallah (in Hotel Conference Room)
Attendee	22 total (3 AC members)	31 total (7 AC members)	23 total (9 AC members)	13 total (5 AC members)
Discussion style	Briefing of the Project outline by MOTA and the consultant, and discussion	Site visit, briefing on the progress of the study by MOTA and the consultant, and discussion	Briefing on progress of the study and PC1 by MOTA and the consultant, and discussion	Briefing on the result of the outline design and PC2 by MOTA and the consultant, and discussion
Issues discussed	Requirements for design Harmony with landscape: - background mountain, - entire heritage site, - small volume.	Technical issue for the outline design (shelter and walkway) Harmony with landscape: - integrity with history and regional context	Options for walkway design Pros and cons with cutoff-dome plan, and its materials	Detail of the outline design of the shelter and the walkway Maintenance and monitoring at the operation
What agreed	- Requirements for design	- Majority supported the cutoff-dome plan, except one expert who disagreed	- Majority supported original walkway design; - Majority agreed the cutoff-dome plan,	- All agreed the design of the shelter with recommendations; further study of lighting, roof shape,

			except two who wanted to examine alternative; and - Majority agreed color roofing sheet.	measures against heat and insect. - All agreed the design of the walkway with recommendation; further study of the entrance, foundation, bottle necks. - Importance of maintenance and its organizational scheme
Feedback issue		Further examine the details of walkway	Restudy cladding for preventing bird intrusion	

(2) Public Consultation with Local Community (PC)

Besides the ACMs, MOTA hosted a series of PCs with the citizens and concerned parties of Jericho, the local community that is home to Hisham’s Palace, aiming at strengthening the Project function in examining the adequacy of the Project plan to form a consensus on. The first PC was for ‘Project recognition and acceptance by local community’ and the second PC was for ‘formation of consensus on draft outline design of the protective shelter and visitor walkway for mosaic appreciation in local community’. The results of PCs are summarized in Table 1-6 and Appendix 7-15: PC Minutes of Meetings. Further, it is expected to set opportunities to share the information of the Project with the local community of Jericho after this preparatory survey.

Table 1-6 Summary Results of the PCs

	First	Second
Time	2015/9/8, 11:00 - 14:00	2015/11/19, 10:00 - 12:30
Place	Interpretation hall of Hisham’s Palace Heritage Park	Child Center, Jericho
Invitee	45 persons of 19 parties in Jericho City: tourism, education, craft work, agriculture, women society, youth club, kids club and sport club	Jericho Municipality (Mayor, administrators and engineers, engineering association, tourist police, Jericho Heritage Tourism Committee, general citizen), Jericho offices of relevant ministries
Participant	17 participants (Locals of Jericho 14, MOTA 2, JICA 1) (Jericho locals included city officials, tourism sector personnel, educational sector personnel, handicraft association, cooperative association and NGO)	35 participants (Locals of Jericho 17, Jericho branch staff of central ministries 6, MOTA 12, JICA 1)
Discussion style	- Explanation for background history of Hisham’s Palace and the Project by MOTA - Group workshop (Separated in 2 sub-groups; discussed, while answering Questionnaire prepared in advance.)	- Explanation and information sharing on the Project by MOTA (Brief review of PC1, purpose of PC2, background history of Hisham’s Palace and the Project, significance of this participatory PC, design process and approach, output image) - Free Q&As and discussion

Issues discussed	<ul style="list-style-type: none"> - Know or not Hisham’s Palace and the mosaic floor - How to treat the mosaic floor (keep underground or uncover sand and utilize) - For or not for the construction - Willingness to participation in next PC and local relevancy 	<p>Elements of Q&As made: materials, color, and structure of the shelter and the interior; lighting (use of natural lighting, night lighting); insulation material and how it is used; walkway structure; handicap-accessibility; how to finalize outline design; white ants (as pest) control measure; multi-language promotion of tourists for the Site and Project</p>
What confirmed	<ul style="list-style-type: none"> - Only half of local participants knew the mosaic floor, but all of them agreed that it is a precious heritage. - Both sub-groups supported for the utilization of the floor mosaics and the construction, and the cut-off dome type shelter; three people noted the importance of harmony with landscape and prioritizing conservation. - All expected and supported for tourism development after the Project, and expressed yes to participate in the next PC. 	<ul style="list-style-type: none"> - No one expressed objection for the Project. - To respective questions on particular aspects of the Project by the stakeholders, MOTA participants gave answers and assured them they will give feedback in design.
Feedback issue	<p>Request of holding next PC in the center of the city and the announcement in local radio prior to next PC to promote more attendance.</p>	

Chapter 2 Contents of the Project

2-1 Basic Concept of the Project

(1) Overall Goal and Project Purpose

The Project aims to protect the mosaics of the Great Bath at Hisham's Palace and release them to the public by construction of a protective and exhibition facility. And the Project is expected to contribute to increase of visitors to Hisham's Palace and local tourism development.

(2) Outline of the Project

In order to accomplish the overall goal mentioned above, the Project aims to reduce negative effects due to the exposure of the mosaics to the air and to provide the occasion for the appreciation of the mosaics to visitors. This Project is expected to increase the area of viewable mosaics and the number of visitors. The scope of GoJ is provision of a protective shelter and an exhibition facility.

2-2 Outline Design of the Japanese Assistance

2-2-1 Design Policy

(1) Requirements

For design of a protective shelter and visitor walkway, a construction method will be developed to fulfill the requirements mentioned as follows:

1) Requirements by PA

Five requirements by PA and design solutions are mentioned as follows:

- **To be reversible:** minimize usage of concrete, which needs fracturing work and causes vibration and heavy debris against remains, choose light super-structure such as steel and timber to reduce load on the heritage site, also choose lighter structural system, and set the foundation on the ground with little excavation.
- **To be light structure with simple design:** same as the preceding item.
- **To be based on minimal intervention:** refer to “3) Policies regarding site conditions” mentioned below.
- **To be easy maintained and repaired:** refer to “6) Policies regarding operation and maintenance” mentioned below.
- **To be in harmony with the surrounding environment:** discuss the design of the shelter with Palestinian stakeholders, propose options with visual presentation using computer graphics to enable the participants image the shape and the impact of the shelter, and conclude the final design agreed with them.

2) Requirements for the protection of the mosaics

Six requirements and design solutions so as to minimize impact by exposure of the mosaics to the air are mentioned as follows:

- **To block direct sunlight:** use metal roofing sheet to block sunlight and install louvers and mesh to block sunlight in early morning and late afternoon on the side opening walls.
- **To keep appropriate temperature and humidity:** aim for stable interior environment of temperature and humidity by sun-shade and ventilation
- **To block rain water and stormwater:** install roof gutters and drainage and block wind-driven rain by louvers on side opening walls.
- **To prevent flying sand not to damage the mosaics:** install bird mesh on side opening walls.
- **To prevent birds' nesting and droppings:** same as the preceding item.
- **Not to disturb activities for conservation and maintenance:** install the walkway off the mosaics surface and make floor panels of the walkway removable for maintenance of the mosaics below the walkway.

3) Requirements for the appreciation of the mosaics

Six requirements and design solutions to enhance the appreciation environment are mentioned as follows:

- **Circulation for visitors considering the characteristics of the mosaics:** design the walkway to enable visitors to get a close look at a low position and overview from high position, and design the circulation to provide visitors various views of the mosaics.
- **Appropriate lighting for appreciation:** for illuminance and color, design lighting carefully to obtain appropriate lighting for appreciation.
- **Appropriate interior: ceiling height and microclimate:** design the interior volume and interior microclimate carefully.
- **Interpretation and presentation of the Great Bath:** include interpretation and presentation works in the Project.
- **To be accessible to all the visitors including the disabilities:** design ramps on the walkway to enable wheelchair users to visit main viewpoints.
- **To ensure the safety of visitors:** design the high handrail of the walkway and prohibit children from entering the high-level walkway zone without adult assistance.

(2) Policies regarding Natural Environmental Conditions

1) Policies regarding Climatic Conditions

Jericho in the Jordan Valley flowing into the Dead Sea is located around 260 meters below sea level and has a hot summer from June through August. The absolute high temperature is 48°C and absolute low temperature is 0.2°C, which causes frost. Annual rainfall is 175 mm, mostly concentrated between November and March and there are fine days without cloud except during the rainy season. Maximum monthly rainfall is 137 mm and there are violent and short showers which cause storm water to flow into the wadis.

The average daily wind speed in Jericho is around 3 to 5 m/sec and the daily wind direction changes from a northwest at night to south in the early morning throughout the year. During spring, the maximum wind speed is 15 m/sec, often reaching 20 m/sec from the west to the northwest due to Khamseen - a hot, dry and sandy wind. In regard to these conditions, the design will be developed according to the following policies.

- In order to reduce diurnal temperature and humidity range of inner space for conservation of the mosaics, roof should not be translucent and block sunlight. In addition the roof should be installed with heat insulation and the color should be shiny metal or pale for high absorption ratio of heat.
- Louvres will be installed on four-side openings of the shelter to block sunlight and rain. The dimension, spacing and angle of louvres will be designed in consideration of low-angle sunlight in early morning and late afternoon.
- The opening ratio of four-side openings of the shelter will be designed to block hot air flow in summer and dust in spring and to intake necessary fresh air.
- Rain gutters and drainage will be designed in consideration of violent and short showers.
- To take necessary measures against condensation, salt, fungi and other harmful factors.

2) Policies regarding Natural Disasters

As mentioned in 1-2 “Natural Condition (4) Earthquake”, the seismic hazard map for building code of Earth Sciences and Seismic Engineering Center, An-Najah National University categorizes four seismic zones and indicates Zone 3 for Jericho. Therefore, the structure of the shelter will be designed in consideration of seismic force.

3) Policies regarding Site Conditions

Since the shelter will be built over the remains of the Great Bath, its structure is required not to have any supports on these remains. The Great Bath is located in a heritage site and is connected with other remains, i.e. the mosque and other walls. There are also an underground water tank, a furnace, a coal stock and undiscovered remains which were confirmed by the research of Chicago

University (2014). Land around the Great Bath slopes slightly down to the east and there is around a 3 meter difference in height within the surrounding area of the Great Bath. Since the covering for the mosaic floor is just thin sand layer, the mosaics can be deteriorated and damaged due to sunlight and rain.

According to the report of the survey by UNESCO (2011), the restored pillars in the hall of the Great Bath are not anchored to the foundation and have insufficient concrete strength. This report indicates that these pillars have a risk of falling due to earthquake. Although these pillars are of little archaeological value, the Palestinians appreciate these pillars because of their long history and desire that they remain. In regard to these conditions, the design will be developed according to the following policies.

- The structure of the shelter will not have any supports on the remains of the Great Bath.
- Foundations will be set on the ground and an excavation work will be limited for gravel layer of foundations and level adjustment of foundations.
- The ground will be cured in order to avoid damage of undiscovered remains due to construction machines and driving of trucks.
- The mosaics will be cured and scaffoldings will not be set on the mosaics floor.
- The pillar will be reinforced prior to the construction of the shelter in order to prevent falling of pillars and damage on the mosaic floor.

(3) Policies regarding Socioeconomic Conditions

The Palestinian socioeconomic conditions under Israeli's occupation are made unstable due to the continuing conflict with Israel and its continuing settlement building. Since Israel engages in immigration control of persons related to the Project and custom clearance, and tax exemption for imported materials for the construction, degradation of the political situation might have negative impact on the implementation of the Project.

(4) Policies regarding Construction Conditions

1) Building permits and building code, material standard

A procedure of building permit is roughly mentioned as follows:

- Acquisition of location map from municipality
- Submission of a survey map and a soil test report
- Review and approval of the drawings by an independent engineer
- Submission of an application form with land property title, drawings, structural calculation sheets, and soil test to the municipality

In addition, a permit from Civil Defense for fire-fighting equipment is required.

The shelter should be designed based on laws and regulations which are used in Palestinian territories. Although Palestinian building code and a universal design guideline have been developed in Arabic, the IBC (International Building Code) is commonly used for the construction projects. Calculation of structural design should be done by UBC (Uniform Building Code) based on design load by the Jordanian building code. Concrete design should comply with ACI (American Concrete Institute). Applied industrial codes of material are ASTM, BS, and EN.

- The procedure of building permit and consultation with Civil Defense will be started in advance to prevent delay of the implementation of the Project.
- IBC and Japanese standard will be applied in development of the design.
- UBC and design load of Jordanian building code are applied for the calculation of the structure
- Material should be selected in terms of quality and stable procurement

2) Construction and material procurement conditions

Masonry materials like limestone are abundantly produced in Palestinian territories but many construction materials are imported from neighboring countries like Israel, Turkey and Jordan. There are domestic suppliers to import materials and their procurement is stable. The structural steel, dome-shaped roof, and the metal walkway require processing accuracy and these major materials are very likely to be procured in Japan or other industrial nations. These materials will be unloaded at Ashdod Port, cleared and transported by land.

There are concrete plants in Jericho and major construction companies in Hebron, Nablus and Ramallah which are located within 60 kilometers from Jericho and accessible by well-maintained road. Therefore, general material, temporary equipment and labor can be procured.

(5) Policies regarding the use of local contractors and local consultants

There is a huge market for construction in Palestinian territories and there are many contractors ranging from small to large scale. Palestinian Contractors Union (PCU) categorizes contractors by kind of work and scale of business in registration. Japanese contractors will choose contractors in terms of skill and organization by each work.

Table 2-1 Registration Category

Unit: JOD

Grade	Capital	Amount of owned equipment	Maximum Project amount	Total maximum Project amount	Office area
1A	400,000	300,000	6 million	15 million	150m ²
1B	250,000	150,000	3 million	6 million	125m ²
2	100,000	75,000	1 million	2 million	100m ²
3	75,000	30,000	0.5 million	1 million	75m ²

4	30,000	15 ,000	0.25 million	0.5 million	50m ²
5	10,000	10 ,000	0.01 million	0.2 million	30m ²

(6) Policies regarding Operation and Maintenance

General Directorate of Site Management, MOTA manages Hisham's Palace heritage site and stations receptionists, cleaners and guard persons there. After completion of the Project, Hisham's Palace and the Great Bath will be managed with the same organization. Materials, equipment and finish of the Project should be selected in terms of durability in order to reduce maintenance charge. The Great Bath does not consume much power at present but the power consumption will increase after completion of the Project because they need certain lighting in daytime. In principle natural lighting and natural ventilation will be utilized to reduce power consumption.

(7) Policies regarding the Grade Establishment of Facilities

Hisham's Palace has a lot of visitors from across the world and the number of visitors is expected to increase when the mosaics are released to the public out of the protective sand covering. It has potential to be on the World Heritage List of UNESCO in future in consideration of the fact that the scale of mosaic floor is biggest in the Middle East. Therefore, the grade and design of the shelter should be set at the adequate level as a world-famous tourist spot.

(8) Policies regarding the Period of the Construction

Since scaffolding for the construction should not be set on the mosaic floor in terms of protection of the mosaics, a temporary platform is advisable to be built over the pillars of the bath hall and scaffolding will be set on this platform. The reinforcement work of the pillars which is conducted on this platform will be done carefully with appropriate equipment and method not to damage and dirty the mosaics and the remains. The shelter has a unique structure which does not have any support on the Great Bath and requires careful preparation and management of site work. In this manner the Project consists of several unique and difficult works, which take more time than normal works. Additionally, investigation and approval of imported items to Palestinian territories by COGAT (the Coordinator of Government Activities in the Territories Unit) take four to six months. The period of the construction will be set in consideration of these specific conditions.

2-2-2 Basic Plan

(1) Floor Plan

The mosaic floor will be surrounded with the restored wall that will be 2~3 meters high. The edge of the shelter will be set apart from this wall by two to three meters so that the construction of the foundations and the steel structures anchored to the foundation at the four corners do not affect negatively to the wall. The north edge of the shelter will be set to cover four bathrooms including one with flower pattern. The shape and the location of foundations will be set to avoid conflicts with the remains' foundations. The center of the shelter will be set on the same position of the central

four pillars.

The entrance of the visitor walkway will be set on the east face of the shelter which is the original entrance of the Great Bath and the walkway will be set on the east and the pool, and rising with a 1/12 ramp to the west wall. The walkway will be subsequently set along the west and the north wall, around the Diwan to allow visitors to look down on the mosaics. In addition a circular walkway connected with the north walkway will allow visitors to look down the center piece from high position and will be accessed with stairs. An exit walkway connected with the end of the north walkway will be going down to the north underground remains and allow visitors to go out. A space for an interpretation panel and exhibition cases will be set on the entrance.

Four-side openings of the shelter will be closed with steel meshes for crime prevention and will not be accessible. However management staff can enter through maintenance doors installed on each face and the floor plan will be designed to allow staffs to move any parts of the interior of the shelter. Visitors will not be allowed to leave the walkway except emergency.

(2) Section Plan

Since the cover area of the roof, 46 meters by 54 meters is so huge, the midmost of the mosaic floor will be dark without natural light from the roof. Thus the high-side window will be installed and face the north to avoid the direct sunlight. Heat insulation will be installed underneath the roof to block heat and stabilize the inner climate and a ventilation system will be installed on the roof to exhaust warmed air.

Roof gutters will be installed to discharge rainwater to four corners along the curve of the roof and drainage system on the ground. This drainage system will consist of a northward underground pipe to the wadi and eastward ones down to the boundary, a soak pit, a head wall to the wadi and maintenance pits.

Louvres will be installed on the above part of four-side openings of the shelter to allow ventilation and block sunlight and rain and steel meshes will be installed on the whole area of the openings to block birds. No louvres will be installed on the below of the openings to allow visitors to connect the view outside with the interior.

Maintenance walkways will be suspended under the ceiling, and bars for catching the safety hooks of persons working will be installed on the edge of the windows.

(3) Structural Design

1) Conditions of calculation

The conditions of calculation for structural design are shown as bellows:

- **Seismic force:** Seismic Zone : 3, Zone factor (z): 0.3, Soil Profile: Sc
- **Wind force:** the design wind speed is set at 31m/s based upon 20m/s as record wind speed

for the past 50 years by Jericho meteorological observation station. Surface roughness is set as C in considering no tall building around the Site and flat geography. The importance factor is set as 1.0 in consideration of the urgency of the Project.

- **Design load:** 1kN/m² for the dead load of the roof, 3.5kN/m² for the live load of the walkway and 3kN/m² for the live load of the temporary platform in reference to Japanese standard. The live load of the roof is not considered.
- **Industrial code of steel section:** STK490 for beams, SM490B for joints, STK400 for columns and SS400 for tension rods. All material should comply with JIS.
- **Concrete:** Fc=27MPa and SD295/ 345 of JIS for re-bars.
- **Long-term allowable soil bearing capacity:** 100kN/m² based on the soil test

2) Structures of the shelter

In the structural system, oblique lattice structure will transfer roof load to foundations on four corners directly and through horizontal truss frame on roof plane, and tension rods to constrain the ends of arches will be set around the shelter on the ground. Although major load of the shelter will be supported on the foundations on the four corners, the load of arches and claddings will be supported with minor steel pillars and small foundations. All elements will be designed as orthogonal grid on horizontal projection to reduce difficulty of production of joints and installation on the Site.

3) Structures of the walkway

The walkway will have steel structures using flat steel section and be supported with foundations to be set on the existing wall and the pool surrounding the hall, which reduce impressions of supports and makes the interior of the shelter simple. Handrails to form truss beam will be applied on the case with long spacing of supports.

4) Reinforcement of pillars

The purpose of the reinforcement of the pillars will be to prevent falling of the pillars. In order to prevent of falling, reinforcement bars will be inserted in the centers of the pillars and connected with concrete and the ground. As this reinforcement aims to prevent falling of the pillars, actions of masonry units in case of earthquake depend on adhesive bonding of the masonry units.

- **Conditions of calculation:** Base shear factor is set as 0.12 and the expected short-period compression

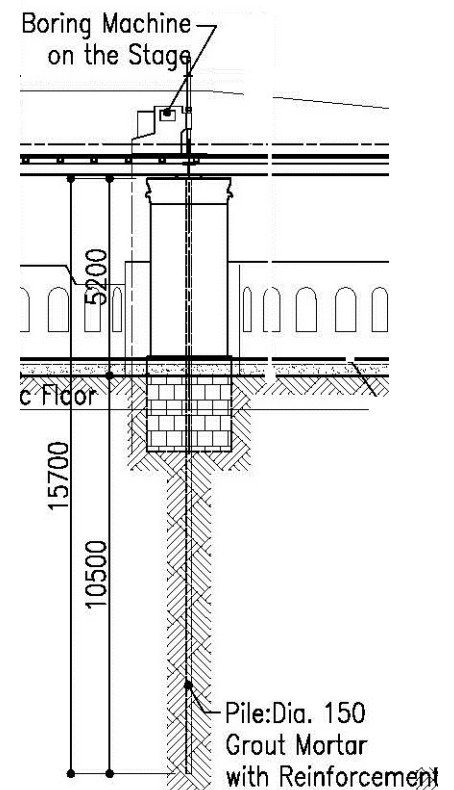


Fig. 2-1 Reinforcement Section of Pillars

strength of the concrete within the pillars is set as 3 N/m². The necessary anchorage in the ground to bear pull-out force is set as 7.5 meters in the ground with 30 or more of N-value and the depth of boring in the ground are set as 10.5 meters with 3 meters allowance. The boring depth is set 15.2 to 15.7 meters including the heights of the pillars.

A boring machine will work on the temporary platform, boring vertically from the top of the pillars. Inserted reinforcement bars will be united with concrete pillars and the ground using grout agent.

(4) Building Service Design

Lighting for exhibition of the mosaics, firefighting equipment and systems, power outlets and water faucets for maintenance activities are designed according to the following policies.

1) Electrical service design

a) Power distribution

There are two existing low voltage (380V) lines to the Site, one is 63A to the administrative office and the other is 25A to the mosaic center. Power failures rarely happen in Jericho according to the interview to JDECO.

The power demand for the shelter including assumed future increment will be 50kVA (76A) and the contract capacity of electricity will be upgraded to 160A (Palestinian scope). The new main distribution board will be installed at the administrative office to distribute the power to the shelter and the existing facilities. The existing system will remain as it is.

The electrical trunk lines for the shelter will be buried as a general rule, but the route and the depth of the line should be considered not to damage the underground remains. Therefore, the route will be installed along the site perimeter wall from the administrative office to the west side of the shelter. Some underground conduits (about 60mm diameter) exist on the same route.

b) Lighting

The lighting will provide sufficient illuminance and enable visitors to appreciate the mosaics even at nighttime. Natural lighting will be mainly used and artificial lighting will supply a gap of illuminance. The illuminance at the surface of the mosaic floor will be 100 to 300 lux and the interpretation panels and special patterns will be highlighted by spotlights. As for lighting fixtures, LED will be primarily selected in term of energy saving and mercury regulation, and color rendering properties and color temperature should be taken into consideration in the lights for the mosaics. Add to that, main lighting fittings, foot lights on the visitor walkway, exit lights, exterior floodlights will be installed.

c) Power outlets

Ten numbers of power outlets will be installed for electrical cleaning machine and maintenance

activities.

2) Air-conditioning and ventilation services

Although natural ventilation without machines will be applied in principle, extractor fans will be installed at the top of the shelter in case enough natural ventilation cannot be obtained due to opposite wind direction against the exhaust openings.

3) Water supply and sanitary service

The administrative office and the mosaic center in the Site are supplied with water by Jericho Municipality respectively. However there are chronic water outages in summer due to poor capacity and obtain water by water trucks in such cases.

Two faucets will be installed for maintenance activities in the shelter. Water supply will be from a reservoir tank installed along the eastern road where water trucks can supply. The reservoir tank will be located on the south of the mosaic center and supplied also from the existing water network of the mosaic center. A pressure booster pump will be installed for lack of water pressure due to difference in height between the tank and the faucets. The pipe will be installed in shallow underground to avoid the undiscovered remains. Drainage water from the shelter does not need special treatment and can be discharged to the rain water drainage.

No additional sanitary service will be installed in the Project because there is existing toilet facility built in 2008 by USAID and it has enough capacity for increased visitors in the future.

4) Firefighting and safety control system

Civil Defense is the supervisory authority that controls fire protection and safety of buildings in Palestinian territories. A Jordanian law is adopted concerning firefighting and safety and NFPA (National Fire Protection Association) is also adopted and obligates building owners to install fire protection equipment. Civil Defense required firefighting and safety control system as described in Table 2-2 according to the discussion during this survey. A civil defense permit will be required prior to the commencement of the construction.

Table 2-2 Summary of Firefighting and Safety Control System

Equipment and system	Location and Detail
Fire alarm system	- For large-volume interior with high ceiling, beam detectors will be required for the smoke detection system. Covered area of each detector is 45 feet (13.7m) and appropriate number of detectors will be installed. - Four break glasses (push-button alarms) and alarm instruments (sounders and flashers) will be in the shelter and the alarm control panel will be set at the administrative office where guards reside.
Emergency Lights	- Emergency lights with batteries will be installed on the evacuation route and the minimum illuminance at the floor of evacuation route is 15 lux.
Emergency exit/ Exit Doors/ Exit	- The walkway will be installed with two intermediate exits (stairs) besides the entrance and the exit.

lights:	- Exit doors will be also installed on the stairs. - Exit lights will be installed at each corner of the evacuation route so as to be seen from anywhere.
Fire cabinets (Horse Reels)	- Four fire cabinets (one-inch-diameter hose) will be installed and their effective radiuses are 25m. - Since the required pressure at the nozzle is 4.5 bars and the required supply is 189L/min for 30 minutes, necessary water tank capacity is calculated to be 5.7 ton. - Water tank will be combined with the reservoir tank of 7 ton and installed engine pump for power failure.
Automatic fire extinguishing system	- Electric distribution boards over 100A-capacity should be equipped with automatic fire extinguisher system (FM200). Since the main distribution board is planned to be 160A, FM200 should be equipped.
Fire Extinguishers	- Six CO2 type (2kg) extinguishers will be installed in the shelter.
First aid kits	- One set of first-aid kit will be prepared in the shelter.

(5) Building material planning

Materials for the shelter will be selected on the basis of high durability in the local climate and weather and ease of maintenance. Also, they will be selected in terms of aesthetic appearance in consideration of the construction in a heritage site and opinions by MOTA and local stakeholders. Materials which are difficult to procure locally and need high accuracy for fabrication will be procured in Japan. The other materials will be procured in the local market for easy maintenance and repair.

Table 2-3 Building Material Plan

		Material, method and specification	Reason of selection
Exterior	Roof	Metal color roofing sheets, rigid heat insulation, and wood wool cement board	- They are light-weight and durable.
	Walls	Wooden or metal louver and perforated metal sheet	- They fulfill requirement for claddings.
	Doors and Windows	Steel grided doors for entrance and exit, glass window for high side	- They are durable.
Interior	Ceiling	Exposed roofing deck	
	Walkway floors	Timber decking, metal grating, and laminated glass	- Timber decking is used for other existing walkway within the site and user-friendly. - Grating and laminated glass allow visitors see mosaic patterns under the walkway.
	Walkway handrail	Wooden handrail and laminated glass balustrade	- Wooden handrail is user-friendly. - Glass balustrade doesn't interrupt visitor's appreciation.

2-2-3 Outline Design Drawings

(1) Site Plan

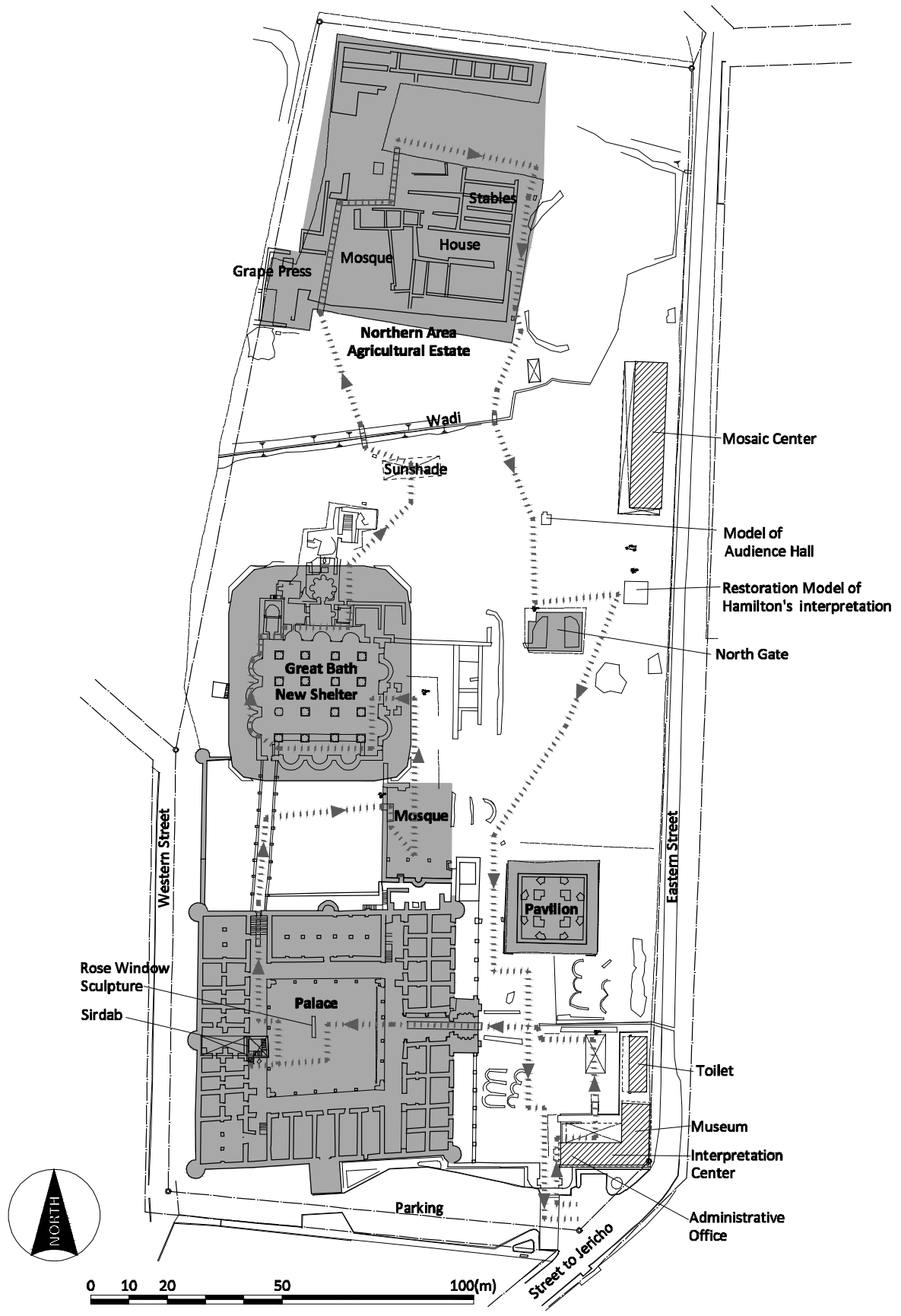
(2) Plan

(3) Walkway Plan

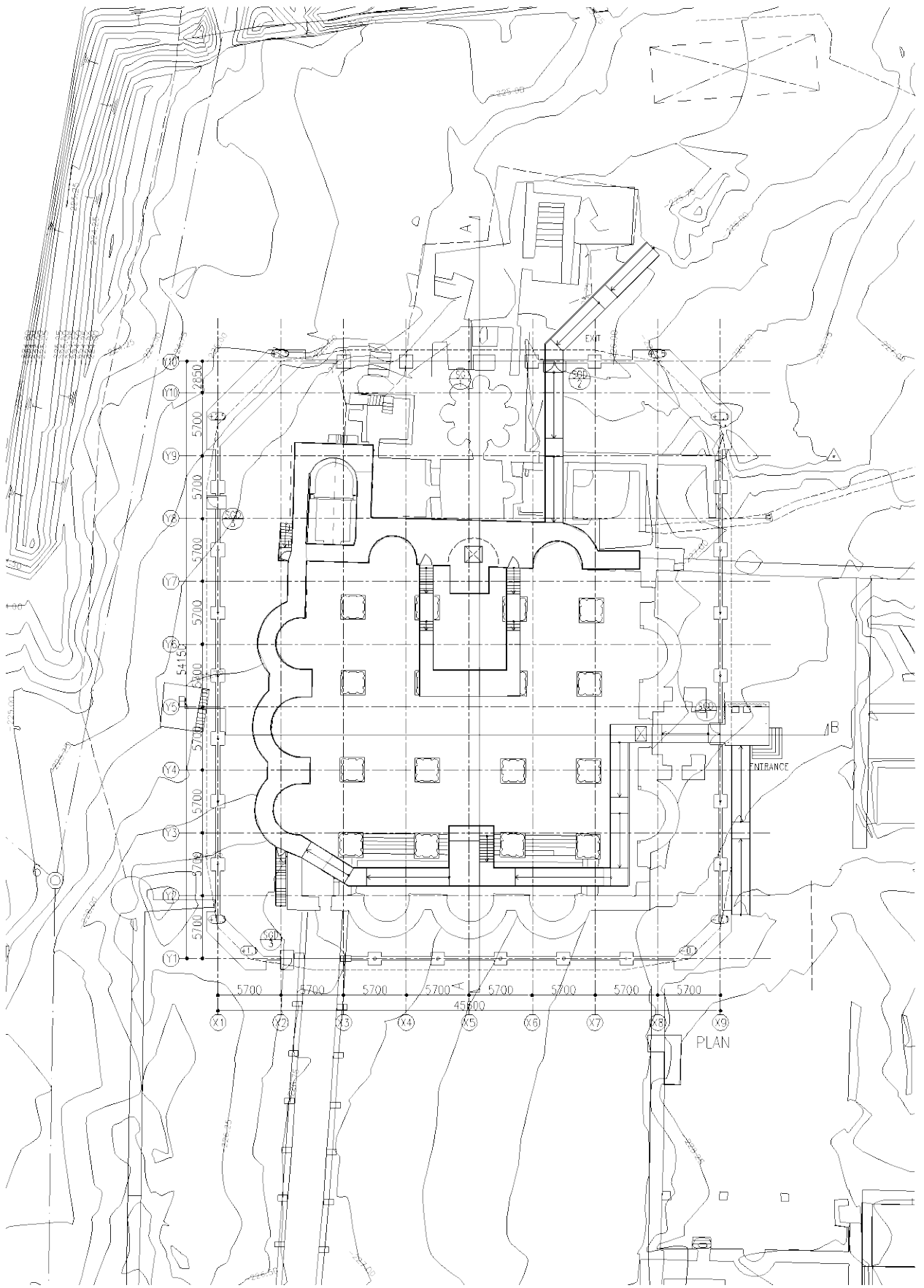
(4) Reflected Ceiling Plan, Roof Plan

(5) Elevations

(6) Sections



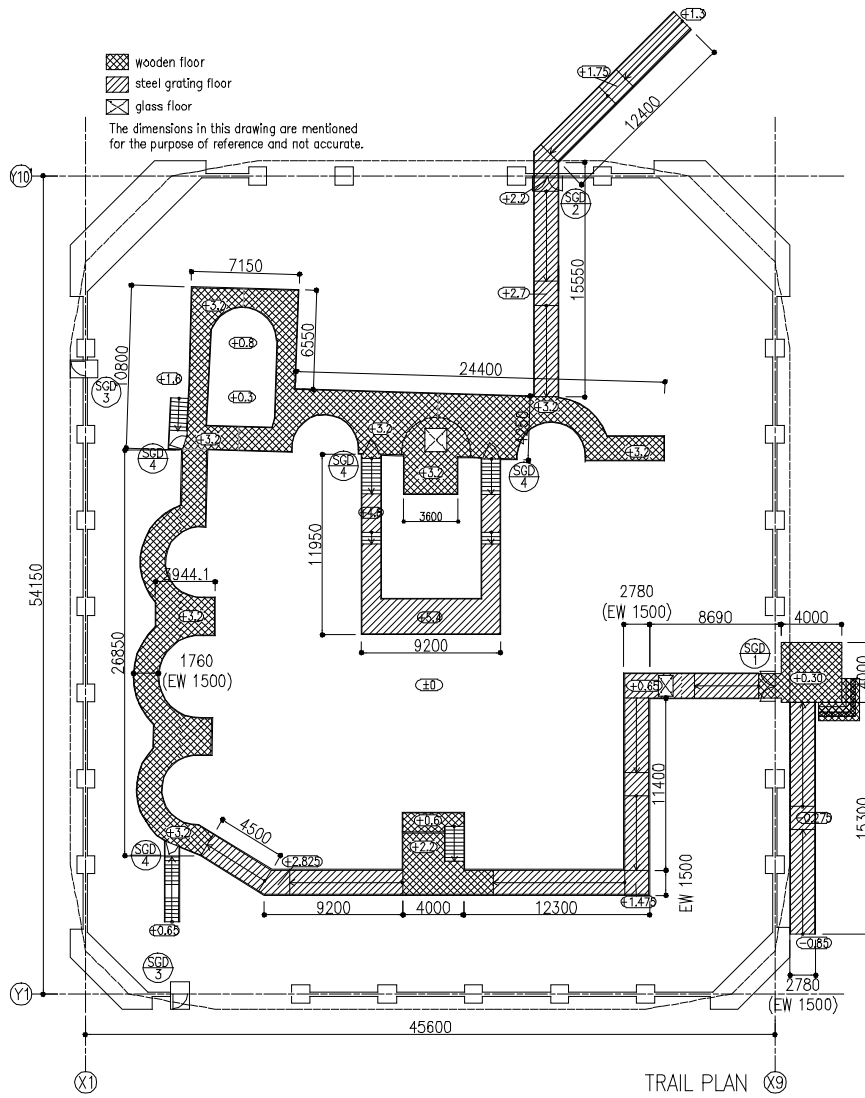
配置図
Site Plan 1:1500(A4)



平面图

Plan

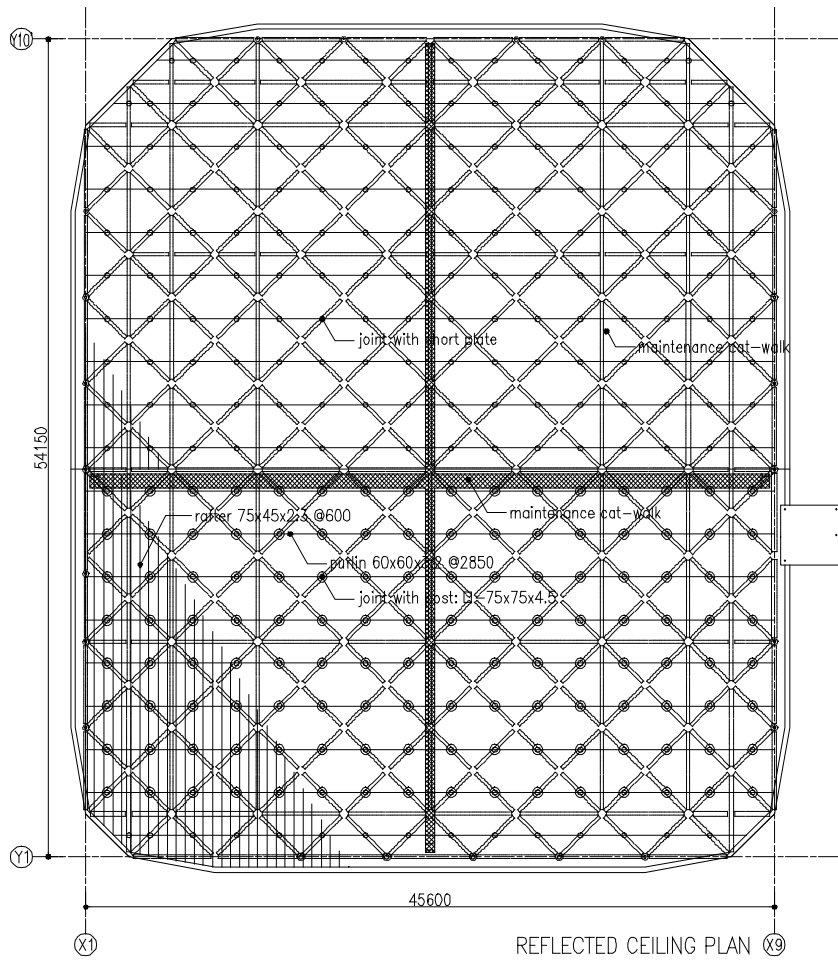
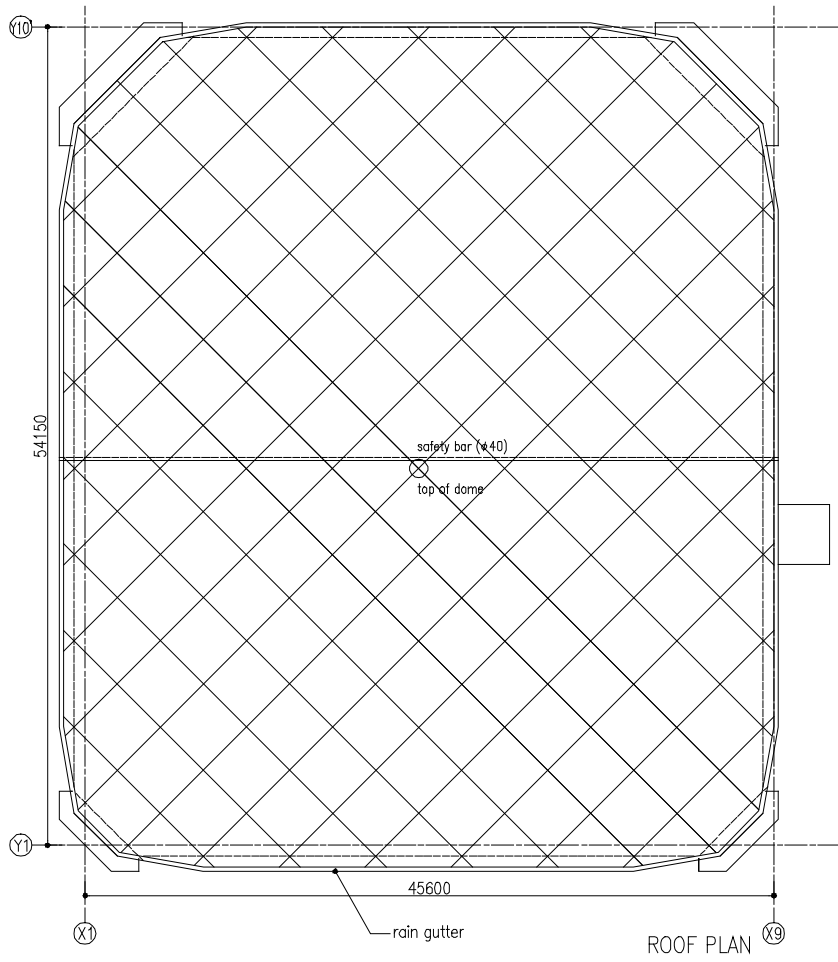
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トレイル平面図

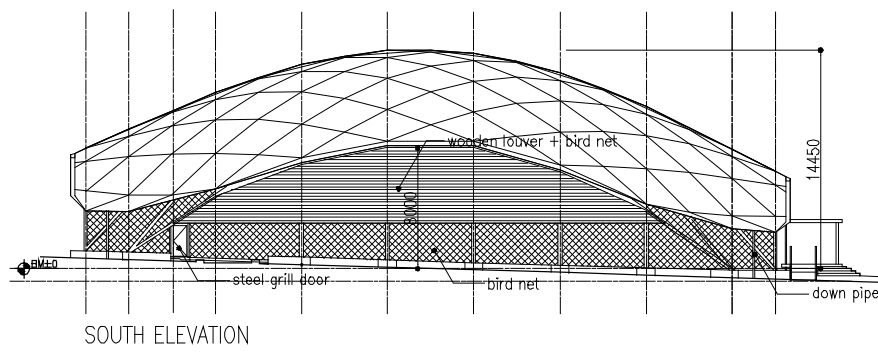
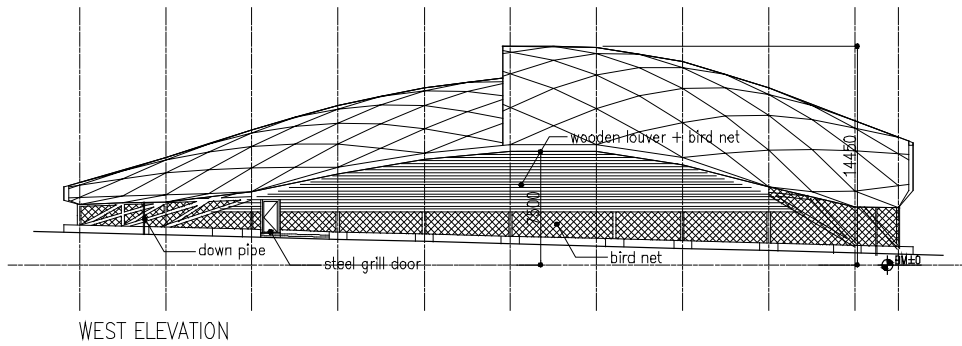
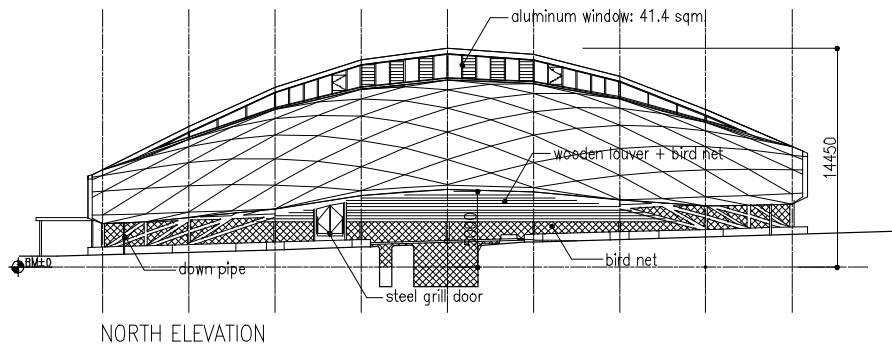
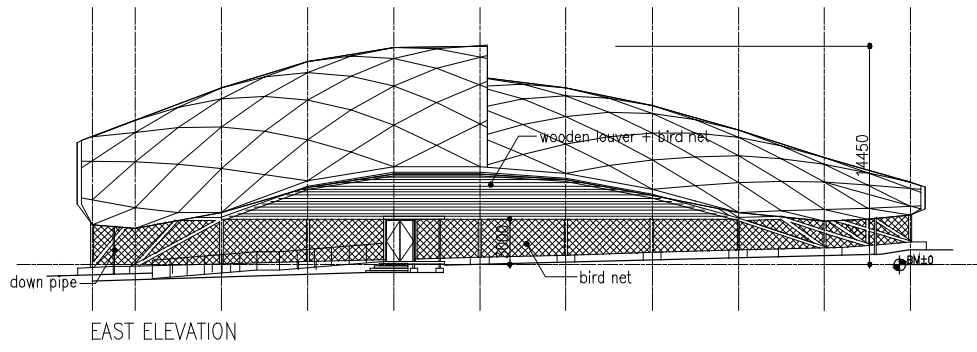
Trail Plan

1:500(A4)



天井伏图、屋根伏图

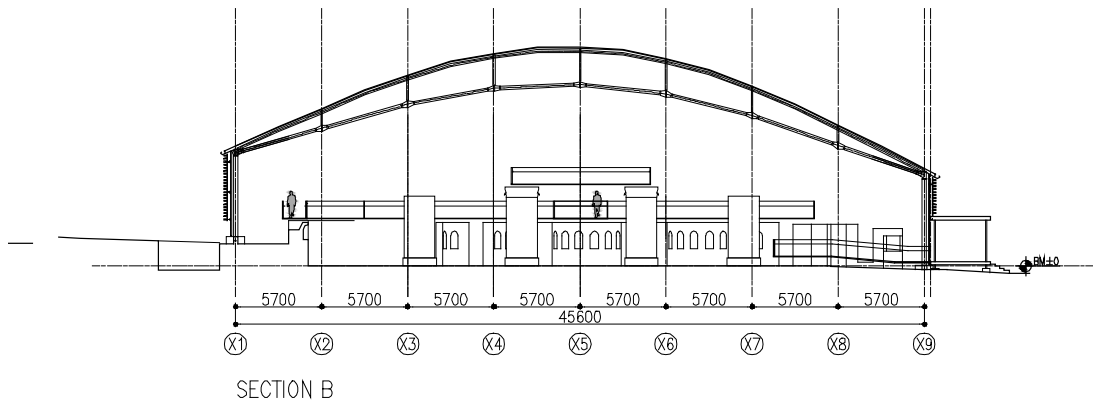
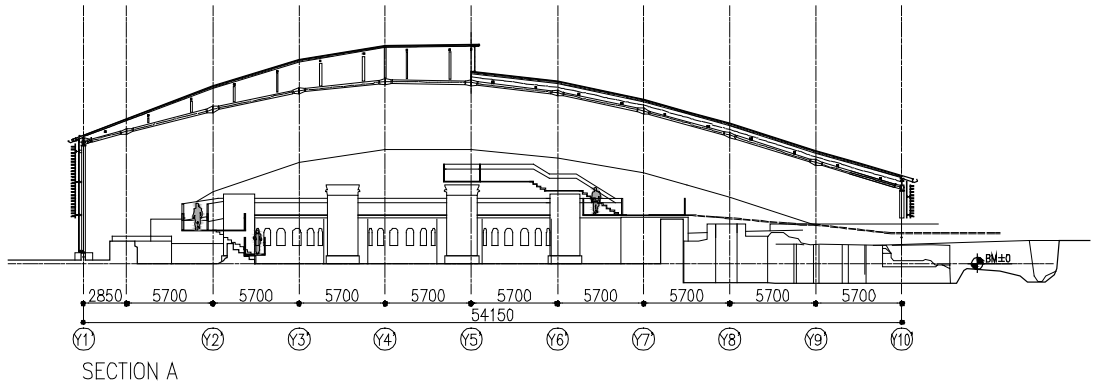
RCP, Roof Plan 1:500(A4)



立面图

Elevations

1:500(A4)



断面图

Sections

1:500(A4)

2-2-4 Implementation Plan

2-2-4-1 Implementation Policy

(1) Basic Conditions for Implementation of the Project

The Project will be implemented in accordance with the framework of Grant Aid of GoJ after conclusion of Exchange of Notes (hereinafter referred so as “E/N”) between PA and GoJ and conclusion of a Grant Agreement (hereinafter referred so as “G/A”) between PA and JICA, following the approval of the Project by the Cabinet of Japan. Subsequently, a Japanese consulting firm (hereinafter referred to as “the Consultant”) will conclude a contract with the implementing agency on Palestinian side to develop the detailed design of the shelter. After approval of detailed design drawings and tender documents by PA, a competitive tender will be held among Japanese contractors to fulfil certain pre-qualifications. Selected company (hereinafter referred to as “the Contractor”) will conclude the works contract concerning the construction of the targeted buildings (hereinafter referred to as “the Works contract”).

(2) Project Implementation System

1) Implementation System of PA

MOTA is the responsible organ for the execution of the Project. The General Directorate of Conservation And Site Management, as the implementation body, will take charge of coordinating and facilitating the entire Project, and also has jurisdiction over the conclusion of contracts with Japanese companies, as well as various arrangements: banking arrangement, payments to the Contractor(s), allocation of budget for the works to be borne by PA, obtaining of necessary permits and licenses and other works to be borne by PA which are agreed in the minutes of discussion (hereinafter referred so as “M/D”).

2) Japan International Cooperation Agency (JICA)

Japan International Cooperation Agency (JICA) will conclude a G/A with the Palestinian implementing agency and monitor the Project to ensure that it will be implemented properly in accordance with guidelines concerning Japanese Grant Aid.

3) Consultant

The Consultant will, pursuant to a consultancy agreement to be concluded with the Palestinian implementing agency, develop detailed design of the shelter and supervise the construction according to the outline design. The Consultant will report to JICA on the progress of the Project, modifications of design, the manner and the result of the tender, the conclusion and amendment of the contracts, and the completion of the Project.

4) Contractor

The Japanese Contractor selected through an open competitive tender will carry out the construction and procurement by the promised date pursuant to the Works Contract to be concluded with the Palestinian implementing agency and according to the contract documents. In constructing the buildings, the Contractor will establish a work organization in consideration of the scale and contents of the Project.

5) Utilization of Local Contractors and Dispatch of Supervisor(s)

The Contractor may utilize local contractors in various types of work, such as temporary works, concrete works or dismantle works, throughout the construction.

In consideration of the fact that the shelter has specific dome-shape and no intermediate supports over existing remains, the structural steel and roofing works should be carried out carefully and intensively to accomplish the quality. Therefore materials for these works will be prepared and fabricated in Japan or other industrial nations and technical experts will be dispatched for the erection on site.

In terms of quality and certainty of the procurement, materials for the metal work of the walkway, aluminum windows, and interpretation panels will be prepared and fabricated in Japan, but the installation work will be done by local workers under supervision of technical experts from Japan.

6) Project Implementation Structure

Relationships among various organizations and the Project implementation structure during the implementation stage are shown in the diagram shown below.

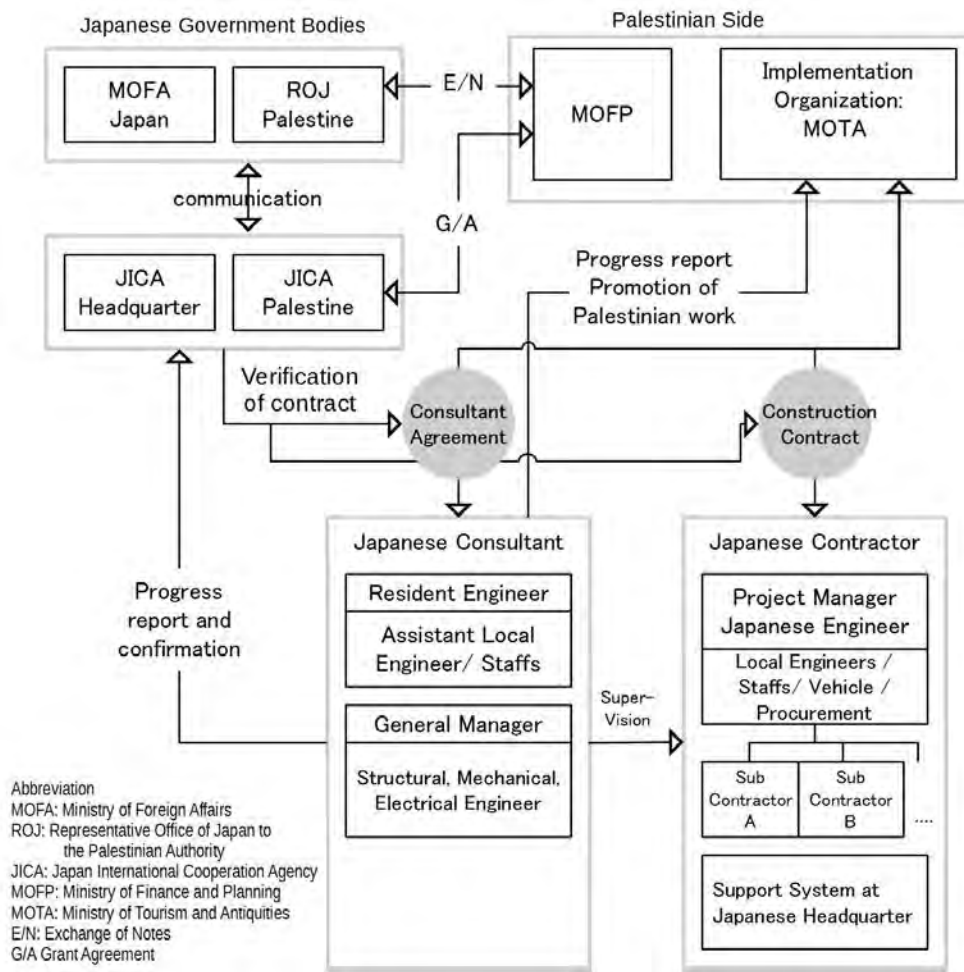


Fig. 2-2 Project Implementation Structure

2-2-4-2 Implementation Conditions

(1) Issues concerning procedure of tax exemption

Based on the provision of tax exemption on E/N of the Project, the Japanese Contractor is supposed to be exempted from customs duty, value added tax (VAT) and other taxes implied during the operation of local corporation established by the Contractor.

1) Custom duty

The materials procured in Japan or third countries in the Project will be imported via Ashdod Port, Israel. Taxation will be conducted by the government of Israel on behalf of PA, and customs duty (CIF × rate of duty on items) and VAT (CIF + customs duty) × 16 %) will be incurred at the port. Tax exemption for ODA projects will be agreed between PA and Israel and the procedures will be established.

The procedure of customs duty exemption will start by application of a master-list that describes

the imported items for the construction and other necessary documents to the Ministry of Finance and Planning (hereinafter referred to as “MOFP”). These documents will be submitted to COGAT which has jurisdiction over the exemption procedure. The period up until the approval of the master-list is expected to be four to six month.

After the approval of master-list, custom clearance can be done smoothly with a clearance application for each shipment. The process completes within three to four days in general, but it may take more one month in case there is discrepancy in comparison of items based on the approved master-list and items with potential of diversion to weapons. After completion of the custom clearance, items will be transported to the Site in one to two days by land.

There is another way that an importer can once pay customs duty and apply the refund at later day, to avoid delaying schedule or paying for additional warehousing.

2) Value Added Tax (VAT)

Legal system for VAT exemption is established by PA and the Contractor is supposed to exempt VAT subject to 16% of purchased price. There are two schemes of VAT exemption: one is “Refund scheme” where a purchaser once pays VAT and gets a refund, the other is “Zero VAT scheme” where a purchaser does not pay VAT by using “Zero VAT” letter issued by MOFP.

VAT on the contract between MOTA and the Contractor will be exempted by “Zero VAT scheme”, but “Zero VAT” does not apply sub-contracts and “Refund scheme” apply to this case.

As for “Refund scheme”, the Contractor will submit receipts of purchased services or items to a local financial department with a copy of approval by MOFP for the Project once by several months or after the completion of the Project. It will be authorized within 30 days as a general rule but it might be extended 180 days in case that the applied documents have some deficiency. The duration from the authorization till the remittance is varied depending on the amount of refund or the financial situation of PA. It takes long commonly due to the chronic tight financial situation. It is confirmed and noted in the M/D (minutes of discussion) by MOTA and MOFP that PA should undertake its best effort to effect the refund within 6 months.

3) Other taxes and levies

To get refund of VAT, the Contractor should be registered as a local corporation and should have a local account in a bank. Registered contractors are levied “Corporate Income Tax” (15%) and “Individual Income Tax” (depend on salary) as a general rule.

“Corporate Income Tax” can be exempted with an official letter issued by the Minister of Finance and Planning. As for “Individual Income Tax” imposed on individual foreigners, this can be exempted in case that they pay their taxes at their home country but local workers cannot be exempted.

4) Registration

To get refund of VAT, the Contractor should be registered to get an identification number for tax payments. The Contractor should submit its corporation registration and/or construction business license in Japan to prove its legal status in Japan. These documents issued in Japan should be translated in English and endorsed by the representative office of PA in Japan.

(2) Issues concerning natural condition

Since it is difficult to work under the extreme hot circumstance in hot season, the schedule should be considered reduction of working hours.

(3) Issues concerning works at heritage site

Since Hisham's Palace is an important cultural heritage deeply connected to the Palestinian history, the work should be carried out with the following safety measures.

- Intervention on the Great Bath and other remains within the Site should be minimized and the temporary work plan and the working procedure should be made not to exert accidental damage on remains by the weight of materials and equipment or heavy machines' vibration and hitting.
- The excavation works should be minimized not to damage the undiscovered remains, which have been confirmed to exist around the Site. The curing such as gravel bedding on the working spaces and roads for material transportation will be planned properly to protect underground remains and current ground surface. The working area of heavy machines where their loads are concentrated will be protected by iron plates on the ground.
- Working spaces around the Great Bath are limited on the eastern side and north-western side of the remains, and they are accessible from the eastern road and the western road respectively.
- Since the mosaics to be protected in the Project are considered to be in vulnerable state, they should be cured sufficiently during the construction. Internal scaffoldings over the mosaic floor are required for the erection of the steel structure and finishing works, and they will be set on a temporary platform which will be built on the pillar with steel beams and plywood, so as not to impose loads (themselves and supporting structures on them) on the mosaic floor directly. The temporary platform will be also used for the reinforcement work of the pillars.
- The construction area should be set away from other areas of Palace, Pavilion, Mosque and northern Agricultural Estate, so as to enable visitors to access and appreciate the remains in the Site during the construction.

2-2-4-3 Scope of Works

(1) Scope of Works for both countries

The following table shows the work to be borne by each government:

Table 2-4 Work to be Borne by each Government

Items	To be borne by GoJ	To be borne by PA
Removal of the existing ramps and lighting fixtures		Removal of the existing ramps and lighting fixtures around the Great Bath
Removal of the shelter of Diwan		Removal of the existing roof and a part of the wall indicated at the Site
Relocation the stones (remains)	Removal and transportation of the stones in the construction area (temporary fenced area and road to access) to the indicated place in the Site	Documentation, storage and display of the stones
Confirmation of the current status of the mosaic floor	Photographing of the surface of the mosaic floor, Preparation of the base map for the documentation and Instructions of the documentation	Removal of the protective sand covering, Documentation of the current damaged status of the mosaic floor, Re-installing the protective sand covering if necessary
Repair of the mosaics	Repair of damaged mosaics due to the construction	Repair of damaged mosaics prior the construction
Repair of the other remains	Repair of damaged remains during the construction	Repair of damaged remains confirmed before the construction
Electric power supply	Installation of the main distribution board and connection to the existing distribution board	Upgrade of contracted electricity capacity and relocation of electricity meter

(2) Damage to the mosaics and the remains, treatment for the damage

The construction will be carried out carefully with sufficient curing for the remains so as to avoid accidental damage to the mosaics and the remains. However in the case that they get damaged due to the construction, the issues will be dealt with according to the policies described as follows:

- Before the commencement of the construction, the state of the damage on the mosaics will be recorded on a rectified photograph map so as to identify the location and range of the damage on that (hereafter “the damage map”). The damage map will be prepared by MOTA with assistance by the Consultant prior to the construction, and the current status will be agreed between three parties (MOTA, the Contractor and the Consultant). Urgent repairs of the mosaics should be done by MOTA.
- Upon the completion of the construction, the damage due to the construction can be recognized by comparison with the damage map. The Contractor should repair the recognized damage with technical assistance by MOTA’s mosaic experts and will discharge

its responsibility for damage by bearing the cost of the material and the labor for conservation.

- Since most elements of the remains except the mosaic floor, such as the pillars and walls, are newly restored, repairs can be done with general construction techniques. In case that damage on pillars and walls is found, the Contractor should determine the appropriate method of the repairs through discussion with MOTa from the view of archaeology. If the repairs require special techniques, the Contractor can be provided technical assistance by MOTa and will discharge its responsibility for damage by bearing the cost of the material and the labor for repairs.

In general, the repairs of the mosaics and the remains assisted by MOTa will comply with the principles of conservation of cultural heritage so as not to detract from the heritage value. Therefore the cost for the restitution will be limited to substantial materials and labor work. It is confirmed and noted in the M/D that the mosaics will not lose value due to the conservation.

2-2-4-4 Consultant Supervision

(1) Policies on Supervision

Utilization of the Consultant aims to keep consistency of the Project throughout the work that includes detailed design, tender, supervision of the construction and handover based on the framework of GoJ for its Grant Aid and on the outline design. When supervising the construction, the Consultant will keep close communication between PA and GoJ and provide the persons concerned in the construction with advice in a timely manner, so that the shelter will be completed without delay in accordance with the contract documents.

(2) Supervisory System

So as to supervise the construction work appropriately, the Consultant will assign a resident engineer and station him/her on the Site during the construction period.

Furthermore, the Consultant will organize a supporting system to the resident engineer with structural design, electrical and machinery design, keep communications with the concerned parties in Japan and monitor the procurement of materials and equipment procured in Japan. In addition the Consultant will dispatch engineers to witness the inspection at the Site and give instruction the construction work. The roles of the resident engineer will be as follows:

- To examine the plans and schedules such as the implementation plan, work schedule, procurement plan for construction materials, quality control plan and safety measures, and to provide instructions and advice to the Contractor when needed.
- To confirm the shop drawings, production drawings and sample products submitted by the Contractor and to give approval to them.
- To give the Contractor necessary explanations and instructions based on the contract

drawings and specifications.

- To conduct factory inspections for materials procured in the Project and to check the report of the inspections.
- To check materials' specification, quality, dimensions and numbers indicated in the contract documents, and to give instructions and advice when the need arises.
- To confirm the safety management plans by the Contractor to check the safety measures on the Site and to provide advice when needed.
- To conduct inspections on the quality and the workmanship of each work and to provide advice to the Contractor when needed, and also conduct inspections of milestone work regarding interim payments and the final inspection, and issue the certificate approved by the Client.
- To settle discord, controversy and conflict between the Client and the Contractor, if a problem arises.
- To propose and carry out amendment of the Works Contract.
- To take necessary procedures for design changes according to "Guideline for consulting services for Japanese Grand Aid" when the needs arise.
- To hold meetings between the Client and the Contractor and provide advice properly them, if needed.
- To monitor the progress of the construction and provide instructions to the Contractor when necessary as well as to submit work progress reports to the concerned parties.
- To make technical adjustments and confirm the progress status of the work to be borne by PA
- To the final inspection and witness the handover of the shelter, confirm the guidance by the Contractor concerning the operation and maintenance

2-2-4-5 Quality Control Plan

Quality control on the Project is managed through the technical specification about materials, tests and inspections to ensure the quality of materials and degree of accuracy of fabrications. Especially the structural work which affect the durability and essential functions of the building, and finish work dominating the grade of the building are emphasized. The points of the quality controls are described as follows:

- The excavation for the earth works will be minimized and carefully done so as not to damage the underground remains. Visual inspection will be carried out to confirm the effect on the remains on the surface of the ground.
- The location of the building should be properly set out and relation between newly built

components (the temporary platform, the shelter and the walkway) and remains (current ground level around the Great Bath, the mosaic floor, walls and the pillars) will be measured by using surveying instrument with established benchmark. The level and the location confirmed in this measurement will reflect on the shop drawings so as to fit the components correctly.

- The materials produced locally such as sand, aggregate and water, and materials procured locally should be tested at laboratories certified by PA.
- The concrete will be procured from local ready mixed concrete plants. In consideration of the shape of test specimen and local weather, the target strength will be determined and confirmed by compressive strength tests. Under hot weather (when mean air temperature exceeds 25°C), necessary measures will be taken to avoid early drying and cracks: cooling of aggregate and water, control of mixing concrete, watering concrete forms and casted concrete, curing the surface of concrete by plastic sheets and so on.
- Before installation of the temporary platform and walkway, it should be confirmed that the surface of the remains such as the mosaic floor, the side of the pillars and capital ornament are cured and protected robustly.
- The reinforcement works of the pillar should be carried out carefully so as not to damage the pillars accidentally, and will be examined periodically for the remains such as unsticking or slant of the stones, cracks and leaking of circulating water by boring or grouting works.
- The temporary works, which contain temporary fence, the steel plates on the ground, aggregate bedding and storage of materials and equipment, should be carefully implemented with verification of the condition where they will be installed or carried out.
- Setting of the scaffolding will require robustness and accuracy to support the joints of the steel structure. The position on plan and elevation of jacks will be verified according to the drawings.
- A steel fabricator will be carefully selected in view of quality control, and consistent quality control will be conducted throughout the procedures, from the shop drawings, production, and anti-corrosion treatment to the product inspection.
- Welders to be assigned for the structural steel work should have considerable skill. Although they don't have official certification of skilled welders in Palestinian territories, the certain level of skills will be confirmed by technical examination making test pieces of welding or certification issued in the neighboring countries (Israel, Saudi Arabia or so).
- As regards the roofing work, the work procedures and the execution drawings will be confirmed based on specifications and standard of the manufacturer of material. At the Site, the roofing work will be carefully checked on the required accuracy and joints, fasteners, accessories.

- The method of dismantling the temporary platform, selection and arrangement of equipment will be studied well and executed.

2-2-4-6 Procurement Plan

Although stone materials such as limestone are abundantly produced and processed in Palestinian territories, most construction materials are imported from neighboring countries (Israel, Turkey, and Jordan), EU countries, Middle Eastern countries, China and India. Importing business is operated not only by suppliers but also contractors, and most building materials are available in the local market. The materials to be replaced or repaired in the future will be procured locally in principle. On the other hand, the materials that require strict quality and the accurate fabrication will be procured in Japan. Table 2-5 is a list of suppliers of the main materials and equipment:

Table 2-5 Supply Sources of Major Construction Materials

Material name	Procured locally		Procured in Japan	Descriptions	
	Domestic product	Imported product			
Construction materials	Temporary equipment		○	○	Wedge connection scaffold system from Eastern Europe is available for purchase and rental.
	Sand		○		Sand from Israel and Jordan is available and quality test for sand is available in Palestinian territories.
	Aggregate	○			Aggregate in domestic quarries is available
	Cement	○	○		Domestic and imported product from Jordan with class 42.5MPa are available. Imported white cement from Turkey is also available
	Ready mixed concrete	○			There are two ready mixed concrete plants in Jericho.
	Timber		○		Imported products from North Europe are available
	Form panel (plywood)		○		Ditto above
	Steel bar		○		Imported products from Israel and Turkey with ASTM and BS are available.
	Structural steel	○	○	○	Domestic and imported products from neighboring countries are available for temporary works. Structural steel for the shelter is recommended to be procured in Japan in terms of quality control.
	Metal roofing sheets			○	Imported products from EU or China are available for general use. However the products of Japan are recommended for quality control and fabrication on the Site.
	Steel doors, aluminum windows	○	○	○	Imported aluminum products from developed industrial nations are available. Domestic and imported steel products from neighboring countries are available.
	Paint	○	○		Domestic and imported products are available.
Metal works, hardware		○	○	Imported hardware from Israel and EU are available for general use. Some special hardware for the Project should be procured from other developed industrial nations.	

	Glasses	○	○		Imported float glass from Turkey and neighboring countries is available. Laminated toughened glasses for the walkway are also available locally.
	Interpretation panel and sign			○	Japanese products are recommended in terms of procurement and quality.
Building services materials and fixtures	Sanitary ware, faucets		○		Imported products from EU are available.
	Pipes, pumps	○	○		Domestic and imported products from Israel are available.
	Electrical materials		○		Electrical materials, lighting fixture and circuit breaker from Israel and EU are available.
	Switch board			○	Japanese products are recommended in terms of procurement and quality.

2-2-4-7 Operational Guidance Plan

Operational guidance for the equipment is not required because no equipment (as scheme category) is procured in the Project, however, instructions on how to use facilities, such as maintenance, cleaning and repairing of building components or service, will be conducted by the Contractor at the handover.

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

After the completion of the construction, Technical assistance regarding “Assistance for environment monitoring inside and perimeters of the shelter” and “Assistance for daily cleaning and maintenance in the shelter” will be implemented as soft components describe as Appendix 5: Soft Component (Technical Assistance) Plan.

2-2-4-9 Implementation Schedule

The Project will be implemented by Japanese Grant Aid after conclusion of E/N and G/A between PA and GoJ by going through the following stages:

(1) Detailed Design and Cost Estimation (approx. 6.0 months)

The Consultant will enter into a consultancy agreement with the Palestinian implementing agency and will prepare detailed design drawings and tender documents based on this outline design. The Consultant will discuss with Palestinian implementing agencies and finish the final outputs upon the Client’s approval. The period from conclusion of the contract to completing the work is estimated at around 6.0 months.

(2) Tender (approx. 3.5 months)

After approval of tender documents by the Palestinian implementing agency, the Consultant, on behalf of the implementing agency, will conduct prequalification (P/Q) of bidders in Japan through public announcement and hold a competitive tender in the presence of parties concerned, inviting

qualified Japanese contractors. The lowest bidder, after approved of the appropriateness of its bid, will be awarded a Works Contract, which the successful bidder will conclude with the Palestinian implementing agency. The period from the announcement of P/Q to the conclusion of the contract is estimated at around 3.5 months.

(3) Construction (approx. 18.0 months)

After conclusion of the Works Contract, the Contractor will commence the construction work. In consideration of the scale and the specific conditions of the construction work and the local labor efficiency, it will take about 18.0 months to carry out the construction work. This estimation is based on the assumption that the material and equipment procurement will proceed smoothly, and that the necessary procedures will be conducted without delay by authorities, and that the work to be borne by PA will proceed smoothly.

(4) Soft Components (approx. 2.5 months)

The program consists of an advance preparation for a maintenance manual and technical guidance at the Site. It will take about 2.5 months to complete the whole program.

The schedule of detailed design and tender is shown on the below chart.

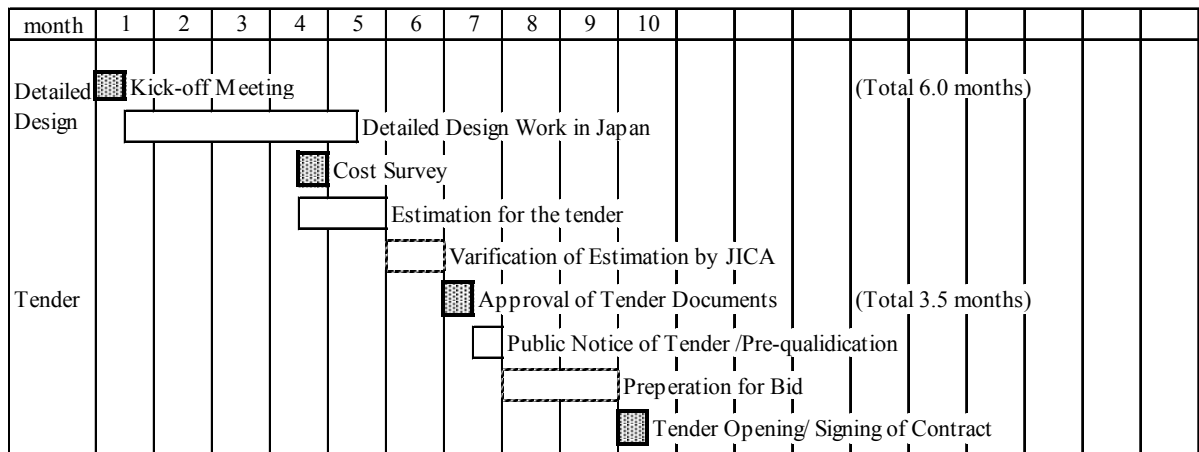


Fig. 2-3 Implementation Schedule (Detailed Design, Tender)

And the schedule of the construction is shown on the below chart.

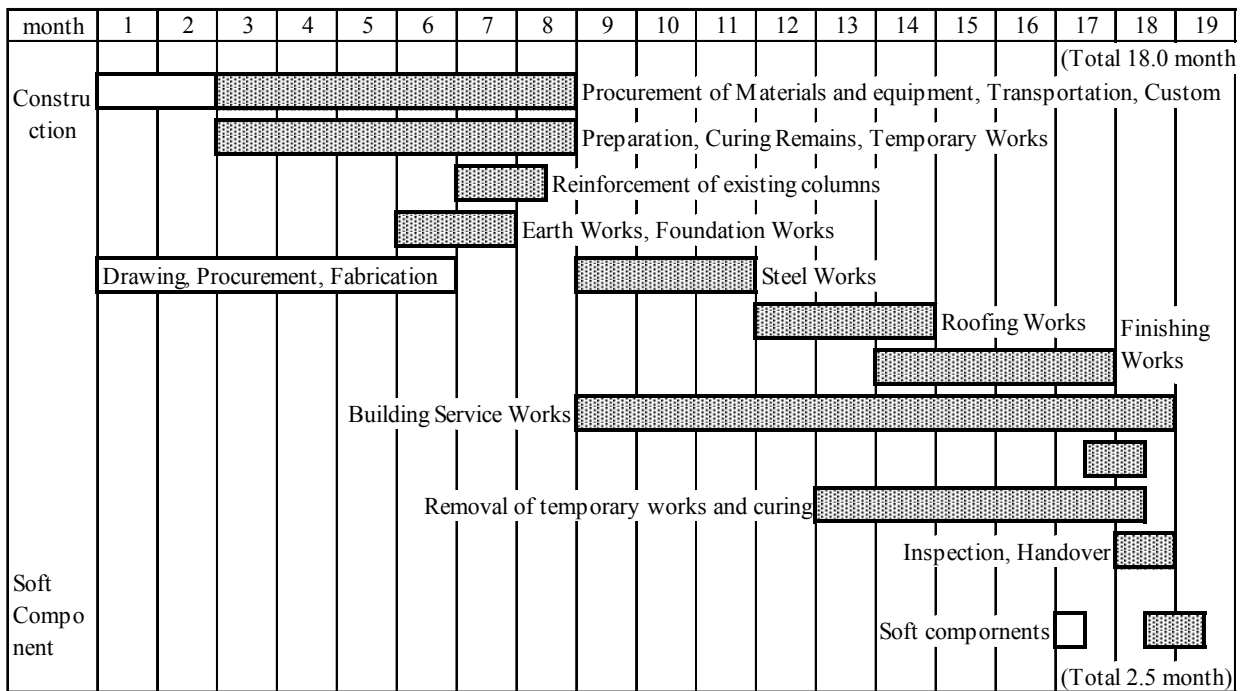


Fig. 2-4 Implementation Schedule (Construction)

2-3 Obligations of the Recipient Country

Obligations of PA for the implementation of the Project, as confirmed in the discussions of this survey, are listed as follows:

Table 2-6 Obligations to be Borne by PA

NO	Items	Deadline	In charge
Before the Tender			
1	To implement IEE	By the middle of January, 2016	MOTA EQA
2	To issue an environmental approval	Before the end of January, 2016	EQA
3	To open Bank Account (BA=Banking Arrangement)	Within 1 month after G/A	MOFP
4	To bear the following commissions to a bank of Japan for the banking services based upon the B/A		
	1) Advising commission of Authorization to Pay (A/P) for the Consultant agreement a) for detailed design b) for tender, construction supervision and soft component	Within 1 month after the signing of the agreement	MOFP
	2) Payment commission for A/P for the Consultant agreement a) for detailed design b) for tender, construction supervision and soft component, respectively	For each payment	MOTA
5	To provide contents for interpretation of the Great Bath	During detailed design	MOTA
6	To secure the following lands 1) The Great Bath, Hisham's Palace, Jericho and surrounding area 2) Temporary construction yard and stock yard within or the adjacent land 3) A disposal site for excavated soil or debris near the Site, if necessary	Before notice of the tender	MOTA
7	To obtain building permit 1) To get approval from Civil Defense 2) To check and approve the drawings by registered engineers 3) To obtain necessary permits and facilitation from relevant agencies 4) To apply for the building permit	Before notice of the tender	MOTA
8	To clear, level and reclaim the Site 1) To document and record the stones around the Great Bath and provide site of storage of removed stones 2) To remove existing ramps and light fixture	Before notice of the tender document	MOTA
9	To prepare damage map of mosaic floor and restore urgent damage of mosaics 1) To remove protective sand on the mosaic floor 2) To recover protective sand on the mosaic floor	Before notice of the tender document	MOTA
During the Project Implementation			

1	To remove existing shelter for the mosaic Tree of Life of the Great Bath	Within two weeks of after the contract	MOFP
2	To bear the following commissions to a bank of Japan for the banking services based upon the B/A		MOTA
	1) Advising commission of Authorization to Pay (A/P)	Within 1 month after the signing of the contract	
	2) Payment commission for A/P	Every payment	
3	To ensure prompt unloading and customs clearance in recipient country		
	1) Tax exemption and customs clearance of the products	During the Project	MOFP
4	To accord Japanese nationals and/or physical persons of third countries whose services may be required in connection with the supply of the products and the services under the verified contract such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work	During the Project	Relevant authorities
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 (or be borne) by its designated authority without using the Grant; Such customs duties, internal taxes and other fiscal levies mentioned above include VAT, income of the contractor, salary, wages or other incomes of expatriate personnel of the contractor, but not limited, which may be imposed in the recipient country with respect to the supply of the products and services under the verified contract	During the Project	MOFP
6	To bear all the expenses, other than those to be borne by the Grant Aid, necessary for the construction of the facilities	During the construction	MOTA
7	To construct security fence around Hisham's Palace, if required	3 months before completion of the construction	MOTA
8	To provide distribution of electricity by modifying the contract with JDECO to enlarge the receiving capacity, if required.	3 months before the completion of the construction	MOTA
9	To implement Environment Management Plan(EMP) and Environment Monitoring Plan(EMoP)	During the construction	MOTA EQA
	To submit results of environmental monitoring to JICA, by using the monitoring form, on a quarterly basis as a part of Project Monitoring Report	During the construction	MOTA EQA
After completion of the Project			
1	To maintain and use properly and effectively the facilities built and equipment provided under the Grant Aid 1) Allocation of maintenance cost 2) Operation and maintenance structure 3) Routine check/Periodic inspection	After completion of the construction	MOTA
2	To monitor and maintain mosaic floor, and restore it, if necessary	After completion of the construction	MOTA
3	To implement EMP and EMoP	for a period based on EMP and EMoP	MOTA EQA

2-4 Project Operation Plan

(1) Operation Plan

Hisham's Palace is operated under the Site Management (Central Region) Department, General Directorate of Conservation and Site Management, MOTA. Current staff are listed as follows and they are under the jurisdiction of Governorate Directorates of Jericho:

- Director: 1 (concurrent post)
- Reception employees: 2
- Curator of the museum: 1 (concurrent post)
- Guards: 2
- Gardener: 1
- Cleaner: 1

The mosaic center in the Site belongs to Non-organic Material Department, under General Directorate of Exploration techniques and Museum, and staff are engaged in research and training of conservation of mosaics, and conservation and restoration work of mosaics across the country.

(2) Maintenance of mosaics and remains

In order to reduce the impact by the exposure of the mosaics to the air, appropriate maintenance is necessary in addition to the protective shelter. This Project will provide technical assistance, "Soft Component", for monitoring of environment around and within the shelter, regular cleaning and maintenance for the mosaics and remains. The monitoring will be conducted for the climatic data around the shelter, microclimate within the shelter and information of the soil under the mosaics. Regular cleaning and checks will be conducted in an appropriate manner and conservation treatment will be taken for early damage on mosaics and remains: cracks, lacunas, cavities, detached tesserae, detachment between mosaic layer, and plant intrusions.

MOTA needs to establish and maintain an organization for maintenance with assistance of Soft Component.

(3) Maintenance of shelter

The design of the shelter achieves easy-maintenance without advanced systems, but in order to keep the shelter in a good condition, the staff need to ensure regular cleaning and checks for the structure and building elements and take necessary treatment for early troubles such as wear, tear and ageing.

- Regular cleaning: Daily, weekly and quarterly cleaning schedules will be developed. Because they are good opportunities to find out abnormal conditions on the remains and the mosaics, reporting system of early recognition, and treatment should be established.

- Regular repair of the shelter: As for repairs of the worn, torn or aged parts of the shelter, regular inspections and repairs will be conducted: annual inspections of the doors and windows, touch-up of the painted areas every three years, and repainting every ten to fifteen years and so on.
- Maintenance of the building services: Daily “preventive maintenance” is important before any damage or replacement of parts. The durable period of building services can be extended by proper operation, daily maintenance, lubrication, adjustment, cleaning, fixing and so on.
- Systems used locally without advanced systems are applied for the building services in the Project. A system to conduct minor repairs, replacement of parts by themselves, based on the maintenance manuals to be provided upon completion, and outsource regular inspections of pumps to external contractors should be established.
- Rain water gutter, pipe and pit are recommended to be cleaned once a year because they are likely to be filled with sand.

2-5 Project Cost Estimation

2-5-1 Initial Cost Estimation

(1) Costs to be borne by the PA

Table 2-7 Costs to be Borne by the PA

Items	Estimated Cost	
	(USD)	(million JPY)
Before the Tender		
[4] 1) Advising commission of Authorization to Pay (A/P) for the Consultant agreement	50	0.006
[4] 2) Payment commission for A/P for the Consultant agreement	1,300	0.2
[7] To obtain building permit		
To check and approve the drawings by registered engineers	17,000	2.1
To apply for the building permit from Jericho Municipality	1,700	0.2
[8] To clear, level and reclaim the Site 1) To document and record the stones around the Great Bath and provide site of storage of removed stones 2) To remove existing ramps and light fixtures	6,000	0.7
[9] To prepare damage map of mosaic floor and restore urgent damage of mosaics 1) To remove protective sand on the mosaic floor 2) To recover protective sand on the mosaic floor	10,000	1.2
During the Project Implementation		
[1] To remove existing shelter for the mosaic Tree of Life of the Great Bath	2,000	0.2
[2] 1) Advising commission of Authorization to Pay (A/P)	50	0.006
[2] 2) Payment commission for A/P	7,900	1.0
[7] To construct security fence around Hisham's Palace, if required	---	---
[8] To provide distribution of electricity by modifying the contract with JDECO to enlarge the receiving capacity, if required.	3,000	0.4
Total	47,000	5.8

*The numbers of the head of lines correspond to Table 2-6

(3) Conditions for Estimate of Accumulation

- Estimated as of : August 2015
- Exchange Rate: 1USD=123.70 JPY, 1USD=3.82 NIS, 1 NIS = 32.41 JPY
- The period required for the detailed design and the construction is as shown in the implementation schedule.
- Others: This Project will be carried out using Japanese Grant Aid System.

2-5-2 Operation and Maintenance Costs

The following is a preliminary calculation of the annual costs expected to be required for operation and maintenance of the Project.

The accounting for the operation of Hisham's Palace is not independent because it is booked as a part of the section of MOTA, The profit from the ticket fees does not affect the income and expenditure of the MOTA's operation, because the entire ticket fees directory goes to the accounting of MOFP.

(1) Personnel Emoluments

Two additional staff (technician of mosaic repairing and other maintenance staff) will be engaged in addition to the current operation staff after the Project. Incremental cost is assumed as 87,000 NIS and the amount of the total cost for personnel expenses will increase from the current 226,000 NIS to 313,000 NIS (plus 87,000 NIS).

(2) Utility Charge

The expense for the water and the electrical power is estimated 53.4,000 NIS (plus 10,100 NIS) as calculated as follows:

1) Water charge

The current consumption of the water is about 300 NIS. Increment of the water consumption is expected about 100 NIS/year for cleaning of the remains.

2) Electricity costs

Current consumption of the electric power is 43,000 NIS, and it is assumed that the air-conditioning cooling is the large portion of that, because there is big difference between the consumption in summer and that in winter. The increment of the power consumption by the upgrading of electricity contract for mainly lighting of the shelter in the Project is calculated about 10,000 NIS per year.

(3) Facilities Maintenance Costs

Estimated maintenance cost of the shelter is calculated to be 65,100 NIS as shown in the Table 2-8. The cost will be applied for repainting and mending on wooden or steel surface, partial repairs for finishing, fixing doors and their hardware, replacing lighting fixtures, replacing parts or maintenance or fixing of service equipment. For large-scale and long-term repair work, a fund should be prepared by the investment budget managed by MOTA.

Table 2-8 Estimation of Facilities Maintenance Cost

Facilities Maintenance Cost		(1,000 NIS)
Building maintenance cost*		16.4
Building service maintenance cost*		29.7
Existing facilities maintenance cost		19.0
Total		65.1

The ordinary maintenance costs for the facilities are assumed as follows, considering the contents and specifications of the facilities, based on building maintenance cost data of similar facilities in Japan.

- Building maintenance cost: Construction Direct cost of building facilities (without temporary works and demolish works) × 0.1%
- Building service maintenance cost: Construction Direct cost of service facilities×1.5%
- Existing facilities maintenance cost: Project cost of the administrative office, the museum, the toilets and the mosaic center×0.5%

(4) Summary of Operation and Maintenance Cost

The Table 2-9 summarizes the results of above estimations. The increased maintenance cost by the Project is estimated as 145,000 NIS out of total of 431,500 NIS for the annual operation and maintenance cost.

Table 2-9 Estimation of Annual Operation and Maintenance Cost

Category	Items	Remarks	Annual Cost		
			Current	After the Project	Increment
Personnel Emoluments	Salary for the staff	Estimated by MOTA. Two additional staff (Technician of mosaic repairing and other maintenance staff) will be engaged after the completion	226	313	87
Utility Charge	Electricity	Past record and prediction by MOTA	43	53	10
	Water	Past record and prediction	0.3	0.4	0.1
Facilities Maintenance Cost	Building maintenance cost	Paint / Finish repairing [Direct construction cost (without temporary /dismantle works)]×0.1%	0	16.4	16.4
	Building service maintenance cost	Replacing parts or maintenance or fixing of lighting fixture and service equipment [Direct construction cost of services]×1.5%	0	29.7	29.7
	Existing facilities maintenance cost	Past record and prediction by MOTA	17.2	19	1.8
Total			286.5	431.5	145.0

Chapter 3 Project Evaluation

3-1 Preconditions

The prerequisite matters that PA should address for implementation of the Project are described as follows.

(1) Acquisition of the necessary authorization and agreements for implementation of the Project

The process of the building permit for the Project needs to finish prior to the notice of the tender to assure bidders that they can commence their work. Although a design and a calculation are supposed to be conducted by a registered engineer in normal procedure, the design and the calculation will be conducted by Japanese consultants on their responsibility. Thus MOTA needs to coordinate with Jericho Municipality which has authority for building permit to avoid delay of the procedure. MOTA needs also to acquire approval for firefighting services by the Civil Defense.

(2) Implementation of tax exemptions

The targeted components are supposed to be carried out with Japanese Grant Aid and customs duty, VAT, corporate tax and income tax, which are imposed in Palestinian territories for the purchase of products and services, exempted or borne by PA based on E/N and G/A. Customs duties, corporate tax and income tax will be exempted and VAT will be refunded. However the VAT-refund process has taken long time in some Japanese Grant Aid projects. MOTA needs to have close discussion with MOFP, which is responsible for tax refund, and take procedures for tax exemption without delay.

(3) Compliance with obligations of PA

The works to be borne by PA are organized through a series of discussions between two parties. Development of damage map, demolition of the shelter and the wall of Diwan, allocation of space for relics surrounding the Great Bath, and contract modification with JDECO are important for implementation of the Project. General Directorate of Conservation and Site Management, MOTA needs to consult with related parties of Japan on the detail and the schedule and allocate the necessary budget for steady implementation of these works.

3-2 Necessary Inputs by Recipient Country

PA needs to implement the following issue in order to sustain the Project effect.

(1) Secure allocation of maintenance staff and continuous appropriate maintenance activity

In order to minimize environmental impacts as a result of exposure of the floor mosaics to the air, not only shelter to block direct sunlight and rain but also daily cleaning, maintenance activities, prompt recognition of defects and emergency measures are necessary. The Project includes soft components to assist environmental monitoring and daily cleaning and maintenance in the shelter

and MOTA is required to assign staff to join this seminar and continue these maintenance and monitoring activities after the completion of the Project. And MOTA is required to allocate some additional maintenance staff: receptionists, cleaners and guards, which they plan.

3-3 Important Assumptions

(1) Stabilization of the security situation

Israeli authorities control immigration of personnel and customs clearance of material for the Project and their control is affected by the political situation between these two parties. Stabilization of the political situation is required for smooth implementation of the Project.

Attacks including stabbings, car rammings and shootings occurred after a car-ramming terror attack in Jerusalem on March 2015 and the security situation seems to be worsening. Continuous stabilization of the security situation is essential for successful implementation of the Project and worsening of the security situation in the targeted area could interrupt the Project.

(2) Continuation of a policy on preservation of cultural heritages

PA sets preservation and renewal of cultural heritages to reintegrate Palestinian society in NDP 2014-16 and intends to allocate budget positively on this issue. PA also set the three priority issues: “Effective system of protection of cultural heritage sites”, “Effective restoration and management of cultural heritage sites” and “Development and activation of cultural heritage sites” in Palestinian Tourism Development Strategy (hereinafter so as “PTDS”) 2011-13. Continuation of a policy on preservation of cultural heritages is essential for successful implementation of the Project.

3-4 Project Evaluation

3-4-1 Relevance

The relevance of the Project is recognized as follows.

(1) Project beneficiaries

The direct beneficiaries of the Project are staff of MOTA, administrative officers and private businesses in tourism sector that work in Jericho. And the indirect beneficiaries of the Project are residents in Jericho and neighboring camps, an estimated 37,893 people (2015, Palestinian Central Bureau of Statistics).

(2) Project Goals and Urgency

The Project aims to achieve both protection and exhibition of cultural heritage with historical value and contribute to increasing the number of visitors and tourism promotion in Jericho by the construction of the protection and exhibition facility for the mosaics of the Great Bath. Since the

Project also aims to contribute to the stability of people's livelihoods by the regional economic development, the urgency of the Project is considered to be substantially high.

(3) Relevance with the Overall Goal

In NDP 2014-16, PA emphasizes tourism sector, which has potential for high economic growth, and creation of employment and indicates that preservation and renewal of cultural heritage sites have an important role to keep the identity of Palestinian people under the occupation. Also in PTDS 2011-13, MOTA prioritizes conservation, maintenance and repairs, and development of cultural heritage sites and the Project meets these development policies.

(4) Consistency with Japan's Aid Policy and Objectives

GoJ set "Peacebuilding through promoting economic & social self-reliance" as a basic aid policy to the Palestinians and has been assisting on three priority issues: a) Stability and betterment of people's livelihood, b) Reinforcement of governmental administrative capacity, and c) Promotion of continuous economic growth. This Project contributes to c) and assists the economic growth in Jericho by tourism development. Thus the Project meets aid policies to the Palestinians of GoJ and the validity of the Project is evaluated highly.

3-4-2 Effectiveness

(1) Quantitative Effects

The outputs of the expected quantitative effects by the Project are listed as follows.

- The floor area of the protected and exhibited mosaics of the Great Bath of Hisham's Palace will increase from the current 30m² in 2014 to targeted 825m² in 2021.
- The annual visitors to Hisham's Palace will increase from the current 40,845 in 2014 to targeted 68,120 in 2021.

(2) Qualitative Effects

The outputs of the expected qualitative effects by the Project are listed as follows.

- The mosaics of the Great Bath of Hisham's Palace will be exhibited in safe condition from deterioration and damage.
- The satisfaction of visitors to Hisham's Palace will be improved.
- The value of tourism sector in Jericho will be improved.

(3) Conclusion

Thus the Project is considered to be sufficiently relevant and effective.

Appendices

1. Member List of the Study Team
2. Study Schedule
3. List of Parties Concerned in the Recipient Country
4. Minutes of Discussions
 - 4-1. Field Survey 1
 - 4-2. Field Survey 2
 - 4-3. Field Survey 3 (Explanation of Draft Report)
5. Soft Component (Technical Assistance) Plan
6. Other Relevant Data
7. Reference
 - 【Natural Condition, Site Condition】**
 - 7-1. Topographical Survey Map
 - 7-2. Geotechnical Survey Report (excerpted)
 - 7-3. Immovable Property Registration
 - 7-4. Policies of Conserving Hisham Palace and Its Surrounding (English Translation)
 - 【Environmental and Social Conditions】**
 - 7-5. Scoping Matrix
 - 7-6. TOR for JICA IEE Study
 - 7-7. Result of the IEE Study
 - 7-8. Result of IEE in comparison with Scoping
 - 7-9. Mitigation Measures
 - 7-10. Monitoring Plan
 - 7-11. Example of Monitoring Form
 - 7-12. Environmental checklist
 - 7-13. ACM Minutes of Meetings (ACM1-4)
 - 7-14. ACM Presentation Data (ACM1 - 4)
 - 7-15. PC Minutes of Meetings (PC1,2)
 - 7-16. Environmental Approval

1. Member List of the Study Team

Field Survey 1 (July 25-August 22, 2015)

Name	Assigned to	Title, Institution / company
Mr.Toshiyuki IWAMA	Leader	Executive Technical Advisor to the Director General Infrastructure and Peacebuilding Department , JICA
Mr. Shinichi YOSHIHARA	Project Coordinator	Deputy Assistant Director Team 2 Urban and Regional Development Group Infrastructure and Peacebuilding Department, JICA
Mr. Kazuya YAMAUCHI	Technical Advisor	Head, Regional Environment Section, Japan Center for International Cooperation in Conservation, National Research Institute for Cultural Properties, Tokyo, National Institutes for Cultural Heritage
Mr. Kenji KAWAZOE	Chief Consultant/ Architectural Design/ Heritage Conservation 1	Matsuda Consultants International Co., Ltd.
Mr. Masakazu TAKAGI	Deputy Chief Consultant/ Site Survey/ Natural Conditions Survey/ Construction Program	Matsuda Consultants International Co., Ltd.
Mr. Ryozo UMEZAWA	Structural Design	Umezawa Structural Engineers
Mr. Shigeo AOKI	Heritage Conservation 2	Tokyo National Research Institute of Cultural Properties honor researcher
Mr. Daigo TANABE	Procurement Program/ Cost Estimation	Matsuda Consultants International Co., Ltd.
Mr. Tsuyoshi SASAKA	Environmental and Social Considerations/ Impact Study of Heritage Site	IC Net Ltd.

Field Survey 2 (September 12-September 23, 2015)

Name	Assigned to	Title, Institution / company
Mr.Toshiyuki IWAMA	Leader	Executive Technical Advisor to the Director General Infrastructure and Peacebuilding Department , JICA
Mr. Shinichi YOSHIHARA	Project Coordinator	Deputy Assistant Director Team 2 Urban and Regional Development Group Infrastructure and Peacebuilding Department, JICA
Mr. Kenji KAWAZOE	Chief Consultant/ Architectural Design/ Heritage Conservation 1	Matsuda Consultants International Co., Ltd.
Mr. Masakazu TAKAGI	Deputy Chief Consultant/ Site Survey/ Natural Conditions Survey/ Construction Program	Matsuda Consultants International Co., Ltd.

Field Survey 3

(November 28-December 11, 2015)

Name	Assigned to	Title, Institution / company
Mr.Toshiyuki IWAMA	Leader	Executive Technical Advisor to the Director General Infrastructure and Peacebuilding Department , JICA
Mr. Shinichi YOSHIHARA	Project Coordinator	Deputy Assistant Director Team 2 Urban and Regional Development Group Infrastructure and Peacebuilding Department, JICA
Mr. Kenji KAWAZOE	Chief Consultant/ Architectural Design/ Heritage Conservation 1	Matsuda Consultants International Co., Ltd.
Mr. Masakazu TAKAGI	Deputy Chief Consultant/ Site Survey/ Natural Conditions Survey/ Construction Program	Matsuda Consultants International Co., Ltd.

2. Study Schedule

Field Survey 1 (25th July 2015 - 22nd August)

			Official Leader, Project Coordinator	A. Chief Consultant/ Architectural Design/ Heritage Conservation 1	B. Heritage Conservation 2	C. Structural Design	D. Deputy Chief Consultant/ Site Survey/ Natural Conditions Survey/ Construction Program	E. Procurement Program/ Cost Estimation	F. Environmental and Social Considerations/ Impact Study of Heritage Site	
1	25-Jul	sat		TYO-TLV (TK053-TK784)						
2	26-Jul	sun		Meeting w/ JICA						
				Travel from Tel-avive to Jericho						
				Meeting w/ MOTA						
3	27-Jul	mon		Site Survey						
				Meeting w/ MOTA (Inception, Design)						
4	28-Jul	tue		Site Survey						
				Meeting w/ MOTA (Design)			TYO-TLV (TK784)			
5	29-Jul	wed		Meeting with local engineers			Travel from Tel- avive to Jericho			
				Jericho Municipality: Courtesy Call,						
				Visit to wastewater treatment plant and						
				Site Survey						
6	30-Jul	thu		Meeting w/ MOTA (Design)		Site Survey		Meeting w/ officer of water supply, topographical surveyor and electrical supplier (JDECO)		Meeting w/ EQA
				Visit to the similar project (shelter in Jericho)						Meeting w/ MOTA
7	31-Jul	fri	Travel from Jericho to Ramallah							
			Documentation							
8	1-Aug	sat	TYO-TLV	Documentation						
9	2-Aug	sun	Site Survey		Meeting w/ geotechnical surveyor and topographical				←A	
			Meeting w/ MOTA		Documentation	Interview of suppliers				
			Team Meeting							
10	3-Aug	mon	ACM 1							
			Meeting w/ UNESCO							
11	4-Aug	tue	Meeting w/ MOPAD	Site survey	Documentation	Meeting w/ MOTA (QN)			←D	
			Meeting w/ MOTA		Construction Site visit					
12	5-Aug	wed	Meeting w/ MOTA	Site survey, Meeting w/ geotechnical surveyor, Confirmation of the location of the foundations					Site Survey (ESC)	
13	6-Aug	thu	Meeting w/ MOPAD		Construction Site visit	Documentation	←C			
			Report to ROJ		Interview of Suppliers and Contractors					
			Team Meeting		Documentation	←A	Documentation	←A		
14	7-Aug	fri	TLV-TYO	Documentation	TLV-TYO (TK789-TK052)					
15	8-Aug	sat		Documentation			Documentation			
16	9-Aug	sun		Meeting w/ MOTA (preparation of ACM, scheduling)			Meeting w/ geotechnical surveyor, civil defence	Interview of Suppliers	←A	
17	10-Aug	mon		Meeting w/ MOTA (preparation of ACM, QN)			←A	Cost Survey	←A	
18	11-Aug	tue		Meeting w/ MOTA (Workshop in MOTA, preparation of ACM)			←A	Interview of Suppliers and Contractors		
19	12-Aug	wed		Meeting w/ MOTA (ACM, Design and Undertaking)			←A	Interview of Suppliers and Contractors		
20	13-Aug	thu		Design Study			←A	Documentation	Documentation	
21	14-Aug	fri		Design Study			←A			
22	15-Aug	sat							TLV-TYO (TK789-TK052)	
23	16-Aug	sun		Meeting w/ MOTA (ACM, Design and Undertaking)			←A	Interview of Suppliers		
24	17-Aug	mon		Documentation			←A	Survey at Meteorology centre and suppliers		
25	18-Aug	tue		Meeting w/ MOTA Meeting w/ MOF			←A			
26	19-Aug	wed		ACM2			←A			
27	20-Aug	thu		Meeting w/ MOTA (Signing of TN) Report to JICA			←A	Documentation		
28	21-Aug	fri								
29	22-Aug	sat		TLV-TYO (TK785- TK050)						

Field Survey 2 (12th September 2015-23rd September)

			Official Leader, Project Coordinator	A. Chief Consultant/ Architectural Design/ Heritage Conservation 1	D. Deputy Chief Consultant/ Site Survey/ Natural Conditions Survey/ Construction Program
1	12-Sep	sat	TYO-TLV (TK053-TK784) TYO-TLV (TK051-TK788)		
2	13-Sep	sun	Meeting w/ JICA		Meeting w/ MOTA (Inception, Design)
			Meeting w/ MOF		
3	14-Sep	mon	Meeting w/ MOTA (Undertaking, MD, ACM)		Documentation
4	15-Sep	tue	ACM3		
			Site Survey		
5	16-Sep	wed	Report to ROJ	Meeting w/ MOTA	
				Technical Survey (Condition of Design, Temporary	
6	17-Sep	thu	Meeting w/ MOTA (Design, Project schedule)		
			Signing of M/D, Courtesy visit to the Minister		
7	18-Sep	fri	TLV	Documentation	
8	19-Sep	sat		Documentation	
9	20-Sep	sun		Meeting w/ MOTA (Design, Conditions, Supplemental documents)	
10	21-Sep	mon		Meeting w/ MOTA (T/N, Supplemental documents)	
				Site survey	
11	22-Sep	tue		TLV-TYO (TK785-	
12	23-Sep	wed		TK050)	

Field Survey 3 (28th November 2015-11th December)

			Official Leader, Project Coordinator	A. Chief Consultant/ Architectural Design/ Heritage Conservation 1	D. Deputy Chief Consultant/ Site Survey/ Natural Conditions Survey/ Construction Program
1	28-Nov	sat	TYO-IST, TK053		
2	29-Nov	sun	IST-TLV, TK794		
			Meeting w/ JICA		
3	30-Nov	mon	Meeting w/ MOF (M/D)		
			Meeting w/ MOTA (M/D)		
4	1-Dec	tue	Meeting w/ MOTA (M/D)		Technical Survey
5	2-Dec	wed	Meeting w/ MOF, MOTA (M/D)		Technical Survey
			Interview of Japanese commercial firms		
6	3-Dec	thu	Signing of M/D		Technical Survey
			Report to ROJ, JICA		
7	4-Dec	fri	TLV-TYO	Documentation	
8	5-Dec	sat			
9	6-Dec	sun		Meeting w/ MOTA	
10	7-Dec	mon		Meeting w/ MOTA (Preparation of ACM4)	
11	8-Dec	tue		ACM4	
12	9-Dec	wed		Meeting w/ MOTA	
13	10-Dec	thu		Meeting w/ MOTA, Site Survey	
				TLV-IST, TK789	
14	11-Dec	fri		IST-TYO, TK052	

ABBREVIATION

MOTA: Ministry of Tourism and Antiquities
 EQA: Environment Quality Authority
 UNESCO: United Nations Educational, Scientific and Cultural Organization
 ACM: Advisory Committee Meeting
 M/D: Minutes of Discussion
 T/N: Technical Note
 QN: Questionnaire
 MOPAD: Ministry of Planning and Administrative Development
 MOF: Ministry of Finance
 MOFP: Ministry of Finance and Planning

3. List of Parties Concerned in the Recipient Country

■MOTA: Ministry of Tourism and Antiquities

Mr. Ihab Haj Daoud	Vice Director, General Directorate of. Conservation and Site Management
Mr. Mohammad Diab	Director, Conservation Department
Mrs. Manal Hello	Architect, Conservation Department
Mr. Zeiad Odeh	Architect, Conservation Department
Mr. Abdulrahim Awad	Director, Development Department
Mr. Bassam Hbaisheh	Director, Specification Department
Mr. Jihad Yasin	Acting Director General, General Directorate of Excavation, Technique and Museums
Mr. Firus Aqel	Museum Department
Mr. Iyad Hamadan	Acting Director of Ramallah and Jericho Governorates
Dr. Ahmed Rjooob	Acting Director of Southern Governorates
Mr. Mohammad Fawzi	Acting Director General, General Directorate of Administrative and Financial Affairs
Mr. Auni Shawamra	Director, Registration of Archaeological Site Department
Mr. Mohammad Sayel	Director General, General Directorate of National Registration
Mr. khader Khanfar	Archeologist, General Directorate of National Registration
Mr. Atiyeh Khateeb	Acting Director General, Planning Unit
Mr. Mohammad Khateb	Finance
Mr. Ali Hamad	Finance
Mr. Hoshyl Shafayh	Finance
Mr. Nidal Khatib	Mosaic Restorer

■EQA : Environment Quality Authority

Ms. Eng. Adalah Atteereh	Director General
Mr. Issa Musa Al Baradeiya	Manager , Environmental Resources Directorate
Mr. Amjad Ibrahim	Auditor, EIA Division
Mr.Fekre Toubasi	Director General , EIA Division
Mr. Ayman Abu Thaher	Jericho Office
Dr. Issa Barad'eya	Director General Environmental Expert

■MOFP:Ministry of Finance and Planning

Mr. Sulaiman Hassom	Director, Tax Exemption
Mr. Hussein Jaloudi	Director, International Agreement

■MOPAD (Ministry of Planning and Administrative Development)¹

Ms. Dana Erekat Special Advisor to the Minister, Aid Management and Coordination
Directorate

Mr. Firas Fazakh

■Municipality of Jericho

Mr. Mohamad Jalaita Mayor
Mr. Basel a. Hijazi Head, Engineering Dept.
Mr. Mohamad Es'eed Engineering Dept.
Mr. Muhammad Fetiane Head, Water Dept.
Mr. Emad Salman City Council
Mr. Essa Darweesh City Council
Ms. Wiam E'raikat Public Relation Dept.
Mr. Marwan Samarat Public Relation Dept.

■UNESCO

Mr. A. Junaid Sorosh Wali Head of Culture Unit, Ramallah Office
Mr. Mohammad Abuhammad Architect, Ramallah Office

■JHTC(Jericho Heritage Tourism Committee)

Mr. Najah Hammad
Mr. Mohammad Hawash
Mr. Raed Saadeh

■ROJ Palestine

Mr. Takeshi Okubo Ambassador

■EOJ Israel

Mr. Hiroyuki Kajita First Secretary
Ms. Wakako Imataka First Secretary
Mr. Yuki Igarashi Second Secretary

■JICA

Ms. Yuko Mitsui Chief Representative, Palestine Office
Mr. Shinichi Noguchi Senior Representative, Palestine Office
Mr. Tatsuya Hayase Representative, Palestine Office

¹ MOPAD and MOF have been consolidated as MOPF on November 2015.

Ms. Eina Ueno
Mr. Junki Mori
Dr. Abdal

Project Formulation Advisor, Palestine Office
Middle East Div.2, Middle East and Europe Dept.
Jericho Field Office

4. Minutes of Discussions (M/D)
4-1. Field Survey 1

**Minutes of Discussions
on the Preparatory Survey for the Project for
the Rehabilitation of Hisham's Palace, Jericho**


In response to the request from the Palestinian Authority (hereinafter referred to as "PA"), the Government of Japan decided to conduct a Preparatory Survey for the Project for the Rehabilitation of Hisham's Palace, Jericho (hereinafter referred to as "the Project"), and entrusted the Preparatory Survey to Japan International Cooperation Agency (hereinafter referred to as "JICA").


JICA sent the Preparatory Survey Team for the Outline Design (hereinafter referred to as "the Team") to Palestine, headed by Toshiyuki Iwama, Executive Technical Advisor to the Director General Infrastructure and Peacebuilding Department, JICA, and is scheduled to stay in the country from August 3rd to August 6th, 2015.

The Team held a series of discussions with the officials concerned of PA represented by Ministry of Tourism and Antiquities (hereinafter referred to as "MOTA") and conducted a field survey in the Project area. In the course of the discussions, both sides have confirmed the main items described in the attached sheets. The Team will proceed to further works and prepare the Preparatory Survey Report.

Bethlehem, September 2nd, 2015


Yuko Mitsui
Chief Representative
JICA Palestine Office
Japan International Cooperation Agency
Japan


H.E. Rula Ma'ayah
Minister
Ministry of Tourism and Antiquities
Palestinian Authority




Dana Erekat
Special Advisor to the Minister / Head of Aid
Management and Coordination Directorate
Aid Management and Coordination
Directorate
Ministry of Planning and Administrative
Development
Palestinian Authority

ATTACHMENT

1. Objective of the Project

The objective of the Project is to conserve and display the mosaic floor of the Great Bath at Hisham's Palace by constructing protective shelter.

2. Title of the Preparatory Survey

Palestinian side suggested changing the title of the Preparatory Survey from "the Preparatory Survey for the Project for the Rehabilitation of Hisham's Palace, Jericho" to "the Preparatory Survey for the Project of the Protective Shelter for Great Bath Hall at Hisham's Palace, Jericho"

Japanese side will study the appropriateness of the suggestion.

3. Project Site

Both sides confirmed that the site of the Project is at Hisham's Palace.

4. Executing Agency

Both sides confirmed the executing agency is MOTA. The executing agency shall coordinate with all the relevant agencies to ensure smooth implementation of the Project and ensure that the Undertakings are taken by relevant agencies properly and on time. The organization chart is shown in Annex 1.

5. Items requested by the PA

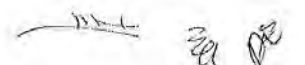
5-1. As a result of discussions, both sides confirmed that the items requested by the PA are as follows:

- 1) Constructing a shelter over the Great Bath Hall to protect the mosaic and enable visitors to appreciate
- 2) Signage and interpretation system, lighting system, security and monitoring system
- 3) Support for conducting Advisory Committee meeting and Public Consultation

5-2. JICA will assess the appropriateness of the above requested items through the survey and will explain the results for confirmation.

6. Japanese Grant Scheme

6-1. The Team explained to PA side the Japanese Grant Scheme and its procedures as

Ihab Haj Darwish


described in Annex 2, Annex 3 and Annex 4.

- 6-2. The Team explained to PA side the necessary measures to be taken, as described in Annex 5, for smooth implementation of the Project, as a condition for the Japanese Grant to be implemented. The detailed contents of the Annex 5 will be worked out during the survey and shall be agreed no later than by the Explanation of the Draft Preparatory Survey Report.

The contents of Annex 5 will be used to determine the following:

- 1) The scope of the Project.
- 2) The timing of the Project implementation.
- 3) Timing and possibility of budget allocation.

Contents of Annex 5 will be updated as the Preparatory Survey progresses, and will finally be the Attachment to the Grant Agreement. The exemption of the customs duties, internal taxes and other fiscal levies described in Annex 5 are still the template of Japanese Grant for all recipient countries. Japanese side and PA side will discuss further about this issue to modify the contents that suit to the situation in Palestine.

7. Schedule of the Survey

- 7-1. The first dispatch of Team was completed on August 21st, 2015.
- 7-2. JICA will dispatch a mission around the middle of September in order to agree with PA side about the basic principles of the Project so that the outline design can be worked out in Japan.
- 7-3. JICA will prepare a draft Preparatory Survey Report in English and dispatch a mission to Palestine in order to explain its contents around the end of November.
- 7-4. If the contents of the draft Preparatory Survey Report is accepted in principle and the Undertakings are fully agreed by the PA side, JICA will complete the final report in English and send it to PA around April.
- 7-5. The above schedule is tentative and subject to change.

8. Environmental and Social Considerations

- 8-1. The PA side confirmed to give due environmental and social considerations from the Project preparation stage to after-the-Project period in accordance with The Palestinian Environmental Assessment Policy and the JICA Guidelines for Environmental and Social Considerations (April, 2010) (hereinafter referred to as the JICA Environmental Guidelines).
- 8-2. The Project is categorized as B under the JICA Environmental Guidelines,

because the Project is not likely to have significant adverse impact on the environment under the JICA Environmental Guidelines in terms of sectors, characteristics and areas. The PA side confirmed to conduct the necessary procedures concerning the environmental and social considerations, including Initial Environmental Evaluation (IEE), stakeholder meetings and information disclosure, etc. and the preparation of the IEE report for the Project. The Environmental Approval (IEE approval and its permit) shall be received from the Environment Quality Authority and submitted to JICA as soon as it is issued and prior to signing of the Grant Agreement.

The PA side agreed to arrange the budget allocation for the IEE study.

9. Disclosure of Information

Both sides confirmed that the study results excluding the Project cost will be disclosed to the public after the completion of the Survey. All the study result including the Project cost will be disclosed to the public after the verification of all contracts for the Project by JICA are concluded.

10. Collaboration among Relevant Organizations

MOTA agreed to work closely with relevant organizations, such as the Ministry of Planning and Administrative Development the Ministry of Finance, Ministry of Interior, Jericho municipality, JICA, Embassy of Japan and Representative office of Japan to PA, with mutual common understanding and cooperation for the Project.

11. Safety Measures

11-1. To avoid accidents on site during the implementation of the Project, the Palestinian side agreed to cause the consultant and the contractor to enforce safety measures such as setting safety assurance to the site, providing information for security control to public, and deploying adequate security personnel, based on "The Guidance for the Management of Safety for Construction Works in Japanese ODA Projects" which has been published on JICA's URL below.

http://www.jica.go.jp/activities/schemes/oda_safety/ku57pq00001nz4eu-att/guidance_en.pdf

11-2. The Team recommended to the Palestinian side to explain to the residents about the Project (necessity and significance, construction period, sites, impact etc.), so that consensus support can be obtained from them for the smooth operation of the Project.

12. Misconduct

If JICA receives information related to suspected corrupt or fraudulent practices in the implementation of the Project, MOTA and relevant organizations shall provide JICA with additional such information as JICA may reasonably request, including information related to any concerned official of the government and/or public organizations in PA. MOTA and relevant organizations shall not, unfairly or unfavorably treat the person(s) and/or company which provided the information related to suspected corrupt or fraudulent practices in the implementation of the Project.

13. Other Relevant Issues

13-1. Requirements for the shelter

Both sides and Advisory Committee member confirmed the requirements of shelter are as follows:

- 1) MOTA's requirements
 - a) To be reversible
 - b) To be a light structure with simple design
 - c) To be based on minimal intervention
 - d) To be easy maintained and repaired
 - e) To be in harmony with the surrounding environment
 - f) To be a strong structure with anti-seismic measures in the region
- 2) Requirements for conservation of heritage
 - a) To block direct sunlight
 - b) To keep appropriate temperature and humidity
 - c) To block rain water and storm water
 - d) To prevent flying sand
 - e) To prevent birds' and bats' nesting
 - f) Not to disturb activities for conservation and maintenance
- 3) Requirements for appreciation of visitors
 - a) Circulation for visitor considering the characteristics of the mosaic
 - b) Appropriate lighting for appreciation: illuminance and color
 - c) Appropriate interior: ceiling height and microclimate
 - d) Interpretation and presentation of the Bath site
 - e) To be accessible to all the visitors including the disabilities
 - f) To ensure the safety of visitors

Both sides and Advisory Committee member also confirmed that the design will

Handwritten marks:
A horizontal line with a checkmark-like symbol above it.
Below it, the letters "Z" and "DE" are written in a cursive, handwritten style.

be studied further based on the principles for the shape and conditions as follows:

1) Principles for the shape

- a) Low edge of roof to make the volume of building look smaller, and
- b) High rooftop for interior space: the height shall be decided carefully.

2) Conditions

- a) To find the possible foundation place in terms of archaeological remains
- b) To try to minimize the weight and visual perception of structure
- c) To find the appropriate possible construction method

13-2. Existing Pillars in the Great Bath

Both sides agreed that 6 concrete pillars can be removed, if necessary.

13-3. Implementation Structures

The Project organization chart is given in the Annex 6. The roles and assignments of relevant organizations are as follows:

1) MOTA

MOTA will work on outline design of the shelter with JICA and the Team.

Vice Director General of Conservation and Sites Management will be project manager who is responsible for decision making of the shelter design of PA side and the smooth implementation of the Project.

2) JICA survey team

The Team will work on outline design of the shelter with MOTA.

3) Advisory Committee

Taking the uniqueness of the Project that handles cultural heritage into consideration, MOTA establishes Advisory Committee consisting of Palestinian experts in this field to get advice to implement the Project smoothly and enhance the quality of the Project. In Japan, JICA establishes Advisory Committee consisting of Japanese experts for the same reason.

13-4. Undertakings by PA side

Both sides agreed that the following undertakings shall be discussed further;

- 1) To remove left stone masonry units around the Great Bath for appropriate storage.
- 2) To remove existing shelter for the mosaic Tree of Life of the Great Bath.
- 3) To remove existing concrete pillars if necessary.

The PA side also understands that the continuous measures, maintenance and cleaning of shelter for securing the durability are especially important.

13-5. Provision of Conveniences to the Team by the PA Side

The PA side shall, at its own expenses, provide the Team with the following items



in collaboration with other organizations concerned:

- 1) Security-related information as well as measures to ensure the safety of the Team members;
- 2) Information as well as support in obtaining medical service;
- 3) Data and information related to the Preparatory Survey;
- 4) Provision of office space for the Team;
- 5) Counterpart personnel from relevant authorities in the PA; and
- 6) Coordinate and support in obtaining official permission, certificate and approval from the relevant government authorities when necessary.

13-6. Risk of damage to the mosaic

Both sides confirmed that there would be a risk of damage to the mosaic during the construction work. Both sides will further discuss to minimize the risk.

13-7. Advisory Committee

Japanese side expresses great concern about the role and function of the Advisory Committee, because more than half of the members were absent from the 1st Advisory Committee meeting held on August 3rd. PA side agreed to improve means of consultation with Advisory Committee members so that Advisory Committee meetings function well.

13-8. Public Consultation

Both sides confirmed the importance and necessity of Public Consultations. PA side agreed to conduct Public Consultations in each stage of the Project, such as concept design stage, shelter design stage and shelter construction stage, and will report to the Japanese side about the items discussed and agreed through Public Consultation.

13-9. Amendments

The contents of the Minutes of Discussions can be modified as the survey progresses by agreement between both sides.

Annex 1 Organization Chart of MOTA

Annex 2 Japanese Grant

Annex 3 Flow Chart of Japanese Grant Procedures

Annex 4 Financial Flow of Japanese Grant

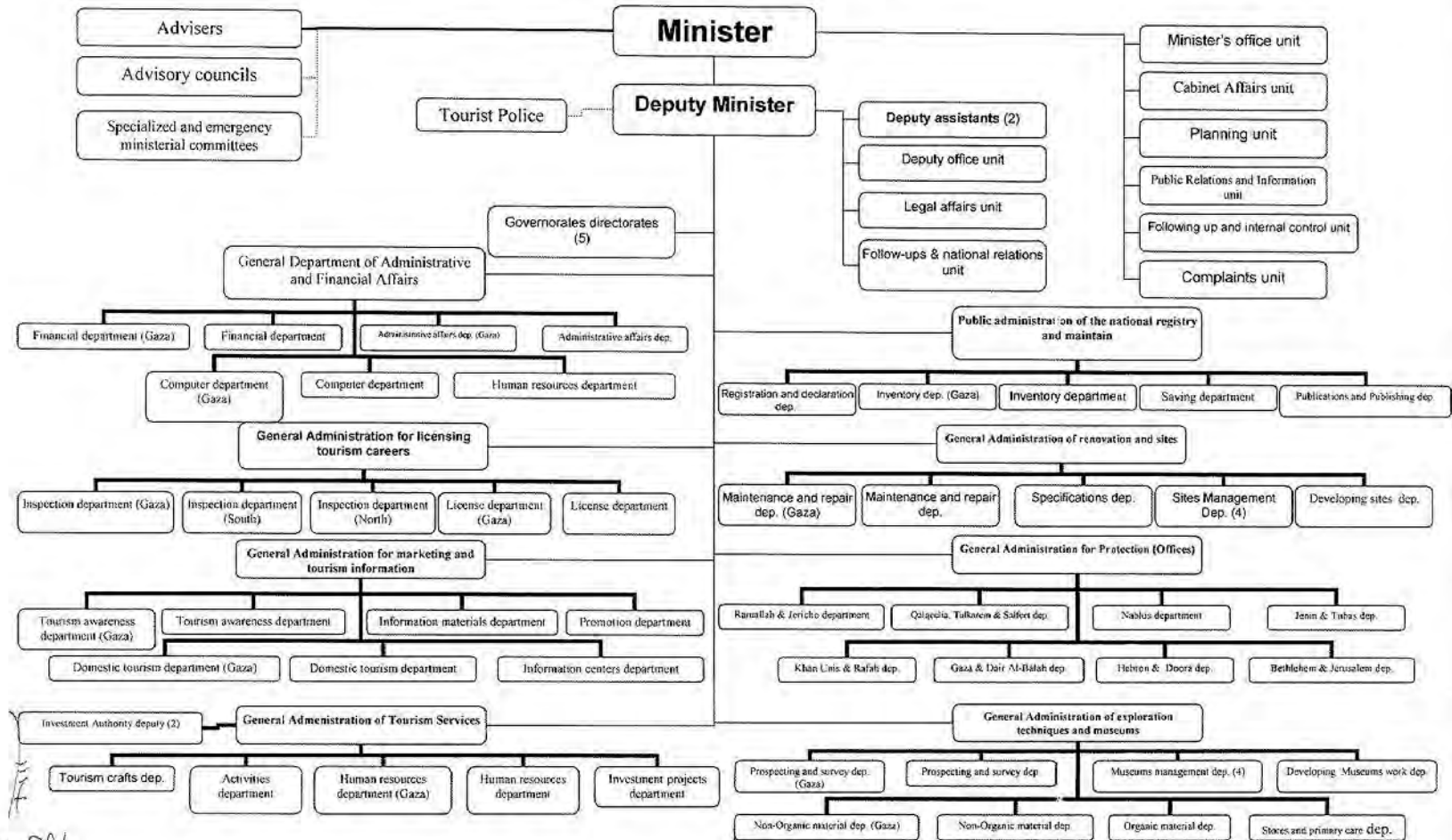
Annex 5 Major Undertakings to be taken by Each Government

Annex 6 Project Implementation Structure

Annex 7 Project Monitoring Report (template)



General structure of MoTA



A-15

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JAPANESE GRANT

The Japanese Grant (hereinafter referred to as the "Grant") is non-reimbursable fund provided to a recipient country to procure the facilities, equipment and 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. The Grant is not supplied through the donation of materials as such.

Based on a JICA law which was entered into effect on October 1, 2008 and the decision of the GOJ, JICA has become the executing agency of the Japanese Grant for Projects for construction of facilities, purchase of equipment, etc.

1. Grant Procedures

The Grant is supplied through following procedures :

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

2. Preparatory Survey

(1) Contents of the Survey

The aim of the preparatory Survey is to provide a basic document 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 country necessary for the implementation of the Project.
- Evaluation of the appropriateness of the Project to be implemented under the Grant Scheme 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.

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

JICA requests the Government of the recipient country to take whatever 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 organization of the recipient country which actually implements the Project. Therefore, the implementation of the Project is confirmed by all relevant organizations of the recipient country based on the Minutes of Discussions.

(2) Selection of Consultants

For smooth implementation of the Survey, JICA employs (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 appropriateness of the Project.

3. Japanese Grant Scheme

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

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

(2) 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 country to continue to work on the Project's implementation after the E/N and G/A.

(3) Eligible source country



Under the Grant, in principle, Japanese products and services including transport or those of the recipient country are to be purchased. The Grant may be used for the purchase of the products or services of a third country, if necessary, taking into account the quality, competitiveness and economic rationality of products and services necessary for achieving the objective of the Project. However, the prime contractors, namely, constructing and procurement firms, and the prime consulting firm are limited to "Japanese nationals", in principle.

(4) Necessity of "Verification"

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

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

In the implementation of the Grant Project, the recipient country is required to undertake such necessary measures as Annex. The Japanese Government requests the Government of the recipient country to exempt all customs duties, internal taxes and other fiscal levies such as VAT, commercial tax, income tax, corporate tax, resident tax, fuel tax, but not limited, which may be imposed in the recipient country with respect to the supply of the products and services under the verified contract, since the Grant fund comes from the Japanese taxpayers.

(6) "Proper Use"

The Government of the recipient country is required to maintain and use properly and effectively the facilities constructed and the equipment purchased under the Grant, to assign staff necessary for this operation and maintenance and to bear all the expenses other than those covered by the Grant.

(7) "Export and Re-export"

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

(8) Banking Arrangements (B/A)

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

(9) Authorization to Pay (A/P)



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

(10) Environmental and Social Considerations

The Government of the recipient country must carefully consider environmental and social impacts by the Project and must comply with the environmental regulations of the recipient country and JICA Guidelines for Environmental and Social Consideration (April, 2010).

(11) Monitoring

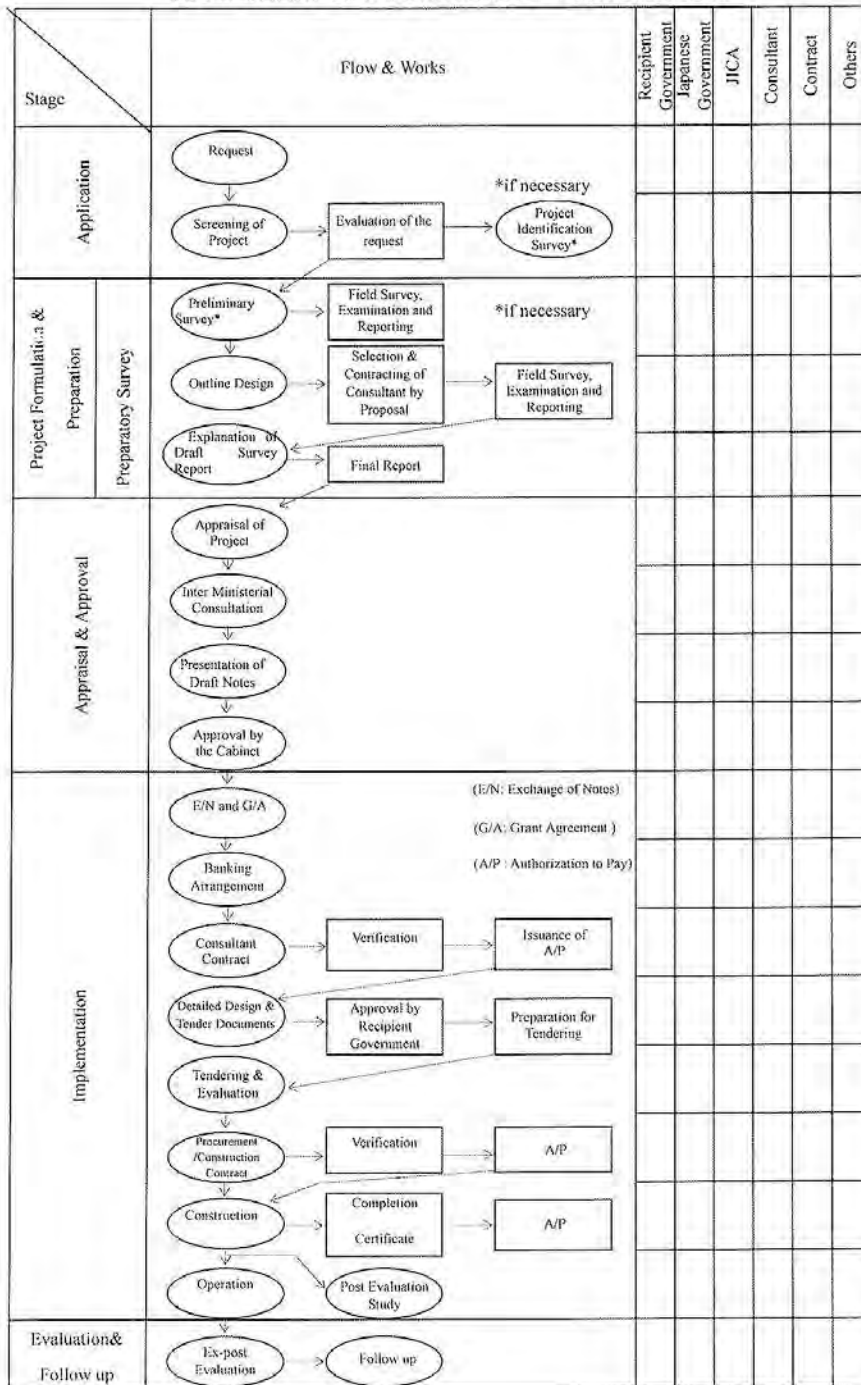
The Government of the recipient country must take their initiative to carefully monitor the progress of the Project in order to ensure its smooth implementation as part of their responsibility in the G/A, and must regularly report to JICA about its status by using the Project Monitoring Report (PMR).

(12) Safety Measures

The Government of the recipient country must ensure that the safety is highly observed during the implementation of the Project.

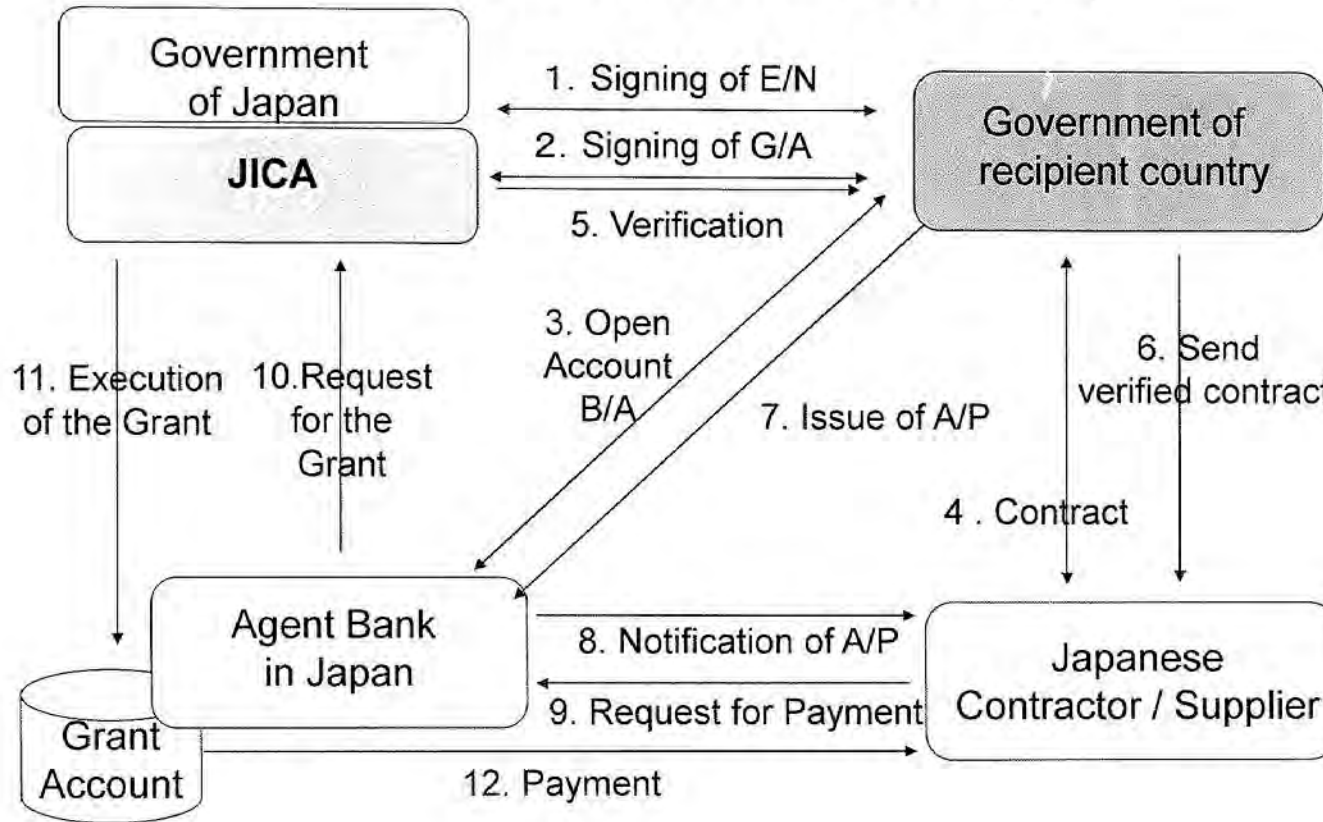
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FLOW CHART OF JAPANESE GRANT PROCEDURES



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Financial Flow of Grant Aid (A/P Type)



Handwritten notes:
 11. Execution of the Grant
 12. Payment

Major Undertakings to be taken by Recipient Government

1. Before the Tender

NO	Items	Deadline	In charge	Cost	Ref.
1	To implement IEE	until the end of November, 2015	MOTA		
2	To issue an environmental approval	before the signing of G/A	EQA		
3	To open Bank Account (BA=Banking Arrangement)	within 1 month after G/A	XXX		
4	To provide contents for interpretation of the Great Bath	During detail design	MOTA		
5	To secure the following lands 1) The Great Bath, Hisham's Palace, Jericho (hereinafter referred as "the Great Bath") and surrounding area 2) Temporary construction yard and stock yard within or the adjacent land 3) A disposal site for excavated soil or debris near the Project site	before notice of the tender	MOTA		
6	To obtain building permit 1) To get approval from Civil Defense 2) To check and approve the drawings by registered engineers 3) To coordinate with relevant agencies 4) To apply for the building permit	before notice of the tender	MOTA		

2. During the Project Implementation

NO	Items	Deadline	In charge	Cost	Ref.
1	To bear the following commissions to a bank of Japan for the banking services based upon the B/A 1) Advising commission of Authorization to Pay (A/P) 2) Payment commission for A/P	within 1 month after the signing of the contract every payment	MOTA MOTA	around 50 US \$ around 0.1% of amount of the payment	
2	To ensure prompt unloading and customs clearance in recipient country 1) Tax exemption and customs clearance of the products	during the Project	Ministry of XXX		
3	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 under the verified contract such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work	during the Project	Ministry of XXX		

Annex 5

4	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 (or be borne) by its designated authority without using the Grant; Such customs duties, internal taxes and other fiscal levies mentioned above include VAT, commercial tax, income tax and corporate tax of Japanese nationals and affiliated Japanese-overseas companies, resident tax, fuel tax, but not limited; which may be imposed in the recipient country with respect to the supply of the products and services under the verified contract	during the Project	Ministry of XXX		
5	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	during the construction	Ministry of XXX		
6	To construct security fence around Hisham's Palace, if required	3 months before completion of the construction	MOTA		
7	To provide facilities for the distribution of electricity, water supply, drainage and other incidental facilities		MOTA		
	1) Electricity To modify the contract with JDECO to enlarge the receiving capacity	3 months before the completion of the construction			
	2) Water Supply To enlarge of the existing city water piping, if required	before completion of the construction			
8	To implement EMP and EMoP	during the construction	MOTA		
	To submit results of environmental monitoring to JICA, by using the monitoring form, on a quarterly basis as a part of Project Monitoring Report	during the construction			

3. After completion of the Project

NO	Items	Deadline	In charge	Cost	Ref
1	To maintain and use properly and effectively the facilities constructed and equipment provided under the Grant Aid 1) Allocation of maintenance cost 2) Operation and maintenance structure 3) Routine check/Periodic inspection	After completion of the construction	MOTA		
2	To implement EMP and EMoP	for a period based on EMP and EMoP			
	To submit results of environmental monitoring to JICA, by using the monitoring form, semiannually - The period of environmental monitoring may be extended if any significant negative impacts on the environment are found. The extension of environmental monitoring will be decided based on the agreement between MOTA and JICA.	for three years after the Project			

(MOTA: Ministry of Tourism and Antiquities, MOF: Ministry of Finance, EQA: Environment Quality Authority, B/A: Banking Arrangement, A/P: Authorization to pay, N/A: Not Applicable)




Annex 5

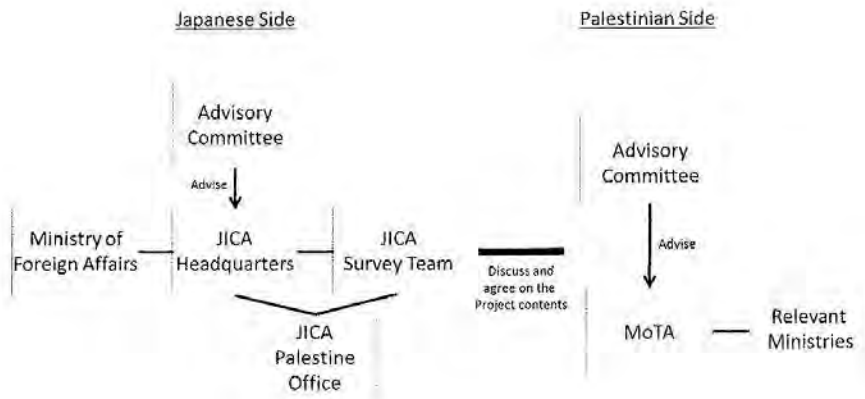
Major Undertakings to be covered by the Japanese Grant

No	Items	Deadline	Cost Estimated (Million Japanese Yen)*	
1	1) To construct a protective shelter equipped with a trail and lighting and other necessary services and to procure the material from the local area, Japan and third countries, transport the material to the Project site		XX.XX	
	2) To install necessary utilities outside of the shelter			
	a) Electricity: Installation of power cable from an existing building			
	b) Water Supply and Drainage System: Installation of elevated water tanks and piping from an existing building and a drainage network			
2	To provide consulting services		YY.YY	
	To develop drawings and to prepare tender documents			
	To manage all the tender procedure			
	To supervise the construction work			
3	Contingencies		ww.ww	
	Total		ZZ.ZZ	

*: The cost estimates are provisional. This is subject to the approval of the Government of Japan

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Implementation Structure



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

Organization Information

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

Outline of Grant Agreement:

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




1: Project Description

1-1 Project Objective

--

1-2 Necessity and Priority of the Project

- Consistency with development policy, sector plan, national/regional development plans and demand of target group and the recipient country.

--

1-3 Effectiveness and the indicators

- Effectiveness by the Project

Quantitative Effect (Operation and Effect indicators)		
Indicators	Original (Yr)	Target (Yr)
Qualitative Effect		

2: Project Implementation

2-1 Project Scope

Table 2-1-1a: Comparison of Original and Actual Location

Location	Original: (M/D)	Actual: (PMR)
	Attachment(s):Map	Attachment(s):Map

Table 2-1-1b: Comparison of Original and Actual Scope

Items	Original	Actual
(M/D)	(M/D)	(PMR) Please state not only the most updated schedule but also other past revisions chronologically.

'Soft component' shall be included in 'Items'.	All change of design shall be recorded regardless of its degree.
------------------------------------------------	------------------------------------------------------------------

2-1-2 Reason(s) for the modification if there have been any.

(PMR)

2-2 Implementation Schedule
 2-2-1 Implementation Schedule

Table 2-2-1: Comparison of Original and Actual Schedule

Items	Original		Actual
	DOD	G/A	
[M/D] 'Soft component' shall be stated in the column of 'Items'. Project Completion Date*	(M/D)		(PMR) As of (Date of Revision) Please state not only the most updated schedule but also other past revisions chronologically.

*Project Completion was defined as _____ at the time of G/A.

2-2-2 Reasons for any changes of the schedule, and their effects on the project.

2-3 Undertakings by each Government

2-3-1 Major Undertakings
 See Attachment 2.

2-3-2 Activities
 See Attachment 3.

2-3-3 Report on RD
 See Attachment 4.

2-4 Project Cost

2-4-1 Project Cost

Table 2-3-1 Comparison of Original and Actual Cost by the Government of Japan
 (Confidential until the Tender)

Items			Cost (Million Yen)	
	Original	Actual	Original	Actual
Construction Facilities (or Equipment)	'Soft component' shall be included in 'Items'.			Please state not only the most updated schedule but also other past revisions chronologically.
Consulting Services	- Detailed design - Procurement Management - Construction Supervision			
Total				

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

Table 2-3-2 Comparison of Original and Actual Cost by the Government of XX

Items			Cost (Million USD)	
	Original	Actual	Original	Actual
	'Soft component' shall be included in 'Items'.			Please state not only the most updated schedule but also other past revisions chronologically.
Total				

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

2-4-2 Reason(s) for the wide gap between the original and actual, if there have been any, the remedies you have taken, and their results.

(PMR)

2-5 Organizations for Implementation

2-5-1 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: (M/D)
Actual, if changed: (PMR)

2-6 Environmental and Social Impacts

- The results of environmental monitoring as attached in Attachment XX in accordance with Schedule 4 of the Grant Agreement.
- The results of social monitoring as attached in Attachment XX in accordance with Schedule 4 of the Grant Agreement.
- Information on the disclosed results of environmental and social monitoring to local stakeholders, whenever applicable.

3: Operation and Maintenance (O&M)

3-1 O&M and Management

- Organization chart of O&M
- Operational and maintenance system (structure and the number, qualification and skill of staff or other conditions necessary to maintain the outputs and benefits of the project soundly, such as manuals, facilities and equipment for maintenance, and spare part stocks etc)

Original: (M/D)
Actual: (PMR)

3-2 O&M Cost and Budget

- The actual annual O&M cost for the duration of the project up to today, as well as the annual O&M budget.

Original: (M/D)

4: Precautions (Risk Management)

- Risks and issues, if any, which may affect the project implementation, outcome, sustainability and planned countermeasures to be adapted are below.

Original Issues and Countermeasure(s): (M/D)	
Potential Project Risks	Assessment
1.	Probability: H/M/L
(Description of Risk)	Impact: H/M/L
	Analysis of Probability and Impact:
	Mitigation Measures:
	Action during the Implementation:
	Contingency Plan (if applicable):
2.	Probability: H/M/L
(Description of Risk)	Impact: H/M/L
	Analysis of Probability and Impact:
	Mitigation Measures:
	Action during the Implementation:
	Contingency Plan (if applicable):
3.	Probability: H/M/L
(Description of Risk)	Impact: H/M/L
	Analysis of Probability and Impact:
	Mitigation Measures:
	Action during the Implementation:
	Contingency Plan (if applicable):
Actual issues and Countermeasure(s)	
(PMR)	

5: Evaluation at Project Completion and Monitoring Plan

5-1 Overall evaluation
 Please describe your overall evaluation on Project.

4-2. Field Survey 2, Minutes of Discussions


Minutes of Discussions on the Preparatory Survey for the Project for the Rehabilitation of Hisham's Palace, Jericho


In response to the request from the Palestinian Authority (hereinafter referred to as "PA"), the Government of Japan decided to conduct the Preparatory Survey for the Project for the Rehabilitation of Hisham's Palace, Jericho (hereinafter referred to as "the Project"), and entrusted the Preparatory Survey to Japan International Cooperation Agency (hereinafter referred to as "JICA").

JICA sent the first mission of the Preparatory Survey Team for the Outline Design to Palestine in August, and JICA decided to send the second mission (hereinafter referred to as "the Team"), headed by Toshiyuki Iwama, Executive Technical Advisor to the Director General Infrastructure and Peacebuilding Department, JICA, and is scheduled to stay in Palestine from September 13th to September 22nd, 2015.

The Team held a series of discussions with the officials concerned of PA represented by Ministry of Tourism and Antiquities (hereinafter referred to as "MOTA") and other relevant ministries. In the course of the discussions, both sides have confirmed the items described in the attached sheets. The Team will proceed to further works and prepare the Preparatory Survey Report.

Bethlehem, September 17th, 2015


Toshiyuki Iwama
Leader
Preparatory Survey Team
Japan International Cooperation Agency
Japan


H.E. Rula Ma'ayah
Minister
Ministry of Tourism and Antiquities
Palestinian Authority




Dana Erekat
Special Advisor to the Minister / Head of Aid
Management and Coordination Directorate
Aid Management and Coordination
Directorate
Ministry of Planning and Administrative
Development
Palestinian Authority

ATTACHMENT

1. Title of the Preparatory Survey

Both sides confirmed the appropriateness of changing the title of the Preparatory Survey from "Preparatory Survey for the Project for the Rehabilitation of Hisham's Palace, Jericho" to "Preparatory Survey for the Project for the Construction of the Protective Shelter and the Presentation of the Great Bath at Hisham's Palace, Jericho"

2. Tax exemption

According to the Palestinian procedure on tax exemption on donor financed projects, the Ministry of Finance issues a letter of Zero-VAT to MoTA that will be used by the prime contractor as attachment to the Zero-VAT invoice.

Since the VAT will be paid at the time of purchase of the services and products the prime contractor shall request refund. The same applies to imported goods where customs duty will be paid and refunded if it has been paid for prompt customs clearance.

The Japanese side asks Palestinian side for prompt refund, possibly within six months after the refund claim.

Tax exemption will be effective based on the agreement signed by both parties.

3. Undertakings by both sides

Both sides confirmed the undertakings covered by both sides shown in Annex. This table will be discussed further and finalized in the third mission planned in November, 2015.

4. Possible effects to mosaic by uncovering protective sand


Both sides confirmed the possible effects of exposure of the mosaic from the protective sand as follows:

- 1) Damage on base and joint of mosaic by sun light, rain water, fluctuation of temperature and humidity, etc.
- 2) Damage on surface of mosaic by sand, bird droppings and animal and human behavior, etc.

PA side understands one of the purposes of the construction of the shelter is to minimize those effects and is responsible to assess its condition and take necessary measures to protect and maintain the mosaic in a proper condition.



2

Ihab HajDaud


5. Risk of damage to the mosaic during the construction work

The Team suggested that construction works have to make best efforts to avoid any negative effects to the mosaic and the surrounding built-up. However, both sides confirmed that there would be still a risk of damage to the mosaic during the construction work. Both sides will discuss further to minimize the risk and the scope of responsibilities.

6. Technical assistance (“Soft Components” of the Project) provided by Japanese side during and after the construction of the shelter

Considering the sustainable operation and maintenance of the provided facility, Japanese Grant may include soft components. Both sides discussed two possibilities of soft components for the Project as follows:

- 1) Maintenance method of the shelter and mosaic condition
- 2) Monitoring method of the shelter and mosaic condition

7. Other Relevant Issues

7-1. Implementation schedule

Both sides will discuss further to accelerate the implementation of the Project.

Annex: Major Undertakings to be taken by Each Government



Major Undertakings to be taken by Recipient Government

1. Before the Tender

NO	Items	Deadline	In charge	Cost	Ref.
1	To implement IEE	until the end of November, 2015	MOTA		
2	To issue an environmental approval	before the signing of G/A	EQA		
3	To open Bank Account (BA=Banking Arrangement)	within 1 month after G/A	MOF	around USD 100	
4	To provide contents for interpretation of the Great Bath	During detail design	MOTA		
5	To secure the following lands 1) The Great Bath, Hisham's Palace, Jericho (hereinafter referred as "the Great Bath") and surrounding area 2) Temporary construction yard and stock yard within or the adjacent land 3) A disposal site for excavated soil or debris near the Project site, if necessary	before notice of the tender	MOTA		
6	To obtain building permit 1) To get approval from Civil Defense 2) To check and approve the drawings by registered engineers 3) To obtain necessary permits and facilitation from relevant agencies 4) To apply for the building permit	before notice of the tender	MOTA		
7	To clear, level and reclaim the following sites 1) To document and record the stones around the Great Bath and provide site of storage of removed stones 2) To remove existing shelter for the mosaic Tree of Life of the Great Bath 3) To remove existing trails and light fixture	before notice of the tender document	MOTA	around USD 6,000	
8	To prepare State of Conservation Plans of mosaic floor and restore urgent damage of mosaic	before notice of the tender document	MOTA		

Annex

2. During the Project Implementation

NO	Items	Deadline	In charge	Cost	Ref.
1	To bear the following commissions to a bank of Japan for the banking services based upon the B/A				
	1) Advising commission of Authorization to Pay (A/P)	within 1 month after the signing of the contract	MOTA	around 50 US \$	
	2) Payment commission for A/P	every payment	MOTA	around 0.1% of amount of the payment	
2	To ensure prompt unloading and customs clearance in recipient country				
	1) Tax exemption and customs clearance of the products	during the Project	MOF		
3	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 under the verified contract such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work	during the Project	Relevant authorities		
4	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 (or be borne) by its designated authority without using the Grant. Such customs duties, internal taxes and other fiscal levies mentioned above include VAT, customs duty, income tax and corporate tax of Japanese nationals and nationals from a third country, which may be imposed in the recipient country with respect to the supply of the products and services under the verified contract	during the Project	MOF		
5	To bear all the expenses, other than those to be borne by the Grant Aid, necessary for construction of the facilities	during the construction	MOTA		
6	To construct security fence around Hisham's Palace, if required	3 months before completion of the construction	MOTA		
7	To provide facilities for the distribution of electricity, water supply, drainage and other incidental facilities		MOTA		
	1) Electricity To modify the contract with JDECO to enlarge the receiving capacity, if required	3 months before the completion of the construction	MOTA		
	2) Water Supply To enlarge the existing city water piping, if required	before completion of the construction	Jericho municipality		
8	To implement Environment Management Plan(EMP) and Environment Monitoring Plan(EMoP)	during the construction	MOTA EQA		
	To submit results of environmental monitoring to JICA, by using the monitoring form, on a quarterly basis as a part of Project Monitoring Report	during the construction	MOTA EQA		

Annex

3. After completion of the Project

NO	Items	Deadline	In charge	Cost	Ref.
1	To maintain and use properly and effectively the facilities constructed and equipment provided under the Grant Aid 1) Allocation of maintenance cost 2) Operation and maintenance structure 3) Routine check/Periodic inspection	After completion of the construction	MOTA		
2	To monitor and maintain mosaic floor, and restore it, if necessary	After completion of the construction	MOTA		
3	To implement EMP and EMoP	for a period based on EMP and EMoP	MOTA EOA		
	To submit results of environmental monitoring to JICA, by using the monitoring form, semiannually - The period of environmental monitoring may be extended if any significant negative impacts on the environment are found. The extension of environmental monitoring will be decided based on the agreement between MOTA and JICA.	for three years after the Project	MOTA EOA		

(MOTA:Ministry of Tourism and Antiquities, MOF: Ministry of Finance, EQA:Environment Quality Authority, B/A: Banking Arrangement, A/P: Authorization to pay, N/A: Not Applicable)

Annex

Major Undertakings to be covered by the Japanese Grant

No	Items	Deadline	Cost Estimated (Million Japanese Yen)*
1	Development of photograph map of the mosaic floor 1) To remove protective sand on mosaic floor 2) To prepare photograph map of the mosaic floor 3) To recover protective sand on the mosaic floor	before the tender	around 1.5
2	1) To construct a protective shelter equipped with a trail and lighting and other necessary services and to procure the material from the local area, Japan and third countries, transport the material to the Project site		XX.XX
	2) To install necessary utilities outside of the shelter		
	a) Electricity: Installation of power cable from an existing building		
	b) Water Supply and Drainage System: Installation of water tanks and piping		
	3) To reinforce the existing pillars		
	4) To remove stones around the Great Bath		
3	To provide consulting services To develop drawings and to prepare tender documents To manage all the tender procedure To supervise the construction work		YY.YY
4	Contingencies		ww.ww
	Total		ZZ.ZZ

*. The cost estimates are provisional. This is subject to the approval of the Government of Japan.

4-3. Field Survey 3, Minutes of Discussions

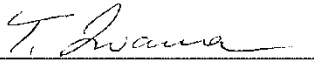
Minutes of Discussions
on the Preparatory Survey for the Project for
the Construction of the Protective Shelter and the Presentation of
the Great Bath at Hisham's Palace, Jericho
(Explanation on Draft Preparatory Survey Report)

On the basis of the discussions and field survey for the Project for the Construction of the Protective Shelter and the Presentation of the Great Bath at Hisham's Palace, Jericho (hereinafter referred to as "the Project") in Palestine from July to September, and the subsequent technical examination of the results in Japan, the Japan International Cooperation Agency (hereinafter referred to as "JICA") prepared a draft Preparatory Survey Report on the Project (hereinafter referred to as "the Draft Report").

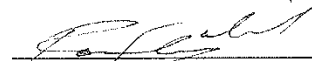
In order to explain the Draft Report and to consult with the concerned officials of the Government of Palestinian Authority (hereinafter referred to as "PA") on its contents, JICA sent to Palestine the Preparatory Survey Team for the explanation of the Draft Report (hereinafter referred to as "the Team"), headed by Toshiyuki Iwama, Executive Technical Advisor to the Director General Infrastructure and Peacebuilding Department, JICA, and is scheduled to stay in the Palestine from November 29th to December 4th, 2015.

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

Bethlehem, December 3rd, 2015




Toshiyuki Iwama
Leader
Preparatory Survey Team
Japan International Cooperation Agency
Japan



H.E. Rula Ma'ayah
Minister
Ministry of Tourism and Antiquities
Palestinian Authority

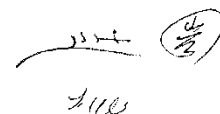




Laila Sbaih Eghmaib
Director General
International Relations & Projects Department
Ministry of Finance and Planning
Palestinian Authority

ATTACHEMENT

1. **Objective of the Project**
The objective of the Project is to conserve and display the mosaic floor of the Great Bath at Hisham's Palace by constructing protective shelter.
2. **Title of the Preparatory Survey**
Both sides confirmed the title of the Preparatory Survey as "the Preparatory Survey for the Project for the Construction of the Protective Shelter and the Presentation of the Great Bath at Hisham's Palace, Jericho".
3. **Project Site**
Both sides confirmed that the site of the Project is at Hisham's Palace.
4. **Executing Agency**
Both sides confirmed the executing agency is Ministry of Tourism and Antiquities (hereinafter referred to as "MOTA"). The executing agency shall coordinate with all the relevant agencies to ensure smooth implementation of the Project and ensure that the Undertakings are taken by relevant agencies properly and on time. The organization chart is shown in Annex 1.
5. **Contents of the Draft Report**
After the explanation of the contents of the Draft Report by the Team, the PA side agreed in principle to its contents.
6. **Cost Estimation**
Both sides confirmed that the Project cost estimation described in the Draft Report and Annex 2 was provisional and would be examined further by the Government of Japan for its final approval.
7. **Confidentiality of the Cost Estimation and Specifications**
Both sides confirmed that the Project cost estimation and technical specifications in the Draft Report should never be duplicated or disclosed to any third parties until all the contracts of the Project are concluded.

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8. Japanese Grant Scheme

The PA side understands the Japanese Grant Scheme and its procedures as described in Annex 3, Annex 4 and Annex 5, and necessary measures to be taken by the Government of PA.

9. Project Implementation Schedule

The Team explained to the PA side that the expected implementation schedule is as attached in Annex 6.

10. Expected Outcomes and Indicators

Both sides agreed that key indicators for expected outcomes are as follows. The PA side has responsibility to monitor the progress of the indicators and achieve the target in year 2021.

[Quantitative Effect]

Index	Baseline value (2014 actual data)	Target value (2021) 【3 years after completion】
Area of presented mosaic floor at the Great Bath at Hisham's Palace (m2)	30	825
Number of visitors to Hisham's Palace per year (people)	40,845	68,120

[Qualitative Effect]

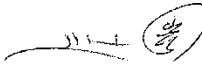
- Mosaic floor of the Great Bath at Hisham's Palace is presented under proper condition
- Satisfactory level of visitors to Hisham's Palace is enhanced.
- Value of tourism sector in Jericho is enhanced.

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

Considering the sustainable operation and maintenance of the provided facility, following technical assistance is planned to be provided under the Project.

- Assistance to a monitoring activity for microclimate in and out of the shelter
- Assistance to an activity of daily cleaning and maintenance for the mosaic and other remains within the shelter

The PA side confirmed that it will assign necessary number of competent and appropriate personnel.


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12. Undertakings taken by both sides

Both sides confirmed to undertakings described in Annex 7. The PA 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. Contents of Annex 7 will be updated as the Detailed Design progresses, and will finally be used in the contract document.

Among those items to be executed by the PA side on Annex 7, the following items are crucial for a smooth implementation of the Project:

- Record of decorative stones around the Great Bath and preparation of storage area
- Removal of the roof and the wall for the Diwan

13. Tax exemption

Both sides clarified the tax and fee items that shall be exempted during the implementation of the Project as mentioned in Annex 7, item No.5 under "2. During the Project Implementation". Both sides also clarified that no taxes, tariffs, duties or other levies will be imposed by the Palestinian Authority on the importation or use of the personal effects of the contractor's expatriate personnel, and on the purchase, importation or use by the contractor or its expatriate personnel of any equipment by Japanese Grant. It is further agreed that for the purpose of VAT refund, the contractor shall provide audited statements. These clauses shall appear in the contract documents between MoTA and the contractor, and its validity is strictly monitored by JICA.

According to the Palestinian procedure on tax exemption on donor financed projects, the Ministry of Finance issues a letter of Zero-VAT to MoTA that will be used by the prime contractor as attachment to the Zero-VAT invoice.

Since the VAT will be paid at the time of purchase of the services and products the prime contractor shall request refund. The same applies to imported goods where customs duty will be paid and refunded if it has been paid for prompt customs clearance.

Japanese side requested prompt refund of VAT. PA side confirmed to undertake its best effort to affect the refund of the VAT amount to the contractor within six months after the refund claim. Tax exemption will be effective based on the agreement signed by both parties. PA budget contains line item of refund of donor

financed project.

14. Monitoring during the Implementation

The Project will be monitored every month by the executing agency and using the Project Monitoring Report (PMR).

15. Ex-Post Evaluation

JICA will conduct ex-post evaluation three (3) years after the project completion with respect to five evaluation criteria (Relevance, Effectiveness, Efficiency, Impact, Sustainability) of the Project. Result of the evaluation will be publicized. The PA side is required to provide necessary support for them.

16. Issues to be considered for the smooth implementation of the Project

16-1. Prevention of damages of the mosaic floor and solution in case of damages

Both sides confirmed the following prevention of damages of the mosaic floor during the implementation of the Project.

- The mosaic will be exposed for the check of the situation and make a damage map of mosaic floor prior to the construction work.
- MOTA will repair the seriously damaged mosaic prior to the construction work.
- The mosaic floor and the pillars will be cured by the contractor.
- The contractor will install a temporary platform for construction work.
- The contractor will work on this platform and will not apply load on the mosaic

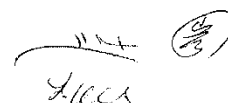
Both sides discussed the solution of the damages caused by the construction work in spite of the above-mentioned prevention and careful operation of the construction work and agreed the followings:

- The contractor will provide labour and material for repair works.
- MOTA will provide technical assistance for repair works.

MOTA also agreed to exempt the regulation of insurance to limit their countries insurance under the Grant Agreement signed by both parties. Both sides confirmed that the mosaic will not decline in value by repairing.

16-2. Reinforcement of existing pillars

The Team explained the mechanism and method of reinforcement of pillars, MOTA agreed the proposed method and partial intervention to the foundations of pillars. In case of damage of pillars, both sides will cooperate with each other for recovery of damaged remains as mentioned the preceding item 16-1.

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17. Schedule of the Study

JICA will complete the Final Report of the Preparatory Survey in accordance with the confirmed items and send it to the PA side around May 2016.

18. Environmental and Social Considerations

18-1 General Issues

18-1-1 Environmental Guidelines and Environmental Category

The JICA mission explained that 'JICA Guidelines for Environmental and Social Considerations (April 2010)' (hereinafter referred to as 'the Guidelines') is applicable for the Project. The Project is categorized as B under the JICA Environmental Guidelines, because the Project is not likely to have significant adverse impact on the environment under the JICA Environmental Guidelines in terms of sectors, characteristics and areas.

18-1-2 Environmental Checklist

Both sides confirmed information on environmental and social consideration including major impacts and relevant mitigation measures for the Project are summarized in the Environmental Checklist attached as Annex 8. Both sides confirmed that the PA side shall submit the modified version to JICA in a timely manner when they modify the content of the Environmental Checklist.

18-2 Environmental Issues

18-2-1 Initial Environmental Evaluation (IEE) and Environmental Approval

Both sides confirmed the IEE report will be approved by Environment Quality Authority (tentatively) in January, 2016.

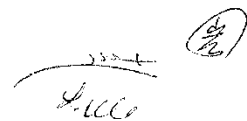
18-2-2 Environmental Management Plan and Environmental Monitoring Plan

Both sides confirmed that Environmental Management Plan (EMP) and Environmental Monitoring Plan (EMoP) of the Project is as Annex 9 and 10, respectively. Both side agreed that environmental mitigation measures and monitoring shall be conducted in accordance with the EMP and EMoP, which may be updated during the Detailed Design stage.

18-3 Social Environment

18-3-1 Impact on local landscape

Both sides confirmed that the possible impact of the Project on the local landscape has

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been explained to and discussed with the local community of Jericho, professional advisory members of the Project's Advisory Committee and other key stakeholders, and that the optimal project design has been selected and accepted through Advisory Committee meetings and Public Consultations with the local community of Jericho.

18-4 Environmental and Social Monitoring

The PA side confirmed that the results of environmental and social monitoring will be provided to JICA as a part of Monthly Progress Report by filling in the monitoring results reporting form for construction attached as Annex 11 on a quarterly basis during construction.

In case JICA finds that there is a need for improvement in a situation with respect to environmental and social considerations after the agreed monitoring period, JICA may request to extend the period of monitoring and reporting until JICA confirms the issues have been properly addressed in accordance with the agreement between the PA side and JICA.

18-5 Information Disclosure of Monitoring Results

Both sides confirmed that the PA side will take stipulated procedures for information disclosure in accordance with the concerned laws of the PA side. In addition, the JICA mission requested the PA side to disclose results of environmental and social monitoring to local stakeholders and the PA side agreed to disclose monitoring results on their website.

The PA side agreed JICA will disclose results of environmental and social monitoring submitted by the PA side as the monitoring forms attached as Annex 11 on its website.

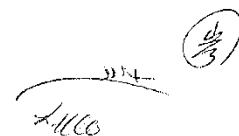
19. Other Relevant Issues

19-1. Operation and Maintenance of the Facilities(Equipment)

The team explained the importance of operation and maintenance of the facilities constructed by the Project considering that proper asset management impacts greatly on life-span of the facilities and its maintenance cost. The PA side shall secure enough staff and budgets necessary for appropriate operation and maintenance of the facilities. The annual operation and maintenance costs are estimated and shown in Annex 2.

19-2. Cooperation among Relevant Organizations

MOTA coordinates following relevant organizations for the smooth implementation of

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the Project.

- Ministry of Finance and Planning: conclusion of E/N and G/A, tax exemption and coordination of related authorities
- Ministry of National Economy: registration of a Japanese company
- Ministry of Interior: application of imported items to Israeli authority
- Environment Quality Authority: issuance of environmental approval
- Jericho Municipality: issuance of building permit, public relations of the content of the Project

19-3. Issuance of Work Permit and Visa

Both sides confirmed the possibility of work permit and visa for third countries' engineers and skilled worker.

19-4. Disclosure of Information

Both sides confirmed that the study results excluding the Project cost will be disclosed to the public after completion of the Preparatory Survey. All the study results including the project cost will be disclosed to the public after all the contracts for the Project are concluded.

Annex 1 Organization Chart

Annex 2 Project Cost Estimation

Annex 3 Japanese Grant

Annex 4 Flow Chart of Japanese Grant Procedures

Annex 5 Financial Flow of Japanese Grant

Annex 6 Project Implementation Schedule

Annex 7 Major Undertakings to be taken by Each Government

Annex 8 Environmental Check List

Annex 9 Environmental Management Plan

Annex 10 Environmental Monitoring Plan

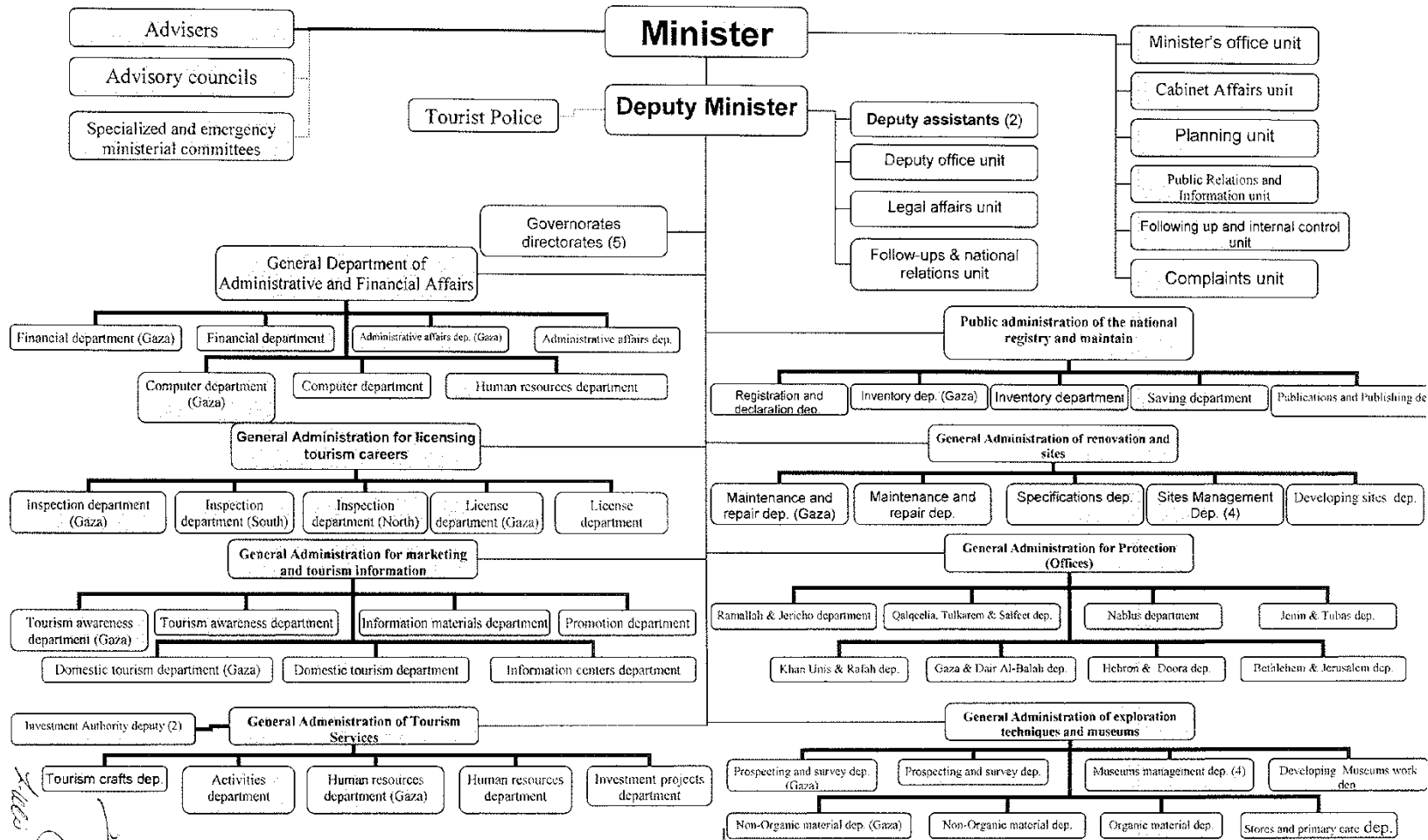
Annex 11 Environmental and Social Monitoring Form

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General structure of MoTA



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Annex 2

(4) Cost to be borne by the Palestine Authority after the Project : Annual operation and maintenance costs

(1,000NIS)

Category	Items	Remarks	Annual Cost		
			Current	After the Project	Increment
Personnel Emoluments	Salary for the staffs	Two staff, a mosaic technician and a maintenance technician will be added after the completion	226	313	87
Utility Charge	Electricity	Night operation will not be planned	43	53	10
	Water	Past record and prediction	3	4.8	1.2
Facilities Maintenance Cost	Building	[Direct construction cost (without temporary /dismantle works)]×0.1%	0	16.4	16.4
	Light and other service	[Direct construction cost of services]×1.5%	0	29.7	29.7
	Existing facilities		17.2	19	1.8
Total			289.2	435.9	146.1

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JAPANESE GRANT

The Japanese Grant (hereinafter referred to as the "Grant") is non-reimbursable fund provided to a recipient country to procure the facilities, equipment and 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. The Grant is not supplied through the donation of materials as such.

Based on a JICA law which was entered into effect on October 1, 2008 and the decision of the GOJ, JICA has become the executing agency of the Japanese Grant for Projects for construction of facilities, purchase of equipment, etc.

1. Grant Procedures

The Grant is supplied through following procedures :

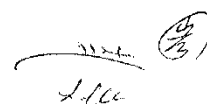
- Preparatory Survey
 - The Survey conducted by JICA
- Appraisal & Approval
 - Appraisal by the GOJ and JICA, and Approval by the Japanese Cabinet
- Authority for Determining Implementation
 - The Notes exchanged between the GOJ and a recipient country
- Grant Agreement (hereinafter referred to as "the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

2. Preparatory Survey

(1) Contents of the Survey

The aim of the preparatory Survey is to provide a basic document 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 country necessary for the implementation of the Project.
- Evaluation of the appropriateness of the Project to be implemented under the Grant Scheme 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.

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

JICA requests the Government of the recipient country to take whatever 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 organization of the recipient country which actually implements the Project. Therefore, the implementation of the Project is confirmed by all relevant organizations of the recipient country based on the Minutes of Discussions.

(2) Selection of Consultants

For smooth implementation of the Survey, JICA employs (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 appropriateness of the Project.

3. Japanese Grant Scheme

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

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

(2) 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 country to continue to work on the Project's implementation after the E/N and G/A.

(3) Eligible source country

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Under the Grant, in principle, Japanese products and services including transport or those of the recipient country are to be purchased. The Grant may be used for the purchase of the products or services of a third country, if necessary, taking into account the quality, competitiveness and economic rationality of products and services necessary for achieving the objective of the Project. However, the prime contractors, namely, constructing and procurement firms, and the prime consulting firm are limited to "Japanese nationals", in principle.

(4) Necessity of "Verification"

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

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

In the implementation of the Grant Project, the recipient country is required to undertake such necessary measures as Annex 7. The Japanese Government requests the Government of the recipient country to exempt all customs duties, internal taxes and other fiscal levies such as VAT, commercial tax, income tax, corporate tax, resident tax, fuel tax, but not limited, which may be imposed in the recipient country with respect to the supply of the products and services under the verified contract, since the Grant fund comes from the Japanese taxpayers.

(6) "Proper Use"

The Government of the recipient country is required to maintain and use properly and effectively the facilities constructed and the equipment purchased under the Grant, to assign staff necessary for this operation and maintenance and to bear all the expenses other than those covered by the Grant.

(7) "Export and Re-export"

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

(8) Banking Arrangements (B/A)

a) The Government of the recipient country or its designated authority should open an account under the name of the Government of the recipient country in a bank in Japan (hereinafter referred to as "the Bank"), in principle. JICA will execute the Grant by making payments in Japanese yen, in principle, to cover the obligations incurred by the Government of the recipient country or its designated authority under the Verified Contracts.

b) The payments will be made when payment requests are presented by the Bank to JICA under an Authorization to Pay (A/P) issued by the Government of the recipient country or its designated authority.

(9) Authorization to Pay (A/P)

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

(10) Environmental and Social Considerations

The Government of the recipient country must carefully consider environmental and social impacts by the Project and must comply with the environmental regulations of the recipient country and JICA Guidelines for Environmental and Social Consideration (April, 2010) .

(11) Monitoring

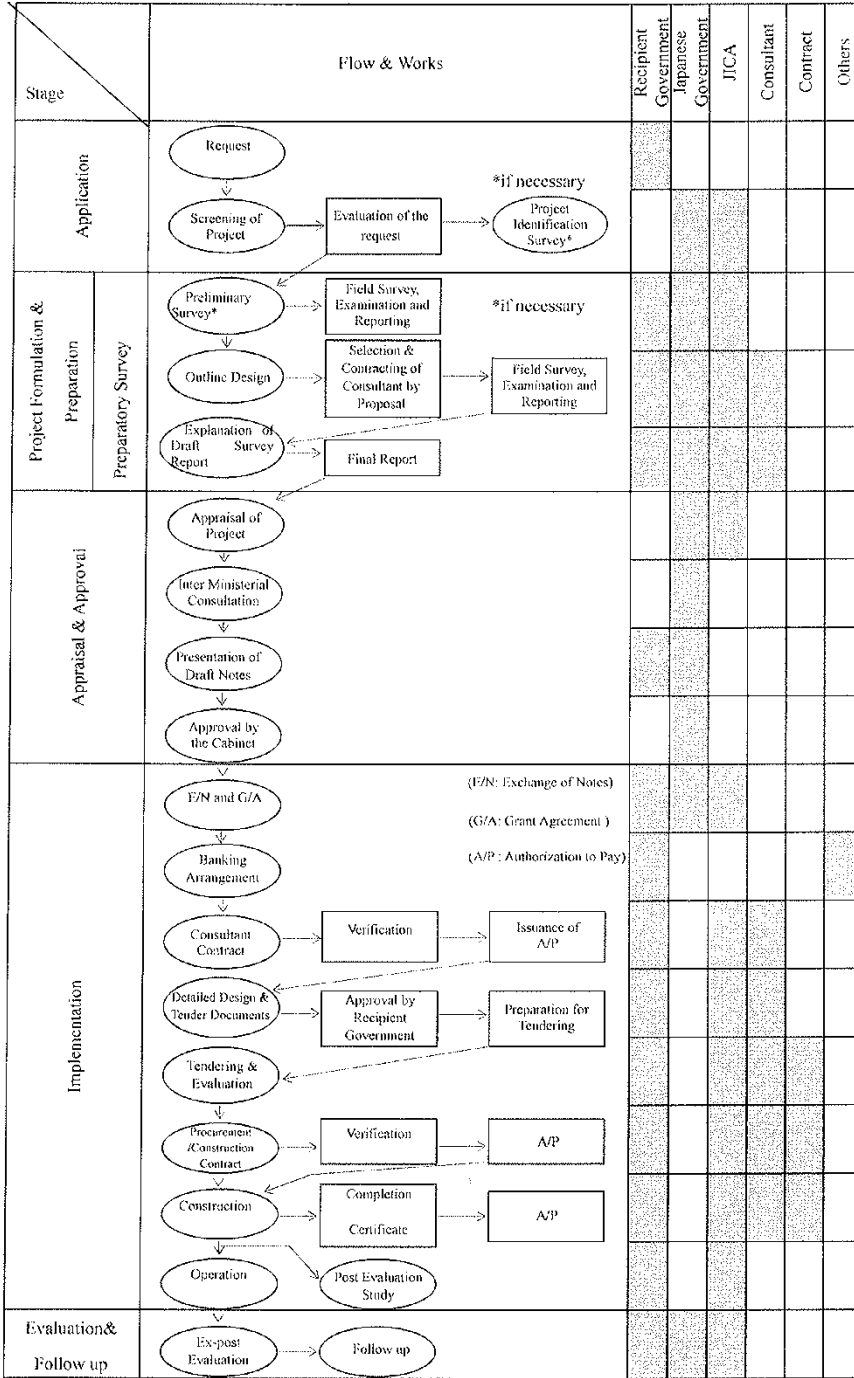
The Government of the recipient country must take their initiative to carefully monitor the progress of the Project in order to ensure its smooth implementation as part of their responsibility in the G/A, and must regularly report to JICA about its status by using the Project Monitoring Report (PMR).

(12) Safety Measures

The Government of the recipient country must ensure that the safety is highly observed during the implementation of the Project.

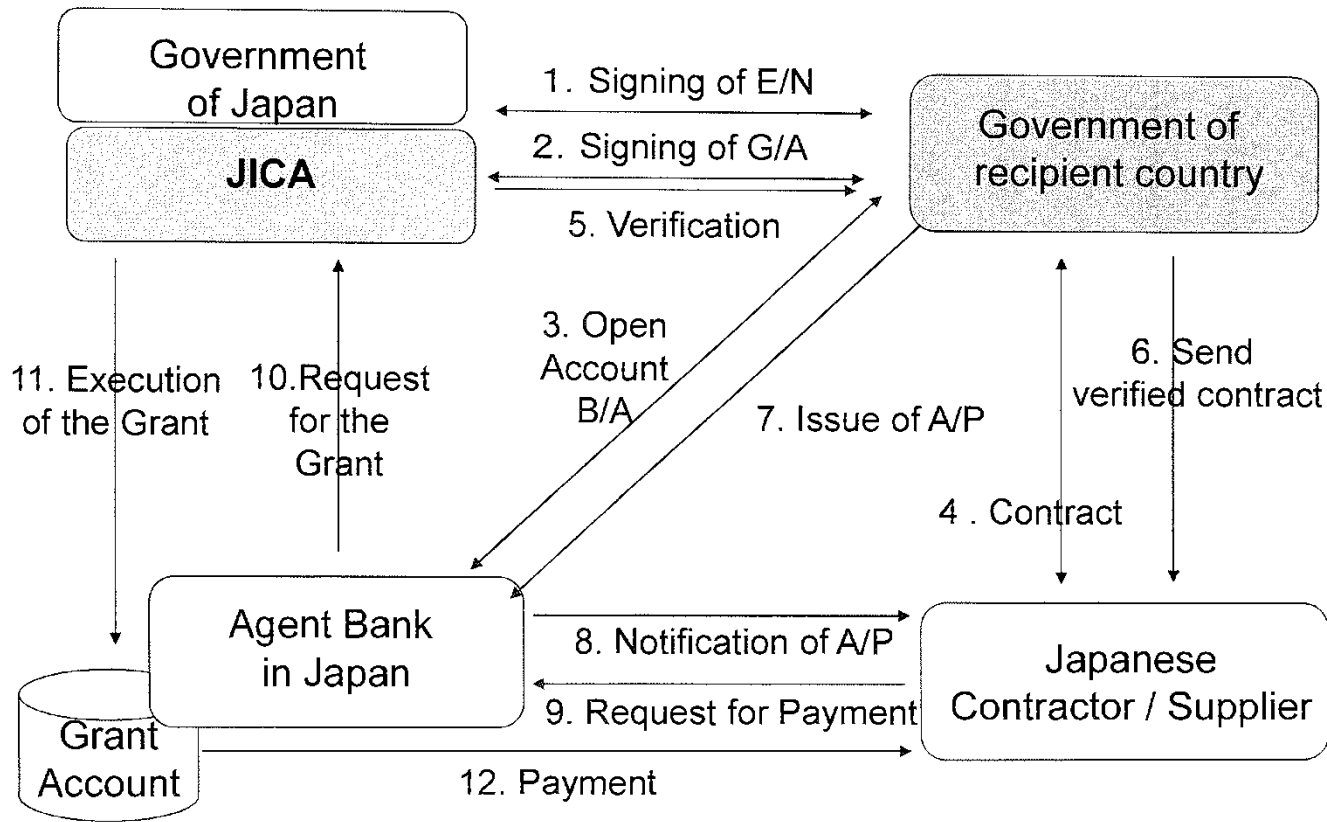
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FLOW CHART OF JAPANESE GRANT PROCEDURES



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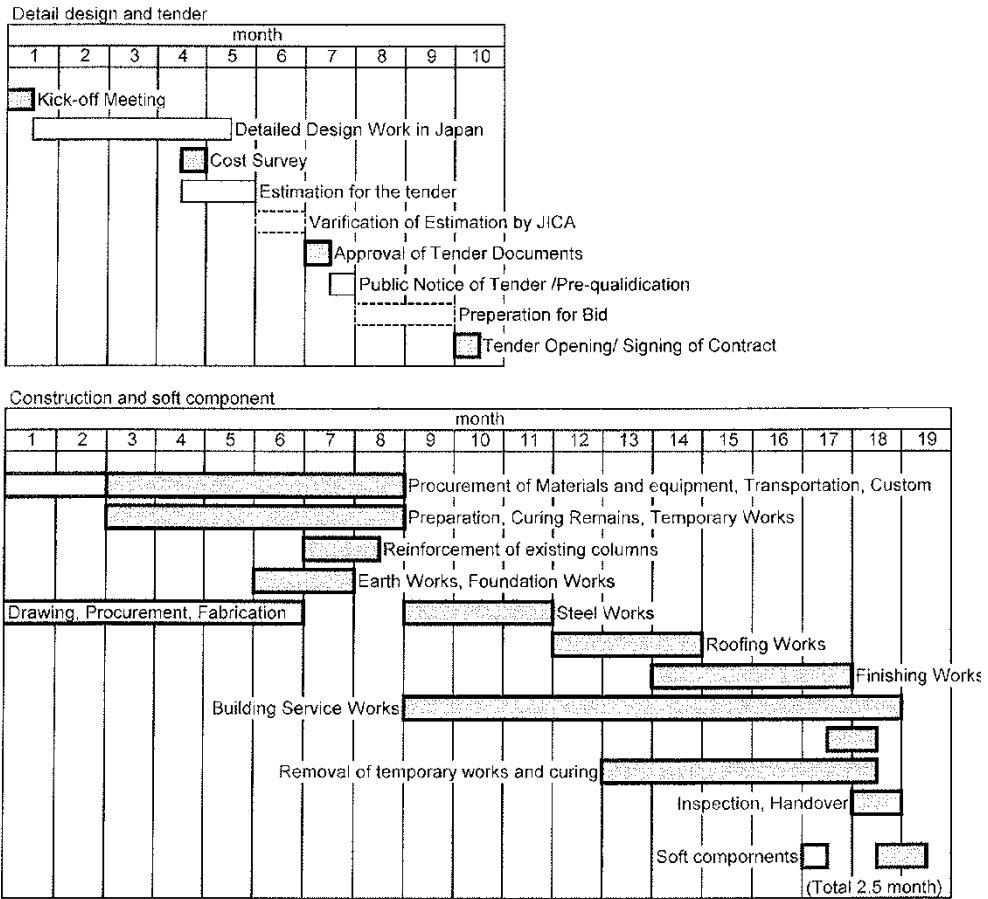
Financial Flow of Grant Aid (A/P Type)



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Project Implementation Schedule



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Major Undertakings to be taken by Recipient Government

1. Before the Tender

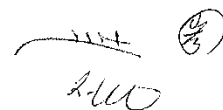
NO	Items	Deadline	In charge	Cost	Ref.
1	To implement IEE	until the middle of January, 2015	MOTA EQA		
2	To issue an environmental approval	until the end of January, 2016	EQA		
3	To open Bank Account (BA=Banking Arrangement)	within 1 month after G/A	MOFP		
4	To bear the following commissions to a bank of Japan for the banking services based upon the B/A				
	1) Advising commission of Authorization to Pay (A/P) for the consultant agreement a) for detail design b) for tender, construction supervision and soft component	within 1 month after the signing of the contract	MOTA	USD 50	
	2) Payment commission for A/P for the consultant agreement a) for detail design b) for tender, construction supervision and soft component, respectively	every payment	MOTA	around 0.1% of amount of the payment	
5	To provide contents for interpretation of the Great Bath	During detail design	MOTA		
6	To secure the following lands 1) The Great Bath, Hisham's Palace, Jericho (hereinafter referred as "the Great Bath") and surrounding area 2) Temporary construction yard and stock yard within or the adjacent land 3) A disposal site for excavated soil or debris near the Project site, if necessary	before notice of the tender	MOTA		
7	To obtain building permit 1) To get approval from Civil Defense 2) To check and approve the drawings by registered engineers 3) To obtain necessary permits and facilitation from relevant agencies 4) To apply for the building permit	before notice of the tender	MOTA	2) USD 17,000, 4) USD 1,700	
8	To clear, level and reclaim the following sites 1) To document and record the stones around the Great Bath and provide site of storage of removed stones 2) To remove existing trails and light fixture	before notice of the tender document	MOTA	around USD 4,000	
9	To prepare damage map of mosaic floor and restore urgent damage of mosaic. 1) To remove protective sand on mosaic floor 2) To recover protective sand on the mosaic floor	before notice of the tender document	MOTA	USD 10,000	

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Annex 7

2. During the Project Implementation

NO	Items	Deadline	In charge	Cost	Ref.
1	To remove existing shelter for the mosaic Tree of Life of the Great Bath	within two weeks after the contract	MOTA	around USD 2,000	
2	To bear the following commissions to a bank of Japan for the banking services based upon the B/A				
	1) Advising commission of Authorization to Pay (A/P)	within 1 month after the signing of the contract	MOTA	USD 50	
	2) Payment commission for A/P	every payment	MOTA	around 0.1% of amount of the payment	
3	To ensure prompt unloading and customs clearance in recipient country				
	1) Tax exemption and customs clearance of the products	during the Project	MOFP		
4	To accord Japanese nationals and/or physical persons of third countries whose services may be required in connection with the supply of the products and the services under the verified contract such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work	during the Project	Relevant authorities		
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 (or be borne) by its designated authority without using the Grant; Such custom duties, internal taxes and other fiscal levies mentioned above include VAT, income of the contractor, salary, wages or other incomes of expatriate personnel of the contractor, but not limited, which may be imposed in the recipient country with respect to the supply of the products and services under the verified contract.	during the Project	MOFP		
6	To bear all the expenses, other than those to be borne by the Grant Aid, necessary for construction of the facilities	during the construction	MOTA		
7	To construct security fence around Hisham's Palace, if required	3 months before completion of the construction	MOTA		
8	To provide facilities for the distribution of electricity by modifying the contract with JDECO to enlarge the receiving capacity, if required	3 months before the completion of the construction	MOTA	USD 3,000	
9	To implement Environment Management Plan(EMP) and Environment Monitoring Plan(EMoP)	during the construction	MOTA EQA		
	To submit results of environmental monitoring to JICA, by using the monitoring form, on a quarterly basis as a part of Project Monitoring Report	during the construction	MOTA EQA		

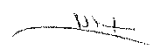


Annex 7

3. After completion of the Project

NO	Items	Deadline	In charge	Cost	Ref.
1	To maintain and use properly and effectively the facilities constructed and equipment provided under the Grant Aid 1) Allocation of maintenance cost 2) Allocation of operation and maintenance personnel 3) Routine check/Periodic inspection	After completion of the construction	MOTA	included regular budget	
2	To monitor and maintain mosaic floor, and restore it, if necessary	After completion of the construction	MOTA		
3	To implement EMP and EMoP	for a period based on EMP and EMoP	MOTA EQA		

(MOTA: Ministry of Tourism and Antiquities, MOF: Ministry of Finance and Planning, EQA: Environment Quality Authority, B/A: Banking Arrangement, A/P: Authorization to pay, N/A: Not Applicable)

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Annex 7

Major Undertakings to be covered by the Japanese Grant

No	Items	Deadline	Cost Estimated (Million Japanese Yen)*	
1	Development of photograph map of the mosaic floor and soft components 3) To prepare photograph map of the mosaic floor 4)		around 10	
2	1) To construct a protective shelter equipped with a trail and lighting and other necessary services and to procure the material from the local area, Japan and third countries, transport the material to the Project site 2) To install necessary utilities outside of the shelter a) Electricity: Installation of power cable from an existing building b) Water Supply and Drainage System: Installation of water tanks and piping 3) To reinforce the existing pillars 4) To remove stones around the Great Bath		around 966	
3	1) To provide consulting services 2) To develop drawings and to prepare tender documents 3) To manage all the tender procedure 4) To supervise the construction work		around 156	
4	Contingencies		around 54	
	Total		around 1,186	

*: The cost estimates are provisional. This is subject to the approval of the Government of Japan.

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Environmental Check List

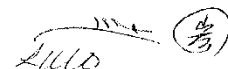
Category	Environmental Item	Main Check Items	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
1 Permits and Explanation	(1) EIA and Environmental Permits	(a) Have EIA reports been already prepared in official process? (b) Have EIA reports been approved by authorities of the host country's government? (c) Have EIA reports been unconditionally approved? If conditions are imposed on the approval of EIA reports, are the conditions satisfied? (d) In addition to the above approvals, have other required environmental permits been obtained from the appropriate regulatory authorities of the host country's government?	(a) N (b) N (c) N/A (d) N	(a) EIA is not required for the project. IEE is being prepared (will be prepared officially by MoTA (implementing agency) by end of November) (b) On submission of IEE report to Environmental Authority (EQA) from MoTA, it will take about one month for the approval of IEE and issuing Environmental Approval in EQA approval process. (c) (d) No other type of environmental permit is required. Only IEE suffices.
	(2) Explanation to the Local Stakeholders	(a) Have contents of the project and the potential impacts been adequately explained to the Local stakeholders based on appropriate procedures, including information disclosure? Is understanding obtained from the Local stakeholders? (b) Have the comment from the stakeholders (such as local residents) been reflected to the project design?	(a) Y (b) Y	(a) Project and its impact has been explained, at a scoping level, to Professional Advisory Committee 3 times and to local stakeholders of Jericho (community of the project site) through Public Consultations Meetings which held twice in September and November. So far, general support and understanding to the project and its design has been obtained. (b) Stakeholders comments has been reflected in preparing the outline design.
	(3) Examination of Alternatives	(a) Have alternative plans of the project been examined with social and environmental considerations?	(a) Y	(a) The main component of the project is the construction of a protective shelter of the mosaic floor unearthed, which is located in Hisham heritage park. Mainly on landscape impact, 3 types of shelter and their variations are examined technically and socio-environmentally. For other aspects of social and environmental considerations, there are no significant differences among different alternatives.
2 Pollution Control	(1) Air Quality	(a) Do air pollutants, (such as sulfur oxides (SOx), nitrogen oxides (NOx), and soot and dust) emitted from the proposed infrastructure facilities and ancillary facilities comply with the country's emission standards and ambient air quality standards? Are any mitigating measures taken? (b) Are electric and heat source at accommodation used fuel which emission factor is low?	(a) N/A (b) N/A	(a) There exists no source of air pollution in the project facilities. (b) There exists no such accommodation in relation to the project.
	(2) Water Quality	(a) Do effluents or leachates from various facilities, such as infrastructure facilities and the ancillary facilities comply with the country's effluent standards and ambient water quality standards?	(a) N/A	(a) There exists no such facilities discharging effluents or leachates in relation to the project.
	(3) Wastes	(a) Are wastes from the infrastructure facilities and ancillary facilities properly treated and disposed of in accordance with the country's regulations?	(a) Y	(a) The project does not contain facilities that discharge hazardous-level wastes in quality and in amount. Proper waste management plan for park visitors during operation and for used materials during construction will be prepared.
	(4) Soil Contamination	(a) Are adequate measures taken to prevent contamination of soil and groundwater by the effluents or leachates from the infrastructure facilities and the ancillary facilities?	(a) Y	(a) There exists no such facilities discharging effluents or leachates in relation to the project. However, during construction, proper protective measures from oil and paint leachates from construction machines and vehicles or paint materials will be properly taken.
	(5) Noise and Vibration	(a) Do noise and vibrations comply with the country's standards?	(a) Y	(a) There are no noise and vibration emitting facilities in relation to the project. Vibration effect by construction machines will be carefully controlled during construction to avoid any damage on the mosaic floor and archaeological remains of the project-related structure. Construction works will be conducted inside the Hisham Park, sufficiently distant from any residential facilities and social infrastructure outside of the park.
	(6) Subsidence	(a) In the case of extraction of a large volume of groundwater, is there a possibility that the extraction of groundwater will cause subsidence?	(a) N/A	(a)
	(7) Odor	(a) Are there any odor sources? Are adequate odor control measures taken?	(a) N/A	(a) There is no such source in relation to the project.

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Category	Environmental Item	Main Check Items	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
3 Natural Environment	(1) Protected Areas	(a) Is the project site or discharge area located in protected areas designated by the country's laws or international treaties and conventions? Is there a possibility that the project will affect the protected areas?	(a) N	(a) The project site is not located in or near any protected area.
	(2) Ecosystem	(a) Does the project site encompass primeval forests, tropical rain forests, ecologically valuable habitats (e.g., coral reefs, mangroves, or tidal flats)? (b) Does the project site encompass the protected habitats of endangered species designated by the country's laws or international treaties and conventions? (c) Is there a possibility that changes in localized micro-meteorological conditions, such as solar radiation, temperature, and humidity due to a large-scale timber harvesting will affect the surrounding vegetation? (d) Is there a possibility that the amount of water (e.g., surface water, groundwater) used by the project will adversely affect aquatic environments, such as rivers? Are adequate measures taken to reduce the impacts on aquatic environments, such as aquatic organisms?	(a) N (b) N (c) N (d) N	(a) (b) (c) (d) Project will use not surface water and groundwater, but only small amount of municipal-supplied water for maintenance and cleaning of facilities.
	(3) Hydrology	(a) Is there a possibility that hydrologic changes due to the project will adversely affect surface water and groundwater flows?	(a) N	(a)
	(4) Topography and Geology	(a) Is there a possibility the project will cause large-scale alteration of the topographic features and geologic structures in the project site and surrounding areas?	(a) N	(a)
4 Social Environment	(1) Resettlement	(a) Is involuntary resettlement caused by project implementation? If involuntary resettlement is caused, are efforts made to minimize the impacts caused by the resettlement? (b) Is adequate explanation on compensation and resettlement assistance given to affected people prior to resettlement? (c) Is the resettlement plan, including compensation with full replacement costs, restoration of livelihoods and living standards developed based on socioeconomic studies on resettlement? (d) Is the compensations going to be paid prior to the resettlement? (e) Is the compensation policies prepared in document? (f) Does the resettlement plan pay particular attention to vulnerable groups or people, including women, children, the elderly, people below the poverty line, ethnic minorities, and indigenous peoples? (g) Are agreements with the affected people obtained prior to resettlement? (h) Is the organizational framework established to properly implement resettlement? Are the capacity and budget secured to implement the plan? (i) Are any plans developed to monitor the impacts of resettlement? (j) Is the grievance redress mechanism established?	(a) N (b) N/A (c) N/A (d) N/A (e) N/A (f) N/A (g) N/A (h) N/A (i) N/A (j) N/A	(a) (b) (c) (d) (e) (f) (g) (h) (i) (j)

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2-166

Category	Environmental Item	Main Check Items	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
4 Social Environment	(2) Living and Livelihood	(a) Is there a possibility that the project will adversely affect the living conditions of inhabitants? Are adequate measures considered to reduce the impacts, if necessary?	(a) N	(a)
	(3) Heritage	(a) Is there a possibility that the project will damage the local archeological, historical, cultural, and religious heritage? Are adequate measures considered to protect these sites in accordance with the country's laws?	(a) Y	(a) The project site is inside the very archeological, historical and cultural heritage site. The project objective is to utilize unearthed cultural remains (mosaic floor) and build a shelter to protect and conserve it. Proper protective measures are planned and will be executed for the cultural remains of the project site, in accordance with the Palestine Authority laws and regulations.
	(4) Landscape	(a) Is there a possibility that the project will adversely affect the local landscape? Are necessary measures taken? (b) Is there a possibility that landscape is spoiled by construction of high-rise buildings such as huge hotels?	(a) Y (b) Y	(a) The proposed shelter may have possibility of adversely affecting the local landscape. In avoiding or minimizing the negative impact on landscape, the optimal shelter design has been discussed in advisory committee and local public consultation meeting, referring to harmony with the background landscape and standard criteria on world heritage, namely authenticity and integrity. Outline design will reflect the result of those discussion. (b) Same as above.
	(5) Ethnic Minorities and Indigenous Peoples	(a) Are considerations given to reduce impacts on the culture and lifestyle of ethnic minorities and indigenous peoples? (b) Are all of the rights of ethnic minorities and indigenous peoples in relation to land and resources respected?	(a) N/A (b) N/A	(a) The project is not relevant to this issue. (b) The project is not relevant to this issue.
	(6) Working Conditions	(a) Is the project proponent not violating any laws and ordinances associated with the working conditions of the country which the project proponent should observe in the project? (b) Are tangible safety considerations in place for individuals involved in the project, such as the installation of safety equipment which prevents industrial accidents, and management of hazardous materials? (c) Are intangible measures being planned and implemented for individuals involved in the project, such as the establishment of a safety and health program, and safety training (including traffic safety and public health) for workers etc.? (d) Are appropriate measures taken to ensure that security guards involved in the project not to violate safety of other individuals involved, or local residents?	(a) Y (b) Y (c) Y (d) Y	(a) Proper measures will be observed and taken, with reference to ILO Code of Practice, safety and health in construction. (b) It is required in environmental management plan for mitigation measures. (c) It is required in environmental management plan for mitigation measures. (d) It will be ensured by the management of MoTA Hisham Office.
	5 Others	(1) Impacts during Construction	(a) Are adequate measures considered to reduce impacts during construction (e.g., noise, vibrations, turbid water, dust, exhaust gases, and wastes)? (b) If construction activities adversely affect the natural environment (ecosystem), are adequate measures considered to reduce impacts? (c) If construction activities adversely affect the social environment, are adequate measures considered to reduce impacts?	(a) Y (b) N/A (c) N/A
(2) Monitoring		(a) Does the proponent develop and implement monitoring program for the environmental items that are considered to have potential impacts? (b) What are the items, methods and frequencies of the monitoring program? (c) Does the proponent establish an adequate monitoring framework (organization, personnel, equipment, and adequate budget to sustain the monitoring framework)? (d) Are any regulatory requirements pertaining to the monitoring report system identified, such as the format and frequency of reports from the proponent to the regulatory authorities?	(a) Y (b) - (c) Y (d) N/A	(a) The proponent will do. (b) Control of emission gas and vibration of construction vehicles and machines, wastes, soil contamination will be monitored during construction, daily and periodically. Conditions of wastes management, local economy at entrance of the park, and the heritage of mosaic floor and surrounding remains will be monitored during operation, daily or quarterly or half-yearly. (c) Organization, personnel and adequate operational budget will be prepared for planned monitoring framework while meteorological and soil conditions monitoring apparatus will be procured by JICA. (d) No regulatory requirements from the proponent to any regulatory authority is identified while monitoring report system from the proponent to JICA will be indicated in the project's environmental monitoring plan.



Category	Environmental Item	Main Check Items	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
§ Note	Reference to Checklist of Other Sectors	(a) Where necessary, pertinent items described in the Roads, Railways and Bridges checklist should also be checked (e.g., projects including access roads to the infrastructure facilities). (b) For projects, such as installation of telecommunication cables, power line towers, and submarine cables, where necessary, pertinent items described in the Power Transmission and Distribution Lines checklists should also be checked.	(a) N/A (b) N/A	(a) (b)
	Note on Using Environmental Checklist	(a) If necessary, the impacts to transboundary or global issues should be confirmed (e.g., the project includes factors that may cause problems, such as transboundary waste treatment, acid rain, destruction of the ozone layer, or global warming).	(a) N/A	(a)

1) Regarding the term "Country's Standards" mentioned in the above table, in the event that environmental standards in the country where the project is located diverge significantly from international standards, appropriate environmental considerations are required to be made. In cases where local environmental regulations are yet to be established in some areas, considerations should be made based on comparisons with appropriate standards of other countries (including Japan's experience).

2) Environmental checklist provides general environmental items to be checked. It may be necessary to add or delete an item taking into account the characteristics of the project and the particular circumstances of the country and locality in which the project is located.

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Environmental Management Plan
Mitigation Measures in Design and Construction

Annex 9

Category of Impacts	Items of Impacts	Project Stage	Key Mitigation Measures to be taken	Implementing Agency	Responsible Agency	Underlying Cost
Pollution Control	1 Air Quality	At Construction	- Regular maintenance of construction vehicles and machineries - Sprinkle water for prevention of dust spread (in dry season), if necessary - Prohibition of combustion of solid waste	Construction Contractor	MoTA with support of Consultant for construction phase	in general construction cost with no significant extra cost
	3 Wastes	Before Construction	- Preparation of the work plan that will indicate temporary storage locations of construction materials and temporary wastes, respective to type of materials and wastes, and detailed construction phases	Construction Contractor	MoTA with support of Consultant for construction phase	in general construction cost with no significant extra cost
		At Construction	- Practicing waste segregation properly - Daily management, especially at end of each work day, of construction materials into proper locations designated by the work plan - Complete removal of all temporary stockpiles of spoils and debris from the construction site at the end of respective construction phases - Prohibition of combustion of solid waste	Construction Contractor		
	4 Soil Contamination	At Construction	- Regular maintenance of construction vehicles and machineries to avoid incidental oil spill during operation in the Fishham Heritage Park - Precautionary protective measure by making it a rule to use undercover infiltration-proof sheet in use or temporary storage on site of paint coating materials	Construction Contractor	MoTA with support of Consultant for construction phase	in general construction cost with no significant extra cost
	5 Noise and Vibration	At Construction	- Preparation of precautionary work plan for the excavation and compaction in the foundation work and for the usage of machines and heavy vehicles, with reference to the assumed damage assessment map (refer to "23. Heritage" as below) - Special instruction of skilled workers to pay due-care and constant observation to the conditions of the existing structure of relics, especially in usage of construction machines such as compactor and drills - Avoidance of using compactors and drills around the fragile parts to be indicated by the assumed damage assessment map	Construction Contractor	MoTA with support of Consultant for construction phase	in general construction cost including proper Man-Months cost of work for making specific work plan and instruction concerned
Social Environment	23 Heritage	At Design	- Application of prerequisite conditions into shelter design, 1) reversibility to status quo, 2) protecting mosaic floor and its basement from direct solar rays, blowing-in rains and winds and drained water of precipitation; 3) enabling good ventilation and heat insulation; 4) controlled dew drops on the roof and structural materials; 5) keeping off sands, birds, small animals and vegetation; 6) maintenance-friendly structure	JICA Preparatory Survey Team	MoTA with support of Consultant for construction phase	covered by JICA Preparatory Survey
		Before Construction	- Survey - Excavation survey and recording of hidden relics under the shelter basement - Preparation of damage assessment map (DAM) before construction, which is necessary for the mosaic floor and recommended for associated facilities of the audience and bath hall, in order to make the plan for avoiding incidental damage and curing the already degraded parts	MoTA/JICA	MoTA/JICA	Man-Months cost of engaged workers
		Preparatory work	- Curing the already degraded parts of relics and remains, especially around the foundations of the prospective shelter	MoTA	MoTA	Man-Months cost of engaged workers
		At Construction	- As method of construction: - Avoiding putting heavy load on the existing pillars and mosaic floor for sustaining structure, such as foundation and scaffold, during construction of the shelter - Placement of building foundations off from the locations of known relics or high-risk of hidden ones, and use of shallow-depth foundation in low-risk locations of hidden relics	Construction Contractor	MoTA with support of Consultant for construction phase	in general construction cost with no significant extra cost
		At end of Construction	- Acceptance inspection - Restoration of damages, if any, of the mosaic floor, with reference to the damage assessment map			in general construction cost
	24 Landscape	At Design and Planning	- Proper consultation with stakeholders, including local community of Jericho, on the appearance of the prospective shelter, through Advisory Committee and Public Consultation - Reaching agreement with stakeholders, including local ones, on the Shelter appearance in style, shape, colour and texture of used materials	MoTA	MoTA with support of JICA Preparatory Survey	covered by MoTA Project appropriation and JICA Preparatory Survey
	28 Working environment	At Construction	For safety measures for construction workers - Preparation of advance safety management plan and giving thorough instruction of safety routines to workers - Use of proper safety signs, measures and protective gears - Especially for work at heights, preventive measures should be taken against the fall of workers and tools or other objects or materials, such as guard rails and toeboards, safety harnesses, safety nets or platforms; and safe means of access and egress such as stairs, ramps or ladders should be provided, complying with Palestine Authority laws and regulations and with International Standard Guidelines as well - Preparation and implementation of proper welfare management plan for an adequate supply of wholesome drinking water, sanitary facilities, and specifically for protective measures against heat effect during work period. (Refer to ILO Code of Practice "Safety and health in construction" ¹¹⁾)	Construction Contractor	MoTA with support of Consultant for construction phase	in general construction cost with no significant extra cost
	29 Accidents	At Construction	For safety-first operation of vehicles and machineries - Employment of skilled operators who are capable and trained to construct scaffolds and ladders, or to operate heavy machines, such as a tower crane - Preparing safety manuals, in consideration of the operating requirements proper to the site and surroundings, wind loads factor and bearing capacity of the ground, with reference to ILO Guidelines above, as well as to Palestine Authority laws and regulations	Construction Contractor	MoTA with support of Consultant for construction phase	in general construction cost with no significant extra cost

Note: (1) The Code of Practice can be accessed at URL: http://www.ilo.org/public/eng/condoc/09602a02_20060915/standards/107/06/lang-en/index.htm

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Environmental Management Plan
Mitigation Measures (during Operation)

Category of Impacts	Items of Impacts	Project Stage	Key Mitigation Measures to be taken	Implementing Agency	Responsible Agency	Undertaking Cost
Pollution Control	3 Wastes	at operation (in-service period)	<ul style="list-style-type: none"> - Preparation of improved waste management plan for the Hisham Park - Upgrading instruction to visitors on the rule of no disposal of garbage on ground in the Hisham Park - Daily waste management activities in the Hisham Park, according to the waste management plan - Regular monitoring of the conditions of waste management in the Park 	MoTA Jericho Office/ Hisham Park Office	MoTA	in general operation cost of MoTA Jericho Office with no significant extra cost
	Social Environment	16 Local economies, such as employment, livelihood	after the project	<ul style="list-style-type: none"> - Recommended are continuous monitoring of visitors and tourists, and newly opened shops and vendors around entrance of the Hisham Park after the project 	MoTA Jericho Office/ Hisham Park Office	MoTA Jericho Office
			<ul style="list-style-type: none"> - Proper regulatory rules and management plan should be prepared for control of traffic and parking area, and management and placement of shops and vendors before significant increase are expected 	MoTA Jericho Office	MoTA Jericho Office with Authorization of Municipality of Jericho	Planning cost, mainly fees for professional planners
23 Heritage		at operation (in-service period)	<ul style="list-style-type: none"> <Restoration of damaged parts after construction> - Restoration of degraded parts (sand stone and bricks) of relics and remains associated with the mosaic floor <Organizational setup> - Strengthening organizational framework for restoration and maintenance scheme of Hisham Heritage Park 	MoTA	MoTA	General Operation Cost of Hisham Heritage Park, not limited to the Project impacts
	<ul style="list-style-type: none"> <Regular maintenance> - Preparation of the restoration plan and regular maintenance plan - Capacity building or upgrading of technical staff for restoration and maintenance work - Regular maintenance: 1) Blocking of direct rays of the sun; 2) Air ventilation and circulation inside shelter for proper temperature and moisture; 3) Clearance of sands, birds, small animals and vegetation; 4) Demineralization of decayed parts of mosaic floor and associated relics and remains, due to salt weathering (or mineralization); 5) Other proper remediation and maintenance work for mosaic floor 	Mosaic Center @Hisham Park Office of MoTA	MoTA (MoTA Jericho Office for regular maintenance)			
	24 Landscape	at operation (in-service period)	<ul style="list-style-type: none"> - Provision of follow-up instruction to local stakeholders on the significance of the shelter for the Hisham Heritage 	MoTA Jericho Office	MoTA	Expence for holding a local meeting

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Environmental Monitoring Plan

Phase	Item	Indicator	Location	Method / Frequency	Reference Standard	Implementer / Responsible Agency / Cost	Reporting interval to JICA office
Construction Phase	Air Quality (exhaust gas of construction vehicles and heavy machines)	Abnormal emission of NOx and PM (dust, soot)	At construction site in Hisham Heritage Park At garage yard of construction machines and vehicles	Daily site inspection of exhaust of construction machines and vehicles at the operation site Periodical inspection (daily prestart inspection, monthly, half-yearly maintenance) of machines and vehicles at the garage yard of contractors	Daily observance on site NO2: Abnormal rust colour Periodical - Inspection checklist for machine maintenance	Site manager of the Contractor, under supervision of MoTA	Quarterly reporting (once every 3 months)
	Wastes	Proper segregation of temporary wastes - Proper placement of construction materials - Complete removal of spoils and debris	At/Around construction site in Hisham Heritage Park	Daily site inspection at end of work day Site inspection at end of respective construction phases	The work plan prepared by the contractor, indicating temporary storage locations of construction materials and temporary wastes		
	Soil Contamination	Incidents of oil spill Incidents of paint spill	Around construction site in Hisham Heritage Park	Daily site inspection	- Daily prestart inspection at the garage yard (for oil spill incident), - Use of infiltration-proof sheet at paint work and storage on site (for paint materials)		
	Vibration	-	At construction site in Hisham Heritage Park (Especially around fragile parts indicated in the DAM)	Constant observation at operation of machines for any damage on the existing structure of mosaic and relics	- Assumed damage assessment map (DAM) to be prepared before the implementation of the project; - Proper work plan for the excavation and compaction	Heritage conservation specialist and Site manager of the Contractor, under supervision of MoTA	
	Heritage	- Damages/degradation of the mosaic floor - Damages of associated facilities of the audience and bath hall - Damages of known or hidden relics around the shelter basement	At/Around construction site in Hisham Heritage Park	Constant observation of any damage on the mosaic and relics around operation site Daily site inspection at end of work day, especially ground fragile parts and around the basement Monthly inspection of any damage/disturbance(s) to the mosaic, relics and ground	- Assumed damage assessment map (DAM) to be prepared before the implementation of the project		
	Working environment	- Use of proper safety measures and gears - Proper welfare management for workers	At work site in Hisham Heritage Park	Daily site inspection of workers Monthly inspection of working conditions, referring to safety and welfare management plans	ILO Code of Practice: safety and health in construction, 1992 - Safety management plan - Welfare management plan	Site manager of the Contractor, under supervision of MoTA	
	Accident	- Incidents of accident - Use of skilled operators - Proper operation according to the safety manual	At construction site in Hisham Heritage Park	Daily review of operation at end of work day Monthly review of operation	ILO Code of Practice: safety and health in construction, 1992 - Safety manual of the contractor for this project	in general construction cost with no significant extra cost	

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Environmental Monitoring Plan

Phase	Item	Indicator	Location	Method / Frequency	Reference Standard	Implementor/ Responsible Agency / Cost	Reporting Interval to ICA office
Operation Phase	Wastes	- Amount of garbage (plastics, PET bottles and cigarette butts, etc.) discarded in the park - Remaining available capacity of toilet and septic tank of the park - Increase of visitors	In Hisham Heritage Park	Periodical inspection of the conditions pertinent to the indicators/ Twice every year (once respectively on-season of visitors and off-season of visitors)	(To-be-revised) waste management plan for the Hisham Park	MoTA Hisham Park Office/ MoTA Jericho Office/ in general management cost of Hisham Heritage Park with no significant extra expenditure	
	Local economics, such as employment, livelihood (with respect to atmosphere around entrance of the Hisham Park)	- Increase rate of visitors - Increase rate of newly opened shops and vendors around entrance of the Hisham Park	At Hisham Heritage Park (around the entrance and the parking lot of the Hisham Park)	<for visitors> - Daily recording of visitors - Quarterly summary and review of visitor statistics <for shops and vendors> - Quarterly check of conditions (if significant increase are expected,) start to prepare proper regulatory rules and management plan in consultation with Jericho Municipality and MoTA HQ.	Significant change from the current state, resulting in disturbance and degradation of the atmosphere around entrance of the Hisham Park Proper atmosphere as a historical heritage, with reference to the criteria of authenticity and integrity for a World Heritage Site	MoTA Hisham Park Office/ MoTA Jericho Office/ in general management cost of Hisham Heritage Park with no significant extra expenditure MoTA Jericho Office/ Jericho Municipality and MoTA HQ/ administrative costs (not known currently)	
	Heritage	<Inspection of mosaic> - Mineral precipitation - Crack or disintegration - Wearing with sand - Rain leak, dew drop - Intrusion of birds, small animals and vegetation - Other troubles, such as litter and trash, human invasion, and aged device & facility	On the mosaic floor	Daily inspection from the trail over mosaic Closer inspection at the time of cleaning of mosaic floor	DAM revised at the end of construction Baseline conditions at the beginning of the operation phase	MoTA Hisham Park Office/ MoTA Jericho Office/ in general management cost of Hisham Heritage Park with no significant extra expenditure	
		<Monitoring & data recording> - Meteorological data (wind direction & speed, rainfall amount, insolation amount, temperature, humidity) - Soil water content - Water evaporation amount from the mosaic surface - Temperature, humidity, light intensity inside the shelter	- At a monitoring station set around the shelter in Hisham Heritage Park - Beneath the ground beside the mosaic floor - On the mosaic surface - Inside the shelter	- Continuous monitoring and data collection of meteorological indicators for years - Periodical measurement of hourly change in a day, of monthly change in a year	- Stability of conditions in observed data, compared with the first year, the average year or the local standard, if any - Emergence of abnormal values or change in observed data, compared with the average year or the local standard, if any	MoTA Jericho Office/ MoTA HQ/ Procurement cost for the installation of monitoring station and measuring devices	Semi-annual reporting (once every 6 months)
Landscape	- Positive or negative opinion of local residents and visitors on the view of Hisham Park - Media review on stakeholders opinion on the Hisham Park - Criteria of world heritage convention	At the local community of Jericho At entrance of Hisham Heritage Park At MoTA HQ or Jericho Office To ICOMOS Palestine National Committee	<Questionnaire survey> - to local residents of Jericho/ once one year after the project completion - to visitors to Hisham Heritage Park / continuously for one year with regular questionnaire form <Consultative inquiry> - to International Council on Monuments and Sites (ICOMOS) as needed (ANN)	- Perception of local residents - Perception of visitors at Hisham Site - Perception of professional community in Heritage Conservation - 'Authenticity' and 'Integrity', criteria for universal value in relation to World Heritage Convention, defined in Operational Guidelines for the Implementation of the World Heritage Convention	MoTA Jericho Office/ MoTA HQ/ Questionnaire survey cost, which can be conducted in general operation cost with no significant extra cost		

2.10.10

Environmental and Social Monitoring Form

1. Monitoring of Construction Activities

The latest results of the below monitoring items shall be submitted to JICA as part of Monthly Progress Report throughout the construction phase

1.1 Overall Monitoring for Construction Activities

Monitoring Item	Monitoring method	Measures taken and to be taken	Frequency
General performance of mitigation plan and monitoring plan	Check the monitoring results, based on the plan, from the contractor of the construction work		Shortly before start of construction
Any abnormal incidents to be specifically noted	Listing unexpected issues or the comments from the third party to be taken measures that are not identified in the original mitigation and monitoring plans		Quarterly during construction and Shortly before end of construction

1.2 Respective items of Air Quality, Wastes, Soil Contamination, and Vibration

Items	Indicator	Monitoring Results during Report Period	Measures to be taken
Air Quality	Abnormal emission of NOx and PM (dust, soot)	- Summary of performance in mitigation measures based on monitoring report by contractor	
Wastes	- Proper segregation of temporary wastes - Proper placement of construction materials - Complete removal of spoils and debris		
Soil Contamination	- Incidents of oil spill - Incidents of paint spill	- Any unexpected or abnormal incidents on respective indicators to be noted or to be taken measures	
Vibration	(vibration)		

1.3 Heritage

Items	Indicator	Monitoring Results during Report Period	Measures to be taken
Heritage	- Damages/degradation of the mosaic floor - Damages of associated facilities of the audience and bath hall - Damages of known or hidden relics around the shelter basement	- Summary of performance in mitigation measures based on monitoring report by contractor - Any unexpected or abnormal incidents on respective indicators to be noted or to be taken	

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	measures	
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1.4 Working environment and Accident

Items	Indicator	Monitoring Results during Report Period	Measures to be taken
Working environment	- Use of proper safety measures and gears - Proper welfare management for workers	Summary review of monitoring report by contractor	
Accident	- Incidents of accident - Use of skilled operators - Proper operation according to the safety manual		

2. Monitoring during Operation Activities or In-Service Period

2.1 Overall Monitoring for Operation Phase

Monitoring Item	Monitoring Results during Report Period	Frequency
Number and contents of formal public comments		Upon receipt of comments
Response or guidance or action made/taken by MoTA		

2.2 Wastes

Items	Indicator	Monitoring Results during Report Period	Measures to be taken
Waste	- Amount of garbage discarded in the park - Remaining available capacity of toilet and septic tank of the park - Increase of visitors	Summary of performance in mitigation measures based on monitoring report by MoTA local office	

2.3 Local economies (with respect to conditions around entrance of the Hisham Park)

Items	Indicator	Monitoring Results during Report Period	Measures to be taken
Local economies	- Increase rate of visitors - Increase rate of newly opened shops and vendors around entrance of the Hisham Park	Any rapid change of concerned conditions from the previous report period	

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2.4 Heritage

Items	Indicator	Monitoring Results during Report Period	Measures to be taken
Heritage	Performance of mitigation measures at operation phase	Any problems or matter of specific concerns in organizational setup, restoration activities of damaged remains and regular maintenance activities	
	Performance or progress of activities in the monitoring plan	- Any problems or matter of specific concerns in inspection results of mosaic Any problems or matter of specific concerns in meteorological and ambient monitoring	

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5. Soft Component (Technical Assistance) Plan (Summary)

After the completion of the construction, technical assistance regarding “Assistance for environment monitoring inside and perimeters of the shelter” and “Assistance for daily cleaning and maintenance in the shelter” will be implemented as soft components describe as below:

(1) Assistance for environment monitoring inside and perimeters of the shelter

In order to keep appropriate environment of the remains and the mosaics in the shelter, it is necessary to collect continuously the microclimate data and monitor the environment change.

- Continuous monitoring of wind direction and speed, rainfall, solar radiation, air temperature and humidity using a meteorological observation station
- Continuous monitoring of soil moisture content
- Continuous monitoring of moisture evaporation

A Japanese technician whose experience of monitoring of data surrounding remains will provide instructions to staff of MOTA in charge of site management of method of monitoring using provided equipment on the Project. Prior to this instruction, a manual in Arabic to illustrate the contents of this instruction will be developed.

(2) Assistance for daily cleaning and maintenance in the shelter

In order to minimize the risk of degradation of mosaics due to exposure from the ground, it is necessary to find problems and take appropriate measures promptly. It is necessary to understand a daily cleaning is good opportunity to find trouble of the remains and the mosaics and keep monitoring in order to present the remains and the mosaics in beautiful conditions.

With this purpose, a Japanese technician whose experience of conservation remains will provide instructions to staff of MOTA in charge of site management of method of cleaning and maintenance to be listed below. And a Japanese GIS technician will provide instructions of method of record the change of the mosaics on the damage map prepared in design stage with GIS technology.

- Method of record of an abnormality to be found
- Method of comparison between an abnormal point and its original
- Method of daily inspection
- Method of inspection when cleaning
- Method of report and record when an abnormality is found
- Method of first-aid measures for an abnormality to be found
- Method of record of changes of the mosaic floor on the damaged map

The soft component will be planned at the completion of the Project and the tentative program of soft is as shown below chart.

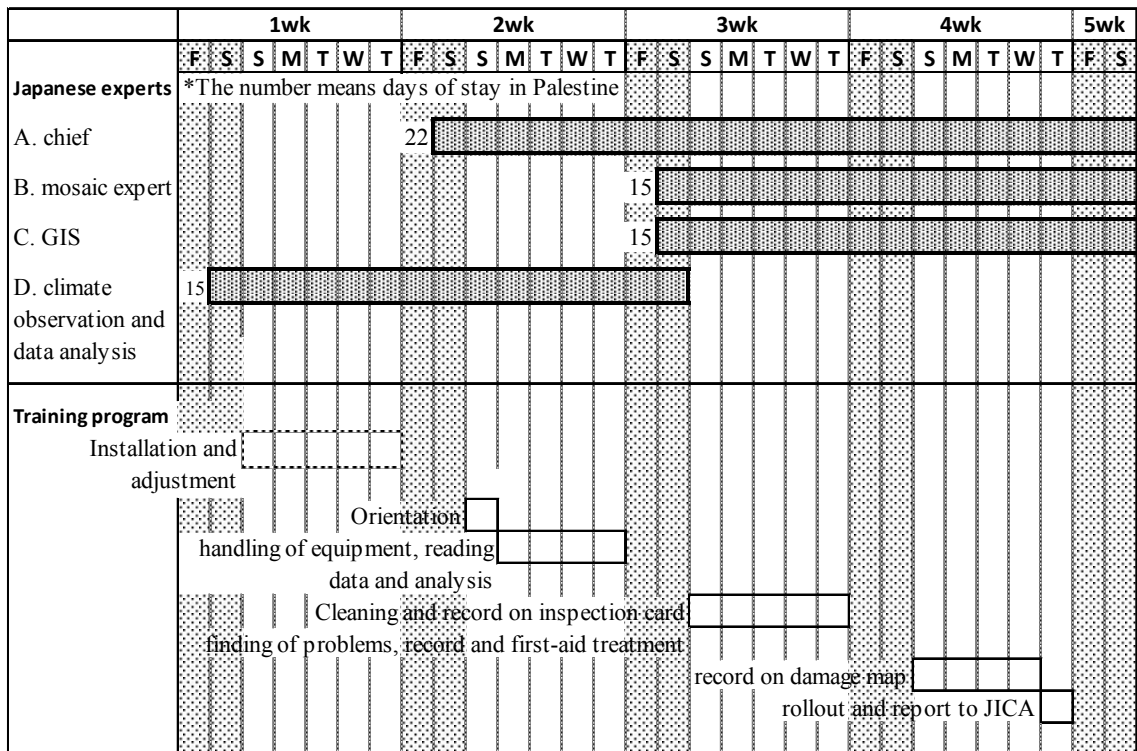


Fig. Soft Component Schedule

6. Other Relevant Data

NO	Document Title	Format / Lng	Date of Publication	Issuing agent
1	Palestinian Tourism Development Strategy 2014-2016	Soft Copy Ar	2013	MOTA
2	Palestinian Tourism Development Strategy 2011-2013 (Summary)	Soft Copy En	2010	MOTA
3	Annual statistical report 2014 (Tourism)	Soft Copy Ar/En	2015	
4	Jordan Law 66 (Conservation of Cultural Heritage)	Soft Copy Ar	1966	
5	Palestinian Convention for Conservation of Cultural Heritage Site	Soft Copy En	2012	
6	Guidance on Heritage Impact Assessments for Cultural World Heritage Properties	Soft Copy En	2011	ICOMOS
7	Inventory of Cultural and Natural Heritage Sites of Potential Outstanding Universal Value in Palestine	Soft Copy En	2009	UNESCO / MoTA
8	Policies of conserving Hisham Palace and its surrounding	Soft Copy En	2013	MOTA
9	Jericho Mafjar Project annual report 2013-2014 (Underground Structure)	Soft Copy En	2014	Donald Whitcomb (Oriental Institute, University of Chicago)
10	Jordinian building code	Soft Copy Ar	2006	
11	Low No. 7 concerning the environment	Soft Copy En	1999	Palestinian National Authority
12	The Palestinian Environmental Assessment Policy	Soft Copy En/Ar	1999	
13	Site Development – Hisham Palace (Tender documents of the site development)	Soft Copy En/Ar	2006	USAID/ANERA, MOTA
14	Restoration and rehabilitation of the archaeological project named cocks – Jericho (Tender documents of Duke site)	Soft Copy Ar	2015	MOTA
15	Environmental Assessment For Site and Road Improvement at Hisham’s Palace (Qaser Hisham), Jericho City, Jordan Valley , West Bank	Soft Copy En	2008	USAID/ANERA, MOTA
16	Environmental scoping Statement For Site and Road Improvement at Hisham’s Palace (Qaser Hisham), Jericho City, Jordan Valley , West Bank	Soft Copy En	2008	USAID/ANERA, MOTA
17	As Built drawing of Site Development Hisham Palace	Soft Copy En	2008	USAID/ANERA, MOTA
18	As Built drawing of the illumination of Hisham’s Palace (Projet de Mise en Valeur)	Soft Copy Ar	2011	Lyon / LUCI
19	Symposium on Cultural Heritage Conservation in Palestine Conservation plan of Hisham’s Palace	Soft Copy En	2003	MOTA and UNESCO
20	Report on Inspection, Testing and Geotechnical Investigation at House of Mosaic At Hishams Palace	Soft Copy En	2011	UNESCO-Ramallah Office GMT

※ Ar: Arabic, En: English

NO	Document Title	Format / Lng	Date of Publication	Issuing agent
21	Arab culture and architecture of the Umayyad Period: A comparative study with special reference to the results of the excavations of Hisham's Palace	Soft Copy En	1953	D.C. Baramki
22	Khirbat Al Mafjar An Arabian Mansion in the Jordan Valley	Soft Copy En	1959	R.W.Hamilton
23	Khirbat al-Mafjar and Its Place in the Archaeological Heritage of Palestine	Soft Copy En	2006	Donald Whitcomb, Hamdan Taha
24	The Jericho Qasr Hisham Archaeological Park (ROSAPAT 02)	Soft Copy En	2006	Roberto Sabelli
25	Construction of a Shelter Over the Mosaics in the Main Bath Area – Hisham Palace	Soft Copy En	2006	USAID / ANERA
26	Hisham's Palace, House of the Mosaics Protective shelter and gardens at Khirbet el-Mafjar, Jericho	Soft Copy En	2010	UNESCO, MOTA

※ Ar: Arabic, En: English