

ANNEXE

PLANNING PROVISOIRE

Echéances ( mois ).	1	2	3	4	5	6	7	8	9	10	11
Phase - I	↔										
Phase - II											↔
Rapport	R/P		R/I				R/D				R/F

R/P : Rapport préliminaire

R/I : Rapport intermédiaire

R/D : Rapport final en édition provisoire

R/F : Rapport final.

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SCOPE OF WORK  
FOR  
THE DETAILED DESIGN SURVEY  
ON  
THE WADI JIZZI AGRICULTURAL DEVELOPMENT PROJECT  
IN  
THE SULTANATE OF OMAN

agreed upon  
between  
The Ministry of Agriculture and Fisheries  
and  
The Japan International Cooperation Agency

Signed in Muscat

18th July, 1984

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Hasan Bin Abdulla Bin Alawi  
Al-Morazza  
The Undersecretary  
Ministry of Agriculture  
and Fisheries.

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Masafumi KUROKI  
Leader of Japanese  
Preliminary Survey Team  
Japan International  
Cooperation Agency.

## I. INTRODUCTION

In response to the request of the Government of the Sultanate of Oman (hereinafter referred to as "OMAN"), the Government of Japan has decided to implement, in accordance with the relevant laws and regulations in force in Japan, a detailed design survey on the Wadi Jizzi Agricultural Development Project (hereinafter referred to as "the Survey"), on which a feasibility study was conducted from March 1981 to January 1983 (hereinafter referred to as the "Feasibility Study") by the Japan International Cooperation Agency (hereinafter referred to as "JICA").

JICA, the official agency responsible for the implementation of the technical cooperation programs of the Government of Japan, shall undertake the Survey, in close cooperation with the authorities concerned of OMAN.

The Ministry of Agriculture and Fisheries (hereinafter referred to as "MAF") shall act as counterpart agency to the Japanese survey team and also as coordinating body in relation with other governmental and non-governmental organizations concerned in OMAN for the smooth implementation of the Survey.

The present document sets forth the Scope of Work for the Survey.

## II. OBJECTIVE OF THE SURVEY

The objectives of the Survey are:

1. To review the Feasibility Study,
2. To prepare the detailed design and tender documents, and
3. To undertake on-the-job training of the Omani counterpart personnel in the course of the Survey.

## III. OUTLINE OF THE SURVEY

The outline of the Survey to be undertaken by JICA on the basis of the results of the Feasibility Study shall consist of the following:

### 1. Topographic and Geological Survey

To conduct the detailed design of the facilities, the following survey shall be carried out:

- 1) Topographic, profile and cross-sectional survey of the detention dam
- 2) Profile and cross-sectional survey of the dispersion facilities

- 3) Boring, penetration test, permeability test and embankment material test and others for designing the dam and other facilities
- 4) Other necessary survey.

## 2. Formulation of Definitive Plan

To formulate the definitive plan of the project, review of the Feasibility Study, detailed investigations and determination of fundamental matters shall be carried out as follows:

- 1) Determination of specifications of the facilities such as detention dam, dispersion facilities, observation facilities and others
- 2) Clarification of design conditions on the basis of the results of field survey and its analysis
- 3) Clarification of design criteria for designing the facilities
- 4) Determination of the basic policy and unit price for construction cost estimation
- 5) Determination of the basic matters on construction schedule
- 6) Review of the approximate construction cost, benefit and evaluation
- 7) Clarification of the basic matters on tender documents and tendering method.

## 3. Preparation of Detailed Designs

On the basis of the definitive plan, the following works shall be carried out:

- 1) Hydraulic and structural design of each facility
- 2) Preparation of design drawings of each facility on the basis of the design
- 3) Preparation of chart of quantities calculation on each construction work on the basis of the design drawings
- 4) Preparation of unit price chart on each construction work
- 5) Estimation of construction cost
- 6) Preparation of detailed construction plan
- 7) Preparation of construction schedule chart.

## 4. Preparation of Specifications and Tender Documents

In accordance with the forms used in OMAN, specifications and tender documents on the construction works of the project shall be prepared as follows:

- 1) Form of tender
- 2) Form of Agreement
- 3) General conditions of contract
- 4) Particular conditions of contract
- 5) General and particular specifications of construction work
- 6) Contract drawings
- 7) Bill of quantities
- 8) Schedule of rates
- 9) Construction schedule chart
- 10) General information for tender.

#### IV. OWRK SCHEDULE

The work shall be conducted in accordance with the tentative work schedule attached herewith.

#### V. REPORTS

JICA shall prepare and submit the following reports in English to OMAN;

1. Plan of Operation:

Twenty (20) copies at the commencement of the Survey. This report shall contain the principle, procedures and work schedule of the Survey.

2. Definitive Plan:

Twenty (20) copies at the beginning of the preparation of detailed designs.

3. Draft Design Report:

Twenty (20) copies in the middle of the preparation of detailed designs. This report shall contain the principle, criteria and summaries of the draft detailed designs including outline of succeeding works.

4. Draft Final Report on Detailed Designs, Specifications and Tender Documents:

Twenty (20) copies at the completion of the Survey. Within a month after the presentation of the Draft Final Report, OMAN shall forward the final comments on the Draft Final Report to JICA through the Embassy of Japan.

5. Final Report:

Fifty (50) copies within two (2) months after receiving the comments from OMAN on the Draft Final Report.

VI. UNDERTAKING OF THE GOVERNMENT OF OMAN

1. To facilitate smooth implementation of the Survey, the Government of OMAN shall take necessary measures:

- 1) to secure the safety of the Japanese survey team (hereinafter referred to as the "Team"),
- 2) to permit the members of the Team to enter, leave and sojourn in OMAN for the duration of their assignment therein, and exempt them from alien registration requirements and consular fees,
- 3) to exempt the members of the Team from taxes, duties and other charges on equipment, machinery and other materials brought into OMAN for the implementation of the Survey.
- 4) to exempt the members of the Team from income tax and other charges of any kind imposed on or in connection with any emolument or allowance paid to the members of the Team for their services in connection with the implementation of the Survey,
- 5) to provide necessary facilities to the Team for remittance as well as utilization of the funds introduced into OMAN from Japan in connection with the implementation of the Survey,
- 6) to secure permission for entry into private properties or restricted areas for the conduct of the Survey,
- 7) to secure permission to take all data and documents related to the Survey out of OMAN to Japan by the Team,
- 8) to secure permission to use survey equipment for the implementation of the Survey,
- 9) to facilitate the quick and smooth custom clearance of the survey equipment and materials brought into OMAN by the Team for the field survey,
- 10) to provide 5 vehicles at maximum for the field operation,
- 11) to assist as much as possible with secretarial facilities, labourers and drivers, and
- 12) to provide medical services as needed. Its expenses will be chargeable on the members of the Team.



2. The government of OMAN shall bear claims concerning civil responsibility, if any arises against the members of the Team resulting from, occurring in the course of, or otherwise connected with the discharge of their duties in the implementation of the Survey, except when such claims arise from gross negligence or willful misconduct on the part of the members of the Team.
3. MAF shall, at its own expense, provide the Team with the following in cooperation with other relevant organizations:
  - 1) available data and information related to the Survey,
  - 2) counterpart personnel as available,
  - 3) suitable office space with necessary equipment both near the project site and in Muscat, and
  - 4) credentials or identification cards.

#### VII. UNDERTAKING OF JICA

For the implementation of the Survey, JICA shall take necessary measures:

1. to dispatch, at its own expense, survey teams to OMAN,
2. to perform technology transfer to the Omani counterpart personnel in the course of the Survey,
3. to bring necessary equipment and machinery for the implementation of the Survey, which shall be taken back to Japan unless otherwise agreed.

VIII. JICA and MAF shall consult with each other in respect of any matter that is not agreed upon in this document and may arise from or in connection with the Survey.



# TENTATIVE WORK SCHEDULE FOR THE SURVEY

Item	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Topographic and Geological Survey																				
Formulation of Definitive Plan																				
Preparation of Detailed Designs																				
Construction Planning and Cost Estimation																				
Preparation of Specifications and Tender Documents																				
Submission of Reports																				

△ P.O.

△ D.P.

△ D.D.R.

△ D.F.R.

△ F.R.

P.O. : Plan of Operation

D.P. : Definitive Plan


D.D.R.: Draft Design Report

D.F.R.: Draft Final Report on Detailed Designs

F.R. : Specifications and Tender Documents

F.R. : Final Report

Remarks:  Works in Oman

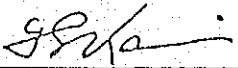
 Works in Japan

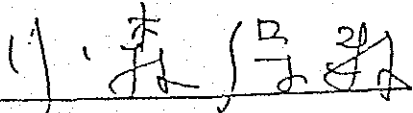


SCOPE OF WORK  
FOR  
THE STUDY  
ON  
DRAINAGE IMPROVEMENT PLAN, DOHA CITY  
IN  
STATE OF QATAR

AGREED UPON BETWEEN  
STATE OF QATAR  
AND  
THE JAPAN INTERNATIONAL COOPERATION AGENCY

8 OCTOBER 1985  
DOHA, STATE OF QATAR

  
H. E. ISSA G AL-KAWARI  
Director of H. H. Amir's Office  
Doha

  
YASUKAZU KIKUCHI  
Leader of the Preliminary  
Study Team,  
The Japan International  
Cooperation Agency

SCOPE OF WORK  
FOR  
THE STUDY  
ON  
DRAINAGE IMPROVEMENT PLAN, DOHA CITY  
IN  
STATE OF QATAR

I. INTRODUCTION

In response to the request of the Government of the State of Qatar ( hereinafter referred to as "Qatar" ), the Government of Japan has decided to implement a study on Drainage Improvement Plan, Doha City in the State of Qatar ( hereinafter referred to as " the Study " ), in accordance with the relevant laws and regulations in force in Japan. Accordingly, the Japan International Cooperation Agency ( hereinafter referred to as "JICA" ), the official agency responsible for the implementation of the technical cooperation programmes of the Government of Japan, will undertake the Study in close cooperation with the authorities of the Government of State of Qatar.

The present document sets forth the Scope of work with regard to the above mentioned Study.

II. OBJECTIVE OF THE STUDY

The objective of the Study is to prepare a drainage improvement plan in order to alleviate the problems of rising groundwater table in Doha.

III. OUTLINE OF THE STUDY

III-1. STUDY AREA

The Study area will cover Doha city, Rayyan and its vicinity areas.

III-2. CONTENTS OF THE STUDY

The Study will be composed of field work in Qatar and analysis work in Japan.

Items to be covered by the Study will include, but are not restricted to, the followings :

Cont'd.../2

1. Basic Study
  - a. collection of data and information
  - b. review of previous studies and plan
  - c. field survey on damage to structures, services, soil and vegetation
  - d. study on treatment and possible use of drained groundwater
  - e. others
2. Test Works
  - a. preparation of implementation program
  - b. execution of works
  - c. observations and analyses
    - analysis of test works results
    - geological observations
    - pumping tests
    - water quality tests
  - d. others
3. Urgent Drainage Improvement plan
  - a. selection of sites and systems
  - b. field survey and investigation
    - profile survey
    - geological investigation
  - c. analysis for design
    - hydrological study
    - hydrogeological study
    - hydraulic study
  - d. alternative studies of the drainage facilities
  - e. preliminary design
    - facilities design
    - cost estimation
    - construction method
  - f. justification of the plan
  - g. preparation of implementation program
  - h. others

Cont'd.../3

IV. STUDY SCHEDULE

The Study, in principle, will be carried out in accordance with the tentative schedule shown in the attached sheet.

V. REPORTS

JICA shall prepare and submit the following reports in English to the Government of Qatar.

1. Inception Report, 20 copies, within 1 month from the date of the commencement of the Study.
2. Progress Report, 20 copies, within 4 months after the commencement of the Study
3. Interim Report, 20 copies, within 10 months after the commencement of the Study
4. Draft Final Report, 20 copies, within 14 months after the commencement of the Study
5. Final Report, 40 copies, within 2 months after receipt of comments on the Draft Final Report.

VI. UNDERTAKING OF THE GOVERNMENT OF QATAR

1. To facilitate smooth conduct of the Study, the Government of Qatar shall take necessary measures.
  - ( 1 ) to secure the safety of the JICA Study Team ;
  - ( 2 ) to permit the members of the JICA Study Team to enter, leave and sojourn in Qatar for the duration of their assignment therein, and exempt them from alien registration requirements and consular fees ;
  - ( 3 ) to exempt the members of the JICA Study team, from taxes, duties and any other charges on equipment, machinery and other materials brought into Qatar for the conduct of the Study ;
  - ( .4 ) to exempt the members of the JICA Study Team from income tax and charges of any kind imposed on or in connection with any emoluments or allowances paid to the members of the JICA Study Team for their services in connection with the implementation of the Study ;

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- ( 5 ) to provide the necessary facilities to the Japanese Study Team for the remittances as well as utilization of funds introduced into Qatar from Japan in connection with the implementation of the Study;
- ( 6 ) to secure permission to take all data and documents ( including photographs ) related to the Study out of Qatar to Japan by the JICA Study Team;
- ( 7 ) to provide medical services as needed. Its expenses will be chargeable on the members of the JICA Study Team.
2. The Government of Qatar shall bear claims, if any arise, against the members of the JICA Study Team resulting from, occurring in the course of, or otherwise connected with the proper discharge of their duties in the implementation of the Study, except when such claims arise from gross negligence or willful misconduct on the part of the members of the JICA Study Team.
3. Ministry of Electricity & Water shall act as the counterpart agency to the JICA Study Team and also the coordinating body in relation with the other governmental and non-governmental organization concerned for the smooth implementation of the Study.
4. The Government of Qatar shall at its own expense, provide the JICA Study Team with the followings, in cooperation with other relevant organisations.
- ( 1 ) available data and information related to the Study
  - ( 2 ) counterpart personnel
  - ( 3 ) suitable office space with necessary equipment in Doha
  - ( 4 ) credentials or identification cards
  - ( 5 ) vehicles with drivers

#### VII. UNDERTAKING OF JICA

For the implementation of the Study, JICA shall take the following measures:

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1. to dispatch at its own expense, JICA Study Teams to Qatar;  
and
2. to pursue technology transfer to the Qatar counterpart personnel  
in the course of the Study.

#### VIII. CONSULTATION

JICA and the Government of Qatar shall consult with each other  
in respect of any matter that may arise from or in connection  
with the Study.

# TENTATIVE SCHEDULE

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
(In Qatar) Preparation																
Implementation of Test Works																
Observation of Test Works																
Survey and Analysis																
(In Japan) Analysis and Design																
Inception Report																
Progress Report																
Test Works Review Reports																
Interim Report																
Draft Final Report																
Final Report																



KINGDOM OF SAUDI ARABIA  
Saline Water Conversion Corporation

Our Ref. No. ....

Date .....

RECORD OF DISCUSSIONS  
BETWEEN  
THE JAPAN INTERNATIONAL COOPERATION AGENCY  
AND  
THE SALINE WATER CONVERSION CORPORATION OF  
THE KINGDOM OF SAUDI ARABIA  
ON  
THE TECHNICAL COOPERATION FOR THE PROJECT  
ON  
SEA WATER DESALINATION TECHNOLOGY

*S.K.*

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## Saline Water Conversion Corporation

Our Ref. No. ....

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RECORD OF DISCUSSIONS  
BETWEEN  
THE JAPAN INTERNATIONAL COOPERATION AGENCY  
AND  
THE SALINE WATER CONVERSION CORPORATION OF  
THE KINGDOM OF SAUDI ARABIA  
ON  
THE TECHNICAL COOPERATION FOR THE PROJECT  
ON  
SEA WATER DESALINATION TECHNOLOGY

The Japanese delegation organized by the Japan International Cooperation Agency (hereinafter referred to as JICA), headed by Shizuo Kishida, Executive Director of JICA, visited the Kingdom of Saudi Arabia from the 7th to the 22nd of March 1981, for the purpose of working out record of discussions on the technical cooperation for the project on sea water desalination technology between Japan and the Kingdom of Saudi Arabia (hereinafter referred to as the PROJECT) with officials of the Saline Water Conversion Corporation of the Kingdom of Saudi Arabia (hereinafter referred to as SWCC), headed by H.E. Sheikh Abdul Rahman Abdul Aziz Al El Sheikh, Minister of Agriculture and Water, Chairman of SWCC Board of Directors.

### Article 1. Scope, Purpose and Objectives

#### (1) The outline of the Cooperation

JICA and SWCC will cooperate with each other, in accordance with the Agreement on Economic and Technical Cooperation between the Government of

S.W.C.C.

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Japan and the Government of the Kingdom of Saudi Arabia of the 1st of March, 1975 (hereinafter referred to as the AGREEMENT) and the recommendation of the Japan- Saudi Arabia Joint Committee in implementing the PROJECT for the purpose of securing desalinated water in the future by transferring the Japanese technology, particularly developed by the Ministry of International Trade and Industry, the Government of Japan.

(2) The Outline of the PROJECT

The PROJECT will be carried out on research and training activities for the purpose of transferring the Japanese sea water desalination technology mentioned in above (1) to SWCC under the tentative time schedule of a five-year program as indicated in ANNEX I.

1) Consultation and Exchange of Information

A joint meeting of high-level official or specialists of the both countries will be established in order to have consultations and exchange of information about the technology for sea water desalination and to promote the PROJECT.

During the PROJECT, the meetings are scheduled to be held alternately in Japan and in the Kingdom of Saudi Arabia.

2) Establishment of Desalination Technology Institute

A desalination technology institute (hereinafter referred to as the INSTITUTE) will be established in SWCC, and will be furnished with necessary equipment.

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### 3) Research

Attached to the INSTITUTE, a test plant of multi-stage flash evaporation process (hereinafter referred to as MSF TEST PLANT) and a module test plant of reverse osmosis process (hereinafter referred to as RO TEST PLANT) will be constructed.

Research will be undertaken on the prevention of corrosion and scale deposition by the effective utilization of the INSTITUTE and MSF TEST PLANT, and also the durability of reverse osmosis modules by the effective utilization of the INSTITUTE and RO TEST PLANT. The research themes are listed in ANNEX II.

### 4) Training

Training for operation (boiler, turbine, desalination and pump) and maintenance (machine, welding and piping, electric and instrumentation) technology will be undertaken for about 300 persons per year.

Necessary survey will be done for the purpose of decision on detailed training programme.

### Article 2. The Measures to be taken by JICA

- (1) In accordance with the laws and regulations in force in Japan, JICA will take the necessary measures to provide, at its own expense, the requisite services of Japanese specialists (ANNEX IV) through the normal procedures under the Technical Cooperation Scheme of Japan for the purpose of conducting the PROJECT as mentioned in Article 1.(2).
- (2) In accordance with the laws and regulations in force in Japan, JICA will take the necessary measures to receive, at its own expense, the Saudi Arabian personnel connected with the PROJECT for technical training in Japan, through

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the normal procedures under the Technical Cooperation Scheme of Japan.

- (3) 1) In accordance with the laws and regulations in force in Japan, JICA will take the necessary measures to provide, at its own expense, main machinery, equipment and other materials for the INSTITUTE, MSF TEST PLANT and RO TEST PLANT for the implementation of the PROJECT as listed in ANNEX III, through the normal procedures under the Technical Cooperation Scheme of Japan.
- 2) The articles referred to in 1) above will be utilized exclusively for the implementation of the PROJECT upon the advice of the Japanese specialists.
- (4) In accordance with the laws and regulations in force in Japan, JICA will take the necessary measures to meet:
  - 1) Expenses for drawing the conceptual design of the INSTITUTE
  - 2) Expenses for holding the joint meeting in Japan
  - 3) Expenses for dispatching Japanese senior officials or specialists to the Kingdom of Saudi Arabia to attend the joint meeting.

### Article 3. The Measures to be taken by SWCC

- (1) In accordance with the laws and regulations in force in the Kingdom of Saudi Arabia, SWCC will take the necessary measures, at its own expense, to provide:
  - 1) The services of the Saudi Arabian counterpart personnel for the PROJECT, including the operation of MSF TEST PLANT and RO TEST PLANT, as listed in ANNEX IV.

*S. W. K.*

*[Signature]*

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- 2) An adequate and suitable piece of land for the INSTITUTE
  - 3) Buildings and their necessary facilities for the INSTITUTE
  - 4) Machinery, equipment and other materials necessary for the INSTITUTE, except for those provided by JICA, at its own expense
  - 5) Separate office space in the INSTITUTE for the Japanese specialists
  - 6) A fully furnished suitable accommodation for each Japanese specialist and his family according to SWCC's standard.
- (2) In accordance with the laws and regulations in force in the Kingdom of Saudi Arabia, SWCC will take necessary measures to meet:
- 1) Expenses necessary for the domestic transportation of the goods provided by JICA as well as for their installation (including foundation and construction works of sea water intake and discharge systems, fresh water distribution system, road, facility of transform substation and telephone)
  - 2) All running expenses necessary for the implementation of the PROJECT
  - 3) Customs duties and any other charges, if any, as may be imposed upon the goods provided by JICA to SWCC
  - 4) Expenses for the internal travel in the Kingdom of Saudi Arabia of the Japanese specialists on duty
  - 5) Expenses for vehicles with drivers for the Japanese specialists during working hours
  - 6) Expenses for dispatching senior Saudi Arabian officials or specialists to Japan to attend the joint meeting.

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**Article 4. Administration**

- (1) SWCC will appoint a SWCC senior official as Director listed in ANNEX IV.
- (2) JICA will appoint a Japanese senior specialist as Chief Representative listed in ANNEX IV.
- (3) Research and operation in the INSTITUTE will be directed jointly by the Director and the Chief Representative.

**Article 5. Joint Meeting**

JICA and SWCC will jointly review the progress of the implementation of the PROJECT at the forum of the joint meeting and take measures necessary to secure smooth and effective cooperation and otherwise consult with each other in respect of any matter that may arise from or in connection with this understanding.

**Article 6. Joint Technical Team**

A joint technical team, composed of the Chief Representative and relevant specialist from JICA and the Director and relevant specialist from SWCC (hereinafter referred to as the JOINT TECHNICAL TEAM), will be established for the purpose of harmonious and effective conduct of the PROJECT. The JOINT TECHNICAL TEAM will monitor and direct all work and review all submittals by the contractors.

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- (1) The JOINT TECHNICAL TEAM will invite qualified firms after SWCC approval having interest in assisting SWCC to serve as architect-engineers or construction contractors.
- (2) For portions funded by SWCC, the JOINT TECHNICAL TEAM will evaluate the proposals, select the contractor and recommend it to SWCC for approval.
- (3) The JOINT TECHNICAL TEAM will prepare and transmit to the Governor of SWCC quarterly reports covering the overall status and progress of work as well as areas of concern and recommendations.

### Article 7. Privileges

The Japanese specialists, their families and the missions who are to be dispatched for the PROJECT will be granted in the Kingdom of Saudi Arabia, the privileges, exemptions and benefits according to Article 3 (c) of the AGREEMENT.

### Article 8. Claims

SWCC undertakes to bear claims, if any arise, against the Japanese specialists resulting from, occurring in the course of, or otherwise connected with the discharge of their official functions in the Kingdom of Saudi Arabia, excepting those claims arising from the willful misconduct or gross negligence of the Japanese specialists.

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Article 9. Confidentiality

JICA and SWCC shall keep confidential, in general, any information or data provided by another partner or generated as a result of the work under the PROJECT. In the case of mutual agreement, however, JICA and SWCC or their employee can publish the information or data.

Article 10. Patents

- (1) If inventions or discoveries arise out of any work performed under the PROJECT:
  - 1) JICA and SWCC shall acquire all rights, title and interest in and to any such invention or discovery in its own country.
  - 2) JICA and SWCC shall acquire, in general, equal rights, title and interest in and to any such invention or discovery in a third country.
- (2) JICA and SWCC which owns inventions referred to in (1) above shall license such inventions to the national of the other country on the most favorable terms and conditions under the laws and regulations of the owner country.

Article 11. Budgetary Appropriations

Implementation under this Record of Discussions shall be subject to the budgetary appropriations in JICA & SWCC.  
(ANNEX V)

Article 12. Method of Payment

Any project expenditure not provided by JICA such as (1)

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personal costs, travel, accommodation and any other personnel benefits not less favorable than those granted to the specialists and their families of a third country in the Kingdom of Saudi Arabia, and (2) procurement of materials, chemicals, equipment and any other expenditure related with the PROJECT shall be submitted by the JOINT TECHNICAL TEAM with recommendations to SWCC for approval. After SWCC approval, the amount will be paid from the allocated funds for the PROJECT.

**Article 13. Term of Cooperation**

This Record of Discussions shall become effective after signature of the both parties, and shall remain in effect until terminated in accordance with Article 15 below, the termination of the AGREEMENT or the 31st of March, 1986, whichever shall occur first.

**Article 14. Force Majeure**

If any party to this Record of Discussions is rendered unable because of force majeure to perform its responsibilities under this Record of Discussions, these responsibilities shall be suspended during the period of continuance of such inability. The term "Force Majeure" means acts of God, acts of public enemy, war, civil disturbances, and other similar events not caused by nor within the control of the parties. During the period of suspension of the performance caused by force majeure, SWCC may continue to pay normal costs of maintaining the Japanese specialists in the Kingdom of Saudi Arabia. In the event of suspension of a party's duties because of force majeure, the parties shall consult and endeavor jointly to resolve any attendant difficulties.

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*[Signature]*

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Article 15. Amendment, Extension or Termination

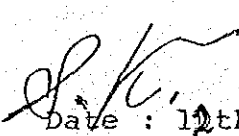
This Record of Discussions may be amended, extended or terminated by mutual agreement in writing.

Article 16. Resolution of Difficulties

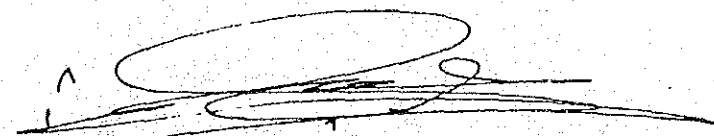
JICA and SWCC upon request of any party, regarding any matter relating to the terms of this Record of Discussions, shall endeavour jointly in a spirit of cooperation and mutual trust to resolve any difficulties or misunderstanding that may arise.

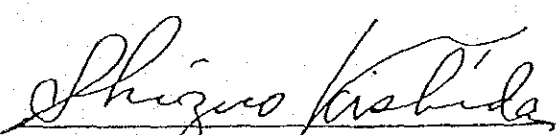
Article 17. Cancellation of the Basic Record of Discussions

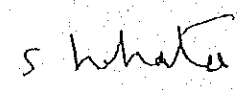
The Basic Record of Discussions, concluded between JICA and SWCC on the 6th of September, 1979, will be cancelled when this Record of Discussions is signed.

 Date : 12th January, 1982.

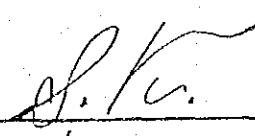
Place: Riyadh.

  
ABDUL RAHMAN ABDUL AZIZ AL EL SHEIKH  
MINISTER OF AGRICULTURE AND WATER,  
CHAIRMAN OF SWCC BOARD OF DIRECTORS.

  
SHIZUO KISHIDA  
EXECUTIVE DIRECTOR  
J I C A .

  
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# KINGDOM OF SAUDI ARABIA

## Saline Water Conversion Corporation

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### ANNEX I

#### Tentative Time Schedule

Items	year	1982	1983	1984	1985	1986
1. Training						
(1) Decision of Site						
(2) Site Survey and Conceptual Design						
(3) Detailed Design and Construction						
(4) Procurement of Equipment						
(5) Transportation and Installation						
(6) Training Activity						
2. Research						
(1) Decision of Site						
(2) Site Survey and Conceptual Design						
(3) Detailed Design and Construction						
(4) Civil Works of Test Plants						
(5) Fabrication of Test Plants						
(6) Procurement of Equipment						
(7) Transportation and Installation						
(8) Research Activity						
3. Report						
(1) Annual Report						
(2) Final Report						
4. Personnel						
(1) SWCC Side						
(2) JICA Side						
5. Joint Meeting						

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S.M.T.

[Signature]

[Signature]

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ANNEX II  
Research Themes

The main research themes are as follows:

1. Studies in the INSTITUTE are as follows:

- (1) Operation of 20 m<sup>3</sup>/d MSF TEST PLANT
- (2) Operation of 40 m<sup>3</sup>/d RO TEST PLANT
- (3) Prevention study of corrosion and scale deposition  
Examination of typical corrosion phenomena and scale deposition mechanism in the various desalination environment, and confirmation of preventing methods for corrosion and scale deposition by long term operation of MSF TEST PLANT using both brine recirculation and once through
- (4) Reverse osmosis study  
Examination of durability and performance of reverse osmosis module available in the market in the natural conditions of the Kingdom of Saudi Arabia, and standardization of selecting procedure of suitable modules.
- (5) Chemical study  
Study on chemical analysis of corrosion products, scale deposition and water quality

2. Recommendation

Recommendation of the most appropriate methods to be used in sea water desalination as well as the extent of the adoption of the machinery and equipment for prevailing conditions in the Kingdom of Saudi Arabia as the result of study stipulated in 1. above.

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*S. M. K.*

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ANNEX III

List of Main Articles Provided by  
JICA

1. The INSTITUTE

- (1) Equipment for corrosion test
- (2) Equipment for chemical analysis
- (3) Auxiliary equipment
- (4) Equipment for machine shop
- (5) Equipment for welding and piping shop
- (6) Equipment for electrical shop
- (7) Equipment for instrument shop

2. MSF TEST PLANT

- (1) Capacity:  $20 \text{ m}^3/\text{d}$
- (2) Type of Plant: Cross tube design, multi-stage flash Evaporation
- (3) Scale prevention: pH control and/or chemical dosing
- (4) Performance ratio: 2.5 \*
- (5) Number of stages: Heat recovery: 4 stages  
Heat rejection: 2 stages
- (6) Top brine temperature  $120^\circ\text{C}$
- (7) Mode of operation Once through and brine recirculation

3. RO TEST PLANT

- (1) Reverse osmosis (RO) unit
  - 1) Capacity:  $40 \text{ m}^3/\text{d}$
  - 2) Type of Ro module
    - (A) Hollow fiber ( $20 \text{ m}^3/\text{d}$ )
    - (B) Spiral wound ( $20 \text{ m}^3/\text{d}$ )
- (2) Pretreatment unit
  - 1) Capacity:  $150 \text{ m}^3/\text{d}$

\* under the mode of brine recirculation

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- 2) Type: In-line coagulation and dual  
media sand filter.



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ANNEX IV  
Personnel

1. JICA side	No. of Persons
Chief Representative (member of the JOINT TECHNICAL TEAM)	1
Relevant Specialist (" " " " )	1
Corrosion Researcher	1
Chemistry Researcher	1
MSF TEST PLANT Operating Engineer	1
RO TEST PLANT Operating Engineer	1
Instructors of Work Shops	10 *
Total:	16 *

2. SWCC side	
Member of the JOINT TECHNICAL TEAM	(2)
Director	1
Administrative office (served concurrently by the Director)	
General Affairs	
Accountant	
Purchaser	
Corrosion Researcher	2
Chemistry Researcher	2
MSF TEST PLANT Operating Engineer	1
RO TEST PLANT Operating Engineer	1
Work Shop Personnel	20 *
Total:	27

\* The personnel for the work shops might be changed on the basis of coming survey.

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### ANNEX V

#### Tentative Estimated Cost

Estimated cost (tentative) of the technical cooperation for the project on sea water desalination technology between Japan and the Kingdom of Saudi Arabia is as follows:

Unit: US\$1,000

Items	Cost	JICA Portion	SWCC Portion	Remarks
1. The INSTITUTE				
1.1 Laboratory	( 5,351)			
(1) Conceptual Design	96	96	0	
(2) A/E & Construction	3,714	0	3,714	including labora- tory furniture
(3) Laboratory Equipment	1,150	1,150	0	C.I.F.
(4) Inland Transportation of Equipment	11	0	11	
(5) Installation & Adjust- ment of Equipment	380	360	20	
1.2 Work Shop	(20,085)			
(1) Conceptual Design	200	200	0	
(2) A/E & Construction	15,980	0	15,980	including work shop building furniture
(3) Work Shop Equipment	3,259	1,259	2,000	C.I.F. including instruction documents
(4) Inland Transportation of Equipment	30	0	30	
(5) Installation & Adjust- ment of Equipment	616	316	300	

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