サウディアラビア 海水淡水化訓練センター

計画打合せ調査団　報告書

昭和61年12月

国際協力事業団
社会開発協力部

サウディアラビア 海水淡水化訓練センター

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序　　文

サウディアラビア王国は，淡水の供給の多くを海水淡水化プラントに依存しており，プラント建設に力を入れていくことを計画している。海水淡水化計画は，同国にとって極めて重要な課題であり，そのためプラントの研究・開発に対する協力をわが国に要請してきた。その後，海水淡水化プラントの建設が進められてきた結果，ほとんどのプラントの操作，運転及びメインテナンス要員を外国人に依存している状況から，外国人要員への依存脱却を図ることを目的として，サウディアラビア人の養成，訓練について協力方要請越した。

これを受けて，サウディアラビア国関係者と協議を重ねた結果，昭和 57 年 1 月，訓練部門の協力に関する討議議事録（R / D）に署名を行い，昭和 57 年 1 月 12 日から昭和 61 年 3 月 31 日までの間，協力を実施することとなった。

昭和 57 年 12 月に，事前調査団を派遣し，協力のフレームワークについて，双方概ね合意に達した。これに基づき，わが方は昭和 58 年 5 月及び同年 10 月に概念設計（案）及び訓練計画（案）をサウディアラビア側へ提示したところ，昭和 59 年 2 月になって，先方よりプロジェクトサイト，建物及び訓練内容の大幅な変更を申し入れてきたため，昭和 59 年 5 月に計画打合せ調査団を現地に派遣し，変更内容の確認及び今後の取り進め方について検討を行った。その後，昭和 59 年 11 月に概念設計書をサウディアラビア側へ提出し，昭和 60 年 3 月に概念設計書についての説明のために，昭和 60 年 7 月及び同年 11 月には，プロジェクトの延長問題について協義するために，各々計画打合せ調査団を現地に派遣した。

本報告書は，昭和 60 年に派遣した 3 回の計画打合せ調査団の調査結果をとりまとめたものである。最後に，計画打合せ調査団の諸氏，外務省，労働省及び在サウディアラビア日本国大使館その他の関係機関の方々に対し，深甚の謝意を表する次第である。

昭和 61 年 12 月

国際協力事業団社会開発協力部
部長　山　下　生比古

目　　次

≪付属資料≫

計画打合せ調査団報告書

（昭和60年3月3日～3月16日）

1. 昭和60年3月派遣計画打合せ調査団

1－1 派遣の経緯及び目的

サウディアラビア海水淡水化訓練センターに対する技術協力は昭和57年1月12日に討議議事録（R/D）に署名が行われて以来，既に3年が経過しているが，「サ」側の都合により予定が大幅に遅れている。また，R/Dには訓練センターに対する協力計画が具体的に明記されておらず，実施に当ってはその都度「サ」側と協議しなければならない。

昭和59年11月にはプロジェクトの基本となる，CONCEPTUAL DESIGN REPORT（C/D）をサウディアラビア海水淡水化公社（SWCC）に提出し，「サ」側の検討結果を待っていたところ，この度，「サ」側は詳細設計（D/D）の作成に必要な技術指導を目的とする専門家の派遣を要請越した。これに対し，「日」側はD/Dの作成には使用機器の仕様の確定が絶対条件であり，現時点では使用機器の仕様は確定していない。従って，D/Dに入るためのC/Dの技術説明を目的とする専門家ならば派遣する意がある旨回答したところ，「サ」側がその条件を受入れたため，供与機材のデマケーション及び訓練に対する「サ」側の要望聴取を併せて目的とする調査団を派遣することとした。

1－2 調査団の構成

(1) 林　和昭　　国際協力事業団社会開発協力部
(2) 渡辺政一　　コスモインターナショナル㈱取締役
(3) 折橋啓三　　コスモインターナショナル㈱部長
(4) 田中　実　　㈱山下設計主任

1－3 調 査 日 程

昭和60年3月3日（日）から昭和60年3月16日（土）までの14日間

3月3日（日）　東京発（17:40）JL－467便 → バンコク着（22:35）
3月4日（月）　バンコク発（12:15）SV－381便 → リヤド着（16:10）
3月5日（火）　JICA事務所，日本大使館及びSWCC表敬訪問及び打合せ
3月6日（水）　SWCCと協議
3月7日（木）　チーム内打合せ
3月8日（金）　資 料 整 理
3月9日（土）　SWCCと協議

3月10日（日）　ＳＷＣＣと協議

3月11日（月）　ＳＷＣＣと協議

3月12日（火）　ＳＷＣＣと協議

3月13日（水）　ミニッツ署名

3月14日（木）　ＪＩＣＡ事務所及び大使館に協議結果報告

リヤド発（23:55）ＳＶ－380便 →

3月15日（金）　バンコク着（10:30）

3月16日（土）　バンコク発（11:25）ＪＬ－466便 → 東京着（18:40）

１－４　主要面談者

(1) サウディアラビア側関係者

Dr. Abdulaziz Mohammed Al Mujahed Deputy Governor, SWCC

Mr. Abdulaziz Al Suleiman Director General, SWCC

Mr. Abdulla Al-Azzaz Director General, SWCC

Mr. Mohammed Al-Oqbi Engineer, SWCC

Mr. Moflih Al-Shagatre Specialist for Training, SWCC

Mr. Habeeb Mohammed Engineer, SWCC

Mr. Syed Hawari Engineer, SWCC

(2) 日本側関係者

服部　薫　　日本大使館一等書記官

地曳隆紀　　ＪＩＣＡリヤド事務所長

１－５　対処方針

(1) ＳＷＣＣが契約したコンサルタントに対して，Ｃ／Ｄについての説明を行う。

(2) 「日」側はＤ／Ｄに必要な情報は提供するが，Ｄ／Ｄの作成作業には加わらない。

(3) Ｄ／Ｄの終了予定及び建物の完成時期を確認する。

(4) 今後の協力日程を「ス」側と協議する。

(5) 「日」側調達機材と「サ」側調達機材のデマケーションを明らかにする。

１－６　協議結果概要

(1) Ｄ／Ｄ作成に係る技術指導

出発前にリヤド事務所を通じて確認しておいたにもかかわらず，ＳＷＣＣ副総裁ＤＲ．

MUJAHED を表敬訪問した際に，冒頭より全ての機材の仕様を２～３週間以内にSWCCに提出するように強く求められた。「サ」側コンサルタントとの協議の結果は，既にプリミナリー・スタディを終えてこれからD／Dに入るところであり，「日」側への要望事項はユーティリティ及び機材の仕様のみとのことであった。

リサーチ・センターについては既に「サ」側にて全て提出済みであるため，同じJICAでありながら予算制度の違いから「サ」側希望の資料の提出は困難との説明は説得力を欠き，訓練センターについても仕様書の提出は止むを得ないものと判断した。手持の資料から概算できるものについては可能な限り現地で処理し，D／Dの早期作成に協力するとともに，機器の仕様書の収集等日本国内でなければ，作業出来ないものについては遅くとも７月上旬迄に提出することで「サ」側と合意した。国内作業は少なくとも２ケ月間必要と推定される。

(2) 供与機材のデマケーション

建物完成前にサイトに搬入することが望ましい機材も多少あり，納期が発注後約８ケ月を要する機材もあることから，D／D作業中の現時点で「日」側供与分と「サ」側供与分のデマケーションを明確にしておく必要があるため，「日」側案として，メインテナンス関係の４コース分の訓練機材を「日」側負担とし，プラント関係３コース分の訓練機器と視聴覚機器を「サ」側負担とすることを提案した。これに対して「サ」側は，「日」側案は感覚的には理解できるが，各訓練コースで必要とする機材の概算見積額が明らかにならなければ諾否を検討することができないとして，概算見積額の提示を強く求めてきた。そのため，現時点での概算見積額の提示は困難であるとする「日」側と意見が合わず，本件については次回のミッションが継続協議することとした。次回のミッションを派遣する前に，全コースの訓練機材の概算見積書を「サ」側に提出する必要がある。

(3) 建物建設の工事スケジュール

SWCC副総裁DR. MUJAHED は協議中一貫して建物の完成を 10 月末とすることを主張したが，「サ」側コンサルタントから1985 年８月１日着工，1986 年７月 31 日竣工でなければ実施不可能である旨説明されて，工事スケジュールの修正に同意した。（詳細は別添工事スケジュールを参照）

(4) 訓練用教科書

「サ」側から訓練用教科書のドラフトの提出を強く求められたのに対して，「日」側から，そのためには「サ」側からの参考資料の提出が不可欠である旨主張したところ，「サ」側から約２年前のミッションに全て手渡し済みである旨反論されたため，本件については次回のミッションが継続協議することとした。ドラフトを作成するためには，少なくともプラントのオペレーション・マニュアル及びメインテナンス・マニュアルを入手する必要がある。

(5) 次回ミッションの協議事項

訓練センターに対する詳細且つ，具体的な協力計画を策定するために，本年6月または7月に次回ミッションを派遣する必要がある。協議事項は次ぎの通り。

a. 訓練用機材のデマケーション

b. 訓練用機材の購送計画

c. 機材据え付け作業のデマケーション（リサーチ・センターと横並び）

d. 訓練プログラム作成

e. 訓練用教科書のドラフト作成

f. 教官用ガイドブックのドラフト作成

g. 日本人専門家の派遣計画

h. 「サ」側スタッフの配置

i. カウンターパートの研修受入れ計画

j. 日本人専門家に対する「サ」側の便宜供与（リサーチ・センターと横並び）

1－7.　ミ　ニ　ッ　ツ

MINUTES OF MEETING
ON
THE TECHNICAL COOPERATION FOR THE PROJECT
OF
SEA WATER DESALINATION
TRAINING AND RESEARCH CENTER

The Japenese Team organized by the Japan international Cooperation Agency (hereinafter referred to as JICA) visited the Kingdom of Saudi Arabia from the 4th of March, 1985 to the 13th of March, 1985 and discussed with the Saline Water Conversion Corporation (hereinafter referred to as SWCC) on the technical cooperation for the Project of the Sea Water Desalination Training and Research Center, and agreed on the following matters:

I. For the TRAINING CENTER

1. Detail Design now being undertaken by SWCC

1.1 Information for Detail Design
JICA submitted the outline of information on the Training Equipment for the detail design.
Further detailed specification of the Training Equipment shall be submitted to SWCC by beginning of July, 1985.

1.2 Reviews of the Preliminary Design Documents
JICA reviewed captioned documents together with SWCC and his Consultant and exchanged the comments.

1.3 Remodelling of the existing building
The Consultant proposed some modification on room layout of remodellings of the exiting building to minimize the work. Their proposals were approved by JICA.

1.4 Other technical matters
Both parties exchanged and confirmed their comments on technical matters.

The detail contents of above discussions shall be referred to APPENDIX-1

(1)

2. Both sides had series of discussions on demarcation of the training equipment but did not enter conclusions.

   JICA will inform SWCC tentative estimated cost of training equipment later for reference and next mission will continue to discuss in detail on this matter.

3. SWCC stated that according to the working plan, which had been submitted during the meeting of May 30, 1984, text books draft supposed be available for review in March 13, 1984.

   JICA will dispatch a mission as early as possible to discuss with SWCC in detail on making drafts of the text books.

   SWCC requested that all documents regarding text books and other training materials should be available to SWCC for review before one month from the arrival of JICA missions.

   JICA will inform subjects and contents to be discussed with SWCC in advance before dispatching missions.

4. Design and Construction Schedule

   SWCC submitted the schedule for the Detail Design, Tendering and Construction. (Refere to Appendix-2). JICA shall bring it to Japan and inform comments if any.

5. Dispatch of JICA's Mission

   JICA will dispatch a Japanese Team to discuss with SWCC on the following matters:

   a) Installation of the Equipment

   b) Preparation of the Training (Textbooks. Instruction guides and Teaching materials)

   c) Dispatch of Japanese Experts

   d) Training of Counterparts in Japan.

II. For the RESEARCH CENTER

1. Detail Design now undertaking by SWCC.

1.1 Up-dated information for detail design

JICA submitted up-dated informations on Laboratory Equipment and Test Plants for SWCC's detail design.

1.2 Reviews of the Preliminary Design Documents

JICA reviewed the Preliminary Design Documents such as "Preliminary Design Report", "Specifications" and "General Master Drawings" submitted by the Consultant through SWCC.

1.3 Remodelling of existing administration building.

The Consultant proposed some modifications on room layout of remodellings of the existing building to minimize the work. Their proposals were approved by JICA.

1.4 Other Technical matters

Both parties exchanged and confirmed their comments on technical matters.

The detail contents of above discussions shall be referred to APPENDIX-1.

JS

(3)

2. JICA has already procured the research equipment which will be shipped from Japan during April, 1985.

SWCC agreed to store the research equipment in the rooms located on the ground floor, available in the existing administration building inside the plant area.

JICA agreed that the equipment will be shipped in containers which are protective against corrosion and damage.

These containers should be convenient for SWCC to check the contents of the containers and easy to re-pack them. These will be kept until the time of the installation.

When SWCC-JICA check and repack the equipment, JICA will send the advisors to assist SWCC.

3. SWCC shall take charge of the installation according to R/D.

JICA has proposed the list of the requisite workers and heavy transportation machines as well as the schedule for the installation of the equipment. The list is attached in APPENDIX-3. JICA shall dispatch the technical advisors for the installation.

4. SWCC agreed to provide two kinds of seawater intake facilities as follows:

4.1 The branched line for MSF test plant from the existing intake.

4.2 Intake line without dosing of any disinfectant for RO Test Plant is required at a flow rate of $150m^3$/day.

5. JICA will provide a list of consumables for the research center during their next visit to SWCC.

6. As per minutes of meeting of 14th Aug. 1984 and Article 6 of R/D SWCC emphasized the necessity of establishing the Joint Technical Team as soon as possible and nomimate a specialist as a coordinator at SWCC.

7. The schedule for implementation of R/D as agreed to on 21st May 1984 Article 3 of the minutes of meeting and Appendix-3 is amended as shown in Appendix-4.

JICA JS

(4)

13th of March, 1985

ATTENDANTS

JICA

Mr. Masaichi Watanabe (T/C)

Mr. Keizo Orihashi (T/C)

Mr. Minoru Tanaka (T/C)

Mr. Toshio Harada (R/C)

Mr. Kenji Toyama (R/C)

Mr. Eiji Tanabe (R/C)

Mr. kazuaki hayashi
Head of the Japanese
Team for the Training
Centre, JICA

Mr. Takeo Sakamoto
Head of the Japanese
Team for the Research
Centre, JICA

SWCC

Mr. ABDULAZIZ AL-SULEIMAN, DIRECTOR TRAINING GENERAL,

Mr. ABDULLA AL-AZZAZ, DIRECTOR RESEARCH GENERAL,

Mr. MOHAMMED AL-OABI ENGINEER

Mr. MOFLIH AL-SHAGATRA SPEC TRAINING

Mr. HABEEB MOHAMMED ENGINEER

Mr. SYED HAWARI ENGINEER

Dr. Abdulaziz Mohammed Al Mujahed
Acting Deputy Governor
For Technical Affairs & Projects SWCC

(5)

APPENDIX - 1

- Minutes of Meetings of:- 09.03.1985
- 10.03.1985
- 11.03.1985
- 12.03.1985
- 13.03.1985

SALINE WATER CONVERSION CORPORATION

RIYADH

KINGDOM OF SAUDI ARABIA

RESEARCH AND TRAINING CENTRE FOR THE DESALINATION PLANT AT YANBU

Minutes of the meeting held at SWCC on 09.03.1985 - 18.06.1405 H.

The meeting was attended by:

for SWCC : Eng. MOHAMED OQBI

for JICA : TOSHIO HARADA (R/C)
KINJI TOYAMA (R/C)
MINORU TANAKA (T/C)
KAZUAKI HAYASHI (T/C) part time
MASAICHI WATANABE (T/C) part time
KEIZO ORIHASHI (T/C)

for ABCE : Dr. SUBHI OKDEH
Arch. DANIEL MOREL

TRAINING CENTRE

1. The voltage for the training buildings shall be the same as for the existing administration building because some same pieces of equipment will be used in both buildings.

   The voltage is 220 - 127 V. 3 Phase - 60 Cycles.
   One line diagram "as built" is attached.

2. Equipment layout

   2.1 It is noticed that the series number and item numbers of equipment and furniture on Consultant's drawings deviate from the numbers in the c/d (conceptual design). This should be corrected.

   2.2 J.I.C.A. hands-over the following modified documents:
   - a. equipment layout plan of workshop and laboratory (1/5) Mechanical maintenance.
   - b. equipment layout plan of workshop and laboratory (2/5) piping equipment maintenance.
   - c. process control model room - equipment layout.
   - d. spec sheet no. SW-7-100

   2.3 Mechanical : see revised layout (1/5)

   2.4 Piping : see revised layout (2/5)

   2.5 Electrical machines
   - a. items 20 Insulation test equipment
     3 Induction regulator
     24 Tool cabinet
     shall be grouped near the drawing room as per c/d layout page 114.
   - b. the layout of the "drawing room" shown on Consultant's drawing is accepted.

   2.6 Operation building.
   - a. J.I.C.A. requests that the double external doors of the workshops should be replaced by a rolling shutter of same dimensions used for the other workshops. The equipment/furniture in the workshop should be flipped

over so that nos. 11 - 12 - 21 - 22 are in the top half of the workshop and nos. 19 - 13 - 14 are in the bottom half.

Nos. 16 - 17 - 18 - 15 remain unchanged.

b. the no. 37 shall be mentioned on the layout.

2.7 Equipment/furniture

a. All items indicated by a "SW and figures" item no. are equipment which will be supplied by J.I.C.A. and SWCC.

The Consultant shall design the connections to the utilities as per c/d and information provided by J.I.C.A. during these meetings.

b. All items of the equipment layout plans of the c/d which are not identified by a "item no. " relate to furniture to be supplied by SWCC. The furniture shall be specified and quantified by the Consultant respectively in the specifications and B.Q.

2.8 Doorheight

The doorheight for industrial building type shall be not less than 250 cm in order to enter large equipment into the rooms.

3. Connection of equipment to utilities.

J.I.C.A. will provide the information during their stay in Riyadh, as much as possible and missing information will be telexed to SWCC later.

4. Miniplant A and B

a. connections to utilities
same as for 3 hereabove

b. foundation loads/dimensions
J.I.C.A. still has to design the miniplants.

c. The cooling towers are part of miniplants A & B.
The quantities mentioned in J.I.C.A. reply telex include the cooling towers.
Peak flow: same as for 3 hereabove.

The Consultnat shall provide the assumed quantities of reinforced concrete and earthworks in the Bill of Quantities, unless J.I.C.A. supplies the exact data in keeping with the Consultant's design schedule. For J.I.C.A.'s information the Consultant has to submit the final design, specification and B.Q. four weeks following the approval of the preliminary design which is now being reviewed.

5. Remodelling of existing administration building (Reasearch & Training)

5.1 The Consultant's drawing A40 deviates from the remodelling works proposed by J.I.C.A. in the c/d. These deviations were proposed by the Consultant during the visit of the premises in presence of SWCC representative and were noted in the report concerning the review of the c/d.

J.I.C.A. is in agreement with remodelling works shown in drawing A40.

5.2 The "computer room" to be converted into "process control model room" is now equipped with a AC-package unit for the computer and a voltage regulator.

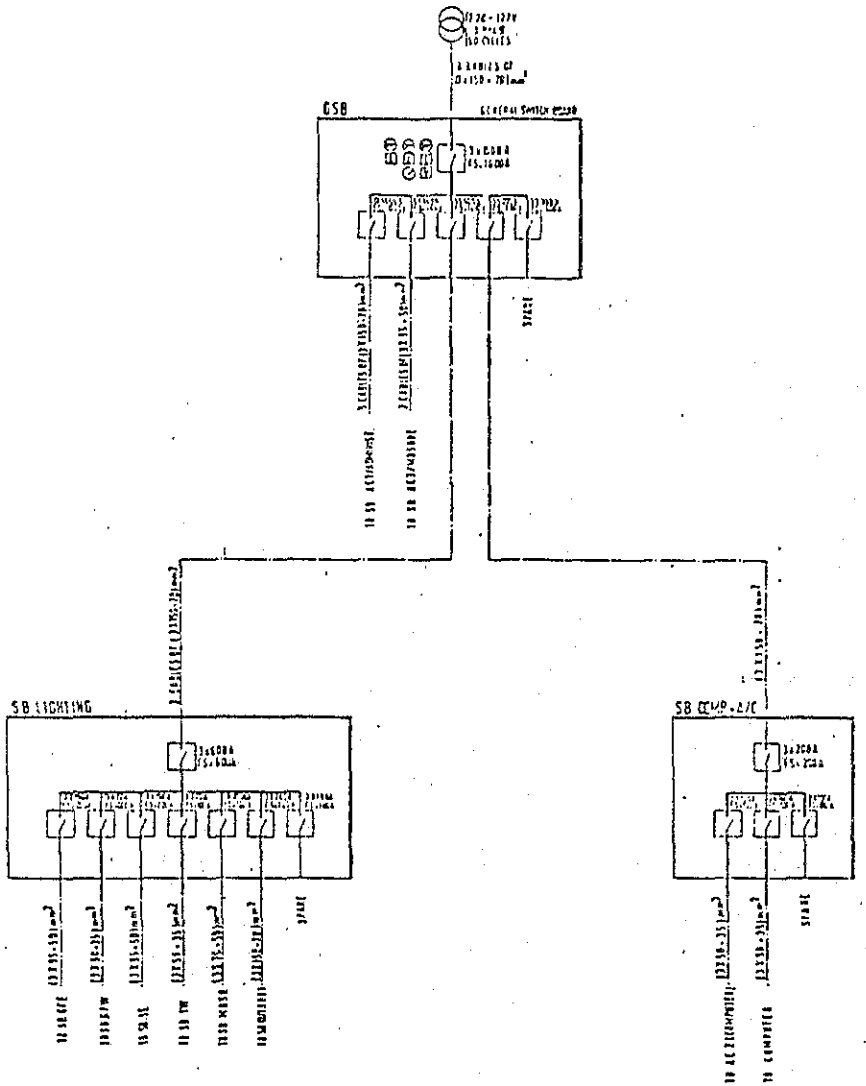
SWCC will request the J.I.C.A. representatives now present in the desalination plant to survey this room and note the sizes and characteristics of this equipment.

5.3 The J.I.C.A. representatives shall indicate the rooms which will be used to temporary store the equipment of the Research centre.

5.4 Lighting fixtures shall be added and shall be connected to suitably located switches to suit the layout of rooms.

6. Design and Construction schedule

The Consultant hands over the proposed Design and Construction schedule.
This schedule will be studied by SWCC and J.I.C.A.



KINGDOM OF SAUDI ARABIA

مشروع محطة التوليد للطاقة والقوى الكهربائية والتوزيع

MAIN & MOSQUE POWER & DISTRIBUTION PLANT

SUCETEC SA

DEPETEC

ADMINISTRATION
MOSQUE
HOUSING COMPOUND

DISTRIBUTION SWITCHBOARDS
SINGLE LINE DIAGRAM

12

RESEARCH CENTRE

1. J.I.C.A. hands-over the following documents:

   a. Laboratory furniture

      A selection of furniture to be used for guidance.

   b. A list of chemicals which will be discharged from the test plants.

   c. Information for lab equipment

      c.1 Revised layout of lab building

      Dwg SAJ EL 001 - 1
      Dwg SAJ EL 002 - 1
      Catalogues of additional equipment A and B.

      c.2 Catalogue for laboratory equipment

      The technical data mentioned in the c/d were taken from the catalogues. The Consultant should refer to the catalogues for any further clarification.

      c.3 Utility consumption list

   d. Revised MSF test plant information.

      d.1 Dwg SAJ - R. 5003 (layout)

      d.2 Dwg SAJ - R. 3206 - loading data (Revision 3)

      d.3 Dwg SAG - R. 3205 - foundation plan (Revision 2)

   e. Configurations of plugs and receptacles.

Minutes of meeting held at SWCC on 10.03.1985 - 19.06.1405 H.

The meeting was attended by:

for SWCC : Eng. MOHAMED OQBI

for JICA : TOSHIO HARADA (R/C)
KINJI TOYAMA (R/C)
MINORU TANAKA (T/C)

for ABCE : Dr. SUBHI OKDEH
Arch. DANIEL MOREL

1. The minutes of the meeting of 09.03.1985 were read, discussed and confirmed.

2. Training Centre

2.1 J.I.C.A. has studied the specifications for building works and external works.

There are no comments.

2.2 The Consultant submits a descriptions and concept of the neutralization tanks along with a questionnaire regarding missing design data. (copy attached)

2.3 A set of drawings containing new drawings (4 roofplans) and revised drawings were handed over to J.I.C.A.

2.4 J.I.C.A. points out that a layout plan of the furniture of the existing administration building should be prepared.

Now that the layout of the remodelling of the building is approved the Consultant can show the furniture in the rooms.

3. Research Centre

3.1 On 09.03.1985 the Consultant submitted the questionnaire attached.

The following answers were noted:

Item A.2 Hot Water

No hot water supply required to the equipment. The hot and cold water lines to the sinks of the lab furniture as shown on the Consultant's drawing SAN 01 and 02 are adequate.

Item B.2.B Discharge Channels

The channels and trenches shall be designed as indicated in the c/d.

The channel referred to in the Consultant's questionnaire shall be connected to the sea without any treatment.

Item 3

The list of the chemicals which will be discharged from the test plants was submitted on 09.03.1985, see list R/C (item 1.b).

The flow/hour per connection point will be given by JICA.

3.2 The Consultant submitted the design report, the specifications and additional drawings of the Research Centre.

They comprise external works drawings, architectural, electrical, plumbing and H.V.A.C. drawings,

Minutes of Meeting held at SWCC on 11.03.1985 - 20.06.1405 H.

The meeting was attended by:

for SWCC : Eng. MOHAMED OQBI

for JICA : TOSHIO HARADA (R/C)
KINJI TOYAMA (R/C)
MINORU TANAKA (T/C)
KAZUAKI HAYASHI (T/C) part time
MASAICHI WATANABE (T/C)
KEIZO ORIHASHI (T/C)

for ABCE : Dr. SUBHI OKDEH
Arch. DANIEL MOREL

1. The minutes of the meeting of 10.03.1985 were read, discussed and confirmed.

2. TRAINING CENTRE (T/C)

2.1 Chemical Waste Water

J.I.C.A. estimates that the total amount of chemical waste water will occur during +/- 15 days/year, and each time during periods of 2 to 3 days.

The quantity of chemical waste water is 200 L/day. The lowest pH is 1 to 2, the highest pH is 12.

The neutralization tanks proposed by the Consultant are too elaborated. The neutralization tank should be one or two underground tanks into which the water is retained, chemicals are mixed with the water, the pH is measured with a portable gauge and the water is discharged into the sewerage system.

2.2 Operation building and Mini-plants (see sketch attached)

2.2.1 Control Room

a. The position of the control panels of mini-plants A and B should be switched.

b. The external door should be positioned in the middle of the facade. Window should be provided left and right of the doors to the full width of the facade in order to allow the observation of the miniplants.

Provide sunlouvers for these windows.

2.2.2 Boiler Room

The layout of the boiler room is changed. Some gullies should be provided for evacuation of cleaning water.

2.3.3 Besides the changed layout of the boiler room, the sketch indicates the position of the miniplants A and B, the horizontal dimensions of the foundation slabs and the plants, the load on the foundations.

The sketch further shows the cable trenches (wiring pit) and water and electricity connections.

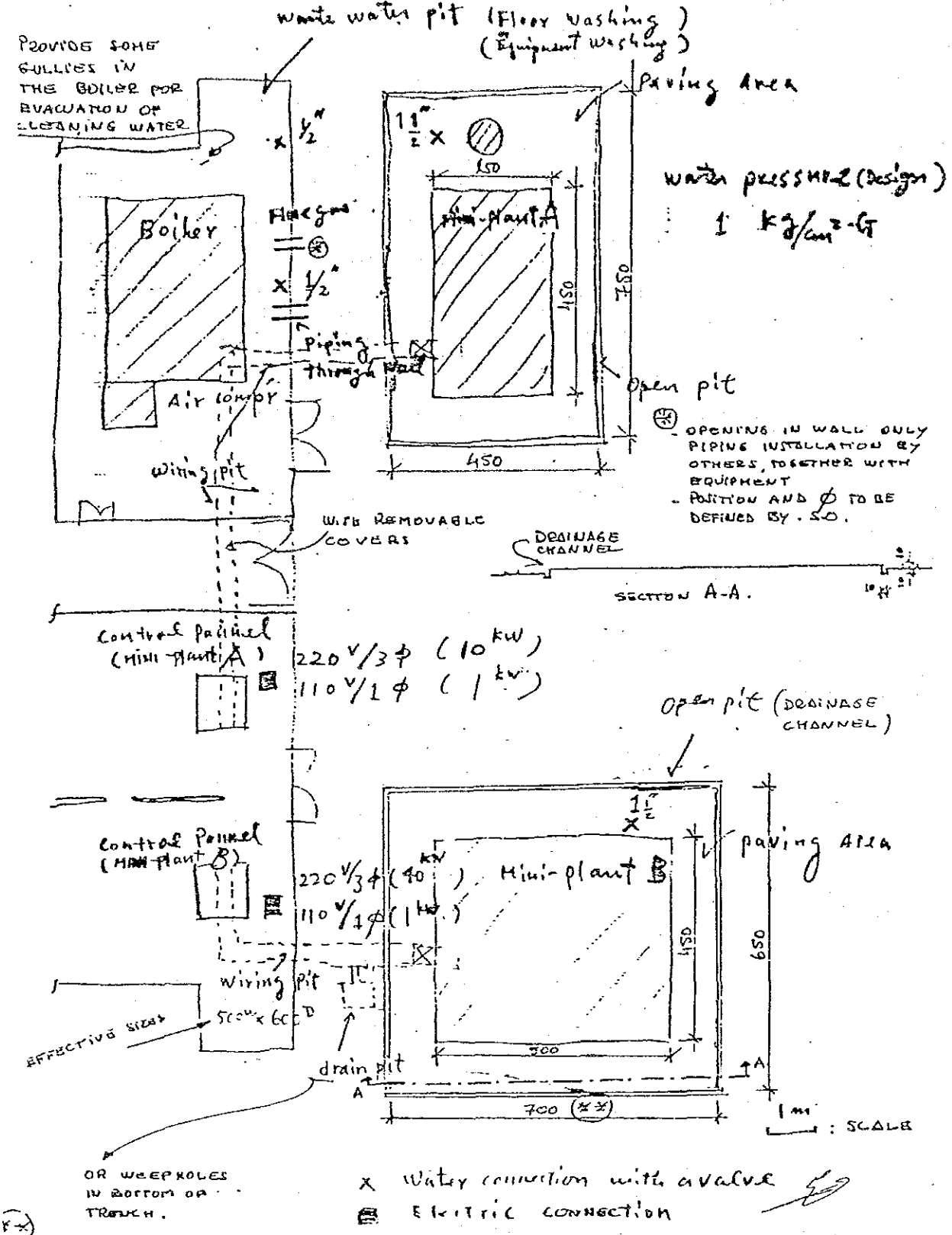
The consultant shall provide the sleaves through the wall only. When the plants will be erected the gas and water pipes and the connections will be done along with the closing of the sleaves.

2.2.4 Cable Trenches

These trenches will have weepholes.

2.2.5 For the drainage of the miniplants only the rainfall should be considered.

MINI PLANTS ... 11/MAIN/'85



THE DIMENSIONS OF THE FOUNDATION SLABS ARE GIVEN IN FUNCTION OF THE DIMENSIONS OF THE EQUIPMENT. FOR THE CALCULATION OF THE FOUNDATIONS CONSIDER THE LOAD OF EQUIPMENT OF 1 T/m².

2.3 Administration Building (T/C)

2.3.1 Language Laboratory

a. The floor shall be raised 150 mm (net space height). The construction can be of wood. The floor shall be carpet finished.

Provide three cable channels with lid as shown on the sketch attached.

b. Provide a blackboard.

2.4 J.I.C.A. handed over the following information during this meeting:

2.4.1 Utility requirement (consumption) of training equipment.

2.4.2 Layout plan of wall mounted type receptacles and hose station of gas (compressed air) and water.

Note 1: except for operation laboratory and work-shop.

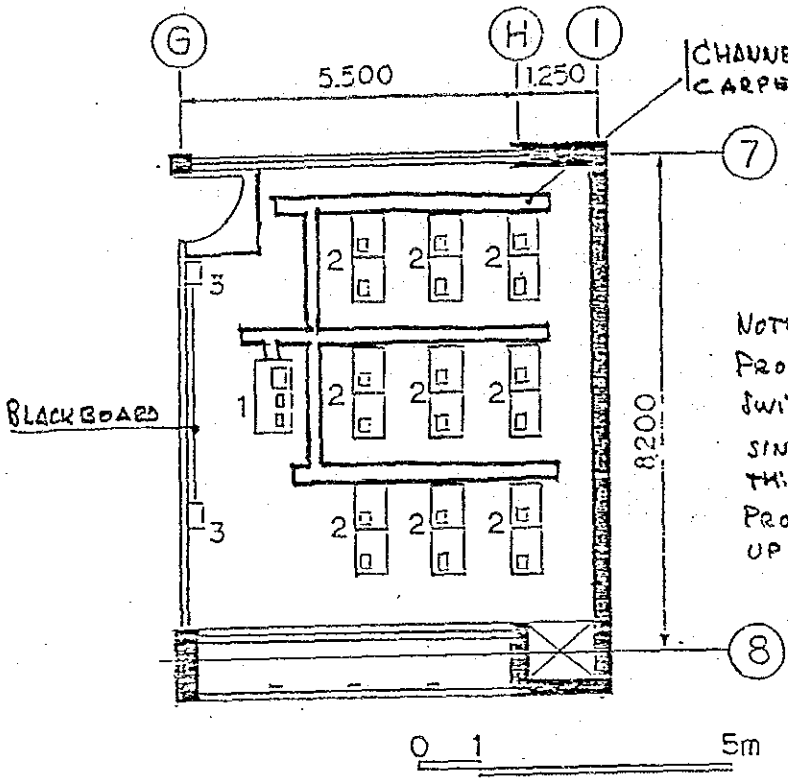
Note 2: The wall mounted receptacles and hose station are for portable equipment and are not the utility supply lines exclusively intended for the fixed equipment.

2.4.3 Layout plan of special equipment

a. Miniplant A and B
b. Process Control model
c. Language laboratory
   - layout with indication of channels in raised
   - equipment configuration (for illustration only).

2.4.4 Design base (Basic data) check sheet.

SPECIFICATION	SPEC.SHEET NO.
	SAM - 8 - 050



No.	Item No.	Description	Q'ty	Dimension (W x D x H mm)	Weight (Kg)	Remarks
1	AW-8-050 -(1)	Teacher console	1	1268x634x807	77	
2	-(2)	Booth console	9	1504x514x1002	34	each 2 students
3	-(3)	Room speaker	2			
4		BLACK BOARD	1			

Language Laboratory
Equipment Layout

Received 1/7/85

3. RESEARCH CENTRE (R/C)

3.1 The HVAC plans shall take into consideration the exhausts of the fume hoods (Items nos. 5 - 14 and 5 - 15)

3.2 J.I.C.A. recommends to check if there is sufficient space in the machine room for HVAC considering maintenance and operation.

3.3 Architectural.

The external double doors shall be dimensioned to allow bringing in the large equipment, such as the RO-skid (200 x 300 x 170).

Drawing SAJ - R.1001 - 1 requires external doors of 3000 W x 4000 H.

Minutes of meeting of 12.03.1985 - 21.06.1405 H.

The meeting was attended by:

for SWCC : Eng. MOHAMED OQBI

for JICA : TOSHIO HARADA (R/C)
KINJI TOYAMA (R/C)
MINORU TANAKA (T/C)
MASAICHI WATANABE (T/C)
KEIZO ORIHASHI (T/C)

for ABCE : Dr. SUBHI OKDEH
Arch. DANIEL MOREL

1. The minutes of the meeting of 11.03.1985 were read, discussed and confirmed.

2. TRAINING CENTRE (T/C)

2.1 Construction Schedule

The equipment for T/C should not appear on the construction schedule. As requested by JICA.

2.2 a. J.I.C.A. handed over the Plant Operation Workshop layout (5/5)

The layout shows also the utilities for fixed and portable equipment.

b. J.I.C.A. informed the Consultant of some revisions to the "utility requirement of Training Equipment" document.

2.3 The Consultant shall provide a reservoir and piping for the fuel gas (propane) for the laboratory of Operation Workshop.

2.4 The Consultant shall check the dimensions of the doors against the dimensions of equipment.

2.5 The Consultant shall provide the design data to J.I.C.A. requested for in the column D/D of document Design Base (Basic data) check sheet.

2.6 J.I.C.A. will supply foundation outline drawings for fixed equipment and provision of water pressure to the equipment.

3. RESEARCH CENTRE

3.1 Consultant's Questionnaire

a. For utility consumption and peak flows the "Utility consumption list" submitted on 09.03.1985 shall be consulted.

b. Steam and instrument air are not necessary to be considered by SWCC (Consultant) for MSF and RO plants.

c. The diameter of the SW pipe is indicated in drawing OT9A - 2 N 03 - Y 002 (1/4) revision 1. The diameter is 50 A.

The quantity of SW is mentioned in drawing SAJ-R4002 of c/d.

d. The electrical cable trench shown on drawing SAJ - R1001 indicates the trench being connected to sub-station B-3 (S/S).

This trench which is shown on Consultant's drawing A-30 should be connected to the S/S B-02 on drawing A31.

Actually the better solution will be to run the electrical cables from S/S B-02 to the test rooms in the false ceiling. As from the test rooms the cables will run in trenches as shown on c/d.

The installed capacity is shown in the c/d.

e. Regarding the chemical waste from the laboratories J.I.C.A.'s telex should be consulted.

The hourly 800 L is an average figure, evenly distributed over the sinks of the labs.

The chemical composition varies according to the test programme.

3.2 E.P.M.A. (R-12)

Provide a 1½ leaf door for bringing in the equipment.

4. T/C and R/C (Electrical)

4.1 The Consultant shall confirm the standards used and the types of electrical receptacles available.

4.2 The electrical receptacles shown on c/d are necessary for the actual equipment.

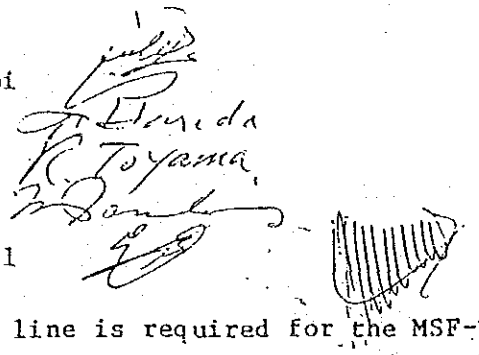
Additional receptacles should be provided for general use and maintenance.

SALINE WATER CONVERSION CORPORATION
RIYADH
KINGDOM OF SAUDI ARABIA.

RESEARCH AND TRAINING CENTER FOR THE DESALINATION PLANT AT YANBU.

Minutes of the meeting held at SWCC on 13.03.1985 (22.06.1405 H).
The meeting was attended by:

For SWCC : Eng. Mohammed Oqbi
For JICA : Toshio Harada
Kinsi Toyama
Minoru Tanaka
For ABCE : DR. Subhi Okdeh
Arch. Daniel Morel



1. A Sea Water (S.W.) supply line is required for the MSF-Test Plant. This supply line of chlorinated S.W. shall be connected at the outgoing pipe at the chlorination building.

2. A raw S.W. line is required for the RO Test Plant. The connection point will be checked by the consultant and SWCC.

3. The electrical receptacles proposed by JICA are not available on the Saudi Arabian market. JICA shall provide plugs in accordance with British Standards. SWCC will inform JICA about the type(s) of receptacles to be used.

4. JICA is fully satisfied with the preliminary design of the Research and Training Center and have no further comments.

5. The Consultant received the required information from JICA.

6. The information requested for by the consultant and JICA, minuted in the M/M will be exchanged through SWCC.

TRAINING CENTRE - YANBU

Description and concept of neutralization tank

1. Introduction

For the neutralization pH of the chemical waste waters a neutralization tank is foreseen, having the following main characteristics:

- installation of two neutralization units with a monthly alternating operation;
- content of each unit : approx. 5 m^3;
- a pH at the discharging point between 6 and 9.

2. Concept of neutralization tank

Each neutralization unit consists of the following parts:

- an overflow weir between the two compartments;
- on top of each compartment the following will be installed:
  - . a mixer
  - . a pH-meter
  - . supply lines for dosing chemicals.
- the last compartment has to be equipped with:
  - . corrosion resistant submerisible pump
  - . waterlevel meter
  - . water supply line.
- a compact service building of +/- 3 x 4 m to house:
  - . control panel
  - . dosing equipment
  - . storage tanks of chemicals.

3. Working of the neutralization tank.

The chemical waste water is discharged into the first compartment when when a primary neutralization is done by

means of the present buffer solution.

Then the water flows along passing the pH-meter into the second compartment for a final neutralization by means of chemical dosing.

When the second compartment is filled and the waste water completely neutralized ($6 < pH < 9$) a submersible pump pumps the waste water into the sanitrary sewage network.

When the waste water is not completely neutralized, the water is recirculated automatically to the first compartment of the neutralization tank.

An overflow on the second compartment is provided for discharging the waste water when the pump is out of order.

4. Missing important data

For the adequate dimensioning of neutralization units, we have to know the following data regarding the chemical waste water form each discharging point:

1. the discharge flow/hour
2. the pH of the discharged waste water
3. the chemical composition of the discharged waste water.

---coOoo---

RESEARCH CENTRE

A. W.S.

1. We have only the information about the total water supply, being 250 x 1.5 x 1.2 x 32 or 14,400 L/day of 8 hours, taking into account the extension possibility and the occupancy figure to cope for visitors.

   We need also a breakdown of the peak supply per unit of time and per laboratory facility.

2. Which is the hot water peak consumption per hour and per hot water consuming facility?

3. Which is the peak consumption per unit of time per laboratory facility regarding the cold water distribution?

B. S.S.

1. We need the exact location and invert level of the sanitary sewerage manhole, located along the road B, on which we plan to connect our sanitary network.
2. A. We need all connection capacities of the different utilities to be connected with regard to the MSF test plant and R.O. test plant.

   B. On the left side of drawing no. SAJ-R1001 prepared by JICA we notice that an open discharge channel containing cooling water and waste effluent occurs.

   Do we have to assume that this channel has to be connected to the sanitary sewerage system?

   If this is the case, we need the peak discharge of

cooling water, waste water, possible chemical waste per unit of time.

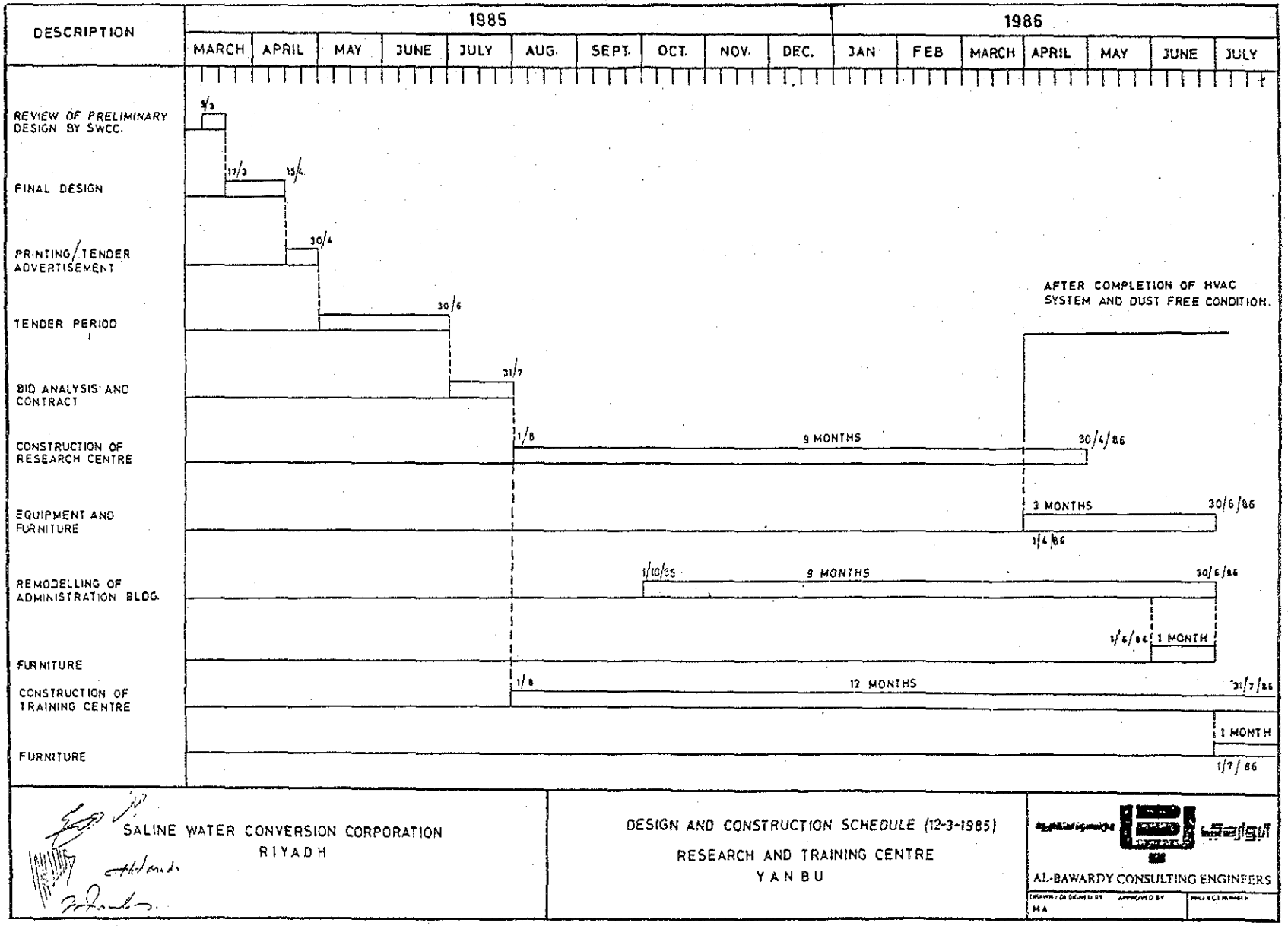
C. Which is the peak seawater supply to be provided to the pipe and waste trench located on the same drawing?

D. Which is the installed capacity and all necessary characteristics for the design of the electricity supply to be laid in the cable trenches from the electrical substation room towards the MSF test plant and to the R.O. test plant.

3. Regarding the chemical waste water we need the following data: Discharge flow/hour per connection point, PH of the discharged waste water, chemical composition of the discharged waste water.

APPENDIX - 2

- Design and Construction Schedule (12.03.1985)



SALINE WATER CONVERSION CORPORATION
RIYADH

DESIGN AND CONSTRUCTION SCHEDULE (12-3-1985)
RESEARCH AND TRAINING CENTRE
YANBU

AL-BAWARDY CONSULTING ENGINEERS

DRAWN / DESIGNED BY: MA
APPROVED BY:
PROJECT NUMBER:

APPENDIX－3

The time schedule and man-manths of workers re uired to install the equipment.

The time schedule and man-months of workers required to install the equipment.

1. Man-days of workers

	RO	MSF	LAB
Foremen			
Mechanical	39	36	
Electrical	13	26	
Fitters for equipment	48	18	
Piping workers			
for steel pipe	15	33	
for PVC pipe	62		
for support	42		
Welders			
for arc welding	5	7	
for TIG welding		3	
for PVC welding	10		
Milieurighter	2	2	
Thermal insulaters	6	60	
Painters	10	12	
Instrument.Electric workers	60	65	
Unpacking.Carrying			45
Check of equipment.Parts			24
Installation.Adjustment			162
Simple workers	38	56	

TS

2. The time schedule. Na

RO Test Plant

Work \ Months	1	1
Preparation	——	
Installation	——	
Piping	——	
Instrument, Electric		—

MSF test Plant

Work \ Months	1	1
Preparation	——	
Installation	——	
Piping, Insulation	——	
Instrument, Electric	——	

Laboratory equipment

Work \ Months	1	1	1	1
Unpacking, Carring	——			
Check of equipment, Parts	——			
Installation, Adjustment	——	——	——	

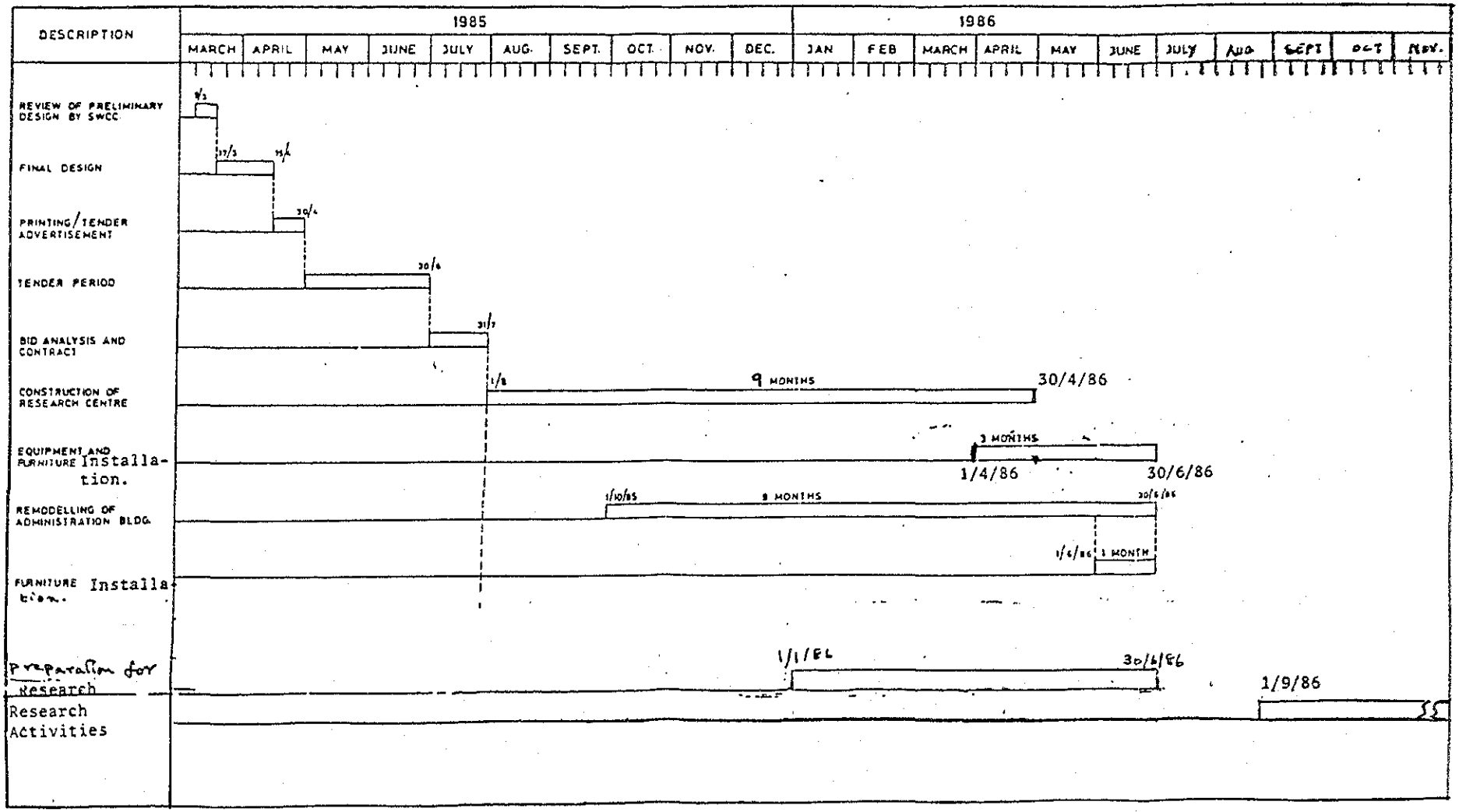
JS

2

The heavy machines required to install the equipment.

	R O		M S F	
truck crane	units	days	units	days
75tons			1	1
15 〃	1	4		
10 〃			1	6
Fork lift	1	33		

APPENDIX - B4



Agree JS

計画打合せ調査団報告書

（昭和６０年7月２５日～８月３日）

昭和60年7月派遣計画打合せ調査団

2－1　派遣の経緯及び目的

本件R／D（57.1.12署名）において昭和57年より昭和61年3月31日までの日ーサ海水淡水化技術協力が約束されたが，その後，「サ」側の計画変更及び研究・訓練棟詳細設計の遅延等により，当初昭和59年初めに予定されていた研究・訓練活動の開始が夫々昭和61年5月及び8月以降とならざるを得ない事態となった。（M／M 60.3.13）

研究部門については，ほとんどの機材が送付済みで，今後，研究員5名の選定及び2ケ年間の研究計画の立案を行う予定である。

一方，訓練部門は今次ミッション派遣後，機材の購送，専門家の派遣等一連の協力を行う予定である。

以上のことから，下記事項につき「サ」側と協議を行うべく本調査団が派遣された。

≪協議事項≫

1. 共通協議事項
   (1) R／D延長に関する協議
   (2) JTT要員派遣に関する協議
   (3) 「サ」側カウンターパート（研究員，インストラクター）の配置
2. 研究部門協議事項
   (1) 供与済み研究機材の保管状態確認
   (2) 阪本氏派遣に係る「サ」側便宜供与事項の協議
3. 訓練部門協議事項
   (1) 訓練用供与機材の仕様説明
   (2) M／P及びTSIに関する協議
   (3) 供与機材のデマケーションに関する協議
   (4) 機材の据え付けのデマケーションに関する協議
   (5) 「サ」側調達機材の調達先に関する協議

2－2　調査団の構成

(1)　訓　練　部　門

団　長（総　　括）　矢　追　秀　敏

ＪＩＣＡ社会開発協力部海外センター課課長

団　員（訓練計画）　五十嵐　晃　一

労働省海外協力課課長補佐

団　員（業務調整）　林　　和　昭

ＪＩＣＡ社会開発協力部海外センター課

団　員（機　　材）　折　橋　啓　三

コスモインターナショナル㈱教育訓練本部営業部長

(2)　研　究　部　門

団　長（総　　括）　鈴　木　治　夫

ＪＩＣＡ鉱計部資源調査課長

団　員（用　　水）　中　村　秀　樹

通産省工業用水課

団　員（業務調整）　小　澤　勝　彦

ＪＩＣＡ鉱計部資源調査課

2－3　調　査　日　程

(日順)	(月・日)	(曜日)	(行　程　・　内　容)
1	7月25日	(木)	東京発(18:00)(CX−505, CX−201, SV−201)→
2	7月26日	(金)	リヤド着(11:55) JICAリヤド事務所長及び日本大使館服部書記官と打合せ
3	7月27日	(土)	ＳＷＣＣ副総裁表敬訪問，全体会議
4	7月28日	(日)	ＳＷＣＣと全体会議及び個別協議
5	7月29日	(月)	ヤンブ・プラント等を視察（研究・訓練）
6	7月30日	(火)	ＳＷＣＣと個別協議（訓練）（研究部門はヤンブからリヤドへ移動）
7	7月31日	(水)	ＳＷＣＣと全体会議及び個別協議，ミニッツに署名
8	8月　1日	(木)	日本大使館及びＪＩＣＡリヤド事務所に結果報告
9	8月　2日	(金)	リヤド発(8:50)(SV−200, CX−200, CX−504)→
10	8月　3日	(土)	東京着(16:00)

2－4 主要面談者

(1) SWCC：

DR. ABDULLAH AL-HUSSAYEN

DY. GOVERNOR FOR OPERATION & MAINTENANCE

MR. ABDULLAH P. AL-AZZAZ

DIRECTOR-GENERAL, RESERCH & TECH. AFFAIRS

MR. MOFLIH AL-SHIFATRA

SPECIALIST FOR TRAINING

MR. HABBIB MOHAMMED

TECHNICAL ADVISOR, RES. & TECH. AFFAIRS

(2) MEDINA-YAMBU PLANT：

MR. NAJI A. DARUISH. PLANT MANAGER

MR. ABDUL IBRAHIM DABBOUR, ASST, PLANT MANIIGOR

MR. AWAD, ENGINEER

(3) 大使館，ＪＩＣＡ事務所：

服　部　　薫　　在サウディアラビア日本国大使館一等書記官

地　曳　隆　紀　　ＪＩＣＡリヤド事務所長

2－5 対処方針

2－5－1 共通協議事項

(1) Ｒ／Ｄ延長に関する協議

昭和 61 年 3 月 31 日に失効する現行Ｒ／Ｄについては，現状に合わせて，同Ｒ／ＤのArticle-15に基づき，今秋にも「日」側代表とＳＷＣＣ代表との間でＭ／Ｍを取り交すこととし，同Ｍ／Ｍに於て①Ｒ／Ｄの延長期間，②現行Ｒ／Ｄの不明確な事項及び規定されていない事項について，研究・訓練両部門とも取り決めを行なうことを合意する。

(2) ＪＴＴ要員派遣に関する協議

(i) 「サ」側から強い派遣要請のあるＪＴＴ日本側要員２名のうち，研究部門担当（造水促進センターの阪本氏）の派遣については，今回のミッションが「日」側研究員のサウディアラビア滞在中の処遇に関する要望を提示し，「サ」側の了承が取り付けられ次第，今秋にも長期滞在を前提に応じることとする。

(ii) ＪＴＴ日本側要員訓練部門担当についてはチーム・リーダーを兼務する専門家を派遣する。現在，Ｒ／Ｄでチーフ・リプレゼンタティブが１名となっている点については，実情に合わせて１名を追加し，２名とする。不調の場合は，ＪＴＴ MEMBERとして位

置づける。

(3) 「サ」側カウンターパート等の配置

(i) 研究部門については日－サ双方で，本年中の早い時期に研究員（ＪＴＴを含め）を配置することとし，昭和61年1月に日本側が提示する「研究計画書」を基に，研究の進め方に関する協議を行うことを確認する。

(ii) 訓練部門については別途協議予定のＭ／Ｐ及びＴＳＩに基づき，「サ」側スタッフの配置につき協議する。

２－５－２ 訓練部門協議事項

(1) 訓練用供与機材の仕様説明

既に送付済みの訓練用機材の仕様に関し，「サ」側から質問があれば説明協議する。

(2) Ｍ／Ｐ及びＴＳＩ等に関する協議

今後協力を進めるに必要なＭ／Ｐ及びＴＳＩ等について「サ」側と協議する。その際に，Ｒ／Ｄの協力期間が予定通りに延長されることを条件とする。

(3) 供与機材のデマケーションに関する協議

今年3月に派遣したミッションが「日」側案について既に提案済みであるが，訓練コース別機材の概算見積額（ＣＩＦ）の提示を「サ」側から求められて，継続協議事項となっている。保守部門4コースの機材を「日」側負担とし，操作部門3コースの機材とＡ－Ｖ機器を「サ」側負担とする方向で合意する。なお，提出を求められているコース別機材の概算見積について団長署名の文書にて提示する。

(4) 機材の据え付けのデマケーションに関する協議

日－サ双方で調達する機材の据え付けに関し，「日」側はテクニカル・アドバイザーを派遣することとし，「サ」側は現場監督，技能者，労働者，運搬車両，起重機等を調達する方向で合意することとする。

(5) 「サ」側調達機材の調達先に関する協議

カウンターパートを日本で研修させる場合に，機材調達先（メーカー）にて研修させることが最も効率的であり，且つ，派遣専門家も日本の機材を使用しての指導が必要である。従って，「サ」側が調達する機材のうち，主要機材については日本から調達する。すべて協議し，合意する。

「サ」側の物品購入，入札等に係る規程等により，日本からの調達について合意に達し得ない場合は，次の対処とする。即ち，日本以外の外国製品が調達された場合は，サ側が責任を持って調達先（メーカー等）から専門家（技術者）をリクルートし，必要な技術移転を行うものとする。

2－5－3　研究部門協議事項

(1)　供与済み研究機材の保管情態確認

既に送付済みの供与機材が適切なる環境の基に保管されていることを確認する。

(2)　阪本氏派遣に係る「サ」側便宜供与事項の協議

2－5－4　議事録の作成

上記対処方針の範囲内でM／Mを締結する。

2－6　協議結果概要

2－6－1　共通協議事項

(1)　R／D期間の延長について

全体会議の冒頭，わが方より上記対処方針を説明した。SWCCの要請に基づき，上記内容を書面にて提出したうえで協議を行った結果，今年11月頃にミッションを派遣し，R／Dの期間延長について協議することで合意に達した。

(2)　JTT要員の派遣について

①　阪本氏の滞在条件について「サ」側は日本側提案をほぼ全面的に受入れた。しかし，滞在費（主として家賃）の支給方法については「サ」側の規程に従う必要があるため，細部については更に協議を重ねる必要がある。

また，阪本氏のカウンターパートについては，「サ」側は今年中に配置することを約束した。

②　JTT日本側メンバーが研究部門1名及び訓練部門1名により構成されることについて「サ」側は了承した。（同メンバー構成を含むスタッフ構成図をミニッツに添付）

(3)　カウンターパート等の配置について

①　研究部門

特に質問はなく，上記方針を確認した。

②　訓練部門

ミニッツの別添計画に従い，総計27名のカウンターパートの配置を行う。配置内容は次の通り。

	メインテナンスコース	オペレーションコース
チーフインストラクター	1	1
インストラクター	4	3
アシスタントインストラクター	12	6
合　　計	17	10

先発派遣されるチームリーダーのカウンターパートは訓練所長とし，配置時期を昭和61年1月1日とした。

チーフインストラクター及びインストラクターの配置時期は，チームリーダー以外の専門家の派遣時期に合わせて，昭和 61 年8月頃配置することで合意した。

2－6－2　訓練部門協議事項

(1)　訓練用供与機材の仕様説明について

「サ」側の要望に基づき，レターを添付して，仕様書，図面等2セットを7月 28 日（持参分），7月 30 日（空送分）それぞれＳＷＣＣに提出した。数量，品質，仕様について若干の質門があったが，ＳＷＣＣがコメントを3ケ月以内にＪＩＣＡヘリヤド事務所経由で提出することで合意した。

(2)　Ｍ／Ｐ及びＴＳＩ等について

マスタープラン（Ｍ／Ｐ）及び暫定実施スケジュール（ＴＳＩ）をドラフトに沿って説明した。その結果，下記の事項について変更の上合意した。

①　訓練生の入所資格；

メインテナンス及びオペレーションの両コースとも高等学校卒業とする。

②　カウンターパートの研修受入れ；

1986 年4月から約6ケ月間の予定で，必要なカウンターパート研修員（インストラクター9名）を1度に受入れる。

③　開　　講；

現時点で，建物の建設工事が約1ケ月遅れているところから，開講目橋を1982 年2月1日とする。

④　教材，カリキュラム開発；

1985 年 10 月からドラフトの作成に着手し，1986 年 11 月に完成させる（アラビア語への翻訳はＳＷＣＣが行う）

(3)　供与機材のデマケーションについて

書面によりデマケーション案を提示し，原則的合意を得た。しかし，最終決定は「サ」側のコメント待ちである。

(4)　機材の据え付けのデマケーションについて

(3)で提出した書面の中に併記して機材据え付けのデマケーション案を提示し，原則的合意を得た。しかし，最終決定は「サ」側のコメント待ちである。

(5)　「サ」側調達機材の調達先に関する協議

別途持参した「日本から購入すべき機材」の一覧表を手渡し，その理由を説明した。

「サ」側はその必要性について理解を示したものの，実行面で相当の困難が予想されるため，合意するに至らなかった。

なお，ＳＷＣＣから，ＳＷＣＣ調達分も含めてＪＩＣＡで一括調達の提案があったが，結論を出し得ず，持帰り事項とした。

≪別添資料≫

(1) ミニッツの写し

(2) 日本側からＳＷＣＣに提出した書面の写し

２－６－３ 研究部門協議事項

(1) 供与済み研究機材の保管状態確認について

ヤンブ・プラントに於て，日本側は供与機材が良好な状態で保管されていることを確認した。なお，一部の紛失機材については速やかに再送付することを約束した。（保険求償）

(2) 阪本氏派遣に係る「サ」側便宜供与事項について

阪本氏の滞在条件について，「サ」側はほぼミッション提案通り受け入れた。但し，滞在費の支給（主に家賃）方法はＳＷＣＣの規程に従う必要があるので若干のツメが必要である。尚，「サ」側は本年中に阪本氏のカウンターパートを配置することを約束した。

2—7. ミ　ニ　ッ　ツ

بسم الله الرحمن الرحيم

Kingdom of Saudi Arabia
Saline Water Conversion Corp.

المملكة العربية السعودية
المؤسسة العامة لتحلية المياه المالحة

Minutes of meeting
between SWCC and JICA

A meeting was held between SWCC and the visiting JICA delegation. The meetings were held from 27-31 july 1985.

The agenda for the meeting is attached as appendix-I

The points mentioned in the agenda were discussed in detail and the following agreement was reached between SWCC and JICA delegation as follows:

1. Extensioin of Term of Cooperation

As the R/D will expire in 1986 it was proposed by JICA to extend the term of cooperation. SWCC has agreed in principle to extend the R/D as the activities under the R/D has not started yet. SWCC requested JICA to communicate officially with H.E. the governor concerning the extension. JICA has submitted a letter in this regard to H.E. The Governor on 31 July 1985.

2. Extablishment of JTT

SWCC has several times asked JICA to nominate a person to establish the JTT see minutes of meeting of 5 Aug. 1984, Nov. 20, 1984, 29 Aug. 1983
Now JICA has proposed to nominate a person in establishing the JTT. Further JICA has proposed to have two members of JTT instead of one as agreed in the R/D refer to Annex IV of R/D. One member of JTT will be for Research activities and the second member will be for training activities SWCC has agreed to have two members from JICA as JTT shown in "Staffing of Japanese experts in the project" Appendix-II and has asked JICA to communicate officially proposing an amendment to R/D Annex IV. JICA has submitted a letter in this regard to H.E. The Governor on 31 July 1985.

3. Nomination and Assignment of Personnel

As this point is a repeatition of item 2 it was agreed to delete this item from the Agenda.

Research

1- Storage Condition of Plant and Research Equipment

The JICA delegation visited Medina-Yanbu desalination plant to inspect the storage of equipment sent by JICA for research activities on July 29.

SWCC enquired about the missing items from the equipment which were sent by JICA. JICA replied that the missing items will be sent to SWCC in the near future.

2- Dispatch of Mr. Sakamoto

JICA has proposed the nomination of Mr. Sakamoto as a JTT member for research activities and he will be sent to SWCC by the end of 1985. SWCC has agreed to receive Mr. Sakamoto as JTT member and at that time will name a counterpart for Mr. Sakamoto.

Certain conditions were proposed by JICA to send Mr. Sakamoto which were amended and agreed by SWCC after discussion and are attached as Appendix-III.

Training

1- Specification of Equipment For Training

JICA has submitted two sets of documents list attached as Appendix-IV which consist of specifications of training equipment and related documents.

SWCC will study these documents and notify JICA of their comments on them within three months from now.

2- Master Plan and Tentative Schedule of Implementation

The minimum qualification of trainees for operation and maintenance courses will be high school graduates. The master plan and tentative schedule was discussed in detail for the implementation of the training activities. After discussions the proposed Master Plan and tentative schedule was modified it is attached as Appendix V. Training Department will review the Master Plan and respond accordingly.

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المؤسسة العامة لتحلية المياه المالحة

3- *Demarcation of Some Equipments between JICA and SWCC*

JICA submitted the demarcation of equipments between SWCC and JICA. The document is attached as Appendix-VI. The proposed ratio of distribution between SWCC and JICA is 55% and 45%. As per R/D this should have been 61.4% and 38.6%.

SWCC requested JICA to assist in the procurement of equipment from Japan which are to be bought by SWCC. JICA will respond after consultations in Japan.

The following personnel from SWCC and JICA attended the meetings.

SWCC

Mr. Abdullah A. Al-Azzaz
Mr. Moflih Al-Shaghathrah
Mr. Habeeb Mohammed

JICA

Research

Mr. Hideki Nakamura
Mr. Katsuhiki Ozawa

Training

Mr. Kouichi Igarashi
Mr. Kazuaki Hayashi
Mr. Keizo Orihashi

Abdullah A. Al-Hussayen
Deputy Governor (Acting)
For Technical Affairs and Projects

Mr. Haruo Suzuki
Leader of
JICA Mission for
the Research Center

Mr. Hidetoshi Yaoi
Leader of
JICA Mission for
the Training Center

Attachs (.....) المرفقات Date (.....) التاريخ Ref. (.....) رقم

Riyadh - Olia - Altahleeh Street - Tel. 4632070/4631763/4631780
P. O. Box 5968 Riyadh 11432 - Telex 200097/200401/204699

الرياض - العليا - شارع التحلية - ت ٤٦٣٢٠٧٠/٤٦٣١٧٦٣/٤٦٣١٧٨٠
ص.ب ٥٩٦٨ الرياض ١١٤٣٢ - تلكس ٢٠٠٠٩٧/٢٠٠٤٠١/٢٠٤٦٩٩

July 27, 1985

APPENDIX-I

AGENDA

This agenda is prepared by JICA for the smooth and fruitful discussions on the Technical Cooperation of Sea Water Desalination Project between the JICA mission and SWCC.

General

1. EXTENTION OF TERM OF COOPERATION

Proposal : Record of Discussions (12th January, 1982) shall be extended as per Article 15. of the R/D in this coming autumn between JICA and SWCC.

2. ESTABLISHMENT OF JOINT TECHNICAL TEAM (JTT)

3. NOMINATION AND ASSIGNMENT OF PERSONNEL

Proposal : JICA and SWCC should nominate and assign personnel of the Project as stipulated in ANNEX IV of the R/D at least by the end of 1985.

Research

1. STORAGE CONDITION OF PLANT AND RESEARCH EQUIPMENT

2. DISPATCH OF MR. SAKAMOTO

Proposal : JICA will dispatch Mr. Sakamoto, a member of JTT, as soon as

possible on the condition that SWCC should fulfill some requests from JICA, which shall be submitted to SWCC in writings in the course of discussions.

Training

1. SPECIFICATION OF EQUIPMENTS FOR TRAINING

   Proposal : The JICA mission will explain the specification, which contributes to the designation and construction of Training Center building.

2. MASTER PLAN AND TENTATIVE SCHEDULE OF IMPLEMENTATION

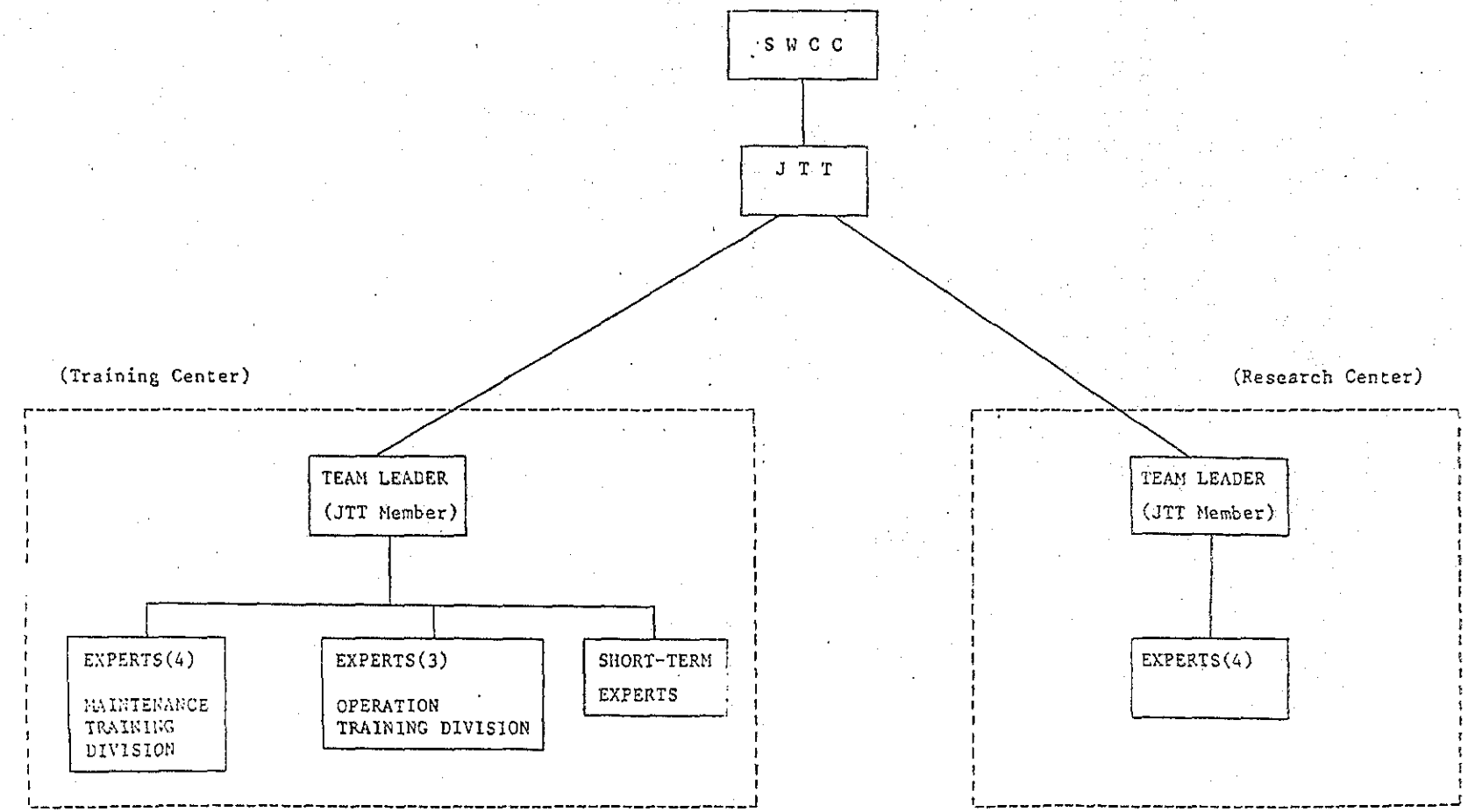
3. DEMARCATION OF SOME EQUIPMENTS BETWEEN JICA AND SWCC

4. DEMARCATION OF EQUIPMENT INSTALLATION BETWEEN JICA AND SWCC

5. PROCUREMENT OF SOME EQUIPMENTS TO BE UNDERTAKEN BY SWCC

APPENDIX-II

STAFFING OF JAPANESE EXPERTS IN THE PROJECT



Appendix - III

CONDITIONS OF DISPATCHING A MEMBER OF THE JOINT TECHNCAL TEAM (JTT) FROM JICA TO SWCC

In connection with dispatching a member of JTT to SWCC, JICA requests to SWCC to take the following measures until the both parties agree to the definition and function of JTT, and the comprehensive conditions for Japanese members (JTT members, researchers, engineers, and instructors) of the Project:

(1) Providing suitable accommodation in Riyadh, as the main working place will be Riyadh until the completion of the laboratory building;

(2) Providing a car with driver for official use;

(3) Providing free medical treatment, hospitalization, and medicine at the government hospital when necessary;

(4) Bearing the internal travel expenses;

(5) Free use of office supplies, copying machine, and other SWCC'S facilities by the Japanese member;

(6) Assigning a member (members) of JTT for the Project from SWCC side.

APPENDIX — IV

CONTENTS OF THE DOCUMENTS SUBMITTED TO SWCC TRAINING DEPARTMENT

No.	Title	DWG./DOCU.NO.	[illegible]	[illegible]
1.	SPECIFICATION OF THE EQUIPMENT PART・I	SDC-JR-85-078(1/2)	A－4	(651)
2.	〃 PART・II	〃 85-078(2/2)	A－4	(199)
3.	CATALOGUES OF THE EQUIPMENT	〃 85-079	A－4	(702)
4.	DRAWING OF THE EQUIPMENT	〃 85-080	A－3	(34)
5.	UTILITY REQUIREMENT FOR TRAINING EQUIPMENT	SAJ-T85105	A－4	(23)
6.	TRAINING EQUIPMENT WASTE WATER AND EXHAUST GASES	SAJ-T85107	A－4	(5)
7.	CONSUMABLES LIST	SAJ-T85108	A－4	(30)
8.	ESTIMATED MAN POWER AND CONSTRUCTION AIDS FOR EQUIPMENT INSTALLATION AND COMMISSIONING OF TRAINING CENTER	SAJ-T85109	A－4	(5)
9.	LIST OF RECOMMENDABLE FURNITURE FOR TRAINING CENTER	SAJ-T85110	A－4	(21)

APPENDIX - V

TRAINING MASTER PLAN

FOR

THE PROJECT

ON

SEA WATER DESALINATION TECHNOLOGY

TRAINING CENTER

SALINE WATER CONVERSION CORPORATION

I. TRAINING COURSE

The training Center conducts seven (7) training courses with a batch of fifteen (15) trainees as shown in the following table.

Course	Training Course	Trainee/year
Maintenance Training Course	(1) Mechanical Maintenance Course	15
	(2) Piping Equipment Maintenance Course	15
	(3) Electrical Equipment Maintenance Course	15
	(4) Intrumentation Maintenance Course	15
Operation Training Course	(5) Boiler Plant Operation Course	15
	(6) Steam Turbine & Power Generator Operation Course	15
	(7) Desalination Plant Operation Course	15
	Total	105

2. TRAINING TERM

The training terms of each course are one (1) year.

3. INTAKE QUALIFICATION OF TRAINEE

3-1. Maintenance Training

The trainee should be those who graduated from high school and passed the entrance examination of the Training Center.

3-2. Operation Training

The trainee should be those who graduated from high school and passed the entrance examination of the Training Center.

4. TRAINING TARGET

The targets of the each training course are mainly to provide the trainees the required knowledge and skills according to the curricula so as;

4-1. Mechanical Maintenance Course

(1) to maintain and adjust machines and equipment auch as turbine, blower, pumps, heat exchanger, etc.

(2) to cut and repair parts of machines and equipment by machine tools.

4-2. Piping Equipment Maintenance Course

(1) to cut, disassemble, assemble and inspect pipes, valves, pipe flanges, etc.

(2) to weld pipes and repair.

(3) to conduct non-destructive test.

4-3. Electric Equipment Maintenance Course

(1) to conduct wiring installation and its check operation on switch-board and control panel.

(2) to disassemble, assemble, repair and adjust electric equipment.

4-4. Instrumentation Maintenance Course

(1) to conduct measurements by instruments.

(2) to disassemble and assemble industrial instruments.

(3) to repair and adjust industrial instruments.

4-5. Boiler Plant Operation Course

(1) to operate boiler and to understand its principle.

(2) to conduct daily maintenance and repair such as water

treatment, scale cleaning and anti-rust measures.

4-6. Steam Turbine and Power Generator Operation Course

(1) to operate steam turbine and power generator based on their principles.

(2) to understand the structures of turbine and generator.

(3) to take countermeasures against emergencies and troubles.

4-7. Desalination Plant Operation Course

(1) to operate desalination plant.

(2) to understand the principles regarding desalination and water treatment such as the process of removal of minerals and organic materials from sea water.

5. JAPANESE EXPERT

5-1. Team leader (JTT Member) (1 person)

5-2. Experts (7 persons)

The experts in the fields of;

(1) Maintenance Training Division

(i) Mechanical maintenance

(ii) Piping equipment maintenance

(iii) Electric equipment maintenance

(iv) Instrumentation maintenance

(2) Operation Training Division

(i) Boiler plant operation

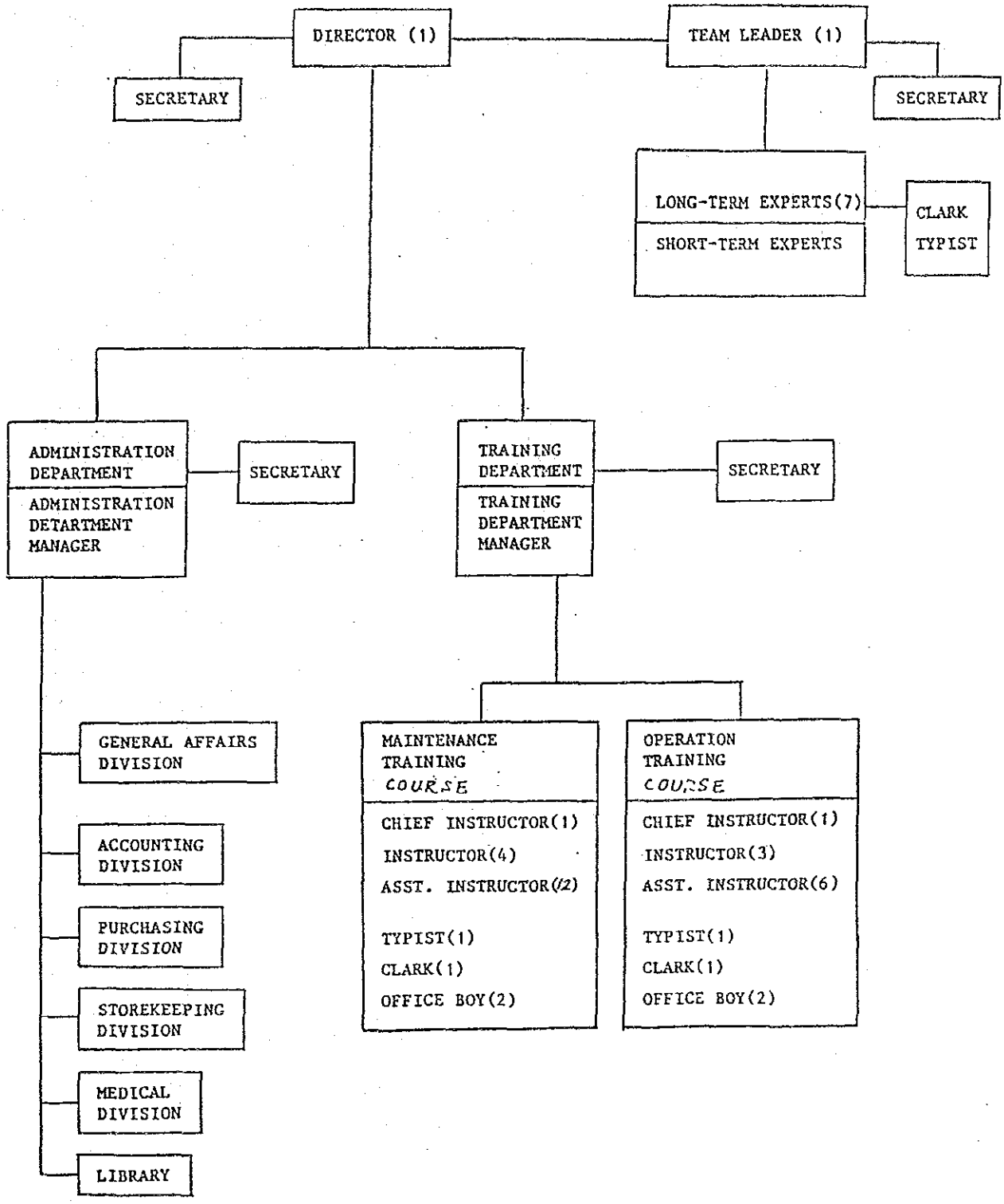
(ii) Steam turbine & power generator operation

(iii) Desalination plant operation

5-3. Short-Term Experts

The short-term experts may be dispatched when necessity arises, for the smooth implementation of the training.

TRAINING CENTER ORGANIZATION



APPENDIX- V

TENTATIVE SCHEDULE OF IMPLEMENTATION

Item \ Year	1985	1986	1987	1988	1989
Term of Co-operation	———	——			
1. Team Leader		1/1 ———	———	———	———
2. Experts					
(1) Maintenance course		1/7 ———	———	———	———
(2) Operation course		1/7 ———	———	———	———
Counterpart Training					
(1) Director		1/4 6m	31/10		
(2) Instructor		———	xxxxxxxx	xxxx	
Machinery and equipment from JICA		———	——		
Building construction	1/9 ———	———	31/8		
Installation of machinery and equipment		———	1/9 ——— 30/4		
Training course					
(1) Maintenance course			1/2 ———	———	———
(2) Operation course			1/2 ———	———	———
Assignment of SWCC staff					
(1) Director		1/1 ———	———	———	———
(2) Instructors		1/7 ———	———	———	———
(3) Admin. staff		1/7 ———	———	———	———
Teaching material development	* ———	31/10 ——— 30/4	30/11		
Curriculum development	* ———	———			

* JICA will submit to SWCC drafts of teaching material such as Text books, instruction manuals, job sheets and curriculum in six months after receiving comments on the equipment specifications from SWCC. SWCC will send comments in three months i.e. by Oct. 1985 and receive the drafts of teaching material by April 1986 for translation into Arabic.

APPENDIX - VI

Course-wise Summary of Estimated Price

Basis of Estimation : Ex-Godown, Yokohama, JAPAN

Unit : US$

Ex. Rate : ¥230/US$

CODE	Concerned Course	Estimated Price	Remarks
SW-1	Mechanical Maintenance	226,509	
SW-2	Piping Maintenance	214,126	
SW-3	Electrical Maintenance	182,800	
SW-4	Instrumentation Maintenance	314,800	
Sub-Total		938,235	
SW-5	Plant Operation	496,174	Mini Plant A, B
SW-6	Plant Operation	278,878	Plant Simulator
SW-7	Plant Operation	242,735	
SW-8	Audio-Visual Aids	128,000	Common for all courses
Sub-Total		1,145,787	
Grand Total		2,084,022	

Attachment－1

Item	Unit	SW－1	SW－2	SW－3	SW－4	SW－5	SW－6	SW－7	SW－8	Total
Ex－Godown Price	US$	226,509	214,126	182,800	314,800	496,174	278,878	242,735	128,000	2,084,022
Packing Charge	〃	－	－	－	－	－	－	－	－	
Shipping Charge	〃	2,139	1,826	1,826	1,828	6,522	130	3,443	783	18,495
(Approx. Gross Weight)	(MT.)	(20.14)	(18.27)	(14.27)	(8.52)	(20.12)	(1.2)	(1.5)	(4.8)	(88.82
(Approx. Gross Measurement)	(m³)	(123)	(105)	(105)	(105)	(375)	(7,5)	(193)	(45)	(1058,5
FOB JAPAN	US$	228,648	215,952	184,626	316,626	502,696	279,008	246,178	128,783	2,102,517
Estimated Insurance	〃	1,874	1,757	1,521	2,513	4,261	2,104	2,104	1,026	17,161
Estimated Ocean Freight	〃	21,391	18,261	18,261	18,261	65,217	1,305	33,566	7,826	184,957
Estimated CIF YANBU	〃	251,913	235,970	204,408	337,400	572,174	282,417	281,848	137,635	2,303,765

Note 1) Estimated Unit Rate : US$174/m³ Ocean Freight

2) Packing Charge is included in Ex－Godown Price

3) Exchange Rate : ¥230/US$

2－8　ＳＷＣＣ総裁宛書簡

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

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2-1, NISHI-SHINJUKU, SHINJUKU-KU TOKYO
160 JAPAN

July 27, 1985

Dr. Shaikh Abdullah M. Al-Gholaikah
Governor
Saline Water Conversion Corporation
Riyadh
The Kingdom of Saudi Arabia

Ref: Submission of the course-wise estimated price list of the training equipment according to the training courses

Dear Dr. Al-Gholaikah,

It is pleased to submit the course-wise estimated price list of training equipment herewith. References to sources, for your information, the prices of equipment are made on the basis of the ex-godown Yokohama Japan and Exchange rate of Yen is ¥230 as per one US$.

In addition to this, the total price is compiled with ex-godown price, shipping charge, insurance charge and ocean freight charge to Yanbu Saudi Arabia.

Sincerely yours,

Hidetoshi YAOI
Leader (Training Sector)
JICA Mission for
the Technical Cooperation for
the Project on
Sea Water Desalination Technology

Course-wise Summary of Estimated Price

Basis of Estimation : Ex-Godown, Yokohama, JAPAN

Unit : US$

Ex. Rate : ¥230/US$

CODE	Concerned Course	Estimated Price	Remarks
SW-1	Mechanical Maintenance	226,509	
SW-2	Piping Maintenance	214,126	
SW-3	Electrical Maintenance	182,800	
SW-4	Instrumentation Maintenance	314,800	
Sub-Total		938,235	
SW-5	Plant Operation	496,174	Mini Plant A, B
SW-6	Plant Operation	278,878	Plant Simulator
SW-7	Plant Operation	242,735	
SW-8	Audio-Visual Aids	128,000	Common for all courses
Sub-Total		1,145,787	
Grand Total		2,084,022	

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160 JAPAN

July 31, 1985

HE. Dr. Shaikh Abdullah M. Al-Gholaikah

Governor
Saline Water Conversion Corporation
Riyadh
The Kingdom of Saudi Arabia

Ref: Submission of proposal of the demarcation of training equipment and demarcation of equipment installation between JICA and SWCC

Excellency Dr. Al-Gholaikah,

It is pleased to submit a proposal of demarcation of training equipment provision and demarcation of equipment installation between JICA and SWCC.

Regarding to demarcation of training equipment, the followings are proposed between JICA and SWCC;

JICA provides the equipments of courses for mechanical maintenance, piping maintenance, electrical maintenance and instrumentation maintenance with the amount of US Dollars nine hundred and thirty eight thousand two hundred and thirty five (938,235.-) as shown in the attached paper.

SWCC provides the equipments of the courses for plant operation and audio visual aids with the amount of US Dollars one million one hundred forty five thousand seven hundred eighty seven (1,145,787.-) as shown in the attached paper.

Regarding

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Regarding to the installation of the equipment into the training center, it is proposed that JICA shall dispatch technical advisors, and that SWCC shall bear the other installation expences such as workers, vehicles and installation machines.

Sincerely Yours,

Hidetoshi YAOI
Leader (Training Sector)
JICA Mission for
the Technical Cooperation for
the Project on
Sea Water Desalination Technology

c.c. Mr. Hattori
First Secretary
Embassy of Japan

Mr. Jibiki
JICA Riyadh Office

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

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July 31, 1985

H.E. Dr. Shaikh Abdullah M. Al-Gholaikah

Governor
Saline Water Conversion Corporation
Riyadh
The Kingdom of Saudi Arabia

Sub: Extention of Term of Cooperation and Formation of Joint Technical Team(JTT)

Dear Sir,

It is our great pleasure to have an opportunity for staying in Riyadh and tohave fruitful talks with SWCC.
Taking this opportunity, we would like to propose in connection with the Sea Water Desalination Project as follows:

In order to comply with the present schedule of the Project, which was proposed by SWCC in APPENDIX-2 of Minites of Meeting on 13th of March, 1985, JICA and SWCC will extend the Term of Cooperation by relevant time length for Research and Training respectively. The new Term of Cooperation shall be determined by November of this year in the manner that is stipulated in Article 15 of Record of Discussions(12th January, 1982):

With regard to the staffing of the Joint Technical Team(JTT), JICA forms the team as shown in the attached paper.

Your prompt reply to the above proposals and further cooperation are highly appreciated.

Sincerely Yours,

Haruo SUZUKI
Leader
JICA Mission for
the Technical Cooperation
for the Project on
Sea Water Desalination
Technology

c.c Mr. Hattori
First Secretary
Embassy of Japan

Mr. Jibiki
JICA Riyadh Office

3. 計画打合せ調査団

（昭和60年11月21日～11月27日）

3. 昭和60年11月派遣計画打合せ調査団

3－1 派遣の経緯及び目的

60年7月に派遣した計画打合せチームとSWCCとの協議により，本プロジェクトのM/P及びTSIの大枠について合意が得られていた。

今回については，61年3月に現行R/Dが終了するのを受けて，3年間のR/D延長を行うことを目的として，実施協議チームを派遣する予定であったが，派遣直前になり，「サ」側は訓練部門におけるJubailとYanbuの重複を避けるため，見直しを行いたいとして，本チームの派遣を延期するよう要請越した。

関係省庁と協議した結果，実施協議チームの派遣については，断念せざるを得ないが，「サ」側のこれまでの対応ぶりから判断しても，早急に検討結果が出ることは期待し得ないところ，今回の訓練内容変更の背景及び経緯について事情聴取するとともに，今後の取り進め方について意見交換することは，本プロジェクトを円滑に実施していく上で極めて重要であると思料されたところ，計画打合せチームとして派遣したものである。

特に，今回の派遣については，調査団員がトルコ技術職業訓練センター事前調査団として派遣されることが決定していたため，日程を変更しないでトルコ国からの帰国途次，サウディアラビア国へ立寄ることとしたものである。

3－2 調査団の構成

(1) 五十嵐 晃 一（総　　括） 労働省職業能力開発局海外協力課
課長補佐

(2) 菊 池　　稔（技術協力） 外務省経済協力局技術協力課

(3) 金 子 節 志（業務調整） ＪＩＣＡ社会開発協力部海外センター課
課長代理

3－3　調査日程

日　時	月　日	曜日	行　程	調　査　内　容
15：40 〜	11/21	木	イスタンブール → リアド	移　動　(SV322)(アテネ，ジェッダ経由)
1：40 13：00 〜 15：00	11/22	金	Al Khozama Hotel	ＪＩＣＡリアド事務所　地曳所長と日程及び調査方針打合せ
15：00 〜 18：00			〃	資　料　整　理
9：00 〜 11：10	11/23	土	ＳＷＣＣ	ＳＷＣＣ表敬（AZZAZ局長他）及び来サ目的説明 訓練内容変更点，経緯事情聴取，今後の取り進め方等協議
11：30 〜 13：00			在サウディアラビア日本国大使館	表敬及びＳＷＣＣとの協議内容，方針について打合せ（小川一等書記官他）
15：00 〜 18：00			Al Khozama Hotel	資　料　整　理
19：00 〜 21：00			Tokyo Restaurant	大使館及びＪＩＣＡ事務所関係者と今後の対応方針等意見交換
8：00 〜 10：00	11/24	日	ＳＷＣＣ	訓練内容変更概要，アルジベール訓練センター訓練概要及び今後の取り進め方等について協議，ＡＺＺＡＺ局長来日を要請
10：30 〜 12：00			ＪＩＣＡリアド事務所	団内打合せ及びＪＩＣＡ事務所と今後の対応方針協議
9：00 〜 14：00	11/25	月	ＳＷＣＣ	今後の取り進め方協議，ＡＺＺＡＺ局長来日要請に係るletter作成
14：30 〜 15：00			在サウディアラビア日本国大使館	帰　国　報　告
23：55 〜			リ　ア　ド	移　動　(ＳＶ３８０)
10：30	11/26	火	→ バンコック	〃
8：45 〜 16：30	11/27	水	バンコック → 東　京	移　動　(ＪＬ４７２)

3－4　主要面談者

(1) Mr. Abdulla Al－Azzaz

Director General, SWCC

(2) Mr. Moflih Al－Shagatra

Specialist for Traineig, SWCC

(3) Mr. Habeeb Mohamned

Engineer, SWCC

(4) 小　川　正　二

日本国大使館一等書記官

(5) 高　橋　修　一

日本国大使館二等書記官

(6) 地　曳　隆　紀

ＪＩＣＡリヤド事務所長

3－5　調査結果概要

(1) ＳＷＣＣは，Jubail及びYanbu 両センターの訓練内容を詳細に把握し，検討する作業を終えていないため，具体的すり合せを行うには至らなかった。ＳＷＣＣとしては，Yanbuセンターの取扱いについて次の３つの解決法があり，どのようにすべきか検討結果を持って，ＡＺＺＡＺ局長を来日させることを考えている。

（解決策）

① 現行のコースを縮小する。（７つのコースを２～３コースとする。内容はそのまま。）

② Yanbu センターの訓練コースのすべてをJubail センターに移す。

③ コースは縮小するが，内容をより特化応用したものに変更する。

特に，計装，電子，シミュレーターの分野がSWCCとして希望する分野である。

これに対し，チームとしては，①，②であれば，対応は可能であるが，③の場合，日本側としても，専門家の派遣，Ｃ/Ｐの受入れ及び機材の仕様書作成等について，実施可能であるか検討を要するため，簡単に回答を出し得ない。

従って，SWCC の最終検討結果が，③になることも考慮に入れ，早急に（できれば，12月中旬までに），AZZAZ 局長の来日が実現するよう改めて要請した。

(2) SWCCとしては，今回の変更命令が総裁から出されている以上，総裁に判断を仰がねばならないが，総裁は海外出張のため不在であり，本チームの意見を直接伝えることはできなかった。AZZAZ 局長より，総裁に対し，然るべく説明する由である。

(3) Jubail センター の訓練内容は次のとおり。

① ボイラー	⑥ 計測
② タービン	⑦ 仕上げ
③ 機械加工	⑧ シミュレーター
④ 溶接	⑨ 空調
⑤ 電気	

1986 年より訓練を開始する予定であり，現在カリキュラムを開発中である。高卒者を対象として，訓練期間は，1年以内を予定としている。

(4) 総裁及び副総裁との意見交換ができなかったため，AZZAZ 局長が日本側の置かれている現況及びSWCC関係者の早期来日の必要性について，総裁及び副総裁に説明し易いように，調査団名で letter を残すこととした。（別添参照）

3－6 今後の取り進め方

60年12月中旬 ： SWCC関係者来日

訓練内容評価結果説明

変更訓練内容協議 ― 日サ双方すり合せ

↑―― 日本側案訓練シラバス作成のこと。

61年1月～2月： 対応案検討 ― 専門家リクルート，教材作成計画

C/P受入れ，機材供与計画等

61年3月 ： R/D延長 署名（ミッション派遣又は大使署名代行）

3－7　SWCC副総裁宛書簡－

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160 JAPAN

Nov. 25, 1985

H.E. Mr. Abdullah Al-Hussayen
Deputy Governor for Operations
and Maintenance Affairs
Saline Water Conversion Corporation
Riyadh, Saudi Arabia.

Dear Sir,

It is our great pleasure to have an opportunity for staying in Riyadh and to exchange views with the concerned officials of SWCC.

According to the information, the training programs in Jubail and Yanbu are now under evaluation by SWCC. If the revised training program in Yanbu is far apart from the original concept, it will take long time to study the possibility of implementing the revised training program, in terms of recruitment of Japanese experts, acceptance of Saudi Arabian instructors, preparation of curricula & text books development and designing of equipment specifications, etc., and also to finalize the draft of Master Plan & Tentative Schedule of Implementation of the Project.

It is very difficult to extend the term of cooperation after the expiry of the current R/D, which will terminate on March 31, 1986, without finalizing the above mentioned matters.

In view of the above, we would like to request that SWCC should dispatch the concerned officials to Japan by the middle of December, 1985, for the purpose of explaining the results of the evaluation of the training program in Yanbu as well as discussing the basic concept of the Japanese technical cooperation with the Japanese authorities concerned.

Since these matters are very important to both parties, your prompt response is highly appreciated.

Sincerely yours

Koichi Igarashi
Team Leader (Training Sector)
JICA Team for the Project
on Sea Water Desalination Technology.

《付　属　資　料》

1. 討議議事録（R/D）　昭和57年1月12日署名（於リヤド）
2. ミニッツ（研究・訓練部門）昭和57年3月29日署名（於リヤド）
3. コンタクトミッション（訓練部門）調査結果概要
4. ミニッツ（訓練部門）　昭和57年12月14日署名（於リヤド）
5. ミニッツ（訓練部門）　昭和58年4月3日署名（於リヤド）
6. ミニッツ（研究部門）　昭和59年5月21日署名（於リヤド）
7. ミニッツ（訓練部門）　昭和59年5月30日署名（於リヤド）
8. ミニッツ（研究・訓練部門）昭和60年2月13日署名（於　東京）
9. 調査団派遣実績及び経緯等
10. 理事会説明資料　（昭和60年9月27日）

1. 討議議事録（R／D）：

昭和５７年１月１２日　署名（於リヤド）

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.

5 Nov

JEDDAH - SAUDI ARABIA
P. O. Box : 4931
Telex
Cable Add. : « TAHLIA »
Tel. 51630 / 51633

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

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

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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

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.

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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.

(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, occuring 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)

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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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 .

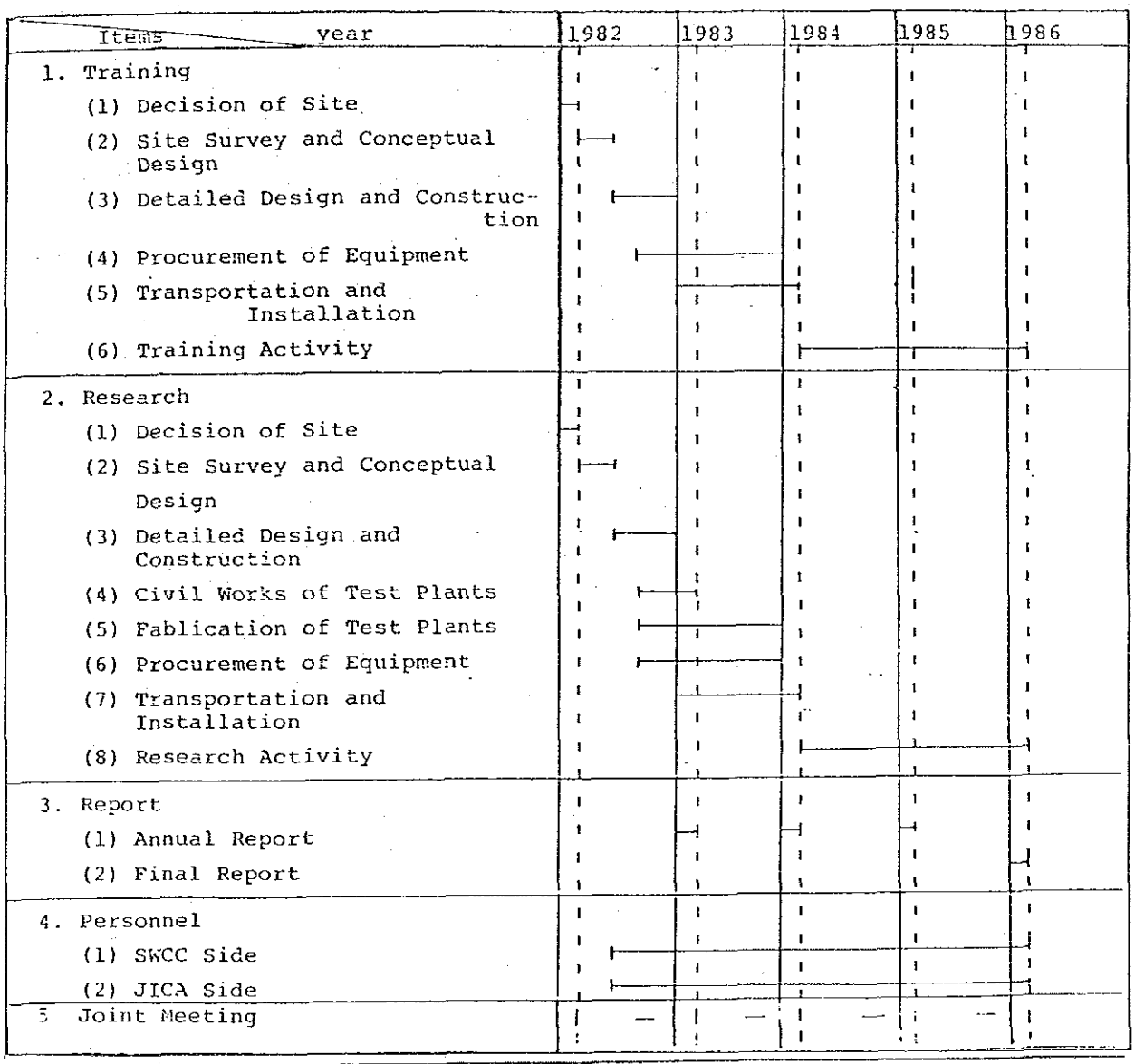
KINGDOM OF SAUDI ARABIA

Saline Water Conversion Corporation

Our Ref. No. ..... - 11 - Date .....

ANNEX I

Tentative Time Schedule



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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^3/d MSF TEST PLANT

   (2) Operation of 40 m^3/d RO TEST PLANT

   (3) Prevention study of corrosion and scale deposition
   Examination of typical corrosion phenomena and scale deposition mechanism in the various desali nation 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 adoptation 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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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 m^3/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°C
(7) Mode of operation	Once through and brine recirculation

3. RO TEST PLANT
   (1) Reverse osmosis (RO) unit
      1) Capacity: 40 m^3/d
      2) Type of Ro module
         (A) Hollow fiber (20 m^3/d)
         (B) Spiral wound (20 m^3/d)
   (2) Pretreatment unit
      1) Capacity: 150 m^3/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 laboratory furniture
(3) Laboratory Equipment	1,150	1,150	0	C.I.F.
(4) Inland Transportation of Equipment	11	0	11	
(5) Installation & Adjustment 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 & Adjustment of Equipment	616	316	300	

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Items	Cost	JICA Portion	SWCC Portion	Remarks
1.3 MSF & RO TEST PLANTS	(1,284)			
(1) Design & Fabrication				
1) MSF TEST PLANT	545	545	0	C.I.F.
2) RO TEST PLANT	210	210	0	C.I.F.
(2) Sea Water Intake & Discharge Facilities	305	0	305	
(3) Inland Transportation of TEST PLANTS EQUIP-MENTS & Material	9	0	9	
(4) Installation & Adjust-ment of TEST PLANTS	184	94	90	
(5) Civil Work	31	0	31	

Items	Cost	JICA Portion	SWCC Portion	Remarks
1.4. Ancillary Facilities	(581)	0	581	Guard house, fence gargen, lamp posts & pavements included
2. Personnel	(7,021)	5,111	1,910	
3. Operation & Maintenance	(2,290)	0	2,290	Utility, maintenance, consumable material, etc. of the INSTITUTE
4. Transportation	(551)	0	551	Expences for vehicle & domestic trips
5. Joint Meeting	(200)	110	90	
Total	37,363	9,451	27,912	

Note:
1. The above cost is preliminary rough estimate, based on the price in February 1981, and the precise value should be determined after the decisions of the site and its detail investigation.
2. The above cost does not reflect the increase in cost generated by inflation in the future. And also the total value of this project can be increased not more than 20% of this value in principle.
3. The above cost does not include accommodation.

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2. ミニッツ（研究・訓練部門）：

昭和５７年３月２９日　署名（於リヤド）

KINGDOM OF SAUDI ARABIA

Saline Water Conversion Corporation

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MINUTES OF MEETING

This meeting was held for Research and Training Centre in Yanbu Plant site by SWCC and Japanese Team from JICA from 21 to 29th March 1982. The following attended the meetings:

	SWCC		JAPANESE TEAM
1.	SAEED M.N. NAJJAR HABEEB MOHAMMED SYED ABDUL AZIZ HAWARY	Dept. of Research & Technical Affairs	NAOSHI FURUKAWA YASUYOSHI ICHIHASHI GOSHIN KURA YOSHIAKI TSUKAMOTO YOSHIO MURAYAMA
2.	ABDUL AZIZ SULAIMAN	Training Dept.	KUNIO KIKUCHI KIMIHARU SATO KEIICHI KATO.

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1. RESEARCH

Meeting was held in Riyadh on March 22, 1982 at SWCC. The Japanese team submitted the tenical document. SWCC said that this document requires time to study and make comments on it. Then both parties continued discussion about the site selection for Research and Training Centre. The Japanese team said that the two team members incharge of training will join the team on thursday, 25, March in Jeddah. SWCC informed that the program for both the parties will be to leave Riyadh to Jeddah on the evening of March 22, and tuesday 23, both the parties will travel to Yanbu by cars to visit the Yanbu-Medina Power and Desalination Plant site.

Meeting was held in Yanbu Plant Manager's Office, SWCC informed the Research Centre is required to be located near to the intake and discharge of the existing Desalination & Power Plant. Both parties were totally in agreement that the site location of the Research Centre will be adjacent to the Desalination Plant where more activities for research can be carried out for all the units of the plant in addition to the two test units i.e. MSF 20m^3/day. and R.O. 40m^3/day.

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The SWCC, Japanese Team, SWCC Plant personnel and Socetec the Consultant for Yanbu-Medina Plant were investigating the site location on the plant site. The Socetec's Engineer informed that the site location for Research Centre was reclaimed and compacted. He informed that the soil test results for all plant site is 4m thickness of coral layer under this coral layer around 2m soft soil followed by around 8m thickness of coral layer. He also informed that the most foundations of the existing plant was constructed on the second layer of coral. He said that these two layers formation continue from sea side upto the mountains which are about 50km from the sea. He said that the whole site of the Yanbu plant which is 10km by 1.5km is of the same formation.

Then both parties attending the meeting at the plant office after long discussions decided that the site drawings will be inspected to measure the exact dimensions of the Research Centre site. This has been asked by the Japanese Team. Then the Japanese experts measured the available site location of Research Centre on thedrawing according to scale. Then the Japanese team said that the area on the sea side is enough for Research and Training Centres. Then SWCC staff informed that the site inside the plant will be only for Research Centre and it is not allowed for the trainees to enter the plant area. This was confirmed by the higher authorities of SWCC later.

The Japanese experts informed that the training and Research Centres can be in one building, then SWCC informed in this case the Research Centre should be outside the plant area in the site location of the training centre, but SWCC Engineers emphasized thatthe location of Research Centre if away from the sea side by 1/km will cost more for the facilities to be provided for the Research Centre. Then the Japanese team informed that the signature for the site location of the Research Centre will be signed after three days after they discuss with the training experts.

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Then SWCC staff from Riyadh and Yanbu plant and Socetec signed for the taking over of the site location of the Research Centre inside the plant area adjacent to the intake system.

Both the parties visited the site location for the training centre and the housing compound area. SWCC proposed that the site location of the training centre should be located 150m west of the main road leading to the Yanbu - Phase 1 and 50m North of main road from the plant gate leading to the housing compound and any area required for the Training Centre can be extended to the North and West. The Japanese team enquired about the area of the Training Centre at Al-Jubail to which SWCC informed that it is about 35000m^2. The area proposed is large enough to accommodate a training centre like Jobail or even larger. Concerning the power supply at the plant site following is available:
480 V no neutral 220 V 3 bridges for lighting only, no neutral.

SWCC informed that the alernative for Research Centre location will be either near the sea shore or near to the training centre but strongly recommend that the site location on the sea shore is the best location for the Research Centre. The meeting was closed in Yanbu. The meeting was held in Riyadh on saturday March 27, 1982. The Research group was attending in the Research Dept., and the training group was attending in the training dept. to discuss various points.

The Japanese leader signed for the approval of the site location of the Research Centre on the drawing and a copy of the drawing has been provided to the Japanese team.

For the construction of the Research facility close to the shore line SWCC will be fully responsible in taking permission from coast guard or any other government agencies.

Living accomodation for Japanese experts will be provided by SWCC as per the Record of discussions Accommodation for the trainees will be considered by SWCC before completion of the centre.

Concerning the design of laboratories regulations should be followed as provided by SWCC.

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Japanese team enquired about the availability of Natural gas, city gas, water and steam to the laboratory. SWCC replied that they will enquire about the availability of gas from the plant personnel and advise later.

Japanese team informed SWCC that there might be minor changes in the technical document submitted to SWCC. Technical document was accepted by SWCC as submitted by the Japanese Team.

SWCC requested Japanese Team to send any technical documents atleast two weeks before the meeting to which Japanese Team agreed.

Concerning the R.O. test plant, SWCC requested that this plant should have a flexible design to incorporate the following :

- use of Cl_2 or UV
- possible use of direct feed seawater
- heater for the feed water
- R.O. test plant should be designed to test hollow fiber spiral wound and flat plate type of membranes.
- The membranes should be bought commercially,

SWCC informed that any increase in costs due to the change in the design would require approval from higher authorities at SWCC. The Japanese side will inform SWCC of the additional costs and approvals will be obtained from higher authorities at SWCC before making the final changes.

Japanese side requested SWCC to limit the capacity of the flat plate type membrane to 20m3/day. Japanese team will submit the specifications of this R.O. test plant to SWCC during May, 1982 for reconfirmation.

JICA will start the procurement of M.S.F. and R.O. Test Plant. SWCC expressed the desire that the laboratory equipment to be provided by JICA should be of the most sophisticated and advanced type in the world.

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Japanese side enquired about the availability of housing and facility for Japanese experts coming to the kingdom in the near future. To this SWCC mentioned that they will look into the possibility of accommodation and use of facilities at the Royal Commission at Yanbu.

Before the visit of the next JICA Delegation to the Kingdom a visit by SWCC personnel to the research facilities in Japan was considered as beneficial to know about the research activities underway. A detailed programme of the visit will be prepared by JICA and sent to SWCC. The tentative date for this visit will be around May 10.

A mission from JICA will visit SWCC to discuss and finalize the conceptual design conditions for the Research Centre before Ramadan. SWCC requested JICA to send the schedule of visit atleast two weeks before the arrival of the mission, to which Japanese Team agreed.

Japanese team will send to SWCC the final version of the Conceptual Design by the end of August, 1982. A mission will follow the final submission to discuss the Conceptual Design.

Once the Conceptual Design stage is finalized and agreed upon by the parties, the next phase of detail design will be taken up by SWCC by awarding a detailed design Contract to a Consultant.

SWCC provided a copy of the scope of work for the detailed design of the R.O. and T Centre at Ak-Jubail to be used as a guideline in the preparation of the Conceptual Design for the institute at Yanbu.

It was also confirmed by both sides that they will be responsible to sign Contracts for portions funded by them as per the record of discussions.

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2. TRAINING

(1) The Japanese team asked if it is possible to remove the site from Yanbu to any other place. SWCC answered that since the dicision has been taken by the Government to build it in Yanbu the removal of the site is extremely difficult, if not impossible.

(2) The Japanese team asked if there is any possibility to reduce the number of trainees to the minimum, especially in the first phase of activity, and to come to the number of 300 at the end of the cooperation period. SWCC answered that, in view of the strong need for trainining, the number of 300 trainees must be maintained from the start of the Center.

(3) The Japanese team asked for the accomodations for trainees as well as for instructors and Japanese experts and suggested that the construction of the Center and accomodations will have to be done in a suitable timing. SWCC answered that will be taken into consideration.

(4) The Japanese team asked some informations about vocational training in Saudi Arabia and experience of SWCC in training. SWCC hoped that the latest experience in Japan in the field of training be conducted in the Center, not repeating the experience already available.

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(5) The Japanese team asked if there is any detail on what SWCC needs from the training to be conducted in the Center. SWCC hoped that, to execute the construction and start activity in a very short time, the next mission responsible for training will make proposals in early time, preferably through May, on all the requirements for training, including equipment, planning for the curiculum, training of trainers in Japan and audio visual aids etc.

(6) The Japanese team added that it will be necessary for Japanese experts to train Saudi counterparts in conducting the technical training in the Center in an efficient manner.

(7) The Japanese team asked about the language of training. SWCC answered that the language for training must be Arabic.

The meetings were concluded on March 29.

S.W.C.C

1. SAEED M.N. NAJJAR
2. ABDUL AZIZ SULAIMAN
3. HABEEB MOHAMMED
4. SYED ABDUL AZIZ JAWARY

JAPANESE TEAM

1. NAOSHI FURUKAWA
2. YASUYOSHI ICHIHASHI
3. GOSHIN KURA
4. YOSHIAKI TSUKAMOTO
5. YOSHIO MURAYAMA
6. KUNIO KIKUCHI
7. KIMIHARU SATO
8. KEIICHI KATO

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3. コンタクトミッション（訓練部門）

調査結果概要：

（昭和５７年３月２４日～３月３１日）

3. コンタクトミッション（訓練部門）調査結果概要

（昭和57年3月24日～3月31日）

1. 訓練部門については，市橋，佐藤の両名が25日より参加した。

訓練部に関する協議経過等は次の通りである。

3月25日（木）夕刻	市橋，佐藤ジェッダ着，一行に合流
26日（金）午前	市橋，大使館八木公使と打合わせ
午後	リアドに移動，団内打合わせ
27日（土）午前	SWCCゴライカ総裁，ジャムジューム副総裁表敬，サジャール研究部長，スレイマン訓練部長と調査団全体にて協議（主として訓練部門）
午後	研究部門と訓練部門に分かれ，市橋，佐藤はスレイマン部長と協議
28日（日）午前	SWCCとM/M案協議（団全体）
午後	M/M案わが方案作成
29日（月）午前	SWCCとM/M案協議
午後	M/Mに署名

2.(1) 3月27日の全体協議においては，まず，わが方より，訓練部門については，本件プロジェクトに訓練部門が導入されてから今回が最初のコンタクトであるので，今回は出来る限りの情報収集や「サ」側の意見聴取を行うこととし，次回チームが現地調査や関係機関（既存の職訓校や学校等）の調査をも行った上で計画策定を推進したい旨を述べ，また訓練部門の担当系列（外務省 ― JICA ― 労働省 ― 雇用促進事業団）の関係についても説明を行った。

(2) これに続き，わが方より今回特に得たい情報として，計画策定のためには訓練ニーズの把握，訓練対象（トレイニー）のqualification，そのavailability 等の把握が必要であり，まずこの点から「サ」側の説明を得たい旨を述べた。

これに対し先方は，①「サ」においてはあらゆる新規のプロジェクトを開始する場合，必ずそのプロジェクトの実施に関係するサウジ人の訓練を行うことが「サ」政府の新政策となっており，②現在SWCCは，大型プラントが急速に竣工を見つつあるに拘らず，サウジ人のO/M要員がいない現状にあるので訓練ニーズは莫大である，とし，③SWCCにとってこれら要員を育成確保していくことが重要課題であり急務である，とした。

わが方よりは，更に，具体的に例えば，SWCCには現在何名のO/M要員がおり，1つ

のプラントではどのような職種で要員が存在するのか，将来どの程度の数の要員を必要とするか，等を知りたいと述べたところ，先方はデータは提供できる，としたため，わが方はこれらを追って Questionnaire として手交したい旨述べた。

(3) 続いてわが方よりヤンブーのサイトについては，今回訓練担当者が現地を見ておらず，コメントできないが可能性の問題として，サイトを別の場所とし（例えば，より訓練生の集めやすい場所），ＯＪＴをプラントで行うことはありうるか，と質したのに対し，先方は，サイトの変更はこれから手をつけ始めると，上層部の承認をとりつけ種々の手配をするのにすぐ3年程度はかかってしまうので極めて難しいとした。

(4) 更にわが方より訓練生に係る問題として，どのような者が訓練生になるのかが判らなければ訓練計画の立てようもないとして，訓練対象に係る先方の考え方を質し更に今回全くtentativeに今まで得ている情報に基づき，架空のプランを1枚の表にまとめてみたが，これに対する「サ」側の考え如何を問うた。

これに対し先方は，①SWCCにおいては訓練の経験も全くなく，全て日本側において考えてみてもらいたい。②一枚の紙のみでは日本の経験を知るには不充分であり，是非とも今回滞在中にも日本の経験と知識を教えてもらいたい。③「サ」側としていえることは，目標に向って最短の道を歩むため過去に日本が経験してきた試行錯誤の道を飛びこえて，日本の最新の（latest）スタイルと方法を教えてほしいということであるとした。

これに対し，わが方よりは最適正の訓練策定のために無駄を省き，正しく最短距離を歩むためには，まさに「サ」側が何をしてほしいかを正確に知り，日本側がアドバイスを加え意見交換を通じて計画を策定していくべきであり，一方的に日本側のみで考え，尨大な架空の計画を作り上げた結果が「サ」側の考えと異なることとなれば，全くの徒労に終る旨を主張したが，「サ」側はまず日本側より考えを聞きたい旨を主張して譲らず，結局これ以上の議論は時間の無駄と判断し，この点の議論を打切った。

(5) 次にわが方より，①サイトの問題に関連し，現在訓練生用の住宅は建設されていないようだが，この点はどうなるのか，また，②研究部門のみならず訓練部門の日本人専門家の住宅の手当ても必らず行われると了解してよいか，と質したところ，先方は①については，専門家用住宅と異なる形式で訓練生用の住宅も当然考える。②については建設中の250戸のうちから，20戸程度を日本人専門家（研修＋訓練）に割り当てることで何ら問題なしとした。わが方よりはこれに対し，訓練生用の住宅もセンター建設と足並みを揃えて適時に行われる必要がある旨をコメントし，先方は，何らかの形でこの点をリマインドしてほしい旨述べた。

(6) 次にわが方より，訓練生の数については当初より300名という数は大きすぎるのではないか，訓練生用の住宅建設のタイミングとの関連もあり，例えば初年度100名，2年度目

200名，3年度目300名というように段階的に増やしていく方が妥当と考えられるが如何と質したところ，先方は，R/D上に300名と明記されていることもあり，訓練スタート時から300名というラインを崩すことはできない旨を強く主張して譲らなかった。

(7) 更に，わが方より，訓練を行う場合には，日本人専門家が直接訓練生に対する訓練を行うわけにはいかない。その理由は，①協力期間が終了し，日本人専門家が帰国した後に「サ」側が自立的にセンターを運営していくためには「サ」側インストラクターの存在が不可欠であり，そのためには，協力期間中にこれらインストラクターを養成する必要がある。わが方の専門家は主としてこれら「サ」側インストラクターの養成に主眼がある。②協力期間中にわが方がカウンターパートとして日本での研修を受けさせるのもこのような「サ」側インストラクターである。③日本人専門家はアラビア語を話せないので，英語を解する「サ」人インストラクターの存在が不可欠である。④「サ」人訓練生に対する訓練はこれら「サ」人インストラクターがアラビア語で行うことが必要であろう。⑤インストラクター数の目安は，一般的には300名の研修生であれば，少くとも30名程度必要と思われる等を指摘したところ，先方は，①言葉の問題は2～3名の通訳配置により解決できるのではないか，②訓練はアラビア語で行う必要があるとコメントしつつも概ねわが方指摘を了解した様子であった。

(8) 時間の制約もあり，以上の討議をもって一応午前中の討議を終了した。

3. 27日午後，スレイマン訓練部長との間で行われた討議の要点は次の通りである。

(1) 午前中の討議を受け，わが方より「サ」側から提供を受けたいバックグラウンド資料のリストとして別添①を手交した。これに対し先方は，午前中の言（「資料は提供できる」）を翻えし，「サ」側の提供資料は訓練計画策定の上で何らの役にもたたないし，現在，予算確定の時期にもあるので調査に多くの労力をさく余裕がない旨を述べた。そこで，わが方よりとにかく，多少遅くともよいから，全体的ピクチャーを把めるような資料を何でも提供してほしい旨くり返し述べたが結局は先方よりようやく，次回ミッション来訪の折に議論したいとの言葉を引出すにとどまった。

(2) 先方よりは，わが方に考えてほしい要望事項として，別添②のメモがわが方に手交された。

(3) また，先方は，次回ミッション来訪の時期として研究プロジェクトに早く足並みをそろえ，83年に訓練を開始できるよう，5月頃を希望する旨，くり返し述べ，また来訪前に日本側準備のドキュメントを前広に送付してほしい旨をくり返した。またミッションが来「サ」し，「サ」側と討議した上はその場で意志決定を行い，文書にサインできるような責任者を派遣してほしいと述べた。

わが方はこれに対し，「サ」側の要望にはなるべく沿いたいが，今の状況では全てわが方が調査をわが方独自でやらざるを得ず，計画策定には時間がかかる旨を述べ，わが方側にも必要な時間はとらせてほしい旨を述べておいた。（先方了承）

(4) 午前中討議した訓練対象生の資料についてわが方より再度質したところ，先方は概ね以下の通りである旨述べた。

㈠ 第1グループ　Elementary School 卒（6年教育）で1年半のVocational training を受けた者

㈡ 第2グループ　Intermediate School 卒及びLiterary High School 卒の者

㈢ 第3グループ　Technical High School，High School in Science，Comprehen-sive High School の卒業者

㈣ 第4グループ　現存のデサリプラントで働いている者

㈤ 第5グループ　大卒のエンジニア

これに対し，わが方より，①プライオリティ，②300人のふりわけ，及び，③各々の訓練期間を質したところ，先方は，①プライオリティは，㈠㈡及び㈢であるとしつつ，②③についてはno idea であるとした。

(5) 更に先方は午前中の討議のうち「サ」側カウンターパートの確保につき，SWCCとしては，向後2～3カ月内にインストラクター候補者（概ね大卒で英語可）のリクルートを始める予定であると述べ，これらを日本に研修のために送りたい旨を述べた。これに対し，わが方より何名位送りたいか，またいつ頃送りたいかと質したところ，先方は午前中にわが方より最低30名の「サ」側インストラクターが必要と述べたのを受けて，30名を可能な限り早く送りたいと述べたので，わが方は，そのような数はとても無理であるし，第一，30名中には技術者以外に一般科目のインストラクターも含まれるのであるから必要もない，また2年に分けて例えば，6カ月づつ送るという方法もあろう等，説明した。また「サ」側もこれらを日本に送る前には誰がどの分野を担当して，日本で何の研修を受けさせるか等よく日本側と事前に打合わせる必要がある旨指摘しておいた。

(6) また先方は，いつ頃からトレーニングを始められるかをくり返し質問越したので，わが方はこれから準備を進めるわけであり，建物建設，「サ」側のインストラクターの確保と養成を考えると早くて84年と考えるのが妥当と思う旨述べておいた。

(7) スレイマン部長は，日本で行われている訓練を見学するために，自分（「ス」）が来日するのも一案と思う旨述べていた。（当方コメントせず）

(8) 午前中の討議を受け，わが方よりは，あくまで日本で行われている訓練の一つのモデル例として訓練計画の例を先方へ参考までに手交しておいた。（別添③）

(9) わが方より，訓練計画について合意ができた段階で現行R/Dの傘の下に何らかの合意

文書を作成する必要がある旨述べたものに対しては，先方より特にコメントはなかった。

4. 28日（日）午前及び30日（月）午前，スレイマン部長と面談し，M/Mのトレーニング部分のすり合わせを行い，全体のM/M中にincorporateすることとした。

5. 所　感

(1) 今回は，訓練部門について第1回目のコンタクトであることから，できるだけの情報収集に努めたが，いくら試みても「サ」側からは何も出ず必要な情報収集は企業からのヒアリング等を通じ当方独自で行う必要があるとの印象を深くした。

(2) 今後のとり進めぶりについては，いくつかの考え方があると思われるが「サ」側のかなり自分勝手な要求（「サ」側要望事項を含め全般に亘る計画案を作成し，「サ」側に事前送付の上，次期ミッションが5月頃ないし，ラマダン前＝6月中旬までに訪「サ」する。）はそれとしても，わが方としては出来るだけのスピードをもってかかる作業を独自の調査も行いつつ進めざるを得ないと思われる。

(3) なお所要の調査事項は整理の上，文書をもって正式にSWCC宛提供方要請しておくことも後日のタイミングについてのSWCC側責任分担を保障する上でも一案かと思われる。

6. 入手資料リスト

(1) SWCC淡水化プラントの現状（造水センターより入手）

(2) 今後のSWCC淡水化プラント建造計画（SWCCより入手）

(3) ヤンブー　サイト地図（SWCCより入手）

(4) アルジュベール研究，開発トレーニングセンター見取り図（SWCCより）

(5) 建設関係資料（アルジュベール，スダンダード）（SWCCより）

(6) ヤンブー地区概況（土質，気候，風土等）

(7) 各種学校，教師，生徒数（長田書記官より）

4. ミニッツ（訓練部門）：

昭和５７年１２月１４日　署名（於リヤド）

MINUTES OF MEETING

SUBJECT:- TRAINING PROPOSAL FOR YANBU FACILITY

A meeting was held in Deputy Governor's office on Monday Dec. 13, 1982 between SWCC and the visiting Japanese delegation for Training after greeting to Governor. The meetings continued in the Training Dept. and will continue on the Training facility site at Yanbu.

S W C C	JAPANESE SIDE
Mr. I.M.R. Jamjoom	Mr. Masao Yamada
Mr. S.M.N. Najjar	Mr. Hiroichi Ono
Mr. A.A. Sulaiman	Mr. Makoto Yoshii
	Mr. Katsuya Enomoto
	Mr. Yasuyuki Uehara

Mr. Jamjoom opened the discussion on Monday Dec. 13, 1982 at 10 AM in his office. The proposal submitted by the Japanese side was discussed in general. Mr. Jamjoom informed that this Training group has taken long time whereas SWCC has emphasized the importance of the training program to be finalized as soon as possible to meet the schedule of the record of discussion dated 12 January 1982. SWCC expressed the desire that Japanese expertise in the field of Training be transfered to Saudi Arabia as much as possible keeping in view the standard of education of the available trainees in the Kingdom.

SWCC pointed out that the class room training should be in parallel with on-the-job training to facilitate the trainees to better understand the application of theory in practice. SWCC agreed to provide syllabus for High school Technical High school, Intermediate school, and to give the background for Japanese side to prepare programmes accordingly.

SWCC proposed that intermediate school students as trainees will be given one year intensive course to raise their level of education to that of

high school graduates.

In general training program it was proposed by SWCC to include Technical English instruction.

The main syllabus for the Training program should be in Arabic except the Technical terms, which should be in both Arabic & English.

The trainees will get one month vacation every year. Training will be for six days a week eight hours daily except Thursday when it will be for four hours only with (weekly test).

Mr. Jamjoom enquired about the proposal for the design of the Training center and expected this to be finalized very soon. To this the Japanese side informed that this proposal will be ready in Month of March, 1983. SWCC sent a Telex to Saudi Japanese Joint Committee, Riyadh office to confirm by Telex this schedule. The detailed discussion on the proposal continued in the Training Department.

SWCC requested JICA delegation to complete the proposal draft by including the following:

1. JICA delegation will review again the general and technical subjects of the training courses.

2. The training program will include necessary equipment's such as audio visual aids etc.

3. The number of hours required for each subject proposed in the draft proposal had been presented to SWCC and it will be discussed finally on March, 1983.

4. The following subjects should be included in courses of the draft proposal, namely Technical English, Physics, Mathematics.

5. The small scale laboratory will be utilized for the Desalination training course to give the trainees the basic knowledges with suitable

training program.

6. On-the-job training should be included in all applied practices, of each course.

7. The instructors should have background in Mechanical & Electrical Engg. or in Chemistry etc. and good experience in training or education.

8. Full details about training equipments, such as workshop equipments audio-visual aids etc. SWCC will expect to receive the lists of these equipments in the month of March, 1983.

9. JICA delegation presented the Outline and standards for Vocational Training for the Saudi Arabian Desalination Plant (attached ANNEX I), and the both parties (SWCC and JICA Delegation) agreed on the presentation by JICA delegation.

10. JICA delegation requested to SWCC that the On-The-Job Training will be implemented mainly in the Yanbu Desalination Plant, and when the necessity arises, it will be implemented in the Plants around West Coast of Saudi Arabian.

11. JICA delegation is requested to send to SWCC all documents for any further meeting before the commencement of the meeting to give SWCC time to study them.

After discussion JICA delegation agreed to include all the points mentioned above in the proposal draft.

14.12/82

Masao Yamada

December 14, 1982

ANNEX I

Outline and Standards for Vocational Training for the Saudi Arabian Desalination Plant [redacted]

The Training Outline and the Training Standards herein have not been formulated as a result of detailed surveys but of information already obtained.

Some of this information may not be accurate nor certain. Therefore, the Outline or the Standard should be accepted as examples, because they may not apply precisely to this case.

Before practising these "examples", please note the clarifications below.

1. General Conditions

a. Excellent instructors are necessary. The basic knowledge and skills of the instructor should be at least equivalent to those of an engineering college graduate who has specialized in machines or electricity and has good experience in training or education. This is necessary because the instructor should be capable of reading various design plans, wiring plans, etc., be fairly skilled in drawing, and be knowledgeable and skillful in handling various measuring instruments, planning & scheduling works, and so forth.

b. There should be a good prospect of securing the required number of trainees. Unfilled vacancies would result in poor operational effectiveness, etc., and also hinder the proper placement planning of the training course graduates. Therefore, vacancies should be avoided as much as possible. If the number of trainees is small, it will be difficult to formulate curriculum and training schedules.

c. In order to accomplish the training purposes, it is important to secure trainees who meet certain standards. These applicants should then take an impartial entrance examination.

2. Conditions for Conducting Operating Training

a. The standard for trainees should at least be equivalent to that of high school graduate, Technical High school graduate and Intermediate school graduate given one year intensive course.

A desalination plant, though not as difficult to operate as a petro-chemical plant, cannot be taken lightly, because it contains boilers, turbines, high-pressure pumps and other hazardous, large equipment.

Even an engineering senior high school graduate can barely, at best, become an operational assistant when the training course is finished.

b. Machines used for training should be uniform. Since the operation of the plant equipment should be controled in line with a flow series, no proper training can be made with incompatible equipment.

3. Conditions for Conducting Maintenance Training

The standard for trainees should at least be equivalent to that of a High school graduate, Technical High school graduate and Intermediate school graduate given one year intensive course.

5. ミニッツ（訓練部門）：

昭和５８年４月３日　署名（於リヤド）

Minutes of Meeting
between
The Japan International Cooperation Agency Survey Team
and
The Saline Water Conversion Corporation
of The Kingdom of Saudi Arabia
on
The Technical Cooperation for the
Sea Water Desalination Training Center Project

The Japanese Survey Team organized by the Japan International Cooperation Agency (hereinafter referred to as The Team), headed by TOSHINAO URABE, visited the Kingdom of Saudi Arabia from April 1, 1983, for the purpose of working out the program on the technical cooperation for the Sea Water Desalination Training Center Project between the Kingdom of Saudi Arabia and Japan (hereinafter refferred to as the Project) with officials of the Saline Water Conversion Corporation of the Kingdom of Saudi Arabia.

1. The Team presented the conceptional design of the Training Center to the Saudi side. It is to be noted that the present conceptual design is subject to modification after further study on the training program of the Center.

2. The Team and SWCC reendorsed the Minutes of Meeting of the precedent JICA Delegation, signed on December 14, 1982. The Japanese side prepare a training program of the Training Center of which the main target would be to develop Saudi Arabian assistant operators and assistant maintenance engineers, eligible to execute the daily operation and maintenance activities of the desalination plant. It is to be noted that for actual operation of desalination plants, supervision of experienced senior engineers are necessary to compliment the work of Training Center graduates.

3. The Team stated that the next survey team will visit Saudi Arabia on the later half of the month of July in order to present equipment list, modified conceptional design of facilities and training conditions according to further elaborated training curricula. The Saudi side requested that the curricula and equipment listed would be in detail as much as possible.

Leader of Japanese Team
Mr. ~~Naoharu~~ Toshinao Urabe

Director Training of SWCC
Mr. Abdulaziz A. Sulaiman

Date: April 3, 1983

6. ミニッツ（研究部門）：

昭和５９年５月２１日　署名（於リヤド）

Minutes of Meeting

SWCC and the Japanese Team for Research agreed on the following matters on May the 21st, 1984.

1. Both SWCC and the Japanese Team for Research agreed on the earliest possible establishment of the Research Center, since both sides, who are deeply interested in the project and willing to devote necessary resources, wish to implement the Record of Discussion of January 1982 in the best way.

2. Both sides SWCC and JICA agreed to modify the original design (conceptual design document No. SAJ 303) to the design shown in Appendix 1. The modified design includes the areas for Research and Testing Buildings whereas the administration and library will be allocated in the existing administration building at Yanbu (Appendix 2). JICA agreed to study both designs and amend the conceptual design Document No. SAJ 303 to suit the modified (proposed) design and submit it to SWCC no later than July 1, 1984.

3. JICA will start procurement of the test plants and research equipments and SWCC will start the necessary procedures for construction according to the schedule attached in Appendix 3.

4. JICA will send two representative engineers who will assist SWCC for detail designing by a contractor/consultant, as soon as JICA is informed by SWCC at least one month in advance, for one-month period.

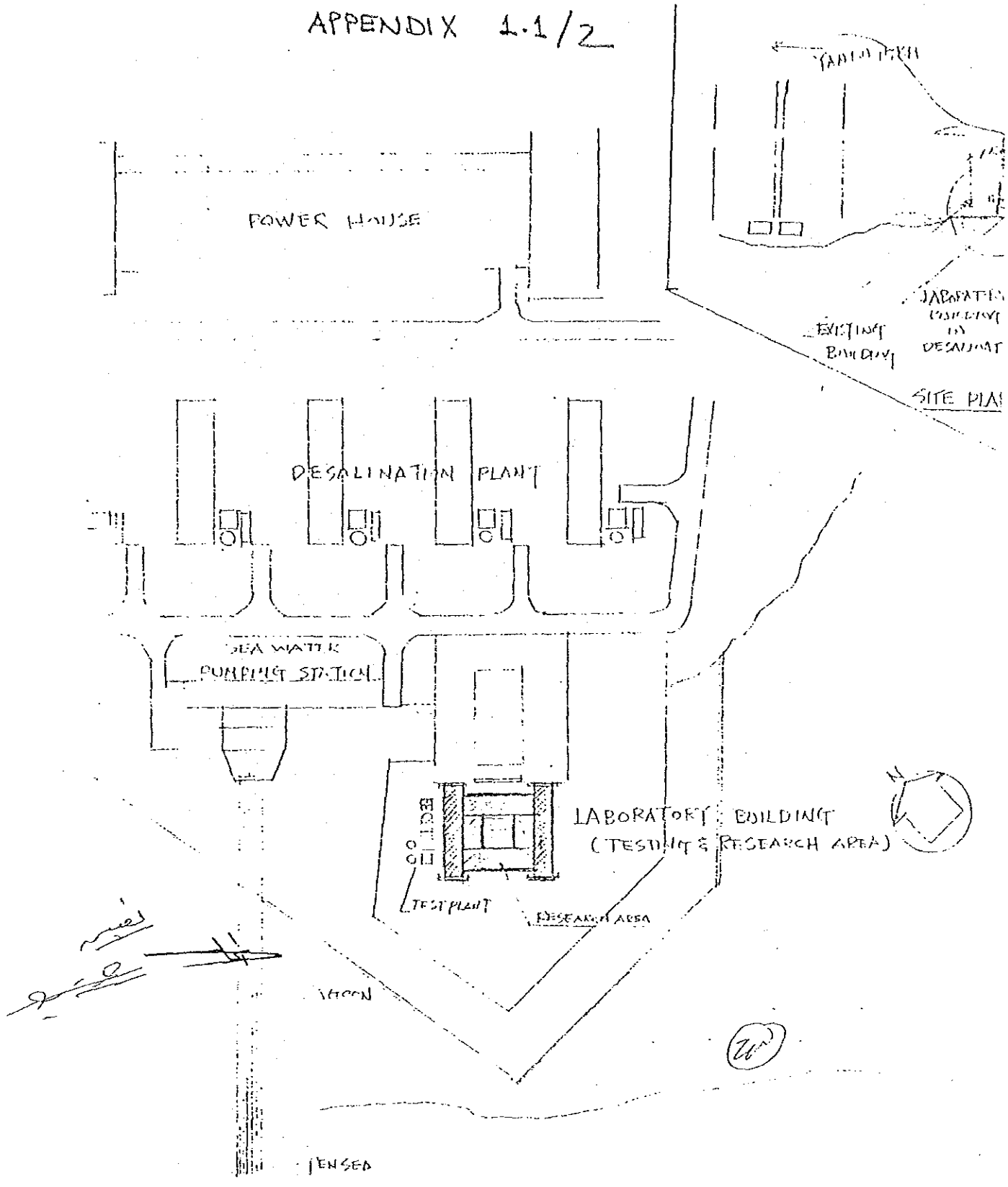
5. JICA will send experts of research activities on October this year, who will cooperate with SWCC counterparts for making detailed research planning.

Dr. Abdulaziz Al-Mujahid
Acting Deputy Governor
for Technical Affairs and Projects
SWCC

F. Wada

Fumio Wada
Leader
Japanese Team for Research
JICA

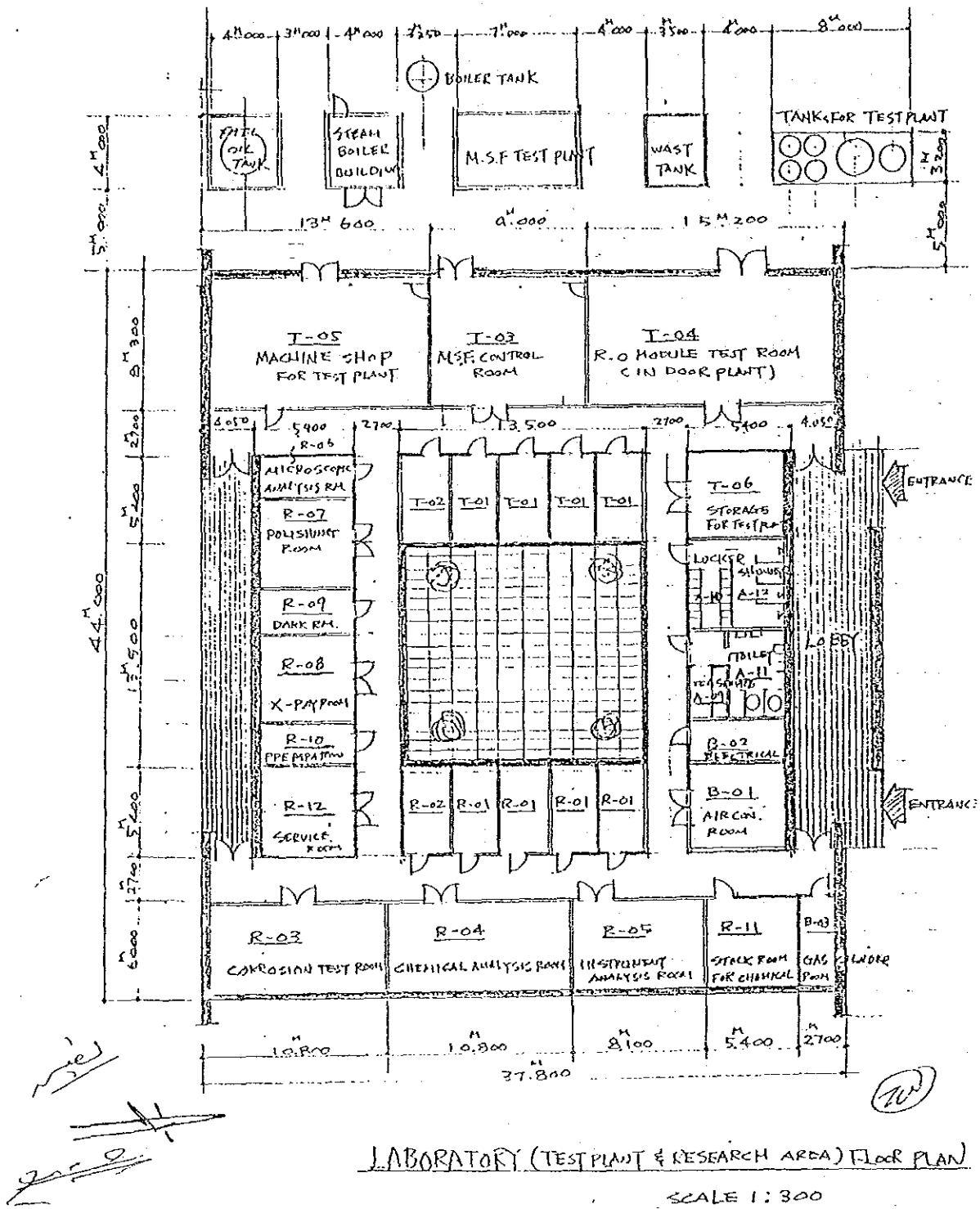
APPENDIX 1.1/2



CONCEPTUAL DESIGN FOR
LABORATORY BUILDING
(TESTING & RESEARCH AREA)

SITE PLAN

APPENDIX 1.2/2



LABORATORY (TEST PLANT & RESEARCH AREA) FLOOR PLAN

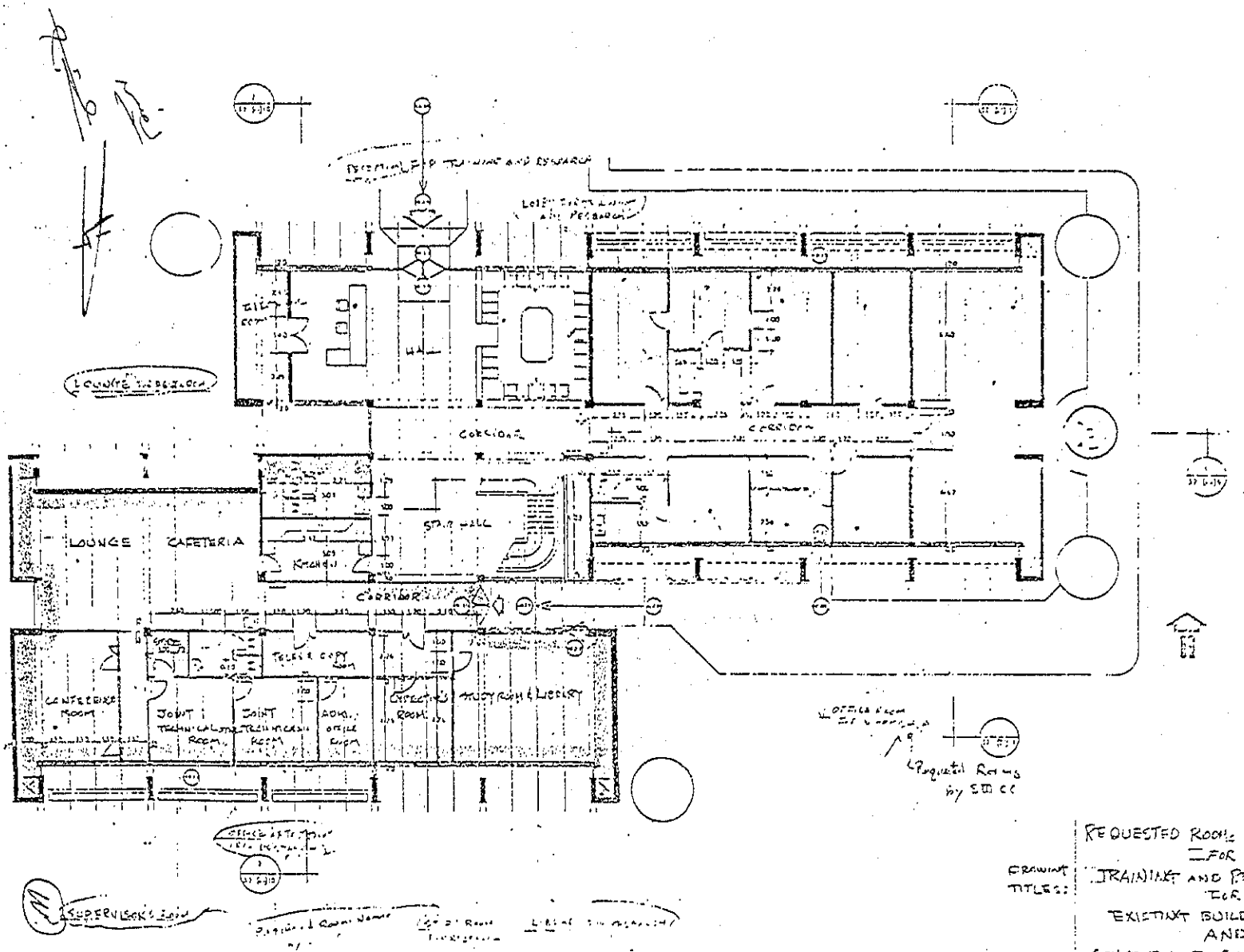
SCALE 1:300

CONCEPTUAL DESIGN FOR LABORATORY FLOOR PLAN

DATE MAY 18th 1984

PREPARED BY JICA.

NOTE The each rooms equipments layout should be referred to "CONCEPTUAL DESIGN FOR LABORATORY BUILDING OF DESALINATION RESEARCH PROJECT (DOCUMENT NO. SAJ 303 -AUGUST 1982- and the "detailed information of test plants facilities" of December 1983.



CONCEPTUAL FLOOR PLAN FOR ADMINISTRATION AREA

REQUESTED ROOMS BY SWCC FOR TRAINING AND RESEARCH CENTER FOR EXISTING BUILDING (GROUND FLOOR) AND CONCEPTUAL FLOOR PLAN FOR REASSIGN (SIC) BY JICA

Drawing Title:

APPENDIX 2

APPENDIX 2

APPENDIX 3

TENTATIVE IMPLEMENTATION SCHEDULE FOR THE RESEARCH CENTER BEFORE ITS START OF OPERATION

STAGE	UNDERTAKINGS		Y / M	1984 4 6 8 10 12	1985 2 4 6 8 10 12	1986 2 4 6
Test Plant & Test Area	JICA	Amend the Conceptual Design		21/5 — 1/7		
	SWCC	Detailed Design Construction Civil Work		1/7 —	— 1/10	
	JICA	Procurement Transportation		1/6 —	Arrival 1/7 ↑ Installation & Trial Operation — 1/10	
Research Area	SWCC	Detailed Design Construction Civil Work		1/7 —	— 1/10	
	JICA	Procurement Transportation Installation		1/6 (Order - Made) (70%) —	Ist Arrival 1/7 ↑ (Ready - Made) 2nd Arrival 1/4 (30%) 24/12	
Research Activities	SWCC JICA			Detailed Research Planning 1/10 — 1/3	Preparation for Research 1/4 — 1/12	Commencement of Research 1/2 →
				1984	1985	1986

7. ミニッツ（訓練部門）：

昭和５９年５月３０日　署名（於リヤド）

MINUTES OF MEETING
ON
THE TECHNICAL COOPERATION FOR THE SEA WATER DESALINATION TRAINING CENTER PROJECT

The Team organised by the Japan International Cooperation Agency
(hereinafter referred to as "JICA") discussed with the Saline Water Conversion Corporation
(hereinafter referred to as "SWCC") on the technical cooperation for the Sea Water Desalination Training Center Project and agreed on the following matters:

1. The training target, qualification of trainees, training courses and training period are as stated in the Conceptual Design document submitted to SWCC in August 1983.

2. The following items of the training plan, building and facilities, as stated in the above mentioned Conceptual Design document, will be modified, according to the request by SWCC, to utilize the existing Administration building at Yanbu as a part of the Training Center;

   (1) Number of Trainees;

   Number of trainees for each course will be fifteen (15) and total number of trainees at the Training Center will be one hundred and five (105).

   (2) Number of Instructors

   Total number of instructors will be twenty five (25) i.e seven (7) instructors, and eighteen (18) assistant instructors.

contd on page - 2 -

(3) Building and Facilities

The existing Administration building will be used only for administration and classrooms after remodeling.

Annex (Workshop for Operation and Maintenance) will be built.

3. JICA will submit to SWCC a conceptual design related to the remodeling of the existing administration building and construction of Annex, together with Training Plan and Equipment Layout.

4. JICA and SWCC will take necessary measures in accordance with the guideline of the attached working plan.

Riyadh,
May 30, 1984

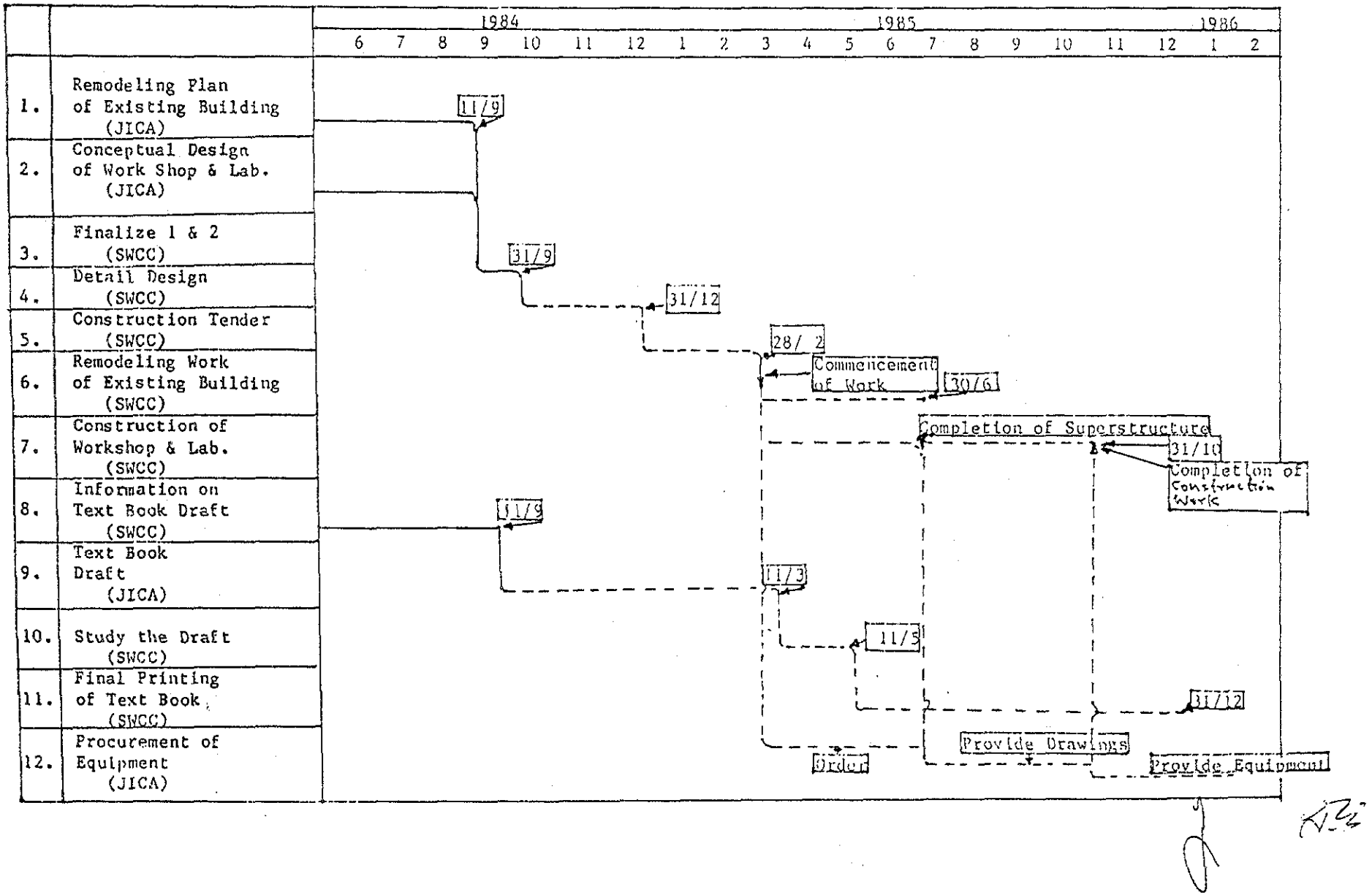
Abdul Aziz Mohammed Al Mujahed
Acting Deputy Governor
for Technical Affairs and
Projects,
SWCC

Takatoshi Seguro
Head of Japanese Team
for Training,
JICA

8. ミニッツ（研究・訓練部門）：

昭和60年2月13日　署名（於　東京）

Guide Line of Working Plan.



MINUTES OF MEETING

A meeting was held between the delegation from SWCC and JICA (a list of attendants is attached as appendix I).

In the beginning of the meeting JICA presented an agenda (appendix II), upon which both sides discussed as follows:

1. Shipment and Storage of equipment

(1) SWCC side requested that JICA should delay the shipment of the equipment, because SWCC does not have any ware houses in the plant site to store them untill the completion of the research center, nor SWCC could construct a new ware house suitable for storage of equipment.

(2) JICA side replied that JICA cannot delay the shipment, firstly because JICA and SWCC should follow the schedule determined in the M/M (May 21, 1984), secondly because the fiscal year in Japan ends in March, 1985, by which JICA is severely required to complete all expenditure.

(3) JICA side proposed that the JICA team (which is scheduled to be dispatched to Saudi Arabia in March 5, 1985) and SWCC team discuss the storage of equipment.

JICA side believes that the best possible building for the storage of equipments could be the existing administration building in Yanbu.

SWCC side still iterated their opinion, however, SWCC's final decision will be made after the visit of JICA team. In the mean time JICA should not ship any equipment until this matter is agreed upon.

2. SWCC-engineers to be trained in 1985

(1) SWCC side commented that SWCC-engineers may not come to Japan except after the equipment arrives at Yanbu site or just before the shipment.

(2) JICA side replied that Training Affairs Department of JICA will send information (in response to SWCC's questionnaire) regarding the fields and timing of the training of SWCC-engineers.

3. Next JICA team to be dispatched to Saudi Arabia

JICA is going to dispatch a study team on March 5, 1985 in response to the recent request of SWCC.

4. Materials to be used during the operation of the test plant

JICA will prepare time schedule regarding the use of these materials (including kinds and quantities) by the beginning of the research activities, so that SWCC can procure the materials in time in case it complies with the SWCC's responsibility as per R/D.

5. Workers required for the installation of the equipment

JICA will prepare time schedule and man-months of workers needed to install the equipment when the schedule of the research center construction is presented by SWCC to JICA, in order for SWCC to supply the workeers in case it's part of SWCC responsibility as per R/D.

6. Living environment of the Japanese specialists

(1) JICA side requested that the Japanese specialists are to be convieniently provided with some services and facilities by SWCC, which shall be discussed in detail when the research schedule is set.

(2) SWCC side stated that any arrangements will be made available as mutually agreed in the R/D.

7. SWCC side stated that any question in written form may be asked by JICA through official channel and SWCC will clearly answer to these inquiries.

8. JICA side inquired about the schedule of construction of the research center and the time for appointment of SWCC joint technical team members. SWCC will answer officially to these inquiries as soon as possible.

Date : February 18, 1985
Place: JICA, Tokyo

AHMED M. AL MUDAIHEEM
Deputy Director General,
SWCCEP

KEIJI MIURA
Director,
Mining & Industrial
Planning and Survey
Department, JICA

ABDULLA A. AL-AZZAZ
Acting Director General
of Research and Technical
Affairs, SWCC

NASSER AL JARBA
C. Engineer,
Construction Department.

APPENDIX 1

MEMBER LIST OF THE MEETING

Saudi Arabian Side

AHMED M. AL MUDAIHEEM	Deputy Director General, SWCCEP
ABDULLA A. AL-AZZAZ	Acting Director General of Research and Technical Affairs, SWCC
NASSER AL JARBA	C. Engineer, Construction Department

Japanese Side

Mining & Industrial Planning and Survey Department

HARUO SUZUKI	Head, Natural Resources Division
MASATAKE KITAJIMA	Deputy Head, Natural Resources Div.
KATSUHIKO OZAWA	Natural Resources Div.

Social Development Cooperation Department

NOBUJI ABE	Deputy Director, Social Development Cooperation Department
TOMOCHIKA UCHIDA	Deputy Head, Overseas Center Division
KAZUAKI HAYASHI	Overseas Center Division

Consulting Engineers

YOSHIO MURAYAMA
TAKEO SAKAMOTO
EIJI TANABE
YOSHIHIKO KONISHI
KEIZO ORIHASHI
MASAICHI WATANABE
MINORU TANAKA

Appendix - II

February 15, 1985

Agenda

The purpose of this agenda presented by JICA is for the smooth implementation of the project through discussion in accordance with "Record of Discussion".

1. The latest progress of the schedule taken by JICA

Shipment:	End/March 1985
Selection of specialists:	Midyear/1985
Dispatch of personnel for installation:	At completion of building

2. The latest progress of the schedule taken by SWCC.
3. The schedule and the preparation based upon it for receiving the test plants and the laboratory equipments provided by JICA.

   For example:

   Construction of laboratory building and sea water intake.

   Preservation of equipments.

   Wiring up to B.L. and the like.

4. The time for dispatch of JICA JTT members.
5. The time for appointment of SWCC JTT members.
6. Items to be confirmed.

   6.1 SWCC will take necessary measures to meet:

   [1] Supply of chemicals used routinely in the SWCC plants, or easily available on the market in Saudi Arabia for the operation of the test plants.

For example:

Sulfuric acid, Belgard EV and the like.

[2] Expenses for chemicals and new materials indispensable to the practice of the revised research themes.

For example:

Copper sulfate, new alloy tube and the like.

[3] Operating costs for research activities such as commodities, articles of consumption as well as chemicals for tests in the laboratory.

[4] Expenses for communication with JICA headquarters such as telex, telephone and mail.

[5] Expenses for the internal travel of the Japanese specialists in Saudi Arabia on duty.

6.2 Living environment of the Japanese specialists.

[1] The accommodation

[2] Vehicles with drivers

[3] A medical institution and medical expenses

[4] Meals and shopping

6.3 The workers required for the installation of the test plants and laboratory equipments under the supervision of the Japanese specialists.

6.4 The intake facilities of sea water without the dosing of any disinfectant for the evaluation of the UV radiation.

Supplement

S-1 The schedule and the details of the practice related with two Saudi Arabian experts to be sent to Japan in April-May 1985.

9. 調査団派遣実績及び経緯等

9. 調査団派遣実績及び経緯等

9－1 調査団派遣実績

派遣期間	内容
団長	
① 54. 8. 31 — 9. 9 岸田静夫 JICA 理事	基本R／D署名（アルシェイク農業水利大臣－岸田）
② 54.11.29 — 12.27 後藤藤太郎 工技院，プロセス開発部第1課長	R／D締結に際しての問題点を確認
③ 55. 2. 15 — 3. 1 後藤藤太郎	JTTの定義づけ等，R／D締結に向けて打合せ
④ 56. 3. 4 — 3. 31 岸田静夫	Work Shop，訓練機能を本計画に含めることで合意
⑤ 57. 1. 6 — 1. 15 岸田静夫	細目R／Dに署名（アルシェイク農業水利大臣－岸田）
⑥ 57. 3. 20 — 3.30 古川直司 鉱計部長	MSF・ROに関する調査を開始することを合意
⑦ 57.10. 9 — 10.28 村山義夫 造水促進センター	“リサーチセンター概念設計書”を「サ」側原則合意
⑧ 57.12. 8 — 12.25 山田政雄（訓練） 労働省職訓局	事前調査
⑨ 58. 8. 23 — 9. 2 村山義夫	研究計画につき打合せ
⑩ 58. 8. 23 — 9. 3 星秀明（訓練） 外務省技協2課	訓練計画につき協議

派遣期間	内容
団長	
⑪ 59. 5. 11 — 5. 22 和田文雄 鉱計部長	下記につき合意 (1) 既存建造物を管理棟として使用 (2) 研究棟及びテスト・エリアは淡水化プラント隣接地に新設 (3) 60年10月に淡水化プラントを竣工
⑫ 59. 5. 24 — 6. 3 目黒孝敏（訓練） 外務省技協課	計画打合せ
⑬ 59. 8. 3 — 8. 20 原田利夫 造水促進センター	概念設計書の説明
⑭ 59.11. 3 — 11.12 堀順三 造水促進センター	研究テーマ打合せ
⑮ 60. 3. 3 — 3. 16 阪本武雄 造水促進センター	(1) 研究テーマ骨子合意 (2) 研究関係D／D指導 (3) 供与機材保管に関し打合せ (4) 「サ」側研究センター竣工延期（61. 4末）を表明
⑯ 60. 3. 3 — 3. 16 林和昭 ＪＩＣＡ	(1) C／Dの説明 (2) 供与機材に関し協議 (3) 訓練計画の進め方協議 (4) 「サ」側訓練センター竣工延期（61. 7末）を表明
⑰ 60. 7. 25 — 8. 3 鈴木治夫（研究） 矢追秀敏（訓練） ＪＩＣＡ	R／D延長協議
⑱ 60.11.21 — 11.27 五十嵐晃一 労働省	計画打合せ

9－2　経緯及び「日」「サ」双方の主要提案事項

年月日	経緯	「日」「サ」双方の主要提案事項	
		日本側	サウジ側
昭50年11月	SWCC（海水淡水化公団）ファイザル総裁来日		共同研究の可能性について非公式な協力要請があった
昭51年7月			SWCCモハメッド総裁，日本側との技術協力の意向表明
昭52年11月	これに対し，通産省東工試東所長を団長とするミッションを派遣	次の具体的提案を行う。 500㎥／日，コンクリート缶体MSテストプラント。研究所建設5カ年計画（約20億円，うちJICA10億円）	
昭53年2月	JICA鉱計課長を団長とするJICAミッションを派遣	R/D案をSWCCに提示	予算，費用分担，合意の形式についてはSWCCの権限外で企画省の権限に属す
昭53年3月	在サウジ日本大使（山本大使）よりナーゼル企画大臣宛R／Dを提出		
昭54年9月	基本 R/D 締結		＜以下の点につき合意＞ ①材料研究所の設置 ②テストプラントの建設 ③細目合意書を速やかに締結
昭54年12月	第1次細目折衝	①合意書名をR／Dとする。 ②署名者名，JICA及びSWCC	①Agreementを希望 ②JICA，SWCC，造水センター及び両国大臣の署名を希望 ③その他特許条項，費用支出の「日」「サ」デマケーションの明記等をR／Dに入れることを要望

年月日	経緯	日本側	サウジ側
昭55年2月	第2次細目折衝	①「日」「サ」経費負担の増分が生じた際の負担者等について協議。 ②Joint Technical Team の編成他について協議	「サ」側が負担することで合意
昭56年1月	第3次細目折衝	○右は大幅な協力変更を余儀なくされるので再検討する。	○コンクリート缶体テストプラントの廃止を提案 ○訓練センターの設置を提案
昭56年3月	第4次細目折衝	○プラントの操作維持管理のため，機械工作，溶接配管，電気，及び計装の4つのWork Shop の設置を提案，合意書のタイトルをR／Dとする ○コンクリート缶体テストプラント廃止につき合意	○日本側提案の4 Work Shop に加え，ボイラータービン，淡水化プラント，ポンプを加えること等を提案 ○合意書のタイトルをR／Dとすることで合意 ○「サ」閣議で承認後R／D署名を行うことを合意
昭57年1月	同年1月12日，アルシェイワ農水大臣とJICA岸田理事との間でR／Dに署名	R／D合意内容の概要 (1) 実施期間：昭57年～同61年の5年間（昭57年～同59年の間は準備期間） (2) 経費：日本側（9451 千ドル），「サ」側27,912 千ドルの合計37,363千ドル (3) プロジェクトサイト：ヤンブー (4) 協力内容：……詳細別添 1) Joint Technical Team の設置（「日」「サ」それぞれ2名，計4名で構成） 2) 訓練部門 3) 研究開発部門	

年月日	経緯	日本側	サウジ側
昭58年4月	「日」「サ」合同委員会　東京で開催 ナジャール研究部長（ＳＷＣＣ）来日，研究テーマ拡大に関するＳＷＣＣの新提案を提示		紅海岸全淡水化プラントのモニタリングの追加協力要請
昭58年8月	モニタリングの追加協力に対する協議ミッションを派遣	現行のＲ／Ｄの範囲内で協力することを提案	合意
昭59年2月			SWCCアル・ハミス副総裁から「既存建物を研究・訓練両センターとして使用したい」旨の要請
昭59年5月	上記要請に対する協議チームを派遣	既存建物を使用することの技術的，経済的困難性を説明	研究棟は従前通り新設し，既存建物は研究センターの管理棟として使用することで合意
昭59年7月	研究棟の概念設計書（修正版）を提出		
昭60年5月	昭59年5月にＭ／Ｍで合意したスケジュールにもとづき，供与機材を送付	ヤンブープラントサイト内に機材を保管することを提案	合意
昭60年7月	Ｒ／Ｄ延長協議ミッションを派遣		研究訓練施設建設費が予算を超えるため，訓練計画の縮小が必要となり，当初予定のＲ／Ｄ延長署名を延期したい旨要望
昭61年3月	Ｒ／Ｄ延長協議ミッションを派遣	Ｒ／Ｄが失効すれば本件協力の根拠を失う旨説明	Ｒ／Ｄ延長には閣議の承認が必要なので，それまで待って欲しい旨要望
昭61年4月	「日」「サ」合同委員会の開催	本件Ｒ／Ｄ延長を早く閣議で決定するよう申し入れ	
昭61年9月	在サウジ岡崎日本大使が国王拝謁の際，本件Ｒ／Ｄ延長促進を申し入れ		
昭61年9月	「サ」閣議でＲ／Ｄ延長を決定 （9月29日）		

年月日	経　　緯	日　本　側	サ　ウ　ジ　側
昭61年10月			ＳＷＣＣより，Ｒ／Ｄ延長を早期に締結したい旨，及び研究センターの既存ビル活用（改築）案等Ｒ／Ｄ延長に必要な検討事項につき協議したい旨，要望あり。
昭61年12月			ＳＷＣＣアバヌマイ副総裁より既存ビル改修計画打合せミッションの派遣方要請越す。

協　力　内　容　（Ｒ／Ｄ）

(1) ＪＯＩＮＴ　ＴＥＣＨＮＩＣＡＬ　ＴＥＡＭ

- 本プロジェクト実施の中心をなすもので，日本側２名，サウジ側２名の合計４名で構成される。
  双方の首府で毎年１回ＪＯＩＮＴ　ＴＥＣＨＮＩＣＡＬ　ＭＥＥＴＩＮＧを実施する。

(2) 人材育成

- ボイラー，タービン，脱塩，ポンプ，機械工作，溶接及び配管，電気，計装の８つの研修コースを設置。
- 年間３００人×２年間　合計６００人を訓練する。
- １０名の専門家を派遣して訓練の指導を行う。
- ４つの研修コース（機械工作，溶接及び配管，電気，計装）に必要な機材の供与。

(3) 研究開発

- ＭＳＦ（多段フラッシュ法）（２０㎥／日×１）及びＲ／Ｏ（逆浸透法）（２０㎥／日×２）テストプラントの供与。
- 材料研究所を設立して，腐蝕防止技術，スケール防止技術，化学分析，Ｒ／Ｏモジュールの性能評価を実施するとともに研究用機材を供与する。
- ６名の専門家を派遣する。

10. 理事会説明資料

（昭和60年9月27日）

10. 理事会説明資料

昭和60年9月27日
担当理事名：中　澤　理　事
事業費目：技術協力センター費
担当事業部名：社会開発協力部

プロジェクト方式技術協力事業の協力期間の延長について

案件名 ： サウディアラビア海水淡水化計画（訓練部門）

国　名 ： サウディアラビア王国

1. 協力期間（現行R／D）

昭和 57 年 1 月 12 日から昭和 61 年 3 月 31 日まで

2. 経緯及び協力実績

57 年 1 月にR／D締結後，建物及び訓練の基本構想の策定途上で，サウディアラビア側からセンター建設場所の変更，建物の設計変更，協力規模の縮小（訓練生数を300名／年から105名／年に縮小）等の要求が次々と出されたため，その都度，計画打合せ及び設計書の修正を余儀なくされ，本件プロジェクトの実施は大幅に遅れていた。

しかしながら，昭和 59 年 11 月に設計書，昭和 60 年 7 月に訓練用機材仕様書の合意を見，60 年 7 月に派遣した計画打合せチームから延長を協議する旨申し入れが行われ，今般本格的な協力が開始し得る運びとなった。

3. 事業の目的と達成度

目　的：サウディアラビア王国ヤンブ市郊外に海水淡水化訓練センターを設立し，サウディアラビア人の海水淡水化プラントの操作，保守及び修理要員を養成する。

達成度：サウディアラビア側の建物建設計画の大幅な遅れにより，現在までのところ，上記設計書及び機材仕様書の作成にとどまり，訓練実施による技術移転の協力までに至っていない。

4. 今後の協力内容及び訓練内容

協力内容：

(1) 機材の供与　2億4千万円（訓練用プラント2基，旋盤，フライス盤他）

(2) 教材（カリキュラム，訓練用教科書，教官用ガイドブック等）

(3) 専門家の派遣（長期8名）

(4) カウンターパート9名に対する日本での研修

(5) 訓練の実施

訓練内容：

訓 練 コ ー ス	訓練生数	訓練期間
機械保守コース	15	1年
配管保守コース	15	1年
電気機器保守コース	15	1年
計装機器保守コース	15	1年
ボイラー・プラント操作コース	15	1年
タービン及び発電機操作コース	15	1年
脱塩プラント操作コース	15	1年

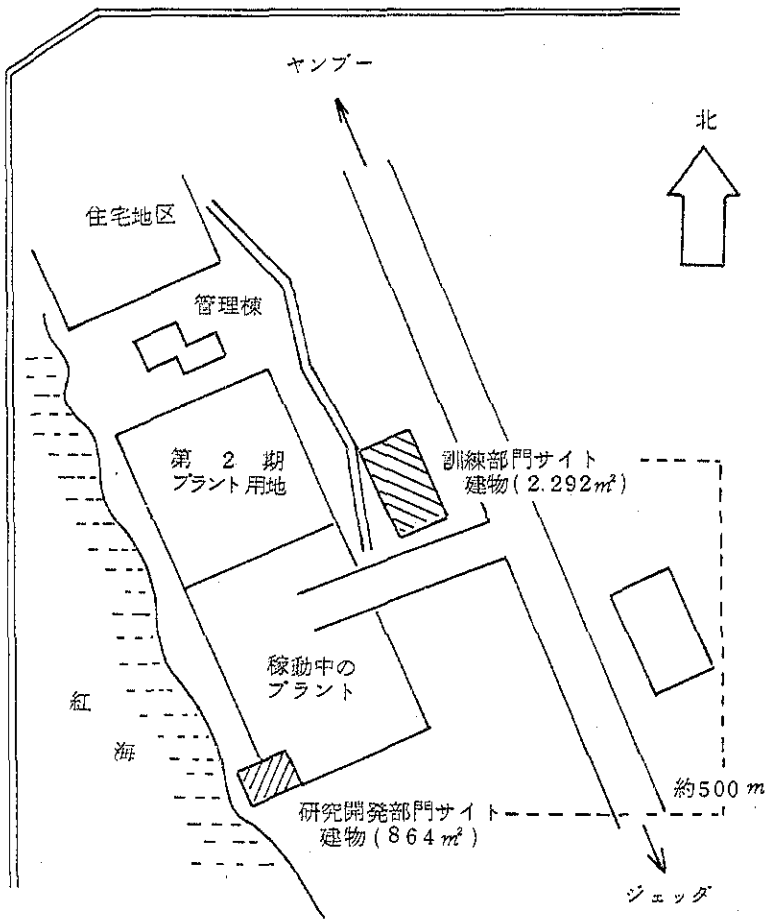
5. 対応方針案

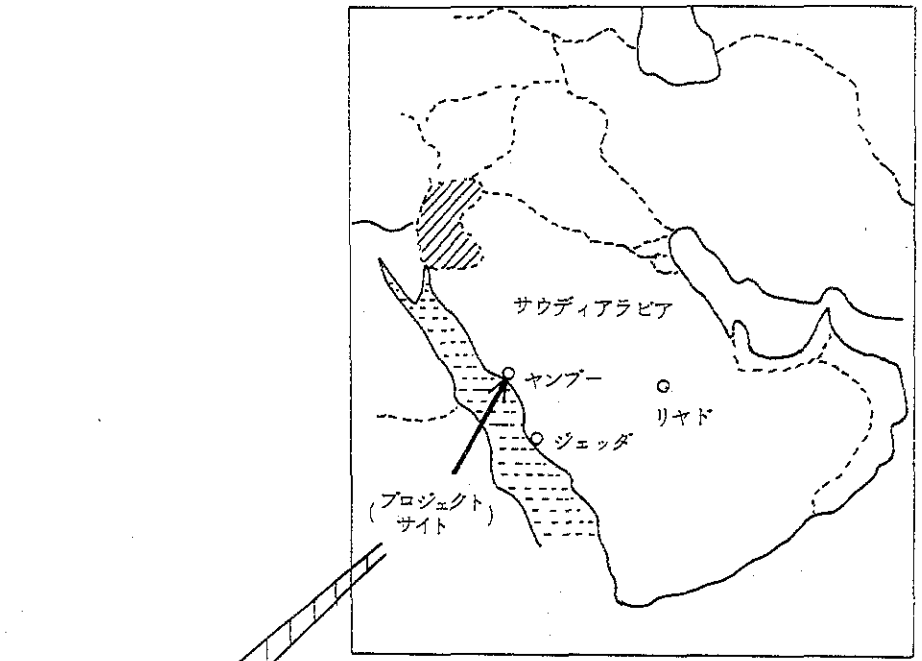
建物が昭和 61 年 12 月竣工予定であるところから，機材の据え付け工事等を考慮して，訓練開始は昭和 62 年4月となる予定である。その後，1サイクル1年の訓練を2回実施することとし，協力期間を昭和 64 年3月 31 日までとする。（3ケ年延長）

6. その他

本件プロジェクトと同一R／Dのもとに，鉱工業計画調査部主管の海水淡水化計画（研究部門）も並行して技術協力を実施中である。

プロジェクトサイト位置図





（参考資料）

1．背景と経緯

(1) 「サ」国は第２次５ケ年計画（１９７６～１９８０）の中で、大規模な工業化及び都市の整備に伴う工業用水及び生活用水を確保するため、造水設備投資のみならず、海水淡水化技術について共同研究開発を行いたい旨の意向を表明し、１９７７年１１月に本件共同研究開発に関する具体案を提示しわが国の協力を要請越した。

(2) 「サ」側の要請に基づき協議を重ねた結果、１９８２年１月のＲ／Ｄ協議時において海水淡水化プラントの運転訓練について追加要請があり、これを受け、研究開発に加え、訓練についても協力することとなりＲ／Ｄに署名し、研究開発については、鉱工業資源調査課（通産省）又、訓練については、海外センター課（労働省）により対応することとなり現在に至つている。

(3) １９８２年Ｒ／Ｄ締結後、訓練に係る建物、機材、訓練計画等について協議を重ね、１９８４年１１月に設計書、１９８５年７月に訓練用機材仕様書を「サ」側に提出し、合意に達した。又、訓練実施に必要なマスタープラン及び暫定実施スケジュールについても１９８５年７月に協議を行い、協力期間が延長される事を前提として合意に達した。

(4) 協力期間の延長については、１９８５年７月に派遣した計画打合せチーム団長名にて、今秋にも、協力期間延長に係る協議を行う旨書面により提案した。

(5) Ｒ／Ｄ署名から現在までの「サ」側との協議経過は、次のとおり。

1976年	海水淡水化共同研究開発の要請
1982年１月	Ｒ／Ｄ署名（訓練部門追加）‥‥５年間
1982年12月	訓練部門予備調査派遣（訓練要望の詳細調査及び訓練条件の提示）
1983年５月	訓練計画概要説明・協議
1983年10月	訓練計画（案）提示、説明
1984年２月	「サ」側から基本計画（建物及び訓練内容）の大幅な変更要請
1984年５月	暫定作業計画打合せ・協議
1984年８月	訓練基本計画等打合せ・協議
1985年３月	設計書（概念設計）説明・協議
1985年７月	延長問題も含め計画打合せ・協議、訓練用機材仕様書説明・協議

2．準備状況

(1) 日本側

① Ｒ／Ｄ協力期間延長協議の準備

② 教材開発の準備（６０年度内に英文版を完成の予定）

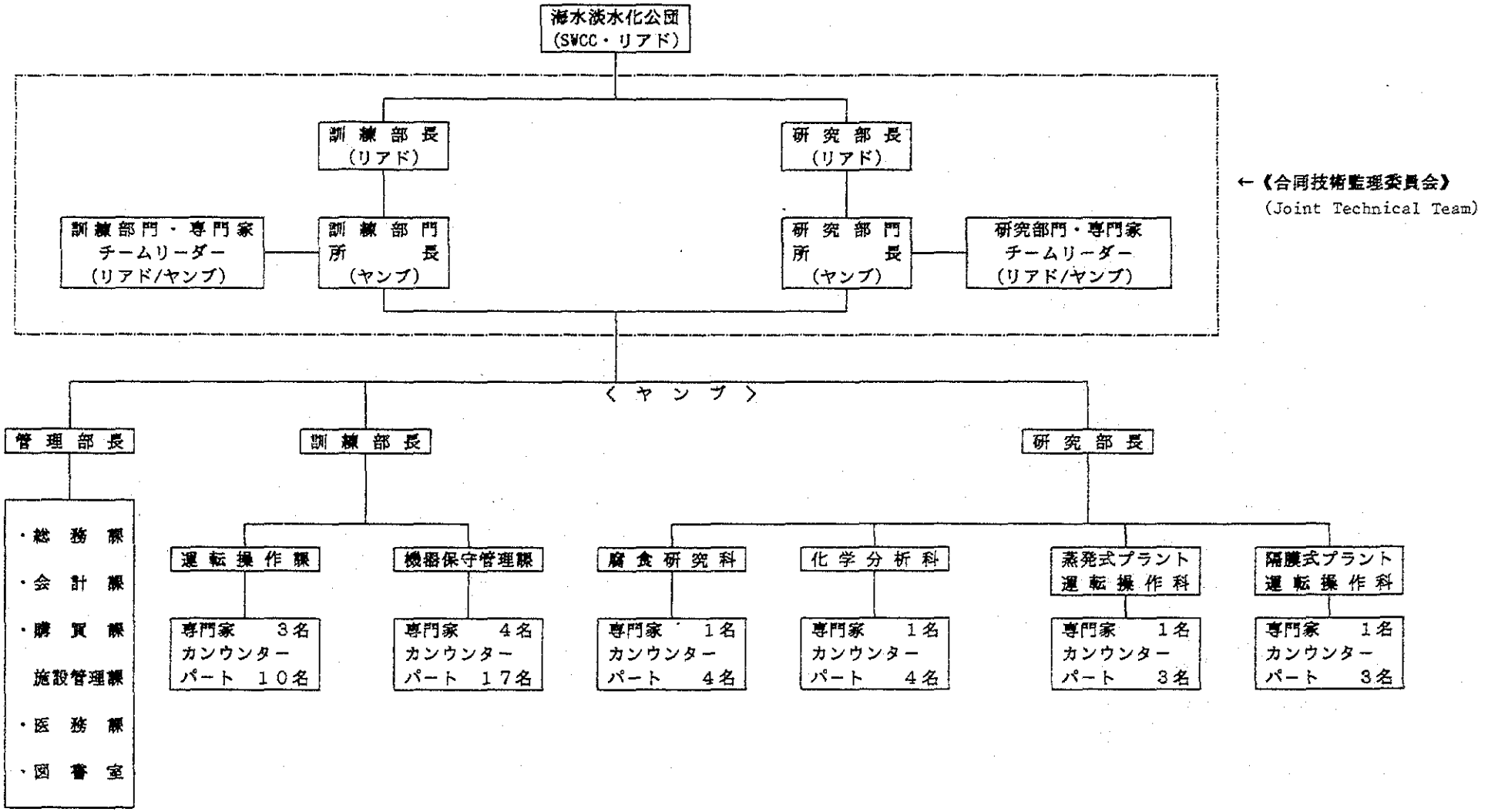
③ ＪＴＴ(JOINT TECHNICAL TEAM)メンバー１名の派遣の準備

(2) サウディ側

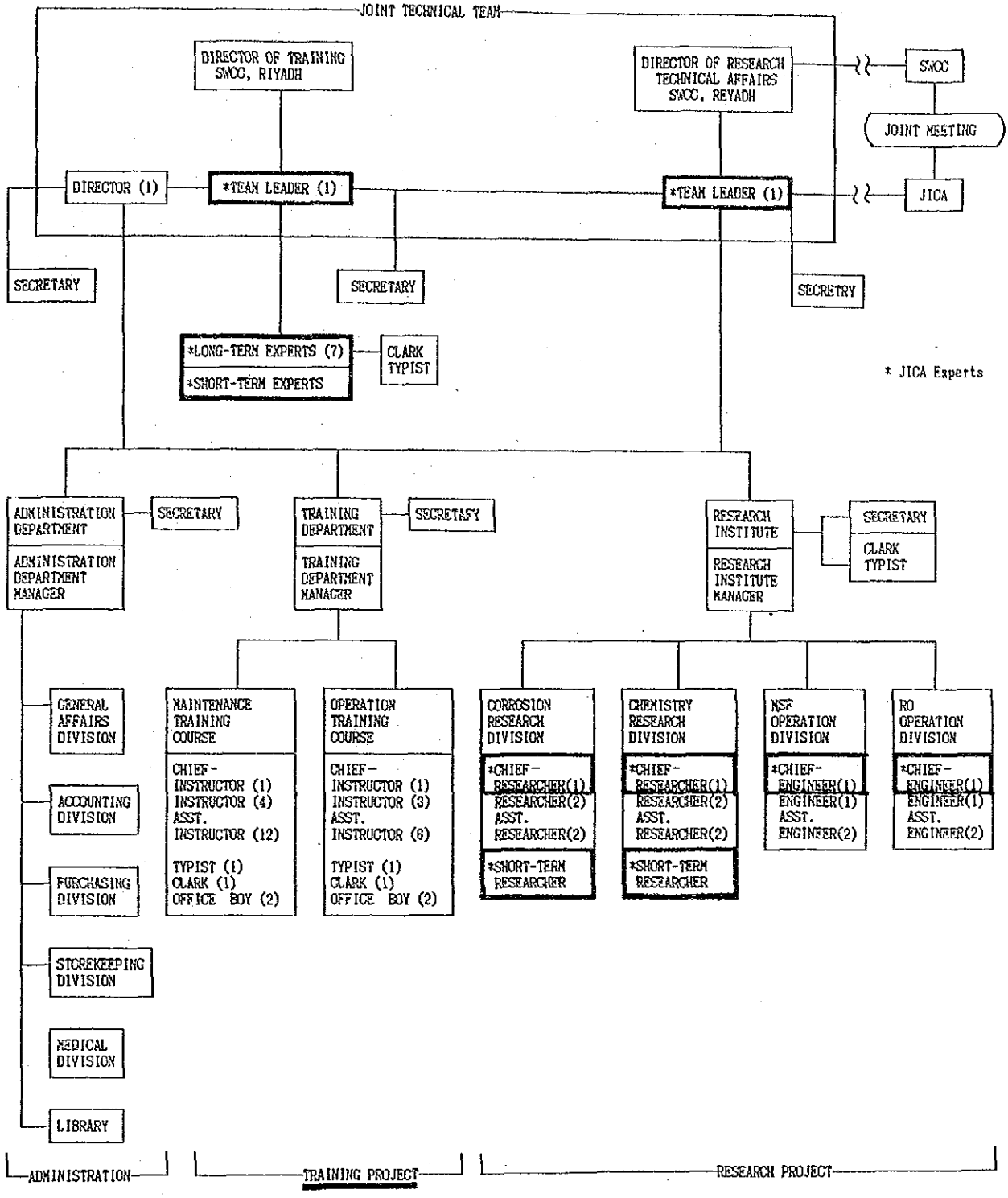
① 建物（訓練棟）の入札手続中。工事着工は１９８５年１２月の予定

②カウンターパートの配置の準備

組　　織　　図


海水淡水化公団
(SWCC・リアド)
訓練部長
(リアド)
研究部長
(リアド)
訓練部門・専門家
チームリーダー
(リアド/ヤンブ)
訓練部門
所長
(ヤンブ)
研究部門
所長
(ヤンブ)
研究部門・専門家
チームリーダー
(リアド/ヤンブ)
←《合同技術監理委員会》
(Joint Technical Team)
〈ヤンブ〉
管理部長
訓練部長
研究部長
・総務課
・会計課
・購買課
施設管理課
・医務課
・図書室
運転操作課
機器保守管理課
腐食研究科
化学分析科
蒸発式プラント
運転操作科
隔膜式プラント
運転操作科
専門家　3名
カンウンター
パート　10名
専門家　4名
カンウンター
パート　17名
専門家　1名
カンウンター
パート　4名
専門家　1名
カンウンター
パート　4名
専門家　1名
カンウンター
パート　3名
専門家　1名
カンウンター
パート　3名

ORGANIZATION CHART OF THE TECHNICAL COOPERATION FOR THE PROJECT
ON SEA WATER DESALINATION TECHNOLOGY : SWCC - JICA



（日付：61年11月5日現在）

〔プロジェクト名〕　サウディ・アラビア海水淡水化訓練センター

1. R/D等署名日：57. 1. 12（54. 9. 6. に締結したR/Dを修正し訓練を追加）
2. 協力期間：57. 1. 12 ～ 61. 3. 31
3. 所在地：ヤンブー
4. 先方関係機関：サウディアラビア海水淡水化公団（SWCC）
5. 我が方協力機関：労働省
6. 要請の背景：「サ」国は淡水の供給の多くを海水淡水化プラントに依存しており，今後もプラント建設を継続する計画である。同国にとって海水淡水化は極めて重要な課題であり，そのためプラントの研究・開発に対する協力を我が国に要請越した。その後，プラントの操作，運転，メインテナンス要員を外国人に依存している現状から，外国人要員への依存脱却の目的で「サ」人の操作，運転，メインテナンス要員の訓練，養成をも要請してきた。
7. 目的・内容：海水淡水化プラント機器の操作，運転の補助要員及び機器のメインテナンス要員の訓練。
8. 現状・目標達成：57年1月，訓練分野協力に関する討議議事録に署名。57年12月，事前調査団派遣。協力案に関しおおむね了解取りつけ，並びにプロジェクト実施に要する条件を提案。しかしながら，59年4月相手側からプロジェクトサイトの変更を提案され59年5月に計画打合わせチームを派遣し，変更内容を確認し今後の検討をおこなった。59年11月に概念設計書をサ側に提出。60年3月に概念設計についての説明チームを派遣。60年7月に延長問題および協力内容協議チームを派遣。
9. 問題点：60年11月サ側より財政ひっぱくを理由に計画縮小の申し入れがあり，協力計画策定ができないとともに，協力期間が切れた状態にある。
10. 対処方針：サ側により，協力期間の延長及び計画縮小の内容が検討されており，その結果を待ち，対処方針を再構築する。

11. 専門家派遣
研修員
機材供与

年度	57	58	59	60	合計	61
長期	0	0	0	0	0	0
短期	4	7	7	0	18	0
研修員	0	0	0	0	0	9
機材	0	0	0	0	0	80

(注) 専門家・研修員は延人数，機材は金額で単位百万円。

12. 他の経済協力との関係（無償・有償・個別専門家派遣・その他）

なし

13. 評価：

14. 調査団：1) 事前調査 57. 12. 8 ～ 57. 12. 25

2) 実施協議 58. 8. 23 ～ 58. 9. 3

3) 計画打合 59. 5. 23 ～ 6. 3/60. 3. 3. ～ 3. 16/60. 7. 24 ～ 8. 3/60. 11. 21 ～ 11. 27

4) 巡回指導

5) エヴァリュエーション

15. 国内支援：国内支援体制整備費

視聴覚教材等整備費