

5-7 測量

5-7-1 本格調査実施内容

F/Sにおいて導水路の路線選定は1/25,000地形図で行っていることから、導水路の計画路線の検証を目的として1/10,000の地形図を作成する必要がある。この1/10,000地形図作成はScope of Worksに示すとおり、公共事業水資源省が図に示す範囲について地形測量、図化を実施することを保証している。

同1/10,000の地形図に基づき計画された導水路計画路線に沿い、D/D実施作業に必要となる導水路平面図、中心線及び縦横断測量、余水吐平面及び縦横断測量、No.7ポンプ機場平面及び縦横断測量を実施する。測量実施項目(案)の詳細は表5-4のとおりである。

表5-4 測量実施項目(案)

A) 平面図	縮尺： 1/1,000	等高線間隔 1 m		
	範囲： 開水路区間		幅300m×23.7km＝	7.11km ²
			カルバート、管路区間 幅200m×20.4km＝	4.08km ²
			合計	11.19km ²
B) 導水路中心線縦横断測量				
縦断面	延長44.1km			
	測点間隔：100m	縮尺： 横1/1,000	縦1/200	
横断面	測点間隔：100m	縮尺： 1/200		
	範囲： 開水路区間		幅300m	
			カルバート、管路区間 幅200m	
C) 余水吐平面、縦横断測量				
平面図	縮尺： 1/500	等高線間隔 1 m	範囲： 1,000m×7.0km＝	7.0km ²
縦断面	延長7.0km	測点間隔：100m	縮尺： 横1/1,000	縦1/200
横断面	範囲： 幅1,000m	測点間隔：100m	縮尺： 1/200	
D) 構造物平面、縦横断測量				
平面図	縮尺： 1/500	等高線間隔 1 m		
	範囲： 第7ポンプ機場		400m×400m＝	0.16km ²
			沈砂池(調節池) 300m×300m＝	0.09km ²
	合計			0.25km ²
縦断面	測点間隔：20m	縮尺： 1/1,000		
横断面	測点間隔：20m	縮尺： 1/1,000		
E) 基準点設置	ベンチマーク	： 4か所 (10kmに1か所)		
	コントロールポイント	： 50か所 (ベンチマークの補足として設置する)		

5-7-2 仮設備工

D/D実施にあたり、表5-5に示す仮設備（仮設道路、ストックヤード）についての測量も必要となる。しかし、これら仮設備は任意仮設として計画され、入札業者のプロポーザルを評価・検討するために必要となることから高い精度の設計、図面作成は必要ないと考える。このことから仮設備の設計、図面作成、積算については公共事業水資源省の実施する1/10,000地形図を利用して十分な設計精度が得られると考えられる。

表5-5 測量実施項目（仮設）（案）

仮設道路、ストックヤード			
仮設道路（国道から導水路及びポンプ場）			
縦断図	延長2.0km×2路線（導水路）+5km（ポンプ場）=7.0km		
	測点間隔：100m	縮尺：横1/1,000	縦1/200
横断図	測点間隔：100m 縮尺：1/1,000		
	範囲：50m		
ストックヤード			
平面図	縮尺：1/500	等高線間隔	1m
	範囲：導水路工事	：	200m×200m×3か所= 0.12km ²
	第7ポンプ機場	：	200m×200m×2か所= 0.08km ²
	パイプライン	：	200m×200m×2か所= 0.08km ²
	合計	：	0.28km ²

5-8 事業実施計画

事業実施計画には、計画の概要、経済・財務・技術面からの計画の実現性、実施体制、資金調達計画、全体計画、建設手法、手順及び関連地図、図面を含むものとする。

5-9 入札及び契約図書案の作成

- (1) 入札及び契約図書案の作成は、先行事業の関係図書を参考にするとともに、エジプト国の規定、基準に基づいて行う。なお、作成を必要とする図書は、表5-6に示す。
- (2) 国際融資機関による資金援助を受ける場合には、各機関の入札に関する指針を調査し書類内容の検討を行う。
- (3) 入札業者の資格審査については先行事業では特に実施されていないが、本工事におけるポンプ・電気施設、パイプライン施設の調達、建設については入札者の資格審査を明確にし、調達資機材の性能、品質、また工程管理の遵守に留意する必要がある。

(4) 入札図書には基本的に以下の項目を含むものとするが、作成時にはNSDOと十分協議し、最終的にステアリング・コミッティの承認を得る。

表 5 - 6 入札及び契約図書

1) 導水路工事

(a) Pre-qualification Documents / Invitation to Tender

(b) Tender Documents

- Instruction to Tenderers
- Conditions of Contract
- Contract Forms (Form of Tender, Form of Agreement, Form of Tender Bond, Form of Performance Bond, etc.)
- Detailed Description of Works, General/Technical Specifications
- Form of Bill of Quantities, Summary of Tender Price
- Tender Drawings

2) ポンプ・電気施設調達及び据付工事

(a) Pre-qualification Documents / Invitation to Tender

(b) Tender Documents

- Instruction to Tenderers
- Conditions of Contract
- Contract Forms (Form of Tender, Form of Agreement, Form of Tender Bond, Form of Tender Security, Form of Performance Bond, etc.)
- Detailed Description of Works, General/Technical Specifications including Testing, Trials and Inspections
- Bill of Quantities
- Forms of Design Data Schedules, Summary of Tender Price, Price List of Parts, Spare Parts, Maintenance and Repair Tools
- Tender Drawings

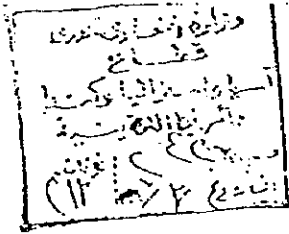
資 料

資料1. 要請書 (T/R)

資料2. 実施細則 (S/W)

資料3. 協議議事録 (M/M)

資料4. 収集資料リスト



ARAB REPUBLIC OF EGYPT
MINISTRY OF INTERNATIONAL COOPERATION
ASIA, AUSTRALIA, CANADA AND LATIN AMERICA
SECTOR.

MR. NOBUAKI ITO
Head of the Economic Section
Embassy of Japan
Cairo.

March, , 1997.

Dear Mr. ITO

Following to our letter No.900 dated September 15, 1996 concerning the list of priorities for the development surveys to be implemented during the Japanese physical year 1997.

Please find attached - herewith - the form which we received from the Ministry of Public works and water Resources regarding the detail design on water conveyance between Bir El Abd Zone and El Sir & El Kawareer Zone, including the pumping station (El Salam 7).

It will be much appreciated if you add such project to the above mentioned list.

While thanking you for your kind cooperation, Please accept my highest consideration..

Yours Sincerely .

Ahmed Ragaei Bakry
(Ahmed Ragaei Bakry)
Head of Sector

and best wishes,

E3/S2

REQUEST
FOR
TECHNICAL ASSISTANCE

I. Project Digest

1. Project Title: North Sinai Integrated Rural Development Project (Phase III)
Detail Design on Water Conveyance between Bir El Abd Zone and El Sir & El Kawareer Zone, including the Pumping Station (El Salam 7).

The Project above is a part of El Salam Canal and Shikh Gaber El Sabah Canal related projects which command eleven (11) zones of total gross area 620,000 feddan (about 260,000 ha).
Bir El Abd Zone is 10th and El Sir & El Kawareer Zone is 11th, those command areas of which are 70,000 feddan and 135,000 feddan respectively.

2. Location: North Sinai (See Location Map).
3. Responsible Agency: Ministry of Public Works and Water Resources (MPWWR).
Executing Agency: North Sinai Development Organization (NSDO) under MPWWR.
4. Justification of the Project

In Egypt, the extremely dense population of Nile Valley is a century-old problem. One of the plans formulated by the Government of Egypt (GOE) to ease this problem is El Salam Canal and Shikh Gaber El Sabah Canal related Projects. The projects aim to irrigate the agricultural lands in the north-eastern Nile Delta, and northern Sinai with a total area of 620,000 gross-feddan, which will absorb thousands of people out of densely populated areas. The projects consist of El Salam Canal (1st phase) and Shikh Gaber El Sabah Canal (2nd phase), of which benefit areas are 220,000 gross-feddan and 400,000 gross-feddan respectively. The irrigation water is composed of major source of the Nile River discharge and the drainage from Bahr Hadous and El Serw drains with a mixing rate of 1:1.

- El Salam Canal on the Western Bank of Suez Canal
The El Salam Canal is from Damietta intake to Suez Canal with a length of 87 km long, which commands 220,000 feddan. Two (2) pumping stations lift up water into following part of the canal and one drives drainage water of Bahr Hadous drain into the canal.
- Shikh Gaber El Sabah Canal on the Eastern Bank of Suez Canal.
The Shikh Gaber El Sabah Canal is an extension of El Salam Canal on the east bank of Suez Canal in Sinai peninsula. Detail design up to 86.5 km from Suez Siphon, commanding 265,000 feddan, was completed and the construction is now progressing. Remaining 135,000 feddan is related to El Sir & El Kawareer Zone accompanying about 44 km water conveyance with one (1) pumping station, and the feasibility study has now been finished.
- Suez Siphon
Suez siphon, crossing under Suez Canal, connects El Salam Canal and Shikh Gaber El Sabah Canal. The siphon is to be completed by the middle of 1997 with a total length of 820 m.

El Sir & El Kawareer Zone is the last reclaimed area related to Shikh Gaber El Sabah Canal. The zone area is 135,000 gross-feddan (57,000 ha), and the Feasibility Study have been carried out in

collaboration with JICA as a technical cooperation from March, 1996 to March, 1997. As of January, 1997, the Draft Final report was prepared and submitted to NSDO.

According to the Feasibility Study, the Project in El Sir & El Kawareer Zone will consist of such six (6) components as 1) water conveyance construction and Pumping Station (Salam 7), 2) land reclamation, and irrigation and drainage system construction, 3) on-farm irrigation and drainage facilities construction, 4) agricultural development supporting, 5) settlement and social infrastructure, and 6) agricultural and live stock processing industry development. These details are shown in Appendix A.

In response to the Project investment cost of the components mentioned above, overall agricultural benefit quoted in economic price reaches to an estimated LE 576.8 million in full development stage of the project, including agricultural processing and marketing benefits of estimated LE 84.6 million in total. Based on the cost and the benefit, the economic internal rate of return (EIRR) and net present value (NPV) are calculated at 11.25% and LE 190.6 million respectively in terms of the project life of 50 years. The Project will also settle about 23,000 households (120,000 population), thus mitigating high population density. Accordingly, the implementation of the Project is justified in view of the national economy.

Among the above components, the cost related to the water conveyance construction and the P.S. (the subject of this study) are as follows:

Cost of Water Conveyance System
and Pumping Station N°7

Item	Million L.E.		
	Local C.	Foreign C.	Total
1- Water Conveyance System	555,633	377,416	933,049
2- Pumping Station N°7	71,045	178,942	249,987
Total	626,678	557,358	1183,036

5. Implementation Program for Shikh Gaber El Sabah Canal Related Project
NSDO is responsible for implementing the Project with a schedule shown in Appendix B. According to the schedule, the irrigation water will be introduced into the whole reclamation area of 400,000 feddan in North Sinai at the year of 2002. (but introduced for the first stage at the end of 1997).

For El Sir & El Kawareer Zone, the detail design of water conveyance and P.S. will be carried out in one year from 1997 to 1998. Allowing for the construction of the same to begin on second mid of 1998 and to be completed in 2001. Land reclamation, irrigation and drainage system, on-farm irrigation facilities, settlement and social infrastructure will also be finished in 2001. Agricultural and livestock industry will be implemented between 2002 and 2010.

NSDO will establish a water management office in Kantara and local branches in order to manage main conveyance canal of 129 km from the Suez siphon to the end of El Sir & El Kawareer Zone. Beneficiaries will pay the expenses of on-farm agricultural activities. NSDO will organize water users association and establish branch offices to advice small farmers and graduates to manage the irrigation facilities.

6. Prospective Funding

A - Foreign Component:

A-(1)The fund of the Irrigation and Drainage Infrastructure for the North Sinai Development Project (NSDP) implementation is from the Kuwait Funds.

A-(2)The fund of the Electricity Infrastructure for the NSDP implementation is from the Saudi Funds.

B - Local Component:

The fund of the local component of the NSDP is from the Egyptian National Investment Bank.

II. Terms of References of the Studies

1. Necessity of the Studies

The Government of Egypt (GOE) intends to implement urgently the Shikh Gaber El Sabah Canal Related Project including El Sir & Kawareer Zone, since the Feasibility Study carried out by JICA has justified that the El Sir & Kawareer Zone shall be implemented. However, the Project requires a large budget and high technology for design and construction specially for water conveyance system including Pumping Station No. 7 to be constructed between Bir El Abd Zone and El Sir & El Kawareer Zone. Therefore, Government of Egypt (GOE) requests Government of Japan (GOJ) to carry out the Detailed Design and to prepare the Tender Document related to the "Water Conveyance System including Pumping Station No.7".

2. Objectives of the Studies

The objectives are to 1) carry out the Detail Design and 2) prepare the Tender Document to be required for the construction of water conveyance system and Pumping Station No.7 between Bir El Abd Zone and El Sir & El Kawareer Zone.

3. Study Area

The Study area is located in between Bir El Abd Zone and El Sir & El Kawareer Zone. The two (2) zones will be connected by a water conveyance system with pumping station. With reference to the Feasibility Study result, the outline of the water conveyance system is summarized below, and they will be finalized on the course of the Detailed Design.

(1) Water Conveyance Canal

- Total length : 44.1 km.
- Design discharge : 52.66 m³/s
- Design water level : 15.62 m MSL at BP
- Open Canals
 - bottom width : 12 m
 - side slope : 2/1
 - bed slope : 8 cm/km, or 1/12,500
 - water depth : 3.305 m
 - velocity : 0.86 m/s
 - structure : concrete lining
- Box culvert canals
 - section : 3.8 m x 3.8 m x 4
 - bed slope : 19.1 cm/km, or 1/5,240
 - water depth : 3.30 m
 - velocity : 1.05 m/s
 - structure : reinforced concrete
- Pipelines
 - diameter : 3,000 m
 - nos. of pipelines: 4

- velocity : 1.862 m/s
- hydraulic gradient : 73.2 cm/km
- Spillway
 - capacity : 52.66 m³/s
 - water depth : 2.30 m
 - bottom width : 15.0 m
 - side slope : 3/1
 - bed slope : 1/2,000
 - structure : unlined earth canal

(2) Pumping Station No.7

- Design discharge : 52.66 m³/s
- Suction water level : 9.90 m MSL
- Discharge water level : 114.18 m MSL
- Actual head : 104.33 m
- Major specifications:
 - Pump type : vertical shaft single suction diffuser and volute type.
 - Nos. of pump : 7 units and 1 standby (total 8 units).
 - Pump discharge : 7.52 m³/s/unit = 451 m³/min/unit
 - Nominal bore : ϕ 1,200 mm
 - Pump efficiency : 90%
 - Motor output : 10,400 kW (14 poles) x 8 units, total 73 MW
 - Total head : 115.47 m
 - Pump house : 18.5 m x 85.0 m (approximately).
 - Regulating reservoirs : 2 nos with capacity of each 52,000 m³

4. Scope of the Study

The Study of the Detailed Design as well as preparation of tender Document for the water conveyance system and pumping station N°7, is expected to be carried out by JICA under the Technical Cooperation Program of the GOJ. The Scope of the Study is shown below but not limited to:

(1) Data Collection and Analysis

- To review the Feasibility Study report carried out by JICA during March, 1996 and March, 1997.
- To collect and analyze the required data and information to carry out the Detailed Design.
- To carry out investigation and test for quantity and quality of embankment soil, cement, aggregate, rip-rap material, concrete pile, reinforced bar etc. available in Egypt.
- To study MPWWR design standard for civil, mechanical and building works.
- To study available construction equipment in Egypt and from foreign countries.
- To study power availability and capacity.
- To study tender and contract conditions usually issued by the MPWWR for similar projects, as well as regulation to be provided by MPWWR.
- To study technical specification for civil, mechanical and building works, usually issued by the MPWWR for similar projects, to be provided by NSDO, and
- To study basic rate and unit price of construction works prevailing in Egypt.
- Others as required.

(2) Hydraulic Analysis of Water Conveyance System

- To carry out hydraulic analysis of the water conveyance system including pumping station No.7.

(3) Soil Mechanics Investigations

- To carry out Soil Mechanics Investigation and analysis along the conveyance line and at the location of the Pumping Stations.

(4) Detailed Design Works

- To set up construction material criteria.
- To set up items to be designed, manufactured and installed by manufacturers.
- To carry out the Detailed Design including stability analysis for foundation and structures of the water conveyance system and pumping station,
- To prepare the design parameters and performance requirements for mechanical equipment such as motor and pump to be required for manufacturer's design.
- To carry out the design of pumping house allowing for issuing the tenders.
- To carry out the detailed design for the P.S. maintenance road and bridge, electrical system, other ancillary facilities such as gates, spillway, regulating reservoir, wind break, etc.
- To carry out approximate design of temporary works as required.
- To prepare the Design Drawings according to the Detailed Design.
- To estimate the work quantities based on the Detailed Design and Design Drawings.
- Others.

⁵
(4) Construction Plan Study

- To prepare a study of concrete piling method at foundation of the pumping station,
- To prepare a study of concrete mixing and placing method,
- To prepare a study of construction method for foundation treatment, rip-rap placing, masonry works, etc.,
- To prepare a study of excavation and embankment method to be required for canal and pumping station works.
- To prepare a study for the construction method of pipe,
- To prepare a study for gates and pump installation method, and
- To prepare construction schedule by critical path method, taking into account combination schedule of civil and mechanical works.

⁶
(5) Cost Estimation

- To prepare the bill of quantity according to the various kinds of works.
- To prepare unit prices for various kinds of works.
- To estimate lump-sum price for temporary works and manufacturer's works, and
- To estimate total construction cost and to classify the cost into foreign and local currency

portions.

(6) Tender Documents

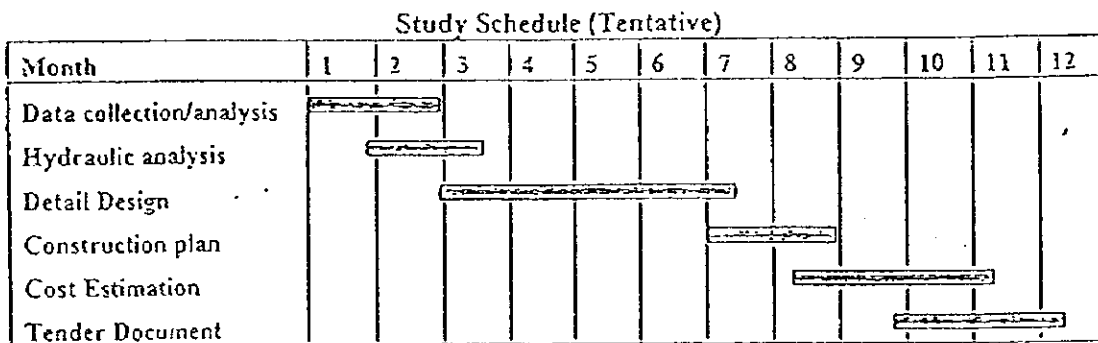
- To prepare the pre-qualification tender document and evaluation criteria to select qualified tenderers,
- To prepare tender instructions and conditions of the contract,
- To prepare technical specifications for civil, mechanical and architectural works,
- To prepare bill of quantities and tender drawings, and
- To prepare general information data for tenderer's estimation.

(7) Documents to Be Submitted

- Detailed Design report, and
- Tender documents.

5. Study Schedule

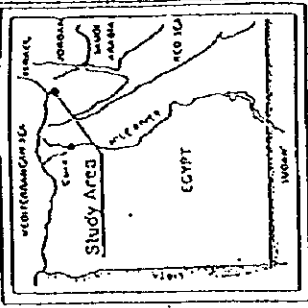
GOE is highly expecting that the Detail Design is started as soon as possible upon receipt of this Request since the construction of the water conveyance system is to be implemented as early as middle of 1998. Therefore, the Study period is estimated to be about twelve (12) months over 1997 to 1998. The Study Schedule is shown below:



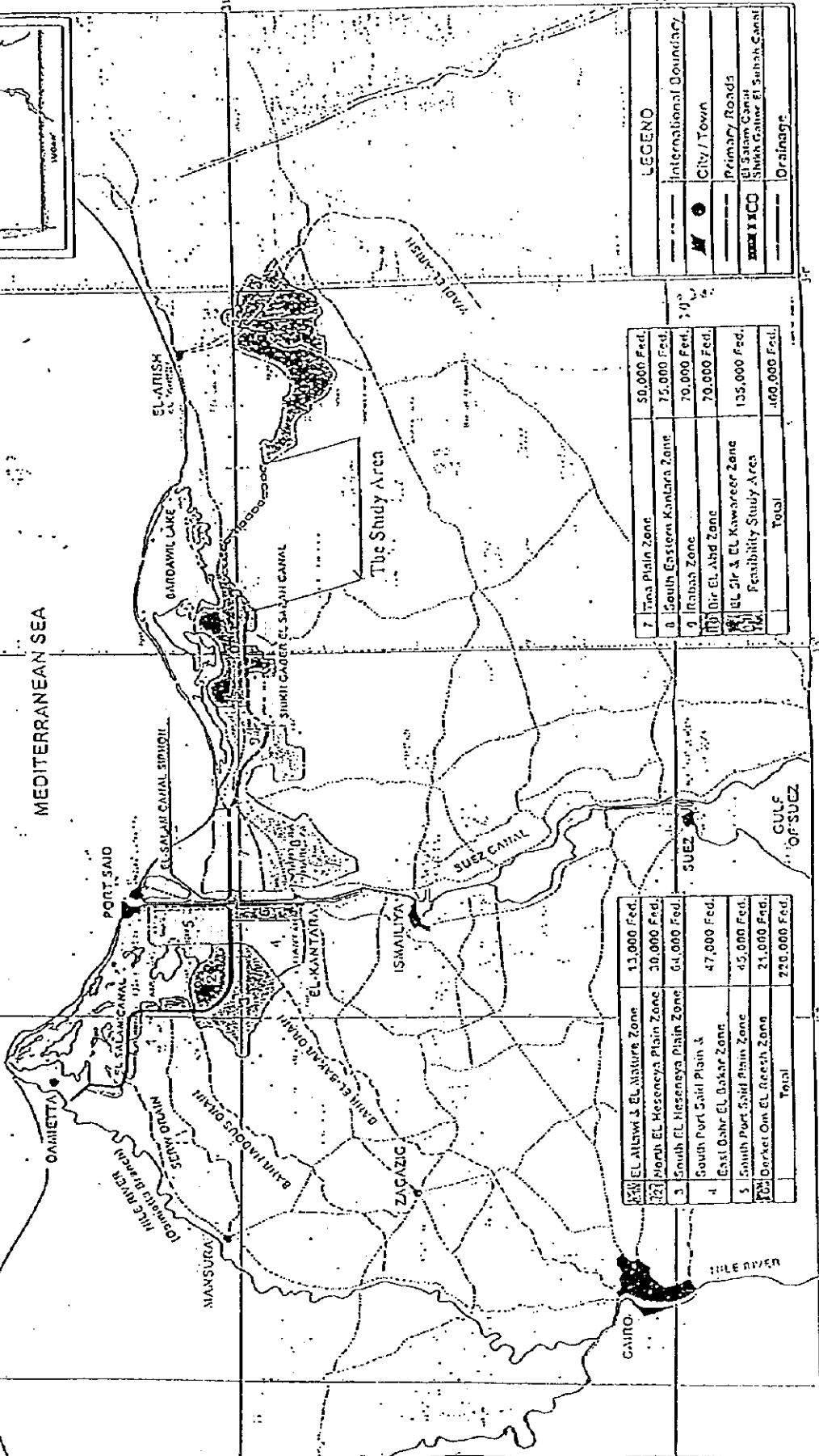
THE NUKH SINAL
INTEGRATED RURAL DEVELOPMENT PROJEC
(PHASE II)
LOCATION MAP
Scale 1:1,000,000



KEY MAP



MEDITERRANEAN SEA

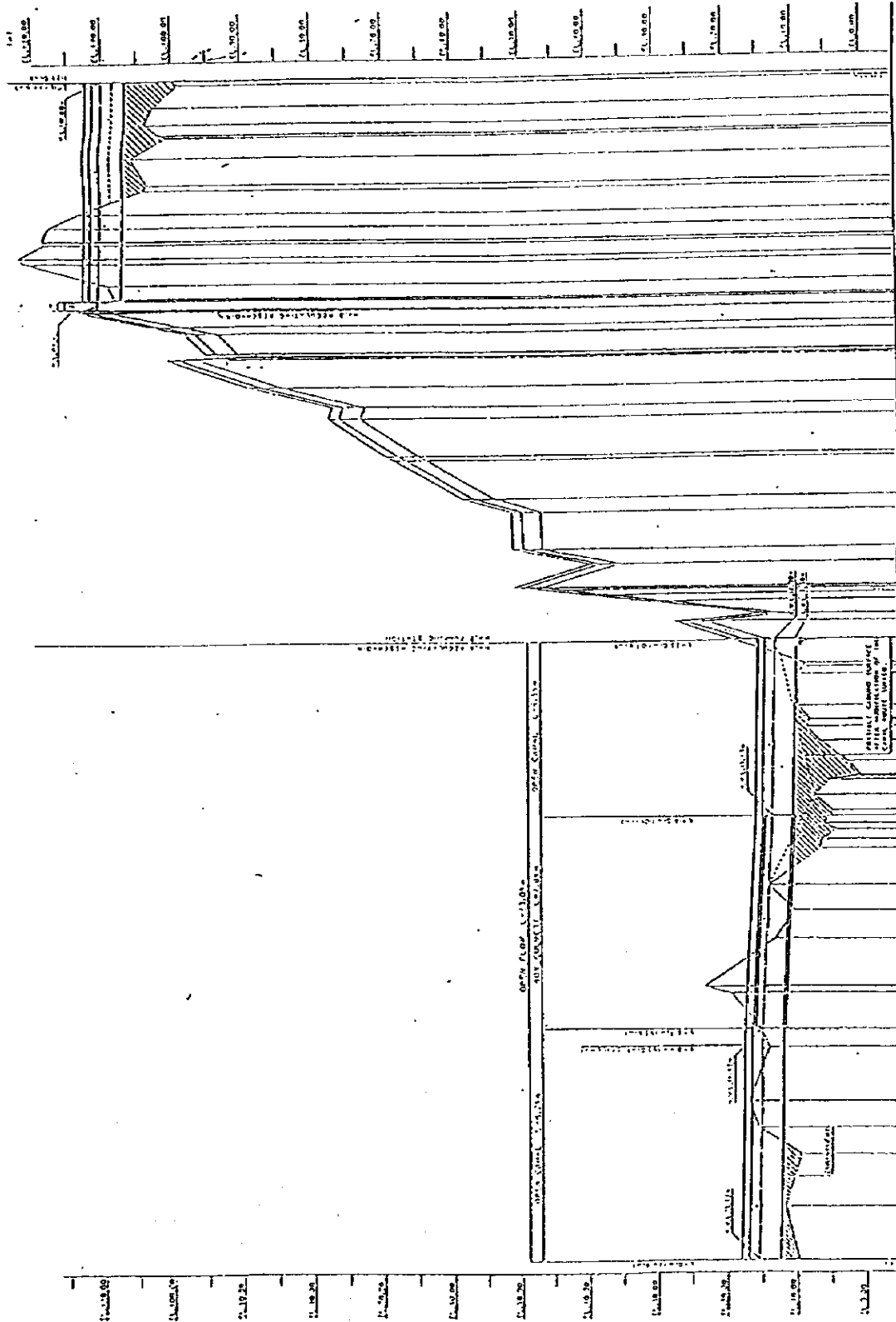


7	Tina Plain Zone	50,000 Fed.
8	South Eastern Kambara Zone	75,000 Fed.
9	Irbabn Zone	70,000 Fed.
10	Dir El Abd Zone	70,000 Fed.
11	EL Sir & EL Kawaweer Zone	135,000 Fed.
12	Feasibility Study Area	160,000 Fed.
Total		660,000 Fed.

1	EL Alhwil & EL Maktura Zone	13,000 Fed.
2	North EL Heseneya Plain Zone	30,000 Fed.
3	South EL Heseneya Plain Zone	64,000 Fed.
4	South Port Said Plain & East Oshri EL Oshkar Zone	47,000 Fed.
5	South Port Said Plain Zone	45,000 Fed.
6	Port Said Oshri EL Reesh Zone	21,000 Fed.
Total		220,000 Fed.

LEGEND

—	International Boundary
—	City / Town
—	Primary Roads
—	El Salam Canal
—	Shikh Gainer El Subah Canal
—	Drainage



THE PLANNING, STUDY AND THE DESIGN OF
HYDROLOGICAL DEVELOPMENT PROJECT
PHASE II
LONGITUDINAL SECTION
OF
WATER CONVEYANCE
DRAWING NO. 2 DATE
JAPAN INTERNATIONAL COOPERATION AGENCY

Appendix A Outline of the Project in El Sir & El Kawareer Zone

(1) Water Conveyance system and Water Management

To extend the Shikh Gaber El Sabah canal more 44.1 km over Bir El Abd Zone to El Sir & El Kawareer Zone and facilitate the management of the water conveyance system.

- Conveyances

Open concrete lining	: 23.7 km
Box convert	: 7.8 km
Steel pipe (ϕ 3,000 \times 4)	: 12.6 km
Total	: 44.1 km

- Pumping station No.7

Vertical shaft, nominal diameter	: 8 units
Total head	: 115 m
Pump discharge	: 451 m ³ /min
Total output	: 72 MW

- Constructions for water management of Shikh Gaber El Sabah canal, total length of 129 km and El Sir & El Kawareer Zone

Kantara sub-master station	: 1
RTU (remote terminal unit)	: 10
El Sir & El Kawareer administration	: 1 office (including radio communication, vehicles)

(2) Land Reclamation, and Irrigation and Drainage System Construction

To reclaim agricultural land of 111,000 feddan (46,620 ha) and construct major canals for irrigation and drainage.

Land reclamation	: 46,620 ha (including windbreak forests)
Water supply	: 535 km
Drainage	: 475 km

(3) On-farm Irrigation and Drainage Facilities Construction

To build irrigation and drainage facilities at farm level for settlers.

Small and graduate	: 11,655 ha
Small scale investor	: 6,993 ha
Large scale investor	: 27,972 ha

(4) Agricultural Development Supporting

To establish North Sinai Agricultural Development Center to strengthen agricultural extension services and build facilities for promotion of extension services and farmer's organizations such as

agricultural cooperatives.

North Sinai Agricultural Development Center (NSADC)	: 1
Branch of NSADC	: 1
Branch of extension office	: 1
Branch of livestock insurance	: 1
Agricultural Cooperatives Office	: 1
Farmer's Organization Office	: 9

(5) Settlement and Social Infrastructure

To found villages for 23,200 households with 116,100 people and facilitate essential infrastructure for communities

Residence	: 23,200 houses
Road	: 49 km
Water supply	: 123 km
Electricity transmission	: 875 km (2 transformer stations)
Sewerage and dust disposal	: 15
Education facilities	: 36
Administration office and others	: 1

(6) Agricultural and Livestock Processing Industry Development (private operated)

To promote local industry, increase additional value of farm products.

Concentration feed factory (260 ton/day)	: 1
Tomato paste factory (715 ton/day)	: 1
Olive oil factory (16 ton/day)	: 31
Slaughter house (160 head/day)	: 1
Dairy factories (318 ton raw milk/day)	: 1

Appendix B Implementation Program for El Salam Canal Project

Work Items	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	
Suez Siphon																							
(Zone No.7 - No.10: 265,000 Feddan)																							
Shikh Gaber El Sabah Canal																							
- Tinn Plain Area																							
- South Kantara Area																							
- Rabha Area																							
- Bir El Abd Area																							
Main Pumping Stations																							
- No.4 Station																							
- No.5 Station																							
- No.6 Station																							
Land Development & Settlement																							
- 265,000 Feddan Area																							
(Zone No.11: 135,000 Feddan)																							
- Defined Design and Contract																							
- D/D for Water Conveyance & No.7 Pumping Station																							
- Water Conveyance																							
- No.7 Pumping Station																							
- Land Development																							
- On-farm Irrigation																							
- On-farm Drainage																							
- Agro-processing Project																							
- Agricultural Development Supporting Services																							
- Settlement and Social Infrastructure																							
- Water Management System																							
Irrigation Area (1,000 Feddan)								50	125	265	265	400	400	400	400	400	400	400	400	400	400	400	400

Scope of Work
for
the North Sinai Integrated Rural Development Project (Phase III)
(Detailed Design Study)
agreed upon between
North Sinai Development Organization, Ministry of Public Works and Water Resources of
the Arab Republic of Egypt and
Japan International Cooperation Agency

Cairo, 4 August, 1998

A. M. Shalaby
Eng. Abdel Rahmen Shalaby
Senior Undersecretary of State and
Chairman of Planning Sector,
Ministry of Public Works and
Water Resources

関岡英明
Mr. Hideaki Sekioka
Leader
Preparatory Study Team
Japan International Cooperation
Agency

in witness of

Sanaa R. Hegazi

Mrs. Sanaa R. Hegazi
General Director of Asian Department,
Ministry of International Cooperation

I. INTRODUCTION

In response to the request of the Government of Arab Republic of Egypt (hereinafter referred to as "the Government of Egypt"), the Government of Japan decided to provide technical assistance in conducting the North Sinai Integrated Rural Development Project (Phase III) (Detailed Design Study) (hereinafter referred to as "the Study") in accordance with the relevant laws and regulations in force in Japan and within the framework of the Agreement on Technical Cooperation between the Government of Japan and the Government of Egypt signed on June 15, 1983 (hereinafter referred to as "the Agreement").

Accordingly, the Japan International Cooperation Agency (hereinafter referred to as "JICA"), the official agency responsible for the implementation of the technical cooperation programme of the Government of Japan, will undertake the Study in close cooperation with the authorities concerned of Egypt.

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

II. OBJECTIVES OF THE STUDY

- (a) The objective of the Study is to prepare the detailed engineering design services and tender documents for the project components on the North Sinai Integrated Rural Development Project (Phase III) (hereinafter referred to as "the Project"), and,
- (b) Undertake transfer of technologies relevant to the Study to the Egyptian counterpart personnel through on-the-job training in the course of the Study.

III. STUDY ORGANIZATION

- (a) North Sinai Development Organization, Ministry of Public Works and Water Resources (hereinafter Referred to as "NSDO"), shall be the executing body of the Project which is responsible for the results of the execution of the Project on the basis of all documents and drawings of the detailed design including tender documents prepared through the Study, and,
- (b) NSDO shall act also as a counterpart body to the Japanese Study Team (herein after referred to as "the Team") and coordinate in relation with other relevant organizations for the successful implementation of the Study.

IV. STUDY AREA

The Study area is located in between Bir El Abd Zone and El Sir & El Kawareer Zone. The two (2) zones will be connected by a water conveyance system with No.7 pumping station which is the total length of approximately 44.1 kilometers(km). The detailed study area is shown in ANNEX-1.

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V. SCOPE OF THE STUDY

Basic dimensions on the major structures of the water conveyance system is defined by the Feasibility Study and they will be finalized on the course of the Study. In order to achieve the objective of the Study shall cover the following items:

Outline of the Study

(a) Collection, Review and Analysis of Relevant Existing Data and Information

- to collect and analyze meteorological, hydrological, topographical and geological data,
- to review the Feasibility Study Report,
- to review and analyze main features for design of the water conveyance system,
- to review and investigate design criteria for each facilities,
- to examine structural and functional conditions of existing canal system,
- to examine operation and maintenance conditions of existing canal system,
- to investigate site conditions, social conditions, environmental conditions and legislation/custom for construction,
- to investigate power availability and capacity, and
- others.

(b) Conduct of Surveys

- to conduct supplementary survey, route survey, longitudinal profiling, cross sectioning and control point survey,
- to conduct survey and analysis on boring, sounding and soil mechanics test, and
- to conduct survey and analysis on construction material such as cement, aggregate, rip-rap, and material for embankment etc.

(c) Formulation of Definite Plan

1) Water Conveyance System (canal, pipe line, box culvert, reservoir and others)

- to determine canal alignment and longitudinal slope,
- to select canal type and structure,
- to select pipe type and structure,
- to select reservoir type and structure,
- to study hydraulic design of the water conveyance system, and
- to study foundation and soil treatment.

2) Pumping Station

- to determine site of pumping station,
- to select pumping type,
- to study hydraulic design of pumping, and
- to study foundation and soil treatment.

(d) Preparation of Detailed Design

1) Water Conveyance System (canal, pipe line, box culvert, reservoir and others)

- to design hydraulic structures,
- to design foundation and soil treatment,
- to design appurtenant facilities (intake, spillway, regulating facility, culvert, road for O/M and etc.), and
- to establish operation and maintenance plan.

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2) Pumping Station

- to design suction sump, discharge chamber, surge tank, and other facilities as required,
- to design foundation and soil treatment,
- to establish operation and maintenance plan, and
- others.

3) Mechanical Equipment

- to design gate and valve, and
- to design pump and related equipment, and
- others.

4) Electric Equipment

- to estimate demand of electricity,
- to design incoming/distribution panel, control panel and emergency power source,
- to design supervisory and operation equipment for the water conveyance system, and
- to study monitoring and control system, and
- others.

5) Architecture and Civil Works

- to design pump house and control house for O/M.

6) Drawings

- to prepare design drawings and detailed drawings as required.

(e) Preparation of Construction Plan

- to prepare design criteria,
- to prepare construction schedule,
- to prepare implementation program,
- to study on construction method of earth work, concrete work and foundation,
- to prepare soil conveyance program,
- to study on manufacture, conveyance and installation method of pump and gate and all electric and mechanical equipment,
- to study on method and schedule of temporary works,
- to prepare land for stock of construction material, and
- to study on supply of construction material.

(f) Cost Estimation

- to prepare the bill of quantities,
- to estimate unit price and unit construction cost,
- to estimate lump-sum price for temporary works and manufacturer's works, and
- to estimate total construction cost (local & foreign portion).

(g) Project Re-evaluation

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(h) Preparation of Tender Document

- to prepare the pre-qualification tender documents and evaluation criteria,
- to prepare tender instructions and conditions of the contract,
- to prepare general and particular specifications of construction works,
- to prepare bill of quantities and tender drawings, and
- to prepare general information data for tender.

VI. STUDY SCHEDULE

A proposed tentative schedule for the implementation of the Study is attached as ANNEX-2.

VII. REPORTING

JICA shall prepare and submit the following reports, written in English language, to the Government of Egypt:

Inception Report	: Twenty (20) copies at the onset of the study
Progress I Report	: Twenty (20) copies at the onset of Phase II
Interim Report	: Twenty (20) copies at the onset of Phase III
Progress II Report	: Twenty (20) copies in the onset of Phase VI
Draft Final Report	: Twenty (20) copies at the onset of Phase V Egyptian side shall submit written comments on the Draft Final Report to JICA in six(6)weeks of time.
Final Report	: Fifty (50) copies in two months after the receipt of comments on the DF/R from the Government of Egypt

VIII. UNDERTAKING OF THE GOVERNMENT OF EGYPT

1. Within the framework of the Agreement, the Government of Egypt shall take necessary measures to the Team as follows:

- (a) to permit the members of the Team to enter, leave and stay in the Arab Republic of Egypt for the duration of their assignment therein, and exempt them from consular fees (the Agreement Article V.2.(a));
- (b) to exempt the members of the Team from custom duties, internal taxes and other charges of a similar nature as well as from the requirement of obtaining import licenses and certificate of foreign exchange coverage to be imposed in the Arab Republic of Egypt in respect of the equipment, machinery and materials which they carry with them for the performance of their duties, provided that these equipment, machinery and materials are registered with the authority concerned of the Government of Egypt at their initial delivery in the Arab Republic of Egypt. Such equipment, machinery and materials will remain the property of the Government of Japan unless otherwise agreed upon (the Agreement Article VII.4);

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- (c) to exempt the members of the Team from income taxes and other fiscal charges payable under the legislation of the Arab Republic of Egypt in respect of any emoluments or allowances remitted to them from overseas (the Agreement Article VI.(1).(a)); and,
 - (d) to bear claims, if any arises, against the members of the Team resulting from, occurring in the course of, or otherwise connected with, the discharge of their duties, except when the two Governments agree that such claims arise from gross negligence or willful misconduct on the part of the members of the Team (the Agreement Article VI.).
2. To facilitate smooth conduct of the Study, NSDO shall take necessary measures in cooperation with other relevant organizations:
- (a) to secure permission for entry into private properties or restricted areas for the conduct of the Study within the laws and regulations in force in the Arab Republic of Egypt;
 - (b) to secure permission for the Team to take all data and documents related to the Study out of Egypt to Japan, within the laws and regulations in force in the Arab Republic of Egypt;
 - (c) to provide medical services as needed. Its expenses will be chargeable on the members of the Team; and,
 - (d) to ensure the safety of the members of the Team when and as it is required in the course of the Study.
3. NSDO shall, at its expense, provide the Team with the followings:
- (a) available data and information related to the Study;
 - (b) counterpart personnel;
 - (c) suitable office space with necessary office equipments and furniture in Cairo and at the project site; and,
 - (d) credentials or identification cards.

IX. UNDERTAKING OF JICA

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

- (a) to dispatch, at its own expense, the Team to Egypt; and,
- (b) to pursue technology transfer to the Egyptian counterpart personnel in the course of the study.

IX. CONSULTATION

JICA and NSDO shall maintain constant communication and consult with each other with aspect to any matters that may arise from or in connection with the Study.

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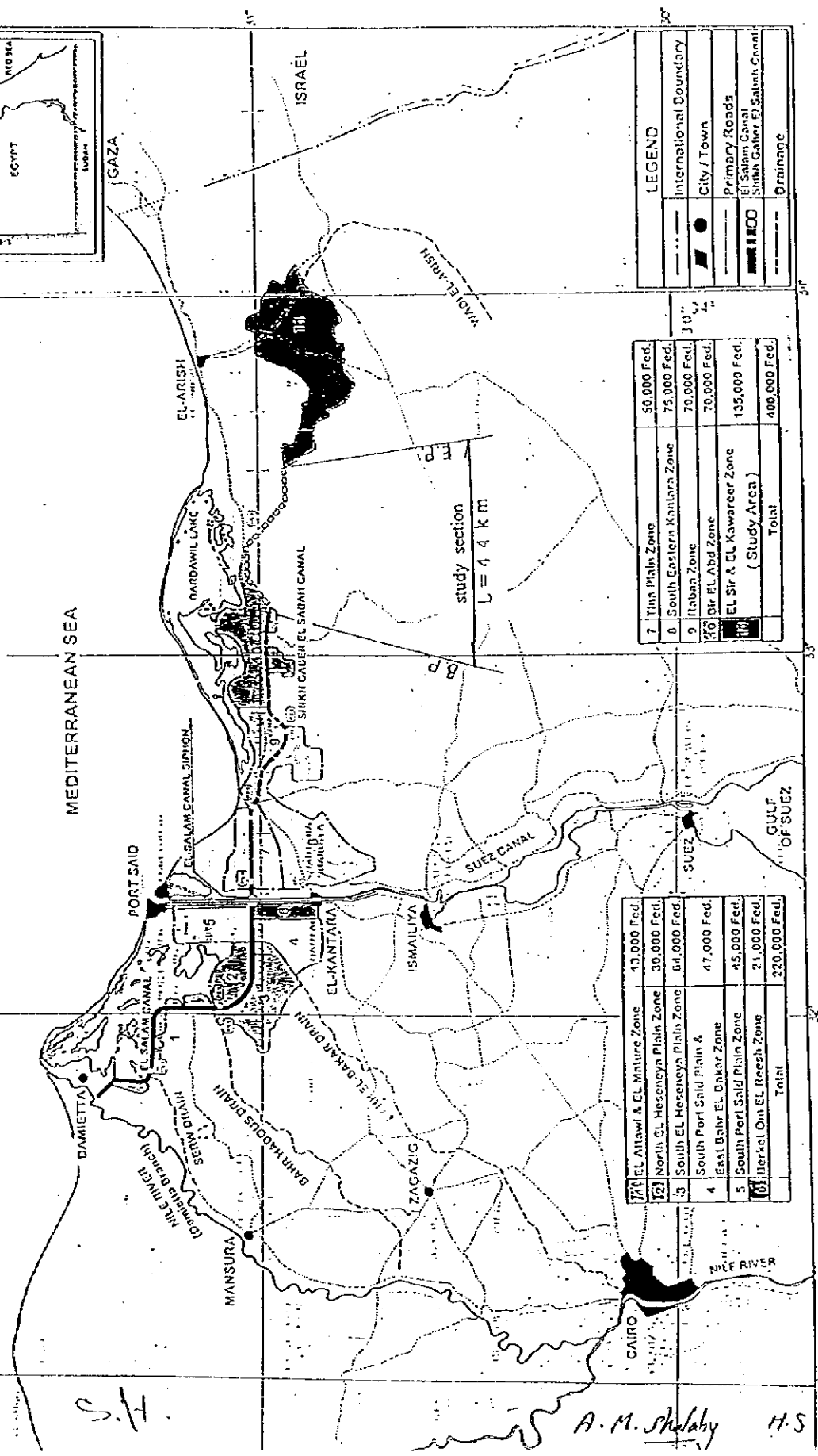
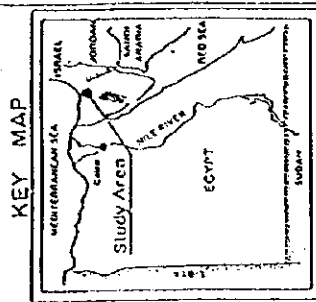
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ANNEX-1

The Detailed Design on
Water Conveyance System for
North Sinai Integrated Rural Development Project

Location Map



1	EL Allawi & EL Mature Zone	13,000 Fed.
2	North EL Heseneya Plain Zone	30,000 Fed.
3	South EL Heseneya Plain Zone	64,000 Fed.
4	South Port Said Plain & East Bahir EL Dakak Zone	47,000 Fed.
5	South Port Said Plain Zone	45,000 Fed.
6	Wahel Ont EL Reesh Zone	21,000 Fed.
Total		220,000 Fed.

7	Tina Plain Zone	50,000 Fed.
8	South Eastern Kanbara Zone	75,000 Fed.
9	Itabas Zone	70,000 Fed.
10	EL Sir EL Abd Zone	70,000 Fed.
11	EL Sir & EL Kawareer Zone	135,000 Fed.
12	EL Sir & EL Kawareer Zone (Study Area)	400,000 Fed.
Total		400,000 Fed.

LEGEND

---	International Boundary
—	City / Town
—	Primary Roads
—	EL Sirah Canal
—	Shah Gaher EL Sirah Canal
—	Drainage

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TENTATIVE WORKING SCHEDULE

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Work in Egypt		■	■	■	■	■	■	■				■	■					
Home office work in Japan																		
Route Survey and Plain Table Survey					■	■	■	■										
Geotechnical Survey					■	■	■	■										
Phasing	▲		▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
Reports	△			△	△		△				△	△				△	△	△
				P/R 1			I/R					P/R 2				DF/R	©	F/R

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- Ic/R : Inception Report
- P/R 1 : Progress 1 Report
- I/R : Interim Report
- P/R 2 : Progress 2 Report
- DF/R : Draft Final Report
- F/R : Final Report

© : Submission of written comments on DF/R by the Egyptian side

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Minutes of Meeting
on
the Scope of Work
for
the North Sinai Integrated Rural Development Project (Phase III)
(Detailed Design Study)

The preparatory study team (hereinafter referred to as "The Team") organized by the Japan International Cooperation Agency (hereinafter referred to as "JICA") and headed by Mr. Hideaki Sekioka, visited the Arab Republic of Egypt from July 26 to August 7, 1998 for the purpose of discussing and confirming the Scope of Work for the North Sinai Integrated Rural Development Project (Phase III) (Detailed Design Study), (hereinafter referred to as "the Study").

The Team had a series of discussions with the officials concerned at the North Sinai Development Organization (hereinafter referred to as "NSDO") of the Ministry of Public Works and Water Resources (hereinafter referred to as "MPWWR") and other organizations on the Scope of Work (hereinafter referred to as "the S/W") for the Study. The list of participants in the meetings is attached as ANNEX 1.

1. In reference to the S/W, NSDO shall be responsible for the execution of the Project. The consultants, who is appointed and contracted by NSDO, for the construction supervision will review all documents and drawings prepared through the study, and then, shall bear the responsibility over Detailed Design. The details of the responsibility will be studied by both sides through the Study, and incorporated into the Contract Document for Supervision.
2. NSDO promised to provide topographical maps at the scale of 1/10,000 covering the Study area and related area as agreed for studying temporary works, and send them to JICA Egypt office within six(6) months from the date of signing of this Minutes of Meeting.
3. NSDO requested to shorten the duration of the Study for earlier commencement of the construction works of the Water Conveyance System which would supply the water to El Sir & El Kawareer Zone. The Team explained that it was rather difficult to shorten the duration of the Study in order to carry out the Study successfully, and promised to convey the request to JICA headquarters for consideration.
4. Both sides agreed that a Steering Committee (SC) consisting of relevant organizations should be established within the Egyptian government before the commencement of the Study by the initiative of MPWWR for the successful implementation of the Study.
5. NSDO shall provide the Japanese study team with one (1) office in Quantara and one(1) liaison office in Cairo equipped with electricity, water supply, telephone, air conditioning, desks, chairs and so on.

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6. The Team requested that NSDO should assign the necessary number of counterpart personnel for the Study before the commencement of the Study. NSDO agreed to this request.
7. The Team requested that the answers to the questionnaires regarding information of the Study sent beforehand should be prepared and sent to JICA Egypt office by NSDO within one month from the date of signing of this Minutes of Meeting.
8. NSDO requested counterpart training on specific design concerning the Study in Japan. The Team promised to convey the request to JICA headquarters for consideration.
9. NSDO requested the necessary computer software for the transfer of technologies should be arranged by JICA. The Team promised to convey the request to JICA headquarters for consideration.
10. NSDO requested that the following equipment necessary for the Study should be arranged by JICA. The Team promised to convey the request to JICA headquarters for consideration.
 - photocopy machine
 - facsimile
11. Both side agreed that all related reports should be kept confidential.

Cairo, 4 August 1998

A. M. Shalaby
Eng. Abdel Rahman Shalaby

Senior Undersecretary of
State and Chairman of Planning Sector,
Ministry of Public Works and
Water Resources

関岡英明
Mr. Hideaki Sekioka

Leader
Preparatory Study Team
Japan International Cooperation
Agency

List of Participants

Egyptian side:

MPWWR

Eng. Abdel Rahman Shalaby	Chairman of Planning Sector
Eng. Ahmed Mazen	Advisor of H.E. the Minister & Supervisor of North Sinai Development
Eng. Semir Hashish	Chairman of North Sinai Development Executive Organization (NSDO)
Eng. Mohamed Nassar	Head of Implementation Sector (NSDO)
Eng. Hussein Abdel Rahman	Undersecretary of State for M & E Implementation Department(NSDO)
Eng. Kamel K.H Abo El-seoud	Undersecretary of State for Studies, Designs & Specifications (NSDO)
Eng. Gamil Zanaty	MPWWR Consultant
Eng. Anan Abdallah	General Director of Financing and Foreign Invest (NSDO) & Director of Technical Office of the Minister's Counselor
Eng. Mohamad Nabil Salem	General Director for Studies and Design (NSDO)
Eng. Mohamed Atef Abdel Moneim	General Director for Topographic Maps(Survey Authority)

Japanese side:

Preparatory Study Team

Mr. Hideaki Sekioka	Leader
Mr. Minoru Harada	Pump and Facilities Plan Specialist
Mr. Takahiro Kato	Construction Plan Specialist
Mr. Tsuyoshi Nakazawa	Geology/Soil Mechanics Specialist
Mr. Manabu Kashiwabara	Canal Plan Specialist / Coordinator

Embassy of Japan

Mr. Akihisa Nakano	First Secretary
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JICA Egypt Office

Ms. Soko Nishino	Resident Representative
Mr. Alfred Zoser	Project Coordinator

JICA Expert

Mr. Kazuo Shimazaki	Technical Adviser to MPWWR
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収集資料リスト

地域	調査地名	調査の趣旨	準備調査		作成部課						
			現地調査期間	担当省名							
中東	北東シナイ地区総合開発発注画 導水路施設実施設計事前調査画		平成10年7月26日～8月12日								
国名	エジプト	配属機関									
番号	資料の名称	版数	ページ数	資料の別	取寄先名または発行機関	寄贈・購入の別	取寄区分	利用表示	利用者 所属地名	納入 予定日	納入 確認欄
1	North Sinai Development Project (パンフレット)	B5 (2枚)	26	パンフレット	North Sinai Development Organization	寄贈					
2	Saudi Fund Agreement(77年7月)	A4	18	文書	Ministry of Public Works and Water Resources (The Saudi Fund Development)	寄贈					
3	Kuwait Fund (to finance irrigation and drainage infrastructure) (77年7月)	A4	11	文書	Ministry of Public Works and Water Resources	寄贈					
4	Kuwait Fund (first trench of the agreement) (77年7月)	A4	16	文書	Ministry of Public Works and Water Resources	寄贈					
5	Kuwait Fund (second trench of the agreement) (77年7月)	A4	10	文書	Ministry of Public Works and Water Resources	寄贈					
6	エジプトの農業・水産業 (平成8年3月)	A4	1	パンフレット	エジプト農業・水産業研究会	寄贈					
7	平面図(ナイル・デルタ) - 水路 60km - 86km) s=1:50,000	200X 75cm	1	文書	North Sinai Development Organization	寄贈					
8	平面図 (DD 区間を含む) - 干支 ル・エルサバ - 水路、受益地 全図)	150X 450cm	1	文書	North Sinai Development Organization	寄贈					
9	平面図 (Tina Plain, South Eastern Kanaana Zone) s=1:50,000	90 X 120cm	1	文書	North Sinai Development Organization	寄贈					
10	地形図 (水路の実施設計範囲) s=1:50,000	A1	7	文書	North Sinai Development Organization	寄贈					

番号	資料の名称	版型	ページ数	資料の別	部数	収集先名又は発行機関	新調・購入の別	取扱い区分	利用表示	利用者 所属指名	納入 予定日	納入 確認済
11	縦断面 (シークギャベル・エルサバー 水路 73KM-86KM) : 設計変更前	200 x 75cm	1	別冊	1	North Sinai Development Organization	寄贈					
12	縦断面 (シークギャベル・エルサバー 水路 73KM-86KM) : 設計変更後	100 x 75cm	1	別冊	1	North Sinai Development Organization	寄贈					
13	Geological Map of Sinai, Egypt Scale 1:250,000 (Sheet No.4)	A1	1	別冊	1	Ministry of Petroleum and Mineral Resources	購入					
14	Geological Map of Sinai, Egypt Scale 1:250,000 (Sheet No.5)	A1	1	別冊	1	Ministry of Petroleum and Mineral Resources	購入					
15	設計指針(Egyptian Code of Practice for Steel Constructions and Bridges) (英語)	B5	280	別冊	1	Research Center for Housing, Building and Physical Planning	購入					
16	設計指針リスト (アラビア語)	A4	1	別冊	1	Research Center for Housing, Building and Physical Planning	寄贈					
17	Egyptian Federation of Construction and Public Contractors (英語)	A4	127	別冊	1	Middle East Library for Economic Services	購入					
18	Labour Law No.137/1981 (英語)	A4	108	別冊	1	Middle East Library for Economic Services	購入					
19	Labour Law (英語)	A4	102	別冊	1	Middle East Library for Economic Services	購入					
20	Tenders Law (英語)	A4	19	別冊	1	Middle East Library for Economic Services	購入					
21	Set of Laws and Decree on Environment (目次)	A4	4	別冊	1	Middle East Library for Economic Services	寄贈					
22	ポンプ工事契約図書及び工事仕様書	A4	162	別冊	1	North Sinai Development Organization	寄贈					
23	水道工事工事契約図書	A1	11	別冊	1	North Sinai Development Organization	寄贈					
24	シークギャベル・エルサバー-水道工事進捗報告書 (アラビア語/英語)	A4	9	別冊	1	North Sinai Development Organization	寄贈					

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