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DEPARTMENT OF STATE

AGENCY FOR INTERNATIONAL DEVELOPMENT

PROJECT PAPER

EGYPT: PORT SAID SALINES

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AS APPROVED BY NEAR EAST ADVISORY COMMITTEE

September 20, 1977

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8. ESTIMATED FY OF PROJECT COMPLETION FY <div style="border: 1px solid black; display: inline-block; width: 20px; height: 20px;"></div>	9. ESTIMATED DATE OF OBLIGATION A. INITIAL FY: <div style="border: 1px solid black; padding: 2px;">77</div> B. QUARTER: <div style="border: 1px solid black; padding: 2px;">4</div> C. FINAL FY: <div style="border: 1px solid black; padding: 2px;">77</div> <small>(Enter 1, 2, J, or 4)</small>
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10. ESTIMATED COSTS (\$000 OR EQUIVALENT \$) -						
A. FUNDING SOURCE	FIRST FY			LIFE OF PROJECT		
	B. FX	C. L/C	D. TOTAL	E. FX	F. L/C	G. TOTAL
AID APPROPRIATED TOTAL						
(Grant)	(13,000)	()	(13,000)	(13,000)	()	(13,000)
(Loan)	()	()	()	()	()	()
OTHER U.S. 1.						
2.						
HOST COUNTRY					5,515	5,515
OTHER DONORS						
TOTALS	13,000			13,000		18,515

11. PROPOSED BUDGET APPROPRIATED FUNDS (\$000)									
APPROPRIATION	B. PRIMARY PURPOSE CODE	PRIMARY TECH. CODE		E. 1ST FY <u>77</u>		H. 2ND FY		K. 3RD FY	
		C. GRANT	D. LOAN	F. GRANT	G. LOAN	I. GRANT	J. LOAN	L. GRANT	M. LOAN
(1) SA	910 B	839		13000					
(2)									
(3)									
(4)									
TOTALS				13000					

A. APPROPRIATION	N. 4TH FY		O. 5TH FY		LIFE OF PROJECT		12. IN-DEPTH EVALUATION SCHEDULED
	Q. GRANT	R. LOAN	S. GRANT	T. LOAN	U. GRANT	V. LOAN	
(1) SA					13000		<div style="border: 1px solid black; width: 40px; height: 20px; display: inline-block;"></div>
(2)							
(3)							
(4)							
TOTALS					13000		

13. DATA CHANGE INDICATOR. WERE CHANGES MADE IN THE PIO FACESHEET DATA, BLOCKS 12, 13, 14, OR 15 OR IN PRP FACESHEET DATA, BLOCK 12? IF YES, ATTACH CHANGED PIO FACESHEET.

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 1 = NO
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14. ORIGINATING OFFICE CLEARANCE SIGNATURE: TITLE: Donald S. Brown, Director, USAID/Egypt DATE SIGNED: <div style="border: 1px solid black; display: inline-block; padding: 2px;">MM DD YY</div>	15. DATE DOCUMENT RECEIVED IN AID/W. OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTION <div style="border: 1px solid black; display: inline-block; padding: 2px;">MM DD YY</div>
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EGYPT: PORT SAID SALINES PLANTSUMMARY AND RECOMMENDATION

1. GRANTEE: The Government of Egypt (GOE)
2. EXECUTING ENTITY: El Nasr Salines Company
3. AMOUNT OF GRANT: \$13,000,000 (Thirteen Million Dollars)
4. TERMS: (Two Step Grant/Reloan Arrangement)
 - To the Government: Grant
 - To El Nasr Salines Co.: Loan from the GOE - Fifteen (15) years maturity, including a 5-year grace period on the repayment of principal with interest of 10% for the entire 15-year period.
5. DESCRIPTION OF PROJECT: The purpose of the project is to reconstruct the Port Said Salines Plant located at Port Said, Egypt. The project will provide for an increase in production of salt for the domestic market and possibly the export market with attendant increases in foreign exchange earnings. A.I.D. will provide foreign exchange to be used for procurement of various kinds of equipment required for the salt plant, construction materials, and technical assistance.
6. GRANT APPLICATION: Since this is a project in the Suez Reconstruction area, the Government of Egypt has requested A.I.D. to provide U.S. \$13 million on a grant basis to finance the U.S. share of the foreign exchange costs of the project. See Annex A.
7. MISSION VIEW: Cairo Mission recommends authorization of the proposed grant. See Annex C.
8. SOURCE OF U.S. FUNDS: Fiscal year 1977 Supporting Assistance.
9. STATUTORY CRITERIA: Satisfied. See Statutory Checklist, Annex D.
10. RECOMMENDATION: That a Grant in the amount of \$13,000,000 be authorized on terms and conditions set forth in the Draft Grant Authorization, Annex B.
11. PROJECT COMMITTEES:

<u>USAID/CAIRO</u>	
Chairperson	Charles J. Patalive
Engineer	Philip S. Lewis
Economist	James Norris
Program Officer	George A. Laudato
Legal Advisor	James R. Phippard

AID/WASHINGTON

Chairperson	Thomas A. Sterner
Project Officer	Gary R. Redman
Desk Officer	James R. Roberts
Engineer	James Cooperman
Legal Advisor	Robert B. Meighan

I. INTRODUCTION

- 1.01 El Nasr Salines Company (El Nasr) an operating Egyptian Company wholly owned by the Government of the Arab Republic of Egypt (GOE) is responsible for managing five salt production companies. The salt plant located at Port Said was partially destroyed in the 1967 and 1973 wars. Prior to 1967, Salt Operations had been carried out on a continual basis since the late 1890's. El Nasr now plans to re-establish the Port Said Plant and modernize its operations through the addition of new material handling and salt washing and refining equipment. In addition to various vehicle needs, El Nasr plans includes the construction of a salt refinery and storage area, a salt washing facility, stacking equipment, a new pump house to bring Mediterranean Sea water into the plants concentration ponds, a vehicle and equipment maintenance workshop, and the construction of approximately five new concentration ponds.
- 1.02 The GOE has requested a grant of \$13 million to finance the foreign exchange costs of the goods and services required for the reconstruction and modernization of the Port Said Plant. The application letter is attached as Annex A.
- 1.03 STV Incorporated, A U.S. consulting engineering firm, and A.I.D.'s requirements contractor for industrial projects, has completed a study to determine the technical feasibility of reconstruction of the Port Said Plant and concluded that reconstruction is technically sound. Further, the Mission staff analyzing data provided by the El Nasr Salines Company and STV Inc. has concluded that the project is both economically and financially feasible.
- 1.04 The assistance will be A.I.D.'s third project to Egypt's industrial sector. Previous assistance was provided to the Misr Spinning and Weaving Company (AID Loan 263-K-033) and the Suez Cement Company (AID Grant 263-0012). The project, being financed as a grant, continues A.I.D. assistance to the reconstruction of the Suez Canal area, a focal point of the A.I.D. program. Previous assistance to the Suez Canal area included Electrical Distribution (AID Grant 263-0001); Road Building Equipment (AID Grant 263-0004); and Ismailia Steam Power Plant (AID Grant 263-0009); and Suez Cement Co. (AID Grant 263-0012).

II. BACKGROUND

A. USES OF SALT

- 2.01 There are literally thousands of uses of salt and it is possible to discuss only the major ones. Technologically, the most important reactions of salt are those in which it is used as a starting material for the production of other materials, many of which are bases to produce still other chemicals. Salt is the raw material for almost all chemicals containing sodium or chlorine.
- 2.02 Salt is used in the meat, canning, baking, fishing, dairy, and other food processing industries. In the field of agriculture, salt provides the ideal carrier for supplying minerals and trace elements in the diet of animals. The use of salt is also important in leather tanning (for prevention of bacterial decomposition in hides), in textile dyeing (for standardizing the strength of individual batches of dye and for setting the dye into the fiber), in soapmaking (for separation of soap from water and glycerine), in pulp and paper manufacturing (as a precipitant for waterproofing compositions and for electrolytic generation of chlorine bleach), in metallurgy (for descaling and for fluxes and fused-salt baths), in ceramics (for surface vitrification of heated clay), in rubber manufacturing (for salting out rubber from latex), in refrigeration (either as saltice mixtures for direct cooling or in the form of brine pumped as a refrigerant) and in the petroleum industry (for inhibiting fermentation of starch in well-drilling mud and for preventing dissolution of rock salt strata during the drilling operation).
- 2.03 Given the fact that salt is such a basic chemical in almost all industries, its historical rate of consumption in all countries parallels the rate of increase of gross national product.

B. METHODS OF PRODUCTION

- 2.04 Salt is recovered by three methods: (1) Shaft mining, (2) Solution mining and (3) Solar evaporation. In shaft mining, salt is mined using methods very similar to those used in coal mining. A shaft is sunk to a rock-salt vein. Well-established techniques of undercutting, side shearing, drilling, blasting, loading and transporting are used to remove the salt from the deposit for further processing.
- 2.05 In solution mining, salt brine is obtained for further processing by pumping water into a rock-salt deposit, dissolving the salt, and bringing brine to the surface.

2.06 The third method and historically the oldest is solar evaporation. It is basically a fractional crystallization process using the sun as a source of energy. Seawater is brought to saturation in concentration pond areas. Further evaporation in crystallizing areas results in the crystallization of salt, which accumulates in a bed on the floor of the crystallizing pan. The major brine constituents other than salt remain in the solution and are discarded as bitterns. The salt crop is recovered with special equipment in an operation called harvesting. The harvested salt is washed and stock piled. It is then further processed in a plant by drying, crushing and screening.

2.07 In the United States only about five percent of the total salt production comes from the solar process. Worldwide, solar salt accounts for close to 50 percent of the world's salt production. In Egypt the availability of sea water from the Mediterranean and the hot climate make the solar process an ideal method.

C. HISTORY OF SALT PRODUCTION IN EGYPT

2.08 The production of salt in Egypt by the solar salt method dates back in 1895. From 1895 until 1961 the ownership of salt production companies in Egypt went from total foreign ownership to combinations of joint Egyptian-foreign ownership to GOE nationalization. Currently, the majority of salt produced in the ARE is harvested and processed by El Nasr Salines, a public sector company. El Nasr is made up of five operating companies and produces approximately 95% of Egypt's total salt. Four of these companies are located along Egypt's Mediterranean coastline. These plants are El Mex (Alexandria), Port Said, Baltim and Edko. The fifth salt plant is in the country's interior at El Natron.

2.09 Historically, Egypt has been one of the largest producers of salt in the Mediterranean area. It has been not only self-sufficient in salt, but has exported salt as well. The El Nasr Salines Company is responsible for providing both edible and industrial salt for domestic use, and is the sole exporter of salt in Egypt. During the period between 1961 and the 1967 war, El Nasr exported more salt than it sold domestically. Salt exports decreased sharply after the war because of the destruction of the Port Said Plant which limited total production. Production in recent years has continued to meet domestic salt demand but exports have been minimal (2%).

III. THE PROJECT

- 3.01 The purpose of the project is to reconstruct the Port Said Salines Plant so that it will help provide a portion of Egypt's projected increased requirement of salt.
- 3.02 The project provides for the reconstruction of the El Nasr Salines Company's solar salt plant located at Port Said, Egypt. The new facility will permit the annual production of approximately 165,000 metric tons of high quality salt. The A.I.D. assistance will finance the foreign exchange costs of the required salt water pumping station, salt harvesting equipment, salt washing and stockpiling equipment, a salt refinery, materials handling equipment, certain construction materials and U.S. technical services. The estimated foreign exchange costs is \$13.0 million.
- 3.03 The Egyptian pound costs of the project will be financed by the El Nasr Salines Company. These costs include all civil works and plant construction and are estimated at about L.E. 4.0 million (\$5.72 million). El Nasr has already constructed certain of the required civil works, including a new laboratory/administration building, a garage, and a guest house.
- 3.04 As more fully explained in later sections, two sets of production and sales figures are used in the project paper. The Technical Analysis section shows a gross salt harvest of 175,000 tons per year and a net sales production of 155,000 tons per year; the difference represents production process losses. The Financial Analysis and the Economic Considerations sections of the paper use gross salt harvest of 165,000 tons per year and sales production of 145,000 tons per year. The disparity between the amounts results from a question of additional land availability utilized in the preconcentration process. In the interest of conservatism, the lower sales figures were used for profit and economic considerations.

IV. ORGANIZATION AND MANAGEMENT

A. El-Nasr Salines

1. General

4.01. El Nasr is currently made up of five operating companies: El Mex, Port Said, Baltime, Edko, and El Natron. The El Mex and Port Said plants provided 98% of El-Nasr's 1974 salt production and are, therefore, more influential in matters affecting company policy. Although Port Said Salines has no salt production machinery, it currently has sufficient capacity to pump seawater into some of the ponds. The tonnage referred to above represents the quantity of raw salt harvested as a result of this limited capability.

4.02 El Nasr's organization chart is presented in Annex F-1. Briefly, the Board of El Nasr is composed of a Chairman, four Executive Directors, and four members elected from among the workers. Under Egyptian Law, all public sector companies must include representatives from labor. There is no outside representation on the Board. Each of the Executive Directors brings to the Board his knowledge and experience in his particular area of responsibility -- namely, Administration, Commercial Affairs, Financing, and Engineering. Decisions on all important matters are taken by a majority vote during the Board's monthly meetings.

2. Management

4.03 In other developing countries, public sector companies are generally inefficient and are managed by a group of less than qualified civil servants. El Nasr's management, on the other hand, is highly capable and experienced in the salt industry. Both USAID and STV, Inc., are highly impressed by the quality of the El Nasr management. The "esprit de corps" among the managerial group appears to be high. This is particularly impressive as public sector companies in Egypt operate under a disadvantage in that management salaries are fixed by the GOE and are quite low.

3. Company Staff

4.04 El Nasr currently employs 1500 people of which a little more than 13% have college degrees. It is projected that in the mid-1980's El Nasr will employ 2500 people as a result of expansion of the El Mex Plant, reconstruction of the Port Said Plant, and the planned addition of a plant at Lake Quarun.

4. GOE Role in El Nasr

4.05 The GOE exercises substantial control over El Nasr and other public sector companies, mainly through the GOE's price-fixing mechanism. The Egyptian labor wage structure rests on legislation establishing the

minimum wage rate both in public and private sector. Currently this wage rate is L. E. 14 (about \$20) per month, but a proposal to increase this level to LE 21 is under consideration by the GOE. Wage increases are not formally linked to increases in productivity but tend to be awarded to keep up with the rising cost of living.

- 4.06 In regard to salt pricing, the GOE sets the price of packed milled salt and packed coarse salt-grades used by and large by the general populace. However, El Nasr is free to set prices on all other grades of salt in domestic sales. All export prices of salt are also determined by El Nasr.
- 4.07 All plans for expansion, and modernization of El Nasr salt plants require GOE approval. The GOE, however, does not interfere with El Nasr's internal policies and operations.

B. Port Said Salines

- 4.08 Port Said is the second largest operating company under El Nasr. Its organization chart is presented as Annex F-2. The significance of its operations is certain to increase in the near future both as a result of this project and the fact that El Nasr is losing the three small saline companies, Baltime, Edko and El Natron, to a government agricultural land reclamation project.
- 4.09 As a public sector operating company, the Port Said plant management is determined by El Nasr. While Port Said did operate in a minimal capacity in 1976 as mentioned earlier, it is difficult to evaluate the staff based on these limited operations. We believe, however, the fact that it operated and produced 71,000 tons of salt under adverse conditions with very limited equipment speaks for itself in regard to plant spirit and dedication of the staff.
- 4.10 Port Said currently has a staff of 300 people which is more than is required for these limited operations. However, it is very difficult to reduce the staff of a public sector company in Egypt, and this trained staff will be an asset to the project upon start-up. Forty of Port Said's employees hold college degrees, mostly in engineering and accounting. Port Said can be assured of a continued supply from Egyptian universities of engineers, accountants, and others required by the project.
- 4.11 While the Port Said staff has much salt manufacturing experience, the equipment proposed for this project is of modern design and generally unfamiliar to them. Therefore, training of personnel in its operation and maintenance will be required. An important initial task for the U.S. Consultant will be to design and establish a training program for this purpose.

V. TECHNICAL ANALYSIS

A. Plant Site

- 5.01 The Port Said salt plant is located on the northwestern corner of the Sinai Peninsula, bounded on the north by the Mediterranean Sea, on the east by Lake Mallaha and on the west by the Suez Canal. The present facility occupies about 10.7 square kilometers (4.1 square miles). Previous operations of the salt plant involved drawing salt water from Lake Mallaha, which acted as a pre-concentrator, into the company's lake for further preconcentration before transfer to the concentration ponds. The plant location and layout are shown in Annexes G-1 and G-2.
- 5.02 Presently underway is a program to widen and deepen the Suez Canal. Part of the program involves construction of a bypass canal, starting about 17 kilometers south of Port Said on the main canal and running in a northeasterly direction to the Mediterranean Sea. This bypass will bisect the company lake, transiting between the concentration ponds and Lake Mallaha. To compensate for this loss, the Suez Canal Authority will provide El Nasr Salines with a new area for use as a company lake south of the existing plant with an area about double that of the present lake. Following construction of the bypass canal, raw water will be drawn directly from the Mediterranean Sea into the new company lake, thence into the existing concentration ponds and crystallizers.
- 5.03 The construction of the bypass canal will reduce the raw salt production capability of the Port Said facility below its pre-war (1967) output of about 250,000 MT per year. Due to loss of the pre-concentration effects of Lake Mallaha, gross annual production of the reconstructed facility will be between 165,000 and 175,000 MT. To compensate for this loss, two alternatives are feasible: (1) to increase the area of the company lake, concentration ponds and crystallizers, or (2) to construct a pipeline under the Suez Canal bypass and again draw pre-concentrated sea water from Lake Mallaha. Land availability in proximity of the plant is very limited and only minor increases in production would result from such land use. A technical and economic study of the feasibility of constructing a pipeline under the bypass has not yet been performed. Planning of this project, therefore, has been based on an estimated production of about 175,000 MT per year, an economically viable operation equivalent to many in other parts of the world.

B. The Process

1. Salt Production

- 5.04 Production of solar salt from sea water is a fractional crystallization process whereby certain compounds in sea water that are less soluble than sodium chloride precipitate before salt begins to crystallize. Other compounds, however, are more soluble than salt and remain in solution until most of the sodium chloride has crystallized and dropped to the pond bottom. The general flow diagram for solar salt production is shown in Annex H.

- 5.05 At the Port Said plant, Mediterranean Sea water will be pumped into the company lake and, successively, into a series of concentration ponds at a rate which compensates for evaporation losses. As the density of the brine increases due to evaporation, the calcium sulfates and calcium carbonates precipitate. The remaining brine, now rich in sodium chloride, is transferred by gravity to the crystallizing ponds. In the crystallizing ponds the sodium chloride is precipitated and forms a layer of relatively pure salt. The concentrating area is approximately ten times that of the crystallizing area. The remaining brine solution (bitterns) contains about 20% sodium chloride, plus the contaminating magnesium salts. Bitterns are either drained to the bitter pond for the future recovery of the magnesium salts and, possibly, bromine, or are diluted with salt water and returned to the sea. This cycle is repeated throughout the season until harvesting begins.

2. Salt Harvesting and Washing

- 5.06 A least once a year, raw salt is harvested from each crystallizer by use of mechanical equipment. The rubber-tired tractor - drawn harvester scrapes raw salt from the basins and, by means of elevating conveyors, loads in directly into dump trucks moving beside it. A salt floor is left permanently in each crystallizer to seal the earth bottom, preventing contamination of the salt, and to increase the load bearing capacity of the basin bottom, permitting use of heavy vehicles.
- 5.07 The dump trucks haul the salt to a common dumping point with surge bin from where it can be either stockpiled directly or first washed and then stockpiled. Stockpiling will be accomplished by a belt conveyor-fed, boom-type stockpiler.
- 5.08 The raw salt that is to be washed is transferred via a belt conveyor to a helical screw washing machine where it is washed with saturated brine to remove the fine clay particles and other impurities. The salt is then fed into a dewatering belt which discharges the salt when the moisture level reaches about 6%. The wash water is drained to settling ponds and decanted back into the washing cycle. The washed salt is then conveyed to a boom-type stockpiler to build up a salt pile 12 meters high. A similar, but separate, stockpile will be created for raw salt. The salt piles develop a hard surface crust which protects the salt from wind and rain. The piles are allowed to age for about 8 to 12 months to further purify the salt. Small amounts of rain dissolve the magnesium chloride which trickles to the bottom of the salt pile. After the aging process, the raw salt is either shipped for industrial uses or refined into edible or specialty salt. The washed salt is either ground and packaged or exported. A schematic diagram of the washing plant is shown in Annex I-1.

3. Salt Refining

- 5.09 The refining process is, essentially, a two step process: (1) the purity is increased and (2) the salt is dried, screened for size classification, additives introduced and packaged. Salt can be purified in two ways:

the vacuum pan process, wherein the salt is dissolved and recrystallized in steam evaporators, and the washing process. The vacuum pan process is difficult to properly operate. The washing process will be used at the Port Said plant. The process consists of crushing the salt to break down the salt crystals, and washing it in a helical screw washer. After washing, the salt is dewatered in a centrifuge to remove most of the wash water. The salt is then transferred to a dryer to reduce the moisture to below 0.2%. Dried salt is approximately 99% sodium chloride. This salt is packaged by mechanical packaging equipment in a variety of weights, and used for edible salt. A schematic diagram of the salt refinery plant is shown in Annex J-1.

C. Raw Materials

1. Sea Water Quality

- 5.10 Sea water for the Port Said Salines Plant will be drawn directly from the Mediterranean Sea. Mediterranean Sea water is generally regarded as an excellent raw materials source by salt experts; the world's finest salt is produced by France using Mediterranean Sea water and the solar system. A detailed analysis of Mediterranean Sea water quality is shown in Table V-1.

TABLE V-1
SEA WATER ANALYSIS

<u>Species</u>		<u>Standard Sea Water</u>	<u>Mediterranean Sea Water</u>
sp. gr.	gm/cm ³	1.025	1.029
Debye baume	oBe	3.5	4.0
T.D.S.	P.P.M.	35090	40500
Cl	"	19353	22402
Na+	"	10760	12503
Mg++	"	1297	1408
Ca	"	417	420
K	"	387	628
SO ₄	"	2705	2866
Br	"	67	93
CO ₃ ⁼⁼	"	7	13
HCO ₃ ⁻	"	97	167

2. Proposed Sea Water Intake

- 5.11 The Suez Canal Authority will build a breakwater at a point approximately 800 meters west of the west bank of the bypass canal. Based on a preliminary study, it appears that the best location for the feed water intake to be constructed by El Nasr, will be immediately adjacent to the west bank. The tidal flow in and out of the bypass canal should help to cleanse the intake area and keep it free of contaminants and sediment; and the prevailing current will tend to sweep sediment generated by the bypass canal in an easterly direction away from the feed water intake. Prior to actual positioning, a more detailed analysis of alternate positions will be prepared.
- 5.12 The sea water intake will be positioned at least one meter above the ocean floor and below the water surface to avoid intake of sediments or floating objects, oils, etc. Two high capacity axial flow pumps will be installed in the pump station to draw sea water from the pump to the company lake and first stage concentration ponds.

3. Existing Salt Piles

- 5.13 There are currently 250,000 tons of salt in stockpiles at the Port Said site. This salt was harvested before the 1967 war. El Nasr has not attempted to use this salt for fear that the salt piles contain live bombs. It is recommended that a study be undertaken to determine the most appropriate means of removing this salt and feeding it back into the crystallizers. Further, these stockpiles are interfering with the flow of air currents over the ponds and diminishing the evaporation rate.

D. Utilities

1. Electricity

- 5.14 Port Said relies on its own diesel generators (at El Raswa) which are operated by the Egyptian Electricity Authority (EEA). Port Fouad has a separate system with its own diesel generating station operating at 5500 volts (stepped down to 400 and 110 volts), 50 cycle, 3 phase. By late 1977, the Port Said and Port Fouad systems will be inter-connected by means of submarine cables under the Suez Canal. In 1978, when the EEA has agreed to fully meet El Nasr's power needs of about 1000 kilowatts, Port Fouad's power characteristics will be changed to 11,000 volts (stepped down to 380 and 220 volts), 50 cycle 3 phase.

- 5.15 By 1981, an overhead transmission line from Ismailia will supply the Port Said urban area with power from EEA's 220 Kilovolt (KV) network in Lower Egypt. When the Ismailia inter-connection is complete, the existing diesel generators will revert to standby duty. This will ensure a highly reliable source of electricity for the salt plant.

2. Fresh Water

- 5.16 Port Said draws its fresh water from the Nile River by means of the Abassa Canal, a branch of the Ismailia Canal. The water is treated at the El Raswa Water Treatment Works on the Port Said side of the Canal. Port Fouad receives its water by means of two 500 millimeter pipes located under the Suez Canal. Water supply is, at present, considered deficient and unreliable due to a lack of flow in the Abassa Canal and unrepaired war damage inflicted on the El Raswa works. The Ministry of Irrigation has made plans to widen and improve Abassa Canal for irrigation purposes. The Canal, subject to cleaning and clearing obstructions, together with the improvement of the treatment plant should ensure an adequate and reliable fresh water supply for the Port Said and Port Fouad urban areas, including the salt plant.
- 5.17 The SCA has initiated a concurrent three-phase improvement program for the repair, rehabilitation, modification, and extension of the water treatment plant. Phase I, repairing war damage and returning the plant to its pre-1967 capacity is nearly complete. Phase II, covering rehabilitation, modification, and expansion to meet short-term needs, is currently underway. Phase III, to meet long-term needs through further expansion of the treatment plant, has been started and completion is anticipated within the next several years.

3. Fuel Oil

- 5.18 A 40,000-liter fuel oil tank will be provided to store fuel for company vehicles and pump stations. A vehicle fueling station will also be provided. A 2,500-liter capacity tank trailer will be used to transport fuel from the main storage tank to the pump station storage tanks and will refuel vehicles in the field. A 2,000-liter fuel storage tank will be provided at each of the pump stations.

4. Sewage Disposal

- 5.19 Domestic sewage generated by the plant's employees is now treated in septic plants. No change in this system will be required.

E. Transportation

- 5.20 There is currently no rail service to the Port Fouad of the Suez Canal. Therefore, Port Said Salines salt production will be transported by one of two means. The exported salt will be shipped directly from the SCA quay located near the salt plant. The salt for domestic consumption will be transported by company trucks. The trucks must depend

on the SCA ferries to carry them across the Suez Canal. There are five ferries in operation during peak periods. However, long traffic back-ups are commonplace during the day, and each ferry will take only one tandem tractor trailer truck at a time. As the salt company will be shipping out up to 15 truck-loads per day, the present ferry service introduces inefficiencies into the company's transport plant.

- 5.21 The Master Plan for Port Said proposes that the existing ferry system be restricted to pedestrian traffic only and that two new ferry operations be initiated at different locations for vehicular and pedestrian traffic. If implemented, this plan would expedite movement across the Canal and be particularly beneficial to the salines plant. The Master Plan notes that forecasted year 2000 traffic movements will not justify a direct highway link across the Canal.

F. Design Parameters

- 5.22 The following design parameters were used in determining project component selection and sizing, facility design and layout, and other equipment and material requirements. These parameters were developed in concert with the El Nasr Salines Company's management and technical staffs and are considered to be reasonable.
- 5.23 Following construction of the Suez Canal bypass, the available evaporative land area at the site will be 9,065,000 square meters. The Company's experience indicates that, under the ambient climatic conditions, about 55 square meters are required to produce one ton (metric) of salt. Therefore, the presently available land area will permit production of about 165,000 MT per year. However, additional areas of about 550,000 square meters adjacent to the plant site, now disused or used for disposal of bitterns, may eventually be brought into production. Such use would permit salt production to rise to about 175,000 MT per year. Therefore, in sizing facility capacities, the annual production figure of 175,000 MT has been used.
- 5.24 Production losses during harvesting, washing, stocking and refining will result in a salt output of about 155,000 MT per year. Annual salt production targets have been chosen as follows:

<u>Type of Salt</u>	<u>Tons Per Year</u>
Refined	60,000
Washed (ground and packaged)	40,000
Washed (bulk export and domestic)	48,000
Raw (miscellaneous)	7,000
Total Saleable Salt	<u>155,000</u>

Refined salt will have an average analysis of 99% sodium chloride, and will be processed directly from the aged raw salt. The refined salt will be categorized as follows:

<u>Type of Salt</u>	<u>Description</u>	<u>Tons Per Year</u>
Kitchen	Minus 3 mm plus 1 mm grain size - 1 kg plastic bags-	30,000
	25 kg plastic or jute bags -	23,000
Table	Minus 1 mm plus 0.3 mm grain size - 0.5 kg plastic bags in cardboard boxes -	5,000
Powdered	Minus 0.3 mm grain size	
	5 kg cattle blocks -	1,000
	0.5 gram salt tablets -	<u>1,000</u>
Total Refined Salt Final Product Capacity		60,000

Washed salt will have an average analysis of 98.5 sodium chloride. The washed salt can be divided as follows:

<u>Type of Salt</u>	<u>Description</u>	<u>Tons Per Year</u>
Washed	Bulk Shipment	48,000
	25 kg plastic or jute bags	25,000
	1 kg plastic bags	<u>15,000</u>
Total Washed Salt Final Product Capacity		88,000

5.25 A salt (sodium chloride) balance sheet of the processing cycle is shown as Annex K.

G. Equipment Selection

I. Salt Harvesting

5.26 The size of the harvesting equipment is based on a total raw salt harvest of 175,000 tons per year and the following calculations:

Basis: 9 month cycle; 234 days per year;
66% efficiency factor.

$$= \frac{234 \text{ day}}{\text{year}} \times \frac{8 \text{ hr}}{\text{day}} \times 66\%$$

$$= 1236 \text{ operating hours per year}$$

The harvesting capacity is:

$$\frac{175,000 \text{ TPY raw salt}}{1236 \text{ hours}} = 142 \text{ tons per hour}$$

<u>No. Units</u>	<u>Description</u>
2	<u>Salt harvesters</u> - Minimum capacity 150 TPH. Rubber-tired-pulled by farm-type diesel tractor. Equal to the CRS Model Harvester. One harvester working, one standby. Spare parts: conveyor belt, main hydraulic pump, chainlinks for flights.
2	<u>Tractors</u> - Sized to pull harvester, standard farm-type tractor, John Deere Model 401, or equal.
1	<u>Road Grader</u> - Equipped with front mounted tooth scarifier and 14 foot grader blade, with large tires for best flotation ability. Equal to a Caterpillar 12 G Model Grader (135 HP).

2. Salt Handling

5.27 Materials Handling Equipment

The materials handling equipment includes haulage vehicles, salt reclaiming vehicles, shiploading equipment and package moving equipment.

<u>No. Units</u>	<u>Description</u>
18	<u>Haulage Vehicles</u> - 9 M ³ capacity @ 1112 kg = 10 tons capacity, large tires for best flotation capabilities, tandem rear axle, dual tires, both axle driven, conventional cab, diesel engine, corrosionproofed undercarriage.

5.28 Raw Salt Stockpiling Equipment

The size of the raw salt stockpiling equipment is based upon a design capacity to handle the full harvesting rate of approximately 150 TPH.

<u>No. Units</u>	<u>Description</u>
1	<u>Dump Hopper</u> - Driveover, steel construction, minimal, side slope 60°, corrosionprotected, nominal capacity 30 M ³
1	<u>Stockpiling Conveyor</u> - Troughed rubber belt conveyor and corrosion-proofed structure, complete with tripper and wing type stacker; total storage pile capacity 125,000 tons, hourly capacity nominally 150 TPH.

5.29 Salt Reclaiming Equipment

- 1 Bulldozer - Equal to a Caterpillar Model D-7 Track Type Unit, standard equipped with a U blade, nominal capacity 235 M³ per hour.
- 3 Wheel Loaders - Rubber-tired, bucket capacity 2.5 M³, equal to a Caterpillar Model 966 Loader, nominal capacity 200 TPH.

5.30 Shiploading Equipment

- 1 Shiploading Unit - Consisting of 20 M³ capacity steel dump hopper, 150 meter long troughed rubber conveyor belt arrangement with a rail-mounted movable tripper and boom conveyor installed at the existing loading quay location. Boom conveyor unit will be capable of loading bulk salt into each hold of 10,000 ton capacity ship while berthed at the quay.
- 3 Fork Lifts - 3200 kg lift capacity (7000 lb) to handle palletized bagged salt at plant and palletized packaged salt at refinery.

3. Transport and Support Equipment

- 5.31 The following equipment will be provided for personnel transportation, equipment servicing and support, and civil works maintenance.

<u>No. Units</u>	<u>Description</u>
1.	<u>Ditching Machine</u> - Cut to 1.5 meters deep 0.5 meters wide.
4	<u>3/4 Ton Pickup Truck</u> - With four wheel drive.
1	<u>Fuel Oil Tank Truck</u>
1	<u>25 Ton Mobile Crane</u>
1	<u>Portable Welding Truck</u>
1	<u>Portable Lubrication Truck</u>
1	<u>10 Ton Capacity Crane Truck</u> - Boom type.
2	<u>6" Centrifuge Portable Pumps</u> - With 40 m hoses, diesel motor.
1	<u>Truck Scale</u> - Drive Over.
1	<u>Autobus</u> - 54 passenger, for workers
1	<u>Van</u> - 7-passenger.

A. Intake and Transfer Pumps

5.32 Pumps will be provided as follows:

<u>No. of Units</u>	<u>Description</u>
2	<u>Sea Water Intake Pumps</u> - Axial flow, stainless steel construction, complete with diesel power drives and nominal capacity each 2300 M ³ per hour (10,000 GPM).
4	<u>Interstage Transfer Pumps</u> - Concentrator location, axial flow, stainless steel construction, complete with diesel power drives, nominal capacity each pump 1360 M ³ per hour (6000 GPM)
2	<u>Bittern Drain Pumps</u> - Crystallizer bittern drainage, axial flow, stainless steel construction, complete with diesel power drives, nominal capacity each pump 1360 M ³ per hour (6000 GPM).
2	<u>Desalting Pumps</u> - Desalting use with crystallizer bittern drainage pumps, monel construction, complete with power drives, nominal capacity each pump 12 M ³ per hour (50 GPM).

5. Salt Processing Plantsa. Salt Washing and Stocking Unit

5.33 A complete salt washing unit of 150 MT per hour capacity will be furnished including components as shown in Annex I, plus spare parts.

b. Salt Refining Plant

5.34 A complete salt refining plant of 60,000 MY per year output will be furnished including components as shown in Annex J, plus spare parts.

c. Salt Grinding Unit

5.35 A complete salt grinding unit of 40,000 MT per year capacity will be furnished including components as shown in Annex L, plus spare parts.

H. Other Equipment and Materials

5.36 To ensure the maintenance of high quality standards of production, equipment for a quality control laboratory will be provided to supplement that of the company.

5.37 The following additives may be used as free-flowing agents for refined salt in an amount between 0.5 to 1% of the salt being treated.

- . magnesium carbonate
- . calcium silicate
- . dicalcium and tricalcium phosphate
- . calcium carbonate

If iodized salt is needed, there will be an additional requirement for potassium iodide as a salt additive, and a stabilizer such as sodium carbonate. The potassium iodide requirement would be approximately 0.01%. A one year supply of required chemicals will be financed by the A.I.D. Grant.

5.38 Construction materials, as detailed in para 5.43 hereinafter, will be procured from U.S. sources.

I. Plant Layout and Construction

1. Roads and Dikes

5.39 The existing concentration basins and crystallizers can remain at their present location, though minor construction will be needed to permit flow between them. SCA-built dikes, as part of the construction of the bypass canal, will create new concentration basins south of the existing plant.

The salines plant currently has an intricate system of dikes, roadways, and inlet and outlet canals. Additional dikes and roadways are required as part of the plan to reestablish salt production operations. Since the dikes that the SCA is building will have a maximum side slope of 5 to 1 (horizontal to vertical), El Nasr will have to regrade the slopes to 2 to 1 to achieve the maximum concentration area, and add stone slope protection. El Nasr will also be responsible for the construction of dikes within the new concentration areas as shown in Annex M. These dikes should be 5 to 8 meters wide at the top with 2 to 1 slopes protected by slope paving.

5.40 Roadways must be constructed to the stockpiling and refining plant hoppers as shown in Annex N. The roadway should also be on five meters of fill at the hoppers so that trucks can easily discharge salt into the hoppers. An alternative stockpiling roadway configuration was considered in which the new roadways would extend in an easterly direction from the stockpiles in a direct line with existing roadways. The ramps would terminate in a cul-de-sac, on fill, at the same hopper locations as in the recommended scheme. The alternative configuration had the disadvantage of cutting off the existing north-south plant road and necessitating the construction of a new road approximately 100 meters east of the north-south road.

2. Buildings

- 5.41 The administration/office/laboratory building, guest house, and maintenance/repair garage have been built in the location shown in Annex N. Buildings to be constructed include the refinery, storage buildings, workshops and four new pump houses. The main buildings will be located as shown on the same Annex. The location of the proposed buildings have been determined through an analysis of space requirements, existing building locations, functional requirements and inter-relationships between buildings, the need for ramps to reach the refinery and stockpiling areas, foundation conditions and the possibility of future expansion.
- 5.42 The pump houses will be of concrete and brick construction. Based on their experience with masonry-walled reinforced concrete buildings at El Mex and Port Said, El Nasr prefers that the remaining buildings be made of prefabricated structural steel with galvanized steel sheeting for walls. Valid alternatives to galvanized steel sheeting include fiberglass or asbestos sheeting. These materials have the additional advantage of being corrosion-free even if scratched or damaged.

3. Construction Services

- 5.43 Construction services are generally available in the A.R.E. El Nasr stated that they have had no problem obtaining construction services for their current projects. Each request for bids has always attracted at least three bidders. Construction services availability was verified during discussions with Giza Systems Engineering Company (a private consulting engineering firm) and with Nasr General Contracting Company (a public sector contractor). By contrast, materials are not as readily available in the A.R.E. Officials at the General Organization for Industrialization (GOFI) stated that since El Nasr is a public sector company, sufficient quantities of cement would be made available as needed, on a month to month basis. GOFI stated that the waiting period for the structural steel varies greatly depending upon when it is ordered, and the type, size and quantities that are ordered. The siding materials are not readily available in the A.R.E. and would, therefore, have to be imported. These findings were verified during discussions with Giza Systems Engineering Company and Nasr General Contracting Company. To ensure the timely completion of the project, it is recommended that the structural steel, the siding, and all building hardware, such as lighting fixtures and ventilating equipment, be imported from the United States.

4. Stockpile Area

- 5.44 The two stockpiles, located as shown in Annex N, are initially designed to store about 125,000 MT each. However, the layout allows for expansion of the piles up to about 200,000 MT each if operating or sales exigencies so require.

J. Expected Plant Production

- 5.45 The following five-year production schedule is feasible if 30,000 MT of raw salt are available at the time of refinery startup in 1980.

TABLE V-2

<u>ANNUAL PRODUCTION IN METRIC TONS</u>					
<u>Tons</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>
Harvest (after losses)	75,000	155,000	155,000	155,000	155,000
Refined Salt production	30,000	50,000	60,000	60,000	60,000
Ground Salt Production	20,000	40,000	40,000	40,000	40,000
Bulk Shipments	0	0	25,000	55,000	55,000
<u>Carryover Stock-</u> <u>piles (prior</u> <u>1980)</u>	30,000	55,000	120,000	150,000	150,000
Production to Stockpile	<u>55,000</u>	<u>65,000</u>	<u>0</u>	<u>0</u>	<u>0</u>
End year Stockpile*	55,000	120,000	150,000	150,000	150,000

*This is an approximate figure to ensure that at least a one-year supply of salt is always on hand and to allow for aging to increase purity. The projected tonnages are essential to the successful start-up of the facilities.

- 5.46 As noted earlier, the harvest figure of 155,000 MT (after all losses), equalling gross salt production of 175,000 MT per year, will be obtained only if the company puts into production all available land areas adjacent to the site.

K. Technical Assistance

- 5.47 Trained professionals and skilled workers familiar with solar salt production are currently available to Port Said Salines. However, due to the modernization of the plant through this project, many of the plant staff will require training in the use of those more sophisticated equipment. The training will be most intensive for those employees concerned with operating refinery and packaging equipment. Some of the

training is expected to be supplied by the suppliers of major items of equipment. The U.S. consultant will design and establish the training program.

L. Project Cost Estimate

- 5.48 The detailed project cost estimate in Annex 0 is summarized in Table V-3.
- 5.49 The dollar cost items contain escalations of 9.6 percent on the base cost estimates of the equipment and 7 percent as the estimated costs of contractor's profit. Additionally, all U.S. equipment and construction materials contain a 15 percent freight factor.
- 5.50 The L.E. costs of salt production equipment and U.S. construction materials represent the transportation, costs of moving the materials from the port to the plant site.

M. Section 611 (a) Requirements

- 5.51 In view of the forgoing it is the position of the Mission in Cairo that the requirement of Section 611 (a) of the Foreign Assistance Act of 1961, as amended, have been met. This project is based upon sound engineering plans as recommended by STV Incorporated, and a reasonably firm cost estimate also prepared by STV. The Mission has reviewed the plans and cost estimate and finds them reasonable and accurate. An adequate quantity and quality of raw materials are available and necessary utilities are in place or will be in place at the time required by the project.

TABLE V-3

PROJECT COST ESTIMATE

<u>COST CATEGORY</u>	<u>DOLLAR COSTS</u>	<u>LOCAL COSTS</u>	<u>TOTAL</u>
Salt Production Equipment	8,115	35.8	8.151
U.S. Construction Materials	1.322	14.3	1,336
Engineering, Procure- ment and Management	1,835	38.6	1,874
Civil Works		3,679	3,679
Plant Construction		1,028	1,028
Subtotal	11,272	4,796	16,068
Contingencies 15%	1,690	719	2,409
Total	\$12,962	\$5,515	\$18,477
Grant Amount	<u>\$13,000</u>		

VI. MARKET ANALYSIS

A. PRODUCTS

- 6.01 There are four types of classifications of salt which this project will produce, and many additional product mixes are obtainable from the basic four classifications by means of packaging. Previously in this paper, the production quantities of these types of salt were discussed; additionally, the technical section describes the production process.
- 6.02 Much confusion exists about the classifications of salt, not so much, by the physical properties of the substance, but by the nomenclature used. Probably the best way to describe the four product groups of salt is to verbally describe table salt, which one finds in the U.S. supermarket. Table salt is: raw, washed, crushed, refined salt. The confusion arises by the fact that except for the raw, or beginning stage, many variations of the process can be combined. To further complicate the matter, unwashed salt is often used to refer to raw salt.
1. Raw Salt
- 6.03 ~~Industrial salt, is used as a source of sodium (Na) or chloride (Cl). It is also used as a catalyst in chemical or physical reactions. In the U.S. people often see it used on highways to melt snow and ice. Note that delicate industrial chemical users of salt cannot use this product due to tracer elements and impurities. Most industrial users require refined salt.~~
2. Washed Salt
- 6.04 Best known as "people's salt", it is about 95 percent Na & Cl, it is darker in color and does not look, as the name indicates, as having been washed. Impurities exist in this salt, but it is safe to ingest in spite of its visual properties, but has difficulty going into solution. The washing with water is a pure physical process.
3. Crushed Salt
- 6.05 The name implies its physical description. The crushing process reduces the size of the crystals making it easier to use and more soluble. The solubility of salt affects its ability and time to act in a chemical or mixing process. The crushing is again a physical process, making the product more useable. Either raw or washed salt can be crushed, if the intent is merely to increase the surface areas of the salt.

4. Refined

- 6.06 The refining process has been described. Generally, the product has been through the above other two processes before refining. This is not always the case, and the two intermediary steps can be omitted. Refined salt has two grades, kitchen salt (for food processing) or fine table salt (as an additive to food or drink at the time of consumption). It is generally 99.8 percent NaCl.
- 6.07 The industrial markets for salt are both commercially and chemically complex. The following information points out the great commercial demand for raw, washed and/or crushed salt.
- Each ton of chlorine requires 1.7 tons sodium chloride.
 Each ton of soda-ash requires 1.5 tons sodium chloride.
 Each ton of aluminium requires 0.33 tons sodium chloride.
 Each ton of VCM requires 0.928 tons sodium chloride.
 Each ton of caustic soda requires 1.5 tons of sodium chloride.
- 6.08 As mentioned above, the confusion about salt arises from the fact that different processes can be combined without necessitating the other. Thus, one could have refined salt which came from unwashed salt or crushed washed salt, or just washed salt. Each step adds to the value of the salt, the quality of the four process steps can also vary greatly. Some countries have such a poor refining process that refined salt from such countries cannot be compared to washed salt from another country. For instance, the washed salt which will be produced from this project will be much better physically than the washed salt presently coming out of the El Mex plant. The El Mex plant site is next to a cement mill that has no "scrubbers", its washed salt production is peppered by particles of pollution.
- 6.09 Just as the cost of each type of salt is dictated by the quantity and quality of processes it undergoes, so is its value in the market place. However, except for refined salt, GOE sets sale prices for most salt sold domestically:
- | | |
|-----------------------------------|-------------|
| Raw Salt | LE 2.30/ton |
| Washed Salt | LE 3.80/ton |
| Washed, Ground and
Bagged Salt | LE15.50/ton |
| Refined Salt | LE21.50/ton |
- 6.10 International prices for salt varies in quality but it is only sold in quantity (bulk). Most recent figures indicate that washed salt sells at about U.S. \$8.00/ton F.O.B. or L.E. 5.60/ton. Similar salt which this project will produce must be sold domestically under G.O.E. price controls at L.E. 3.80/ton. If the company had the capacity, a financially rewarding export market awaits it.

- 6.11 The major profit element in salt production is in the packaging. Refined kitchen and table salt, when individually packaged by the company, show extremely high mark-ups. Not unlike products such as detergents, flour, etc. in the U.S., bulk prices are much cheaper than small packaged prices. For instance refined table quality salt, when individually packaged (IKEM), works out to L.E. 25.00/ton. The company is free to set its own prices on these packaged products.

B. MARKETING OF SALT

1. Distribution

- 6.12 Salt is distributed from the El Nasr operating companies to 130 public sector distribution centers throughout Egypt. These centers belong to El Nasr and sell the salt to clients at prices set by El Nasr. Only bagged, milled-washed salt and bagged, refined salt are sold to the distribution centers. Bulk salt is only sold ex-plant and in export. Salt is delivered to Upper Egypt by train and in Lower Egypt (Delta) by company-owned trucks. Eighty percent is consumed in the Delta area.

2. Supply and Demand

- 6.13 The total salt production capacity in Egypt has levelled off at about 600,000 tons per year due to a lack of additional capacity. By 1980, additional production capacity is expected to be available from the GOE-financed expansion of the El Mex Plant. From 1980 through 1985, the production of the A.I.D. project in Port Said will result in additional gradual increases until production capacity levels out at a total production of about 910,000 tons per year.
- 6.14 Fortunately, the demand statistics for Egyptian salt are well-documented and quite complete. The historic growth rate for salt consumption in Egypt has averaged 15.5 percent per annum.
- 6.15 The GOE projects that demand for salt will increase by 22.9 percent per year. It acknowledges the historic growth rate, but envisions much greater demand to come from industrial users as a result of the industrialization efforts.
- 6.16 For our analysis, A.I.D. has used a minimum demand growth rate of 10 percent per year, versus a historic 15.5 percent and GOE figures of 23 percent.
- 6.17 Table VI-1 shows the historic and projected supply/demand figures for salt in Egypt based on the above conservative assumptions.

TABLE VI-1

	<u>Year</u>	<u>Total Production (000 Tons)</u>	<u>Total Demand (000 Tons)</u>
A			
C	1972		
T	1973	310	334
U	1974	313	344
A	1975	394	414
L	1976	550	500
		604	560
P	1977		
R	1978	610	616
O	1979	614	677
J	1980	619	745
E	1981	815	819
C	1982	855	901
T	1983	885	992
E	1984	900	1,091
D	1985	905	1,200
		910	1,320

6.18 Table VI-2 shows the effects of the El Mex expansion and the A.I.D. Port Said project on projected total production of salt.

TABLE VI-2

<u>Year</u>	<u>PRODUCTION COMING ON-STREAM (000 Tons)</u>		
	<u>Total Projected Production</u>	<u>A.I.D. Project</u>	<u>El Mex</u>
1979	619		
1980	815	0	0
1981	855	50	146
1982	885	90	146
1983	900	120	146
1984	905	135	146
1985	910	140	146
		145 1/2	146

6.19 Egypt will have shortages of salt in varying amounts in spite of this project.

1. 1986 will be the first year in which Port Said plant will show full sales capacity.

- 6.20 Since the construction of new public sector companies and expansion of present plants must have Ministry approval, through the annual budget process, A.I.D. is secure in knowing that there will not be production quantities that would adversely affect El Nasr's position. On the demand-site, the A.I.D. projection at 10 percent rate of growth is considerably below either the historical 15.5 percent or the ARE projected 22.9 percent.
- 6.21 With the projected production shortfalls in mind, El Nasr Salines is currently planning another plant at Lake Quarun with a capacity of about 200,000 tons per year. A.I.D. is pleased with this long-range planning of the company. However, in order to ensure that an over-supply situation does not come about, A.I.D. will seek to include in the grant agreement a GOE/El Nasr requirement to obtain A.I.D.'s approval before any additional production facilities can be acquired.
- C. EXPORTS
- 6.22 With the complexities of international marketing in mind, A.I.D. did not justify this project's viability by relying on salt exports. Although confident that domestic demand will require the additional production of this project, the future prospect for the export of Egyptian salt looks extremely promising.
- 6.23 It has been mentioned that prior to the destruction of the Port Said plant during the war, Egypt exported over 200,000 MTY. Exceptional opportunities exist for Egyptian salt exports, not only because of its high quality, but also because the production facilities are strategically located with its own shipping quay. The commodity value/transportation ratio of salt is extremely low, making its international marketability highly dependent upon transportation costs. The company starts with an advantage.
- 6.24 Another necessity for export marketing is a close proximity to the market. Statistics from 1971, indicate that 10 countries ranging from Cameroun to Zaire have to import over 300,000 MT per year. None of these countries had any local source of supply. Six other countries produced some salt, but still required imports totalling 30,000 MTY to meet domestic demands. Only Senegal had the capacity to export salt, and this was less than 80,000 MTY.
- 6.25 Considering that the above are based upon 1971 statistics, best estimates indicate a salt import requirement of up to 400,000 MTY. Thus, on the same continent, Egypt looks out upon potentially vast export markets. This demand coupled with the competitive advantages of Egyptian salt could, if developed and if Egypt had excess capacity, become a foreign exchange earner for Egypt.

- 6.26 The complexities of gaining entrance to export markets consist not only of quality and cost, but also the ability to assure the buyers that their requirements can continually be met. This usually entails having existing production facilities to satisfy long-term sales agreements. Because Egypt does not currently have an excess capacity of salt, not does A.I.D. envision such a situation, this potential export market for salt has been discounted and not relied upon for project justification. However, not relying upon such markets does not mean they do not exist, nor does it imply that they can not be exploited in the future. It is a situation which exists and can be viewed as a margin of safety for the marketing of Egyptian salt.

D. COMPETITION

- 6.27 As stated earlier, El Nasr produces 95 percent of all salt in Egypt. Consequently, competition from other producers in Egypt is negligible. Further, due to the large initial investment required in solar salt operations, future competition is unlikely.
- 6.28 No salt is imported by Egypt. Future competition from imports is not a concern. It would be difficult for foreign salt to compete in the domestic market due to price advantages enjoyed by the domestic salt. In addition to competing with government controlled prices for all but the refined salt, imported salt would carry the additional burden of ocean freight costs and Alexandria port handling and tariff charges which are quite high.

VII. FINANCIAL ANALYSIS

A. HISTORICALS

General

- 7.01 El Nasr Salines Company is a public sector corporation and is therefore required to follow the Egyptian Standardized Accounting System (SAS) which was made mandatory for all public sector corporations by Presidential Decree No. 4723, dated December 1966. One hundred percent of El Nasr's stock is owned by the Government of Egypt, specifically, the Ministry of Industry and Industrialization. Within the Ministry, it is presently classified as a mining sector company. Before the reorganization of the Ministry, and the Government-wide elimination of General Organizations in 1976, El Nasr was included in the Ministry's General Organization for Foodstuffs.
- 7.02 In any event, El Nasr Salines Company is subject to both the benefits and the disadvantages of being an Egyptian public sector corporation. On balance, it has definitely been to its advantage since the Company has received sizable contributions to equity for plant replacement and expansion, and operating grants to meet salary and benefit payments to the Port Said Plant employees. As discussed earlier, El Nasr lost the production of the Port Said plant in 1967 due to warfare. During the intervening period until the Company was able to take physical possession of the Port Said Plant again in 1974, El Nasr retained all the Port Said employees on the payroll by giving them jobs at the Mex salt plant in Alexandria.
- 7.03 In following the regulations of the Standardized Accounting System (SAS) all public sector companies, including El Nasr, prepare lengthy annual reports, entitled Balance Sheets and Results of Operations. Not only do they show the results of current year operations and financial position, they include detailed operating data and budgets. Unfortunately, the reports are entirely in Arabic and, in keeping with the SAS, presented in a format totally different than that specified by the American Institute of Certified Public Accounts and required by the American Security and Exchange Commission. Accordingly, the Mission contracted with an Egyptian-chartered accounting firm, Farid S. Mansour & Co., which represents Coopers and Lybrand, CPA in Egypt, to translate the audit reports for El Nasr Salines Company for the years 1973 through 1976, and represent them in the American format with financial notes. The translated reports appear in Annex P.

Balance Sheets

- 7.04 At the end of 1976, El Nasr's assets totaled LE 6,499,254 (\$9.2 million) of which LE 1,854,437 (\$2.6 million) were classified as current. Total liabilities were LE 1,642,138 (\$2.3 million) of which LE 1,401,841 were current and only 240,297 was long term debt. Table VII-1 below shows comparative balance sheets for El Nasr for five years.
- 7.05 The value of total assets show an increase from LE 2.7 million in 1972 to LE 6.5 million in 1977 which would, on the surface, indicate a growing, healthy company. However, closer examination reveals over the same period the Ministry of Industry made contributions to equity totalling over LE 1.8 million (\$2.6 million). These contributions were taken on El Nasr's books as a "Redeemable Government Participation" increasing the account from LE 1.4 million to LE 3.2 million. Presumably they may be withdrawn at the Ministry's discretion. However, the Ministry, at the end of 1975 during the Annual General Meeting, akin to an American annual stock-holder's meeting, passed a resolution transferring LE 2.1 million from the redeemable account to the capital stock account. This, in effect, created a premium paid account, on LE 1,500 shares of LE 2.00 per value stock. There still remains in the redeemable account a balance of LE 1.1 million. In addition to these funds, El Nasr also received LE 779,713, a grant to be utilized specifically for the rehabilitation of the war-destroyed Port Said Plant. This amount also appears in the equity section but the Ministry has not designated that it is redeemable. As a result of the equity contributions, the capital portion of equity increased from LE 1.8 million at the end of 1972 to LE 3.98 million at December 1976.

EL NASR SALINES COMPANY

COMPARATIVE BALANCE SHEETS FOR THE YEAR ENDING DECEMBER 31, 1972-1976

	1976	1975	1974	1973	1972
ASSETS					
Current Assets					
Cash	1,991	235,957	341,621	381,099	352,395
Trade Accounts Receivable	141,344	61,935	349,575	161,304	97,592
Other Accounts Receivable	205,439	256,589	185,461	229,338	174,650
Inventories	1,466,910	1,374,978	1,120,471	1,010,607	980,551
Prepaid Expenses: L/Credits	38,753	20,293	14,573	8,254	69
TOTAL CURRENT ASSETS	1,854,437	1,949,752	1,901,701	1,790,602	1,605,257
Property Plant & Equipment (Net)	2,593,209	1,933,679	1,459,975	998,995	1,015,670
Project In Process	2,017,702	1,589,513	400,974	139,492	94,754
Investments	33,906	33,096	33,096	21,096	21,096
TOTAL ASSETS	6,499,254	5,506,040	3,795,746	2,950,185	2,736,777
LIABILITIES					
Current Liabilities					
Bank Notes Payable	168,254	0	0	0	0
Accounts Payable & Accrued Expenses	937,453	852,120	550,343	506,366	423,950
Current Portion of Long Term Debt	207,302	128,590	44,101	0	0
Income Tax Payable	67,792	0	0	0	0
TOTAL CURRENT LIABILITIES	1,401,841	980,710	594,444	506,366	423,950
Long Term Debt	240,297	363,200	91,296	0	0
TOTAL LIABILITIES	1,642,138	1,343,910	685,740	506,366	423,950
EQUITY					
Capital Account	3,983,088	3,400,830	2,475,830	1,905,830	1,780,830
Non Distributable Reserves	102,441	99,208	99,209	99,209	99,209
Distributable Reserves	771,587	770,262	791,326	791,326	684,362
Retained Earnings	0	(108,470)	(256,359)	(279,938)	(251,574)
TOTAL EQUITY	4,857,116	4,162,190	3,110,006	2,443,819	2,312,827
TOTAL LIABILITIES AND EQUITY	6,499,254	5,506,040	3,795,746	2,950,185	2,736,777

7.06 The purpose of the contributions is to finance El Nasr's major expansion and rehabilitation program. Over the last four years, El Nasr has either purchased equipment or constructed facilities valued at LE 4.28 million (\$6.1 million), including construction in progress.

(Note at December 31, 1976, El Nasr was carrying LE 784,140 for construction in progress at the Port Said Plant, of which L.E. 271,181 was building construction and the remaining was civil works on the restoration of canals and ponds.)

Table VII-2 shows the annual plant additions.

TABLE VII-2

Additions to Depreciable Assets

<u>Year</u>	<u>Building</u>	<u>Equipment Tools Machinery</u>	<u>Total</u>
1976	347,426	618,524	965,950
1975	143,753	535,398	679,151
1974	31,483	530,651	562,134
1973	23,760	29,153	52,913
			2,260,148
Construction in Progress at 12/31/76			2,017,802
			4,277,850

- 7.07 As the balance sheets indicate, El Nasr and the Ministry have made an operating decision to finance plant additions with equity contributions in addition to operating income rather than debt financing. As Table VII-3 below indicates, the debt equity ratio for El Nasr at December 31, 1976, is 25:75 which is very conservative; usually A.I.D. looks to see a 70:30; that is 70% debt to 30% equity. Also, the trend of decreasing current ratios, with a corresponding decrease in current asset and increase in fixed assets further substantiates that equity contributions and current operations are financing the plant expansion. Provided there is adequate cash flow to service debt, El Nasr is in good position to take on a sizeable amount of debt.

TABLE VIII-3

CALCULATION OF BALANCE SHEET RATIOS (LE -000)

	1976	1975	1974	1973	1972
Cash with Receivables	348	554	766	771	625
Other Current Assets	<u>1,506</u>	<u>1,396</u>	<u>1,136</u>	<u>1,020</u>	<u>980</u>
Total Current Assets	<u>1,854</u>	<u>1,950</u>	<u>1,902</u>	<u>1,791</u>	<u>1,605</u>
Other Assets	<u>4,645</u>	<u>3,556</u>	<u>1,894</u>	<u>1,159</u>	<u>1,132</u>
TOTAL ASSETS	<u>6,499</u>	<u>5,506</u>	<u>3,796</u>	<u>2,950</u>	<u>2,737</u>
Short Term Debt	1,402	981	594	506	424
Long Term Debt	<u>240</u>	<u>363</u>	<u>91</u>	<u>-0-</u>	<u>-0-</u>
TOTAL DEBT	<u>1,642</u>	<u>1,343</u>	<u>686</u>	<u>506</u>	<u>424</u>
TOTAL EQUITY	<u>4,857</u>	<u>4,162</u>	<u>3,110</u>	<u>2,444</u>	<u>2,313</u>
Current Ratio	1.32:1	1.99:1	3.20:1	3.54:1	3.79:1
Acid Ratio	0.25:1	0.56:1	1.29:1	1.52:1	1.47:1
Debt Equity Ratio	25:75	24:76	18:82	17:83	15:85

Income Statements

- 7.08 El Nasr's recent history of income is erratic, although overall it shows a trend at improvement. As mentioned previously, El Nasr retained all the Port Said Plant employees, well over 300, on the payroll from the time El Nasr physically lost possession of the Port Said Plant. Obviously, this has had a very disruptive effect on maintaining plant efficiency at the Mex plant with 300 extra men to work into an already established operation. Over the period, the Ministry has reimbursed El Nasr the direct out of pocket expenses of the Port Said personnel; however, this in no way makes up for the overall inefficiency. During 1976 many of the Port Said employees have returned to Port Said to begin rebuilding the preconcentration ponds and crystalizers in anticipation of the plant resuming production in 1978. Also, Port Said has been bagging and selling a portion of the unspoiled raw salt to Turkey during 1976 and 1977. We would expect the Mex Plant to begin showing a better profit picture as the Port Said Plant recalls its employees.
- 7.09 With net profits before taxes of LE 201,373, LE 150,277, and LE 25,207, El Nasr has generated only a 4.1%, 3.6% and .8% return on total equity for the Calendar Years 1976, 1975 and 1974 respectively. See Table VII-4. This is not a fair calculation since El Nasr was and is in a period of major expansion. The plant expansion, financed by the significant equity contributions, have not yet begun generating the additional revenue. Although we have not reviewed the financial projects for the Mex Plant additions, El Nasr claims that the additional revenue generated by plant capacity increase, 600,000 tons per year to over 850,000 tons per year, will yield an adequate rate of return.

Table VII-4
El Neco Salines Co.
Comparative Income Statements
For the Calendar Years 1972-76

	1976	1975	1974	1973	1972
	L.E.	L.E.	L.E.	L.E.	L.E.
INCOME:					
Net Sales & Other Income	1867183 28487	1664460 39988	1467232 25970	1373613 20040	2029623 42071
Total Income	1895670	1724448	1493202	1393653	2071694
COSTS AND EXPENSES:					
Cost of Sales Selling, General and Administrative Expenses	834648 883274	885970 752940	772245 802982	675833 796698	1153779 1333647
Net Income from Current Operations	77048	85538	(82025)	(78760)	(115732)
Prior Year Adjustments (expense)	8700	8048	10867	(37745)	13971
Port Said War Damage Operating Grant	133169	72785	96365	68000	27475
Net Income Before Taxes	201373	150277	25207	(26505)	74466
Income Tax	11709	2000	1752	1860	1091
Net Income	L.E. 1895670	L.E. 1724448	L.E. 23455	L.E. (28365)	L.E. (74466)

1. Expenses include Port Said Plant employees working in Mex Plant
2. Ministry of Industry and Industrialization operating grant to finance prior year expenses of maintaining Port Said Plant employees.
3. Taxes other than pure income tax included in this account.

B. FINANCING PLAN

- 7.10 It is proposed that this project be financed on a two-step basis; that is, that the GOE be required to relend the A.I.D. Grant to El Nasr on commercial terms. Grant financing to the GOE is proposed since this project is clearly a reconstruction of a war destroyed facility, located in the Suez Canal area. This is in keeping with recent A.I.D. criteria. Proposed terms to El Nasr Salines Company, however, are at commercial rates. Principal repayment in Egyptian Pounds over a 15-year period including a five year grace period with interest at 10 percent during the life of the loan. These terms are consistent with Egyptian private sector rates and equal to current rates for companies finding financing from international financing entities.
- 7.11 Interest payments over the life of the loan will total the equivalent of \$13.2 million. The total principal and interest payment from El Nasr to the GOE will total \$26.2 million, representing an addition to Egypt's budget over the repayment period. Annex Q4 shows the detailed interest and loan amortization computations for El Nasr.
- 7.12 Total project costs are \$18,477,000, of which \$12,962,000 are foreign exchange costs and \$5,515,000 are Egyptian currency costs. The A.I.D. loan will finance the foreign exchange cost and the local currency cost will be financed from El Nasr's internal cash generation. The cash flow analysis is covered later in this section.

C. PROJECT PROFITABILITY

Sales and Pricing

- 7.13 Of the various grades of salt produced by El Nasr, the GOE controls the price on most of them except the refined salt which is set by El Nasr. Particular attention is given to the sale price for washed, ground and bagged which is used by the poorer segments of the population; it is considered the "common" salt. Generally speaking, the domestic sales prices are considerably less than FOB Mediterranean sales prices of the similar grades of salt. Below, are the domestic and approximate FOB prices for the grades of salt which will be produced by El Nasr:

TABLE VII-5

Comparative Sales Price

	<u>Domestic</u>	<u>FOB</u>
Refined Salt:	LE 21.50/per ton	LE 23.20 per ton
Washed, ground Bagged Salt (Common):	LE 15.50	LE 17.00 per ton ^{1/}
Washed Bulk Salt	LE 3.80	LE 5.60

^{1/} Salt in this form and bagged is not in demand on an export basis. However, based on production costs of the milled salt and refined kitchen salt which are the two closest grades of salt, we have estimated an export price of LE 17.00 per ton.

- 7.14 As discussed previously and in the Economic Analysis section, at the present time, it is assumed that the production from this project will be consumed in the domestic market. However, for the purposes of basing the financial projections, particularly sales revenue, export sales prices were used for washed, bulk salt production and for two thirds of the production of refined salt. No changes were made to the sales price for "common" salt, which is consumed by the lower income families. Even with these price adjustments, the Port Said plant will show small profits, especially in the beginning of the project.
- 7.15 Clearly, the domestic price of salt is not sufficient to generate the revenue to yield adequate profits or, as discussed later, sufficient cash flow to service debt on the life of the loan. A.I.D. intends to include a covenant into the Grant Agreement that will require the undertaking of a market and sales price study before 1980, when the Port Said Plant begins production, with the resulting adjustment of domestic sales prices to allow the Port Said Plant to generate sufficient profit cash flow to service debt.
- 7.16 The gross tonnage of sales of the plant over the first two years of operation, 1980 and 1981 represent only 44.3 and 78.7 percent respectively of the plant capacity. In the third year of operation, 1982, the gross sales tonnage will reach 95 percent; sales will not reach 100 percent capacity until the sixth year of operation, i.e., 1985. This is due to the nature of salt plant operations in that it is necessary to first build up and subsequently maintain a salt stockpile equivalent to one year's production, in the case of this plant, 145,000 tons.

(Note: Although the technical section of this paper is based on a net production, after losses, of 155,000 tons per year, the financial and economic analyses are based on the assumption that in the immediate future the additional land necessary to produce the 10,000 may not be available. Table VII-6 below shows the percent capacity of production, the number of tons sold, and the resultant revenue.

TABLE VII-6

PLANT CAPACITY AND PROFIT GENERATED

<u>Year</u>	<u>Percent Capacity</u>	<u>Tonnage Prod. & Sold</u>	<u>Revenud Produced LE 000</u>
1980	34.5%	50,000	989
1981	62.0%	90,000	1,754
1982	86.2%	125,000	2,118
1983	93.1%	135,000	2,174
1984	96.6%	140,000	2,202
1985	100.0%	145,000	2,230
1986	100.0%	145,000	2,230
1987	100.0%	145,000	2,230
1988	100.0%	145,000	2,230
1989	100.0%	145,000	2,230

Annex Q-1, Production and Sales Schedule Projection shows in more detail the effect of building the salt stockpile on gross sales over the first five years of the project.

Profits

- 7.17 Profits, before taxes (but after interest and depreciation) are estimated to follow a rather erratic pattern over the first few years of the project. Again, this is primarily a result of building a salt stockpile over this period of time, and consequently, not being able to sell the total salt harvested each year. A detailed analysis showing plant profits is included in Annex Q-1,2, Project Income Statement.
- 7.18 In order to properly match costs with revenues, the corresponding annual percent of capacity was applied to the plant depreciation and interest expenses over the period that the plant was operating at less than 100 percent capacity. The balance of the amounts which were not currently expensed, were capitalized until full capacity was achieved, and then subsequently amortized over the remaining plant life, 25 years. All other operations expenses were charged at a rate equivalent to the percentage of the estimated quantity of salt produced and sold in each year to the total production capacity of the plant.
- 7.19 The plant, however, shows marginal profits in 1983 primarily due to increasing depreciation and interest expenses toward the end of the 5 year deferred expense period. The plant actually shows a loss in 1985, the first year the deferred interest and depreciation amounts are expensed. After 1985, however, the plant shows increasing profits to LE 417,000 in 1989 - the tenth year of plant operation. A summary of Port Said's profits for various years is shown below in Table VII-7.

Table VII-7PORT SAID'S ANNUAL PROJECTED PROFIT

(LE 000)

<u>Year</u>	<u>Sales</u>	<u>Net Profit Before Taxes</u>	<u>Profit As % of Sales</u>
1980	989.0	166.8	17.0
1981	1,754.5	387.9	22.0
1982	2,118.0	104.7	5.0
1983	2,174.0	12.4	.6
1984	2,202.0	18.3	.8
1985	2,230.0	(67.8)	(3.0)
1986	2,230.0	164.5	7.0
1987	2,230.0	240.5	10.0
1988	2,230.0	324.0	14.0
1989	2,230.0	417.8	18.0

El Nasr Debt Service Capability

- 7.20 During the construction phase of the project, all local currency requirements will be provided by El Nasr, and to the extent necessary by the Ministry as a contribution to equity. Once production begins, the project will generate sufficient cash flow to service debt through the year 1987. See Annex R.
- 7.21 Beginning with 1978, our projection of cash shows a negative flow. We would expect, however, that by 1985, a sufficient rise in the selling price of salt, as a result of price adjustments, will generate sufficient revenue to service fixed amount of debt, even taking into account the expected rise of costs. A.I.D. will seek to secure from El Nasr its annual reports in English in which actual experience is compared to budget figures. Also, we intend to require El Nasr to submit annual financing plans, with projected cash flows to ensure each year's obligations are planned for and met.

VIII. ECONOMIC CONSIDERATIONS

- 8.01 As discussed above in the marketing section, it is currently projected that all of the salt produced will be consumed domestically. As a result, the benefits of this project are equal to the expenditures that would otherwise have to be made for salt imports for the domestic market.
- 8.02 Salt import prices were estimated using current information on international salt prices (cif plus port charges). These import prices are estimated at \$10.67/ton for washed raw salt in bulk, \$27.25/ton for washed ground salt in 25 kg bags, and \$44.16/ton for refined kitchen salt in 25 kg bags. At projected production levels and these prices, the economic internal rate of return is 17.2%.
- 8.03 On the capital cost side, the direct foreign exchange components of investment costs shown in Annex O were pro-rated over the two-year construction period. The expenses section of Annex P served as the basis for the calculation of the annual operating and maintenance costs commencing in 1980 (year 3 of the analysis). Two adjustments were made to the expenses reported for each year in Annex Q. Depreciation expenses were excluded from costs and the fuel was shadow priced at world market prices.
- 8.04 The gross savings due to this investment would be the foreign exchange needed to import 145,000 tons of salt annually in those grades and quantities included in Annex Q, or approximately \$3.6 million. In addition fuel exports of the quantities consumed by PSS at world market prices would be foregone; using 2,500 tons as an estimate of fuel consumption would put the value of exports foregone at about \$0.3 million. Deducting the total of \$.3 million from the savings of \$3.6 million would leave a net saving of \$3.3 million annually, or a recovery of the foreign exchange cost of the plant in six years.

(Note: All conversions were calculated at the parallel market rate of one U.S. dollar equals 1.70 Egyptian Pounds.)

IX. ENVIRONMENTAL ANALYSIS

- 9.01 An environmental analysis of the Port Said Salines project was prepared by STV in August 1977. STV's conclusion, in which we concur, is that this project will have no adverse impact on the environment. Annex I shows the potential environmental impacts in table form. Following is a narrative discussion of the environmental analysis.
- 9.02 Atmospheric Conditions: Concern with atmospheric conditions center upon prevailing winds. Upwind sources could have a detrimental effect on the salt plant while sensitive downward areas may suffer if air pollutants are released during salt operations. Prevailing winds are from the northwest. There are no existing or planned land development to the northwest which will produce undue levels of air pollutants, and none to the southwest which would be sensitive to any pollutants originating from the salt plant.
- 9.03 Soil Conditions: The soils at the plant range from a silt to fine sand underlain by clay, silt and fine sand and are not suitable for buildings requiring heavy foundations. Care will be needed in selecting the location and site of salt stacks since their weight is such that they could uplift soil pressures on nearby plant buildings. Groundwater is basically saline and will not be adversely effected by plant operations.
- 9.04 Sonic Conditions: The plant area covers ten square kilometers and is now surrounded by undeveloped land, marshes and water bodies. Noise levels at specific areas on the site may be objectionable. However, the noise will quickly dissipate.
- 9.05 Waste Disposal: Sewerage from Port Said and Port Fouad should not pose a threat to final salt quality or seawater quality at the point where El Nasr's seawater intake is planned. Ships moving through the Suez Canal are not permitted to dump wastes in the canal or within Egyptian territorial waters. Sewerage generated by the salt plant's employees is treated in septic tanks and is not a threat to salt or water quality.
- 9.06 Bittern Disposal: A solution of bromides, magnesium and calcium salts (known as bittern) will remain after the sodium chloride is crystallized out of the saltwater. The bittern concentration will be more than 40 times that of seawater and discharge into the sea at this level of concentration would be harmful to marine and plant life. To remedy this, the bitterns will be diluted to a concentration of ten times seawater and returned to the sea. The level of concentration meets U.S. standards.

9.07 Fuel Oil Storage: Approximately 40,000 liters of diesel fuel will be stored at the site. Dikes and containment areas, with a capacity twice that of the tanks, will be built around oil tanks.

9.08 Construction Phase: It will take approximately 24 months to complete the re-establishment and modernization of the plant. During this period, between 100 and 200 additional workers will be on the site.

9.09 THRESHOLD DECISION

This project will not adversely affect such aspect of the human environment as air, water, land flora and fauna. Socio-economic condition will be improved as a result of this project. The initial environmental analysis indicates that this project will not have a significant effect on the environment.

9.10 The reasonable foreseeable effects of environmental impact on organism in the biosphere, including human life, are not significant. Consequently, the threshold decision is that an Environmental Assessments or an Environmental Impact Statement is not considered as required for this project. The IEE Determination Sheet is shown in Annex T.

X. SOCIAL ANALYSIS

A. General

- 10.01 Other than primary economic growth benefits which will result from this project, there are benefits which are closely related to the major Egyptian social goals of employment generation and population dispersion. Both of these social oriented goals represent important aspects of Egypt's development program. Given the equity concern of Egyptian Development planners it can safely be assumed that economic benefits derived from the development investment are distributed among the population at large with a significant portion of these benefits supporting programs which ameliorate the environment of the poorer classes in Egypt.
- 10.02 One of the most fundamental socio-economic problems facing Egypt over the next two decades will be finding jobs for the estimated 300,000 young men and women entering the labor force each year. Present estimates hold that only about 185,000 jobs are being created each year. In part the exporting of trained Egyptians to the oil-rich Arab countries has provided a pressure valve for the rapidly expanding labor force. It has also given the GOE time to reassess it's investment policies and orient these, whenever possible, toward projects which create jobs along with increasing the productive capacity of Egypt.
- 10.03 This project will directly create 250 new jobs at the proposed plant site in the Port Said area. As the production from the plant comes on stream additional jobs will be created in the systems which transport and distribute the salt. The jobs created will include management and administration of the plant, the technical refinery operation, material handling, packaging and general marketing of the product.
- 10.04 The development of a rational urban development policy which will curtail emigration from rural areas to Cairo is a major challenge for Egypt. Cairo and Alexandria presently contain about 27% of the population of Egypt. Cairo's eight million population will increase to about 20 million people by 1990 if the present emigration and population growth trends continue.

- 10.05 Two important factors have encouraged the rural/urban migration in Egypt. Population increases in rural areas have created labor surpluses because agricultural activity is limited by the availability of water and suitable land. In addition the government has over the last 20 years deliberately allocated a disproportionate level of public funds to centralize government services and urban based production activities. These two factors have led to a concentration of the more attractive employment opportunities in the urban areas- principally Cairo and Alexandria.
- 10.06 As the government has become increasingly aware of the need to undertake policies which will stem this flow of people to Cairo it has undertaken a broad range of programs to address this problem. One of the most important of these programs has been the redevelopment and renovation of the Canal Cities, with the creation of meaningful job opportunities in these cities. The potential impact of this policy could have broad reaching effect in the medium and long term as these cities begin to attract part of these migrating rural people. As such this project directly supports this important GOE social goal of urban dispersion.
- 10.07 El Nasr Salines Company already employs 225 women which represents fifteen percent of its work force. There is complete economic equality within the firm between women and men - each receiving the same pay for the same work performed. The majority of women, in the Company's work force are employed in secretarial or clerk positions but they are also represented in senior management positions which include lawyers, accountants and engineers. It can be assumed that this pattern will be repeated in the Port Said Plant and therefor this project will directly increase the productive role that women play in the economic development of Egypt.

XI. PROJECT IMPLEMENTATION

A. Implementing Agency

1. El Nasr Salines

- 11.01 The El Nasr Salines Company, a public sector company of the Egyptian Government, will be responsible for the implementation of this project. The organization and resources of this company have been discussed in Chapter IV of this paper.

2. Cooperating Agencies

- 11.02 As a part of its program to widen and deepen the Suez Canal, the Suez Canal Authority (SCA), a semi-autonomous agency of the GOE, is planning to construct a by-pass canal which will bisect the existing company lake. To compensate for this, the SCA has agreed to construct dikes along the periphery of an adjacent area which will serve in the future as the company lake (concentration pond).
- 11.03 The Egyptian Electric Authority has agreed to fully satisfy the El Nasr Salines Company electric power requirements, approximately 1,999 KV, in 1978 at which time the Port Said and Port Fouad electric networks will be interconnected.

B. Implementation Plan

1. Current Status

- 11.04 During the past several years, the El Nasr Salines Company has accomplished considerable work in reconstructing the solar salter at Port Said. Civil works, including office, garage and guest house building, have been erected and site roads and dikes have been improved or restored. Using equipment borrowed from the company's facility at Mex (Alexandria), the company expects to begin limited production of raw salt this year.
- 11.05 El Nasr will assign a Project Management Team to the project whose full time responsibility will be project execution. The Team will be headed by a Project Manager, who will be a senior executive of El Nasr, and include civil and process engineers, accounting and procurement personnel.

2. Consulting Services

- 11.06 The company will contract for consulting engineering services to be funded under this project. Services will include assistance to the company in preparation of a final project plan, schedule and budget, final equipment specifications and IFBs, evaluation of bids, award and contract execution, monitoring of procurement, overall supervision of construction and erection, project startup, testing and acceptance.
- 11.07 The El Nasr Salines Company has indicated its desire to utilize the firm of STV, Incorporated, for the above cited engineering services. The STV study team worked very closely with the company in preparing the initial study of the technical and environmental aspects of this project under Contract No. AID/otr-C-1452. A.I.D. will review the consultant selection in accordance with provisions of Section 1B2K of AID Handbook 11, Country Contracting.

3. Procurement

- 11.08 The El Nasr Salines Company will procure all equipment, vehicles, tools, and materials from U.S. suppliers utilizing AID approved IFBs and Handbook 11 procedures. It is anticipated that procurement will be divided into several major categories: washing and stockpiling facilities; salt refinery; harvesting and transport/support equipment; shop and laboratory equipment; and miscellaneous materials, including construction materials.
- 11.09 The expected approach to the two main production facilities, i.e., the raw salt washing and stockpiling facility and the salt refinery, will involve single responsibility (turnkey) type contracts or possibly one contract covering both facilities. The supplier would be required to provide detailed design, all equipment, piping, electricals, etc., and technical services including supervision of erection, startup and training of operators and maintenance crews.
- 11.10 All civil works will be accomplished by Egyptian general contractors working directly under contract(s) with El Nasr Salines Company. Any specialized civil designs will be provided by the related U.S. supplier. Designs relative to standard works, i.e., roads, dikes, pump houses and sea water intake, etc., will be provided by the consulting engineer or El Nasr.

C. Implementation Schedule

- 11.11 The implementation schedule is shown in bar chart format in Annex U.

D. Terminal Dates and Project Assistance Completion Date

- 11.12 The terminal date for meeting Conditions Precedent will be 120 days after the date of signing of the Grant Agreement.
- 11.13 The project assistance completion date will be November 30, 1979. The terminal date for disbursements will be August 31, 1980.

E. Monitoring and Reporting

- 11.14 Upon signing of the Grant Agreement, USAID will issue an Implementation Letter which, among other things, will contain the necessary guidance details on the types of reports (e.g., progress, financial, shipping) and reporting formats to be followed. At the commencement of his work, the Consulting Engineer will update the Project Schedule which, when approved by El Nasr, will become the basis for project execution. The Consulting Engineer and El Nasr will be required to submit monthly progress reports to A.I.D., stating progress in conformance with the implementation schedule. Throughout the life of the project, the U.S. Consultant will monitor the project to ensure satisfactory project progress. Any routine problems, together with corresponding suggested solutions, will be brought to the attention of USAID in the form of the monthly reports from the Consultant and El Nasr. Serious problems requiring immediate attention will be brought to the attention of the USAID Project Manager and his counterpart in El Nasr. Project progress will be determined by measuring actual performance against the approved schedule. USAID staff will make periodic visits to the plant site to review progress and problems with El Nasr's management staff and the Consultant, as well as meet on a regularly scheduled basis with El Nasr and the Consultant.

F. Evaluation

- 11.15 Two basic evaluation processes will be undertaken as part of this project. Based on the detailed monitoring reports which will be submitted by the Consulting Engineer, the AID Project Manager working with the El Nasr Project Manager will undertake an annual evaluation/progress report which will summarize the consulting engineers report's reports and evaluate the progress of project implementation against the agreed to schedule. This report will be used by El Nasr and A.I.D. as an annual check on progress. Suggested dates for these reports are October 1978, October 1979 and October 1980.
- 11.16 A more detailed technical assessment will be made in the Fall of 1981, when the plant will have been in operation for at least one production cycle. This assessment will be made by a team of El Nasr and A.I.D. technicians and will assess the progress made toward the production objective of this project. If the design production capacity has been reached or indicators are such that the Team believes this capacity will be reached in the following cycle the project will be considered

to be successfully completed. The Team will draft an Evaluation Report stating their findings and submit this Report to El Nasr Salines Company and the Agency for International Development/

XII. RECOMMENDATION, CONDITIONS AND COVENANTS

A. Recommendation

- 12.01 Subject to the conditions and covenants listed below, we recommend that A.I.D. authorize a Grant to the Government of Egypt in the amount of \$13 million for the reconstruction and modernization of the Port Said Salines Plant. We further recommend that Grant funds be loaned to the El Nasr Salines Company at an annual interest rate of ten percent (10%) with the principal to be repaid over a 15 year period, including a five year grace period. The equipment and services financed by this grant will have their source and origin in the United States.

B. Conditions Precedent to Disbursement

- 12.02 We recommend that the Conditions Precedent to Disbursement be segregated into two groups. The first, or initial, set would be those conditions which must be satisfied before the employment of a consulting engineer. The second, or subsequent, set would be those conditions which must be satisfied before the purchase of plant and equipment.
- 12.03 The Conditions Precedent to Initial Disbursement are:
- a) An opinion of the Egyptian Ministry of Justice or other legal counsel satisfactory to A.I.D. that the grant agreement and the corresponding relending agreements have been duly authorized and ratified by, and executed on behalf of, the GOE and is a valid and legally binding obligation in accordance with its terms.
 - b) The names of the persons who will act as the representatives of the GOE and El Nasr Salines, together with evidence of their authority and the specimen signature of each.
 - c) Evidence that the grant proceeds will be made available to El Nasr Salines on terms and conditions satisfactory to A.I.D.
 - d) An executed contract acceptable to A.I.D. for consulting engineering services.
- 12.04 The Conditions Precedent to Subsequent Disbursements are:
- a) A model flow analysis and sedimentation study of the Sea Water intake location.

b) A cost comparison between obtaining sea water from the Mediterranean Sea and the building of a pipe line to Lake Mallaha.

c) An agreement between El Nasr Salines and the Suez Canal Authority for the building of new concentration ponds which defines responsibility between the two parties.

C. Covenants

12.05 The GOE and El Nasr will be required to covenant:

a) Execution of the Project

i To cause the project to be carried out due diligence and efficiency, and in conformity with sound engineering, construction, financial and administrative practices

ii To cause the project to be carried out in conformance with all the plans, specifications, contracts, schedules, and other arrangements, and with all modifications therein approved by A.I.D.

iii To submit for A.I.D. approval prior to implementation, issuance, or execution, all plans, specifications construction schedules, bid documents concerning solicitation of proposals relating to eligible items, contracts, and all modifications to these documents.

b) Funds and other Resources to be Provided

To make available on a timely basis all Egyptian currency and all foreign currency in addition on the Grant and all other resources required for the punctual and effective carrying out of construction, maintenance, repair and operation of the project.

c) Operation and Maintenance

i To operate, maintain and repair the project in conformity with sound engineering financial and administrative practices and in such manner as to insure the continuing and successful achievement of the purposes of the project.

ii To undertake necessary action to determine the best means of removing and appropriately utilizing the existing stockpiles of salt at Port Said which were harvested prior to the 1967 war.

iii To obtain from the Egyptian Electricity Authority (EEA) a written guarantee that Port Said Salines will be provided, prior to plant startup, full electrical power requirement of 1,000 KW.

d) Management

i To provide qualified and experienced management for the project and to train such staff as may be appropriate for the maintenance and operation of the project.

e) Continuing Consultation

i To cooperate fully with A.I.D. to assure that the purpose of the grant will be accomplished. To this end, the GOE, El Nasr and A.I.D. shall from time to time, at the request of any party, exchange views through their representatives with regard to the progress of the project, the performance of the GOE and El Nasr of its obligations under the grant agreement, the performance of consultants, contractors and suppliers engaged on the project, and other matters relating to the project.

f) Financial Planning

A.I.D. will seek during grant agreement negotiations the following undertakings from the GOE and El Nasr Salines Company. These undertakings are negotiable and thus are not being included in the grant authorization.

i Not to take any action or make any investments to further increase El Nasr's salt production capacity without prior consent and approval of A.I.D.

ii To have an Egyptian Chartered Accountant, who is representing an American firm of Certified Public Accountants, to annually through the year 1990 translate appropriate sections of El Nasr's Annual Report, in order to prepare Historical Financial Reports, including Balance Sheets, Income Statements and Source and Application of Funds in conformity with presentation standard prescribed by the American Institute of Certified Public Accountants.

iii To submit to A.I.D. each year until 1990 a one year and five year plan showing sources and application of funds to ensure all debts will be properly serviced.

iv Without the prior consultation and approval of A.I.D., El Nasr agrees:

(a) Not to (1) declare any dividend or to make any other distribution with respect to its capital except out of accumulated adjusted net earnings; (2) purchase, redeem or otherwise acquire, directly or indirectly for any consideration of any such capital; or (3) otherwise reduce its capital or prepare any long-term debt, if, after giving effect to any such action the ratio of current assets to current liabilities would be less than 1.5:1 (60:40).

(b) Not to make expenditures, or commitments for expenditures for capital additions in any one year which exceed Egyptian pounds three million (L.E. 3,000,000), except those expenditures and commitments required for carrying out the Project.

(c) To maintain a ratio of current assets to current liabilities of at least 1.5:1 (60:40) and not to incur or to have outstanding any long-term debt if the aggregate principal amount of El Nasr's outstanding long-term debt exceeds 150 percent of El Nasr's net worth.

v Submit to A.I.D. by the end of 1980, a completed market and sales price policy study relating to the salt industry, along with El Nasr Salines Company's plans for implementing the recommendation of the study. The salt prices should be set at a level which will allow El Nasr to generate a reasonable profit on investment after paying all production cost and operating costs and servicing debt.

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MINISTRY OF ECONOMY
AND ECONOMIC COOPERATION

Mr. Donald S. Brown
Aid Director
U.S.A. Embassy
Cairo.

Cairo, 5 Sept. 1977.

Dear Mr. Brown,

One of the priority objectives of the Government of the Arab Republic of Egypt is to reconstruct the 230,000 ton per year solar salt plant at Port Said. This reconstruction is considered essential to meet the increased industrial demand for sodium chloride used in the production of paper and pulp, petrochemicals, plastics, textiles, food processing and leather tanning. The estimated cost of this project is approximately \$30 million.

We would like the assistance of the Government of the United States of America to grant finance the foreign exchange costs of the project. This portion is estimated at approximately \$13 million. We will provide the Egyptian Pound financing required for the project.

Sincerely yours,

G. El-Nazer

GAMAL EL-NAZER
Deputy Chairman
For Investment Authority
In Charge of Economic Cooperation

DEPARTMENT OF STATE
AGENCY FOR INTERNATIONAL DEVELOPMENT
WASHINGTON

ANNEX B-1

THE ADMINISTRATOR

PROJECT AUTHORIZATION
AND REQUEST FOR ALLOTMENT OF FUNDS

Name of Country: Arab Republic of Egypt Name of Project: Port Said Salines
Number of Project: 263-0072

Pursuant to Part II, Chapter 4, Section 532 (Security Supporting Assistance Funds), of the Foreign Assistance Act of 1961, as amended, I hereby authorize a Grant to the Arab Republic of Egypt ("the Cooperating Country") of not to exceed Thirteen Million United States Dollars (\$13,000,000) to finance the foreign exchange costs for goods and services of the project as described in the following paragraph.

The project purpose is to reconstruct the Port Said Salines Plant located at Port Said, Arab Republic of Egypt. A.I.D. will finance under the project the procurement of various kinds of equipment required for the salt plant, construction materials, and technical assistance.

The entire amount of the A.I.D. financing herein authorized for the project will be obligated when the Project Agreement is executed.

I hereby authorize the initiation of negotiation of the Project Agreement by the officer to whom such authority has been delegated in accordance with A.I.D. regulations and Delegations of Authority subject to the following terms and covenants and major conditions; together with such other terms and conditions as A.I.D. may deem appropriate.

a. Source and Origin of Goods and Services

Except as A.I.D. may otherwise agree in writing, goods and services financed by A.I.D. appropriated funding shall have their source and origin in the United States.

b. Conditions Precedent to Initial Disbursement

Prior to the first disbursement or the issuance of any funding documentation under the Grant, the Grantee and El Nasr Salines

shall furnish to A.I.D. in form and substance satisfactory to A.I.D.:

- (1) An opinion of the Egyptian Ministry of Justice or other legal counsel satisfactory to A.I.D. that the Grant Agreement and the corresponding Relending Agreement have been duly authorized and ratified by, and executed on behalf of, the Grantee and are valid and legally binding obligations in accordance with its terms.
- (2) The names of the persons who will act as the representatives of the Grantee and El Nasr Salines, together with evidence of their authority and the specimen signature of each.
- (3) Evidence that the Grant proceeds will be made available to El Nasr Salines on terms and conditions satisfactory to A.I.D.
- (4) An executed contract acceptable to A.I.D. for consulting engineering services.

c. Other Conditions

Prior to any disbursement, or the issuance of any commitment documents under the project other than to finance consulting engineering services, Grantee and El Nasr Salines shall, except as A.I.D. may otherwise agree in writing, furnish in form and substance satisfactory to A.I.D.:

- (1) A model flow analysis and sedimentation study of the Sea Water intake location.
- (2) A cost comparison between obtaining sea water from the Mediterranean Sea and the building of a pipe line to Lake Mallaha.
- (3) An agreement between El Nasr Salines and the Suez Canal Authority for the building of new concentration ponds which defines responsibility between the two parties.

d. Covenants

(1) Execution of the Project

The Grantee and El Nasr Salines shall covenant that they will:

-3-

- (a) cause the project to be carried out with due diligence and efficiency, and in conformity with sound engineering, construction, financial and administrative practices;
 - (b) cause the project to be carried out in conformance with all the plans, specifications, contracts, schedules, and other arrangements, and with all modification therein approved by A.I.D. pursuant to this Agreement;
 - (c) submit for A.I.D. approval prior to implementation, issuance, or execution, all plans, specifications, construction schedules, bid documents concerning solicitation of proposals relating to eligible items, contracts, and all modifications to these documents.
- (2) Funds and other Resources to be Provided

The Grantee and El Nasr Salines shall covenant that they will make available on a timely basis all Egyptian currency and all foreign currency in addition to the Grant and all other resources required for the punctual and effective carrying out of construction, maintenance, repair and operation of the project.

Deputy Administrator

Date

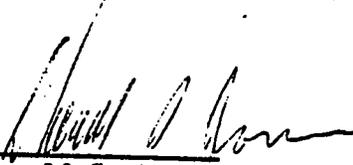


CAIRO, EGYPT

UNITED STATES AGENCY for INTERNATIONAL DEVELOPMENT

EGYPT - PORT SAID SALINES PLANT PROJECT
CERTIFICATION PURSUANT TO ARTICLE 611 (e),
FOREIGN ASSISTANCE ACT

I, Donald S. Brown, Director of the United States Agency for International Development Mission to Egypt, having taken into account, among other things, the maintenance and utilization of projects in Egypt previously financed or assisted by the United States, do hereby certify that in my judgment, Egypt has both the financial capability and the human resources capability to effectively maintain and utilize the Port Said Salines Plant which will contribute 145,000 tons of salt to Egypt's salt requirement, taking into account among other things the maintenance and utilization of projects in Egypt previously financed or assisted by the United States.


Donald S. Brown
Director

9/7/77
Date

6C(2) - PROJECT CHECKLIST

Listed below are, first, statutory criteria applicable generally to projects with FAA funds, and then project criteria applicable to individual fund sources: Development Assistance (with a sub-category for criteria applicable only to loans); and Security Supporting Assistance funds.

CROSS REFERENCES: IS COUNTRY CHECKLIST UP TO DATE? IDENTIFY. HAS STANDARD ITEM CHECKLIST BEEN REVIEWED FOR THIS PROJECT?

GENERAL CRITERIA FOR PROJECT.

1. App. Unnumbered; FAA Sec. 653(b)
 - (a) Describe how Committees on Appropriations of Senate and House have been or will be notified concerning the project;
 - (b) is assistance within (Operational Year Budget) country or international organization allocation reported to Congress (or not more than \$1 million over that figure plus 10%)?
2. FAA Sec. 611(a)(1). Prior to obligation in excess of \$100,000, will there be (a) engineering, financial, and other plans necessary to carry out the assistance and (b) a reasonably firm estimate of the cost to the U.S. of the assistance?
3. FAA Sec. 611(a)(2). If further legislative action is required within recipient country, what is basis for reasonable expectation that such action will be completed in time to permit orderly accomplishment of purpose of the assistance?
4. FAA Sec. 611(b); App. Sec. 101. If for water or water-related land resource construction, has project met the standards and criteria as per Memorandum of the President dated Sept. 5, 1973 (replaces Memorandum of May 15, 1962; see Fed. Register, Vol 38, No. 174, Part III, Sept. 10, 1973)?
5. FAA Sec. 611(e). If project is capital assistance (e.g., construction), and all U.S. assistance for it will exceed \$1 million, has Mission Director certified the country's capability effectively to maintain and utilize the project?

An "Advice of Program Change" has been prepared for transmittal to the appropriate committees of Congress. Obligations under this amendment will not take place prior to 15 days after the date of delivery of this notification. The intended obligation is within the level of funds appropriated for Egypt for FY 1977.

(a) yes
(b) yes

No further legislative action is required to implement the project.

Not applicable.

This Mission Director has so certified. See Annex E.

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A.

6. FAA Sec. 209, 619. Is project susceptible of execution as part of regional or multi-lateral project? If so why is project not so executed? Information and conclusion whether assistance will encourage regional development programs. If assistance is for newly independent country, is it furnished through multi-lateral organizations or plans to the maximum extent appropriate?

The project is not susceptible of execution as part of a regional or multilateral project. Egypt is not a newly independent country.

7. FAA Sec. 601(a); (and Sec. 201(f) for development loans). Information and conclusions whether project will encourage efforts of the country to: (a) increase the flow of international trade; (b) foster private initiative and competition; (c) encourage development and use of cooperatives, credit unions, and savings and loan associations; (d) discourage monopolistic practices; (e) improve technical efficiency of industry, agriculture and commerce; and (f) strengthen free labor unions.

The El Nasr Salines Co. is a public sector company. Consequently, this project will only directly affect item (e); that is, it will improve the technical efficiency of the Egyptian salt industry.

8. FAA Sec. 601(b). Information and conclusion on how project will encourage U.S. private trade and investment abroad and encourage private U.S. participation in foreign assistance programs (including use of private trade channels and the services of U.S. private enterprise).

The great majority of funds expended will be for goods and services from private U.S. concerns.

9. FAA Sec. 612(b); Sec. 636(h). Describe steps taken to assure that, to the maximum extent possible, the country is contributing local currencies to meet the cost of contractual and other services, and foreign currencies owned by the U.S. are utilized to meet the cost of contractual and other services.

The agreement will so provide.

10. FAA Sec. 612(d). Does the U.S. own excess foreign currency and, if so, what arrangements have been made for its release?

Yes. Release by the GOE is not a problem at present.

B. FUNDING CRITERIA FOR PROJECT

1. Development Assistance Project Criteria

- a. FAA Sec. 102(c); Sec. 111; Sec. 281a. Extent to which activity will (a) effectively involve the poor in development, by extending access to economy at local level, increasing labor-intensive production, spreading investment out from cities to small towns and rural areas; and (b) help develop cooperatives, especially by technical assistance, to assist rural and urban poor to help themselves toward better life, and otherwise encourage democratic private and local governmental institutions?

Not Applicable.

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b. FAA Sec. 103, 103A, 104, 105, 106, 107. Is assistance being made available: [Include only applicable paragraph -- e.g., a, b, etc. -- which corresponds to source of funds used. If more than one fund source is used for project, include relevant paragraph for each fund source.]

- (1) [103] for agriculture, rural development or nutrition; if so, extent to which activity is specifically designed to increase productivity and income of rural poor; [103A] if for agricultural research, is full account taken of needs of small farmers;
- (2) [104] for population planning or health; if so, extent to which activity extends low-cost, integrated delivery systems to provide health and family planning services, especially to rural areas and poor;
- (3) [105] for education, public administration, or human resources development; if so, extent to which activity strengthens nonformal education, makes formal education more relevant, especially for rural families and urban poor, or strengthens management capability of institutions enabling the poor to participate in development;
- (4) [106] for technical assistance, energy, research, reconstruction, and selected development problems; if so, extent activity is:
 - (a) technical cooperation and development, especially with U.S. private and voluntary, or regional and international development, organizations;
 - (b) to help alleviate energy problem;
 - (c) research into, and evaluation of, economic development processes and techniques;
 - (d) reconstruction after natural or manmade disaster;
 - (e) for special development problem, and to enable proper utilization of earlier U.S. infrastructure, etc., assistance;
 - (f) for programs of urban development, especially small labor-intensive enterprises, marketing systems, and financial or other institutions to help urban poor participate in economic and social development.

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B1

(5) [107] by grants for coordinated private effort to develop and disseminate intermediate technologies appropriate for developing countries.

c. FAA Sec. 110(a); Sec. 208(e). Is the recipient country willing to contribute funds to the project, and in what manner has or will it provide assurances that it will provide at least 25% of the costs of the program, project, or activity with respect to which the assistance is to be furnished (or has the latter cost-sharing requirement been waived for a "relatively least-developed" country)?

d. FAA Sec. 110(b). Will grant capital assistance be disbursed for project over more than 3 years? If so, has justification satisfactory to Congress been made, and efforts for other financing?

e. FAA Sec. 207; Sec. 113. Extent to which assistance reflects appropriate emphasis on; (1) encouraging development of democratic, economic, political, and social institutions; (2) self-help in meeting the country's food needs; (3) improving availability of trained worker-power in the country; (4) programs designed to meet the country's health needs; (5) other important areas of economic, political, and social development, including industry; free labor unions, cooperatives, and Voluntary Agencies; transportation and communication; planning and public administration; urban development, and modernization of existing laws; or (6) integrating women into the recipient country's national economy.

f. FAA Sec. 281(b). Describe extent to which program recognizes the particular needs, desires, and capacities of the people of the country; utilizes the country's intellectual resources to encourage institutional development; and supports civic education and training in skills required for effective participation in governmental and political processes essential to self-government.

g. FAA Sec. 201(b)(2)-(4) and -(8); Sec. 201(e); Sec. 211(a)(1)-(3) and -(8). Does the activity give reasonable promise of contributing to the development: of economic resources, or to the increase of productive capacities and self-sustaining economic growth; or of educational or other institutions directed toward social progress? Is it related to and consistent with other development activities, and will it contribute to realizable long-range objectives? And does project paper provide information and conclusion on an activity's economic and technical soundness?

h. FAA Sec. 201(b)(6); Sec. 211(a)(5), (6). Information and conclusion on possible effects of the assistance on U.S. economy, with special reference to areas of substantial labor surplus, and extent to which U.S. commodities and assistance are furnished in a manner consistent with improving or safeguarding the U.S. balance-of-payments position.

2. Development Assistance Project Criteria
(Loans only)

a. FAA Sec. 201(b)(1). Information and conclusion on availability of financing from other free-world sources, including private sources within U.S.

Not Applicable.

b. FAA Sec. 201(b)(2); 201(d). Information and conclusion on (1) capacity of the country to repay the loan, including reasonableness of repayment prospects, and (2) reasonableness and legality (under laws of country and U.S.) of lending and relending terms of the loan.

c. FAA Sec. 201(e). If loan is not made pursuant to a multilateral plan, and the amount of the loan exceeds \$100,000, has country submitted to AID an application for such funds together with assurances to indicate that funds will be used in an economically and technically sound manner?

d. FAA Sec. 201(f). Does project paper describe how project will promote the country's economic development taking into account the country's human and material resources requirements and relationship between ultimate objectives of the project and overall economic development?

B2

e. FAA Sec. 202(a). Total amount of money under loan which is going directly to private enterprise, is going to intermediate credit institutions or other borrowers for use by private enterprise, is being used to finance imports from private sources, or is otherwise being used to finance procurements from private sources?

f. FAA Sec. 620(d). If assistance is for any productive enterprise which will compete in the U.S. with U.S. enterprise, is there an agreement by the recipient country to prevent export to the U.S. of more than 20% of the enterprise's annual production during the life of the loan?

3. Project Criteria Solely for Security Supporting Assistance

FAA Sec. 531. How will this assistance support promote economic or political stability?

4. Additional Criteria for Alliance for Progress

[Note: Alliance for Progress projects should add the following two items to a project checklist.]

a. FAA Sec. 251(b)(1), -(8). Does assistance take into account principles of the Act of Bogota and the Charter of Punta del Este; and to what extent will the activity contribute to the economic or political integration of Latin America?

b. FAA Sec. 251(b)(8); 251(h). For loans, has there been taken into account the effort made by recipient nation to repatriate capital invested in other countries by their own citizens? Is loan consistent with the findings and recommendations of the Inter-American Committee for the Alliance for Progress (now "CEPCIES," the Permanent Executive Committee of the OAS) in its annual review of national development activities?

This assistance will promote economic stability by increasing salt production for export, thereby gaining critically needed foreign exchange for the GOE.

Not Applicable.

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6C(3) - STANDARD ITEM CHECKLIST

Listed below are statutory items which normally will be covered routinely in those provisions of an assistance agreement dealing with its implementation, or covered in the agreement by exclusion (as where certain uses of funds are permitted, but other uses not).

These items are arranged under the general headings of (A) Procurement, (B) Construction, and (C) Other Restrictions.

Procurement

- | | |
|--|--|
| 1. <u>FAA Sec. 602.</u> Are there arrangements to permit U.S. small business to participate equitably in the furnishing of goods and services financed? | Procurement of goods and services will be pursuant to established A.I.D. regulations. |
| 2. <u>FAA Sec. 604(a).</u> Will all commodity procurement financed be from the U.S. except as otherwise determined by the President or under delegation from him? | Yes. |
| 3. <u>FAA Sec. 604(d).</u> If the cooperating country discriminates against U.S. marine insurance companies, will agreement require that marine insurance be placed in the U.S. on commodities financed? | Yes. |
| 4. <u>FAA Sec. 604(e).</u> If offshore procurement of agricultural commodity or product is to be financed, is there provision against such procurement when the domestic price of such commodity is less than parity? | There will be no such procurement. |
| 5. <u>FAA Sec. 603(a).</u> Will U.S. Government excess personal property be utilized wherever practicable in lieu of the procurement of new items? | Consideration will be given to the use of excess property when practical. |
| 6. <u>ITMA Sec. 901(b).</u> (a) Compliance with requirement that at least 50 per centum of the gross tonnage of commodities (computed separately for dry bulk carriers, dry cargo liners, and tankers) financed shall be transported on privately owned U.S.-flag commercial vessels to the extent that such vessels are available at fair and reasonable rates. | Yes. |
| 7. <u>FAA Sec. 621.</u> If technical assistance is financed, will such assistance be furnished to the fullest extent practicable as goods and professional and other services from private enterprise on a contract basis? If the facilities of other Federal agencies will be utilized, | Technical assistance, to the greatest extent practical, will be from private enterprise on a contract basis. |

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are they particularly suitable, not competitive with private enterprise, and made available without undue interference with domestic programs?

- 8. International Air Transport. Fair Competitive Practices Act, 1974 Yes.

If air transportation of persons or property is financed on grant basis, will provision be made that U.S.-flag carriers will be utilized to the extent such service is available?

B. Construction

- 1. FAA Sec. 601(d). If a capital (e.g., construction) project, are engineering and professional services of U.S. firms and their affiliates to be used to the maximum extent consistent with the national interest? Yes.

- 2. FAA Sec. 611(c). If contracts for construction are to be financed, will they be let on a competitive basis to maximum extent practicable? Yes.

- 3. FAA Sec. 620(k). If for construction of productive enterprise, will aggregate value of assistance to be furnished by the U.S. not exceed \$100 million? Yes.

C. Other Restrictions

- 1. FAA Sec. 201(d). If development loan, is interest rate at least 2% per annum during grace period and at least 3% per annum thereafter? Not applicable.

- 2. FAA Sec. 301(d). If fund is established solely by U.S. contributions and administered by an international organization, does Comptroller General have audit rights? Not applicable.

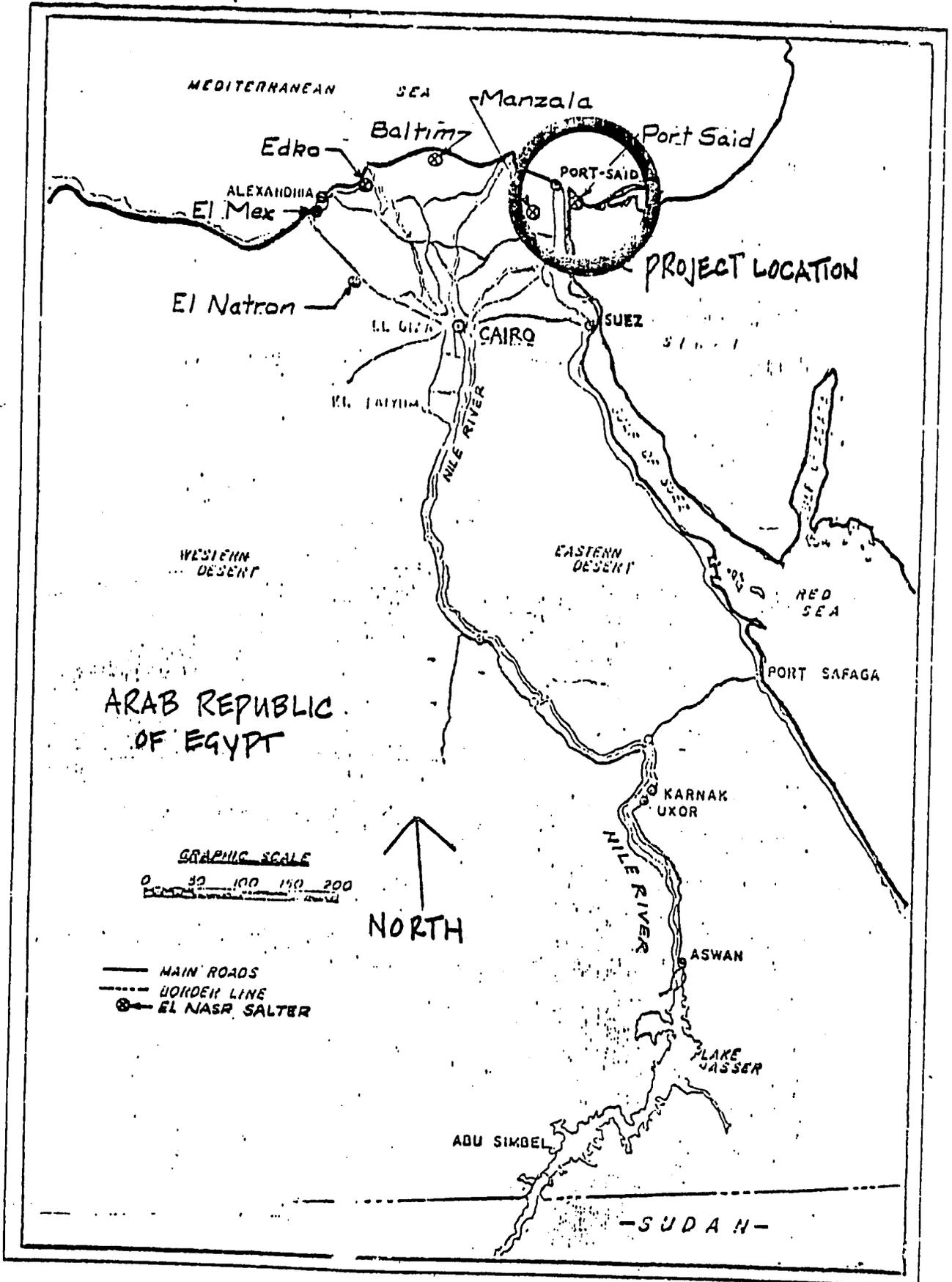
- 3. FAA Sec. 620(h). Do arrangements preclude promoting or assisting the foreign aid projects or activities of Communist-Bloc countries, contrary to the best interests of the U.S.? The Grant Agreement will so stipulate.

- 4. FAA Sec. 636(i). Is financing not permitted to be used, without waiver, for purchase, long-term lease, or exchange of motor vehicle manufactured outside the U.S. or guaranty of such transaction? Financing is not permitted to be used for such purposes.

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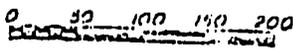
5. Will arrangements preclude use of financing:
- a. FAA Sec. 114. to pay for performance of abortions or to motivate or coerce persons to practice abortions? Yes.
 - b. FAA Sec. 620(g). to compensate owners for expropriated nationalized property? Yes.
 - c. FAA Sec. 660. to finance police training or other law enforcement assistance, except for narcotic programs? Yes.
 - d. FAA Sec. 662. for CIA activities? Yes.
 - e. App. Sec. 103. to pay pensions, etc., for military personnel? Yes.
 - f. App. Sec. 106. to pay U.N. assessments? Yes.
 - g. App. Sec. 107. to carry out provisions of FAA Sections 209(d) and 251(h)? (transfer to multilateral organization for lending). Yes.
 - h. App. Sec. 501. to be used for publicity or propaganda purposes within U.S. not authorized by Congress? Yes.

PROJECT AREA LOCATION



ARAB REPUBLIC OF EGYPT

GRAPHIC SCALE

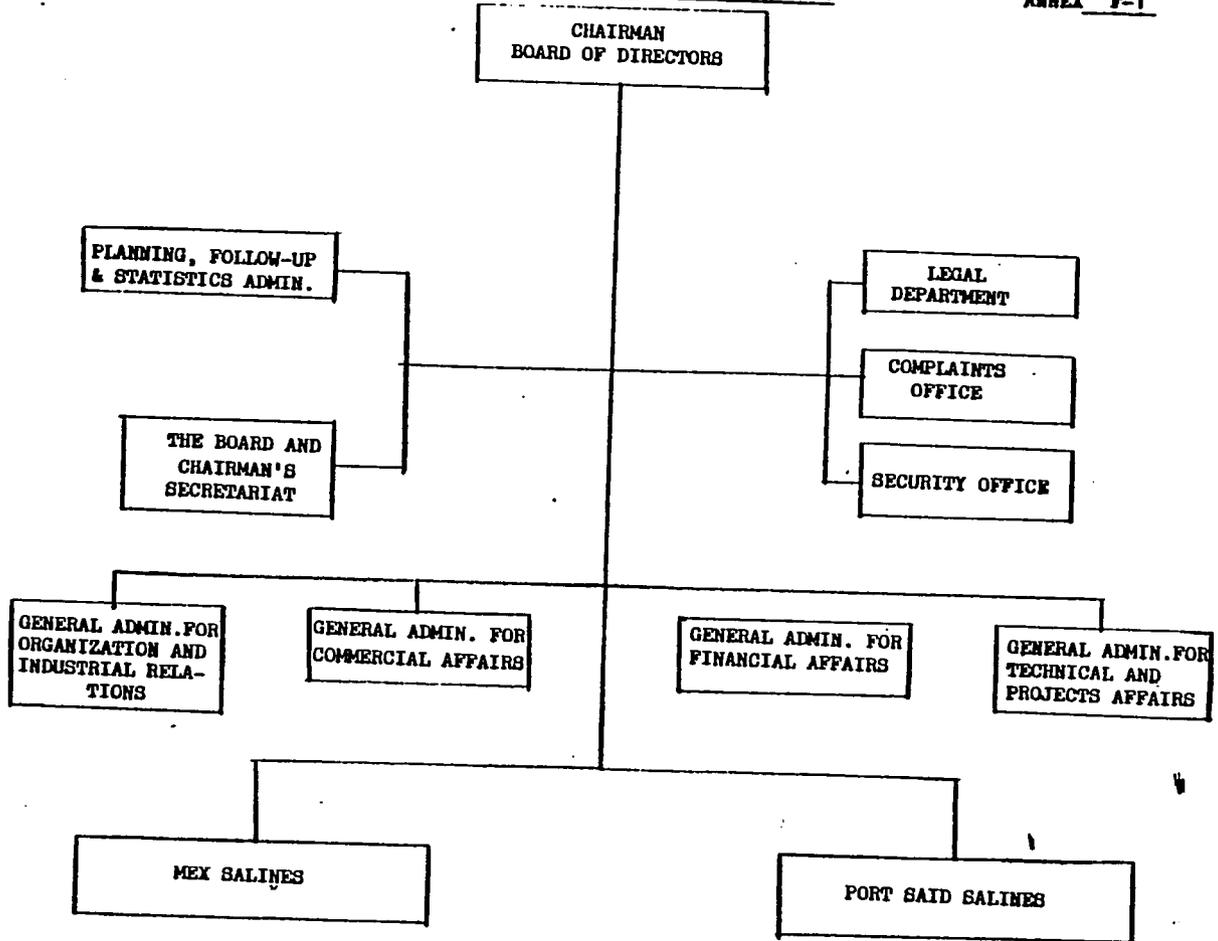


- MAIN ROADS
- - - BORDER LINE
- ⊙ EL NASR SALTER

- S U D A N -

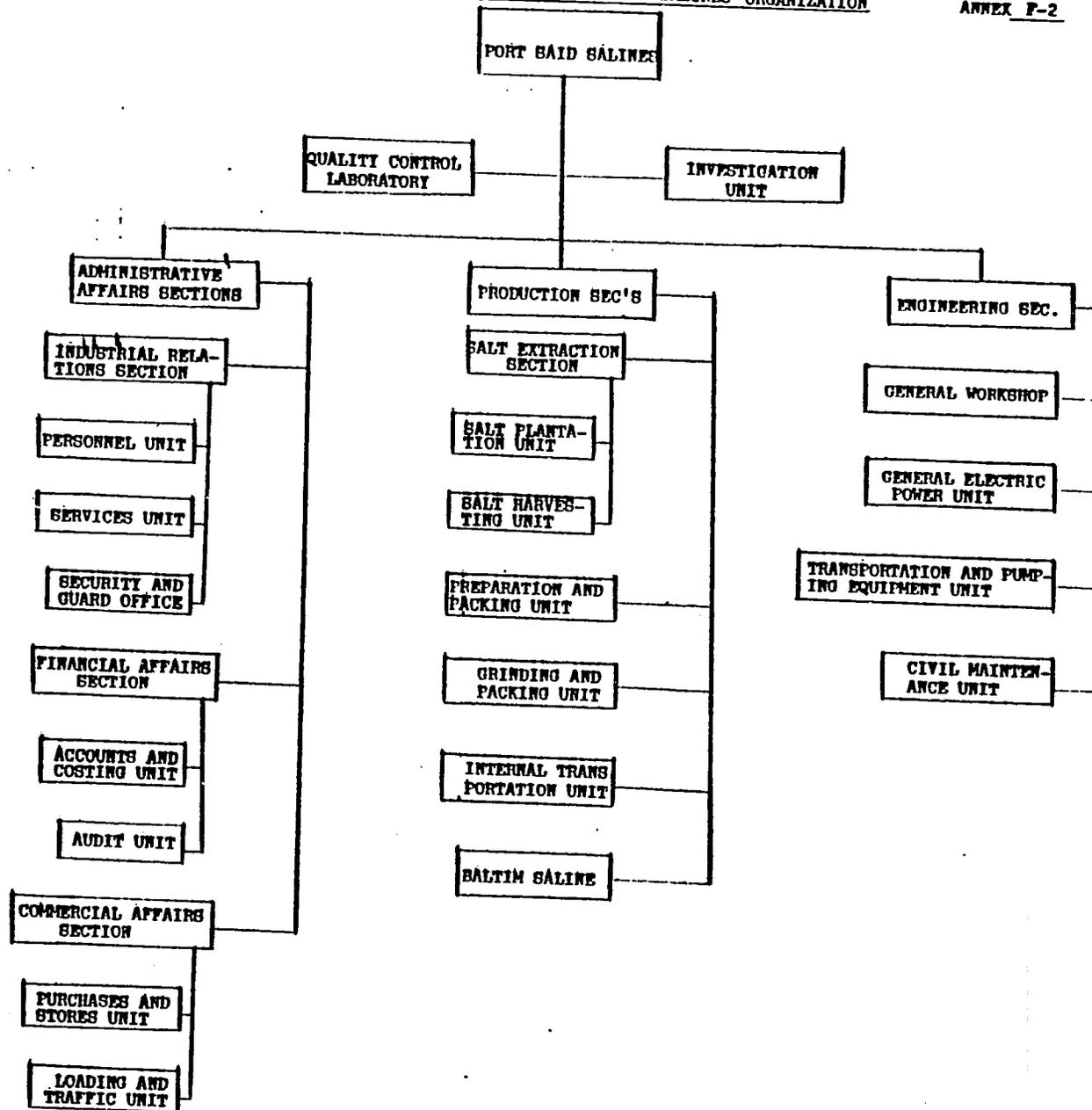
EL NASR SALINES COMPANY ORGANIZATION

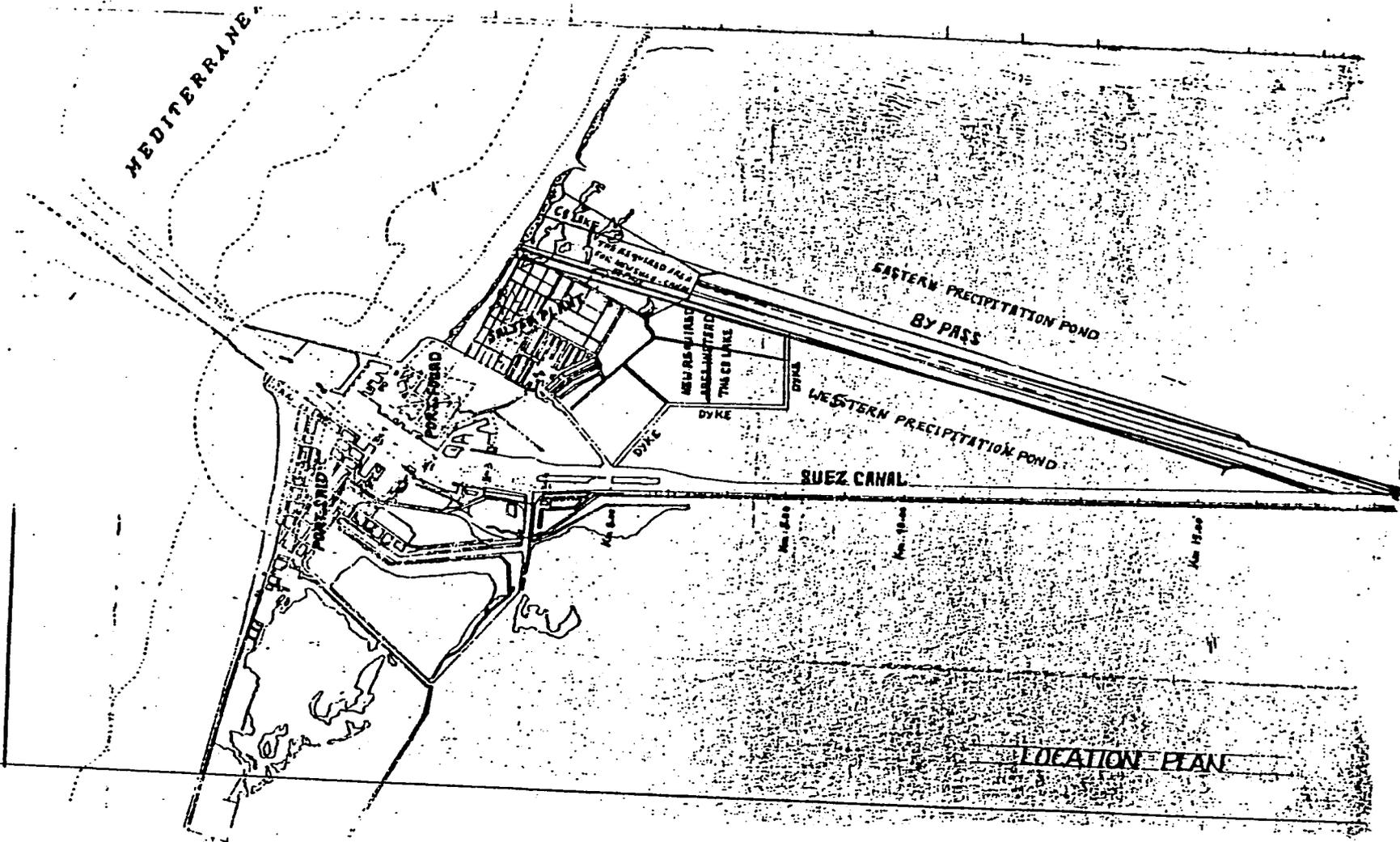
ANNEX P-1

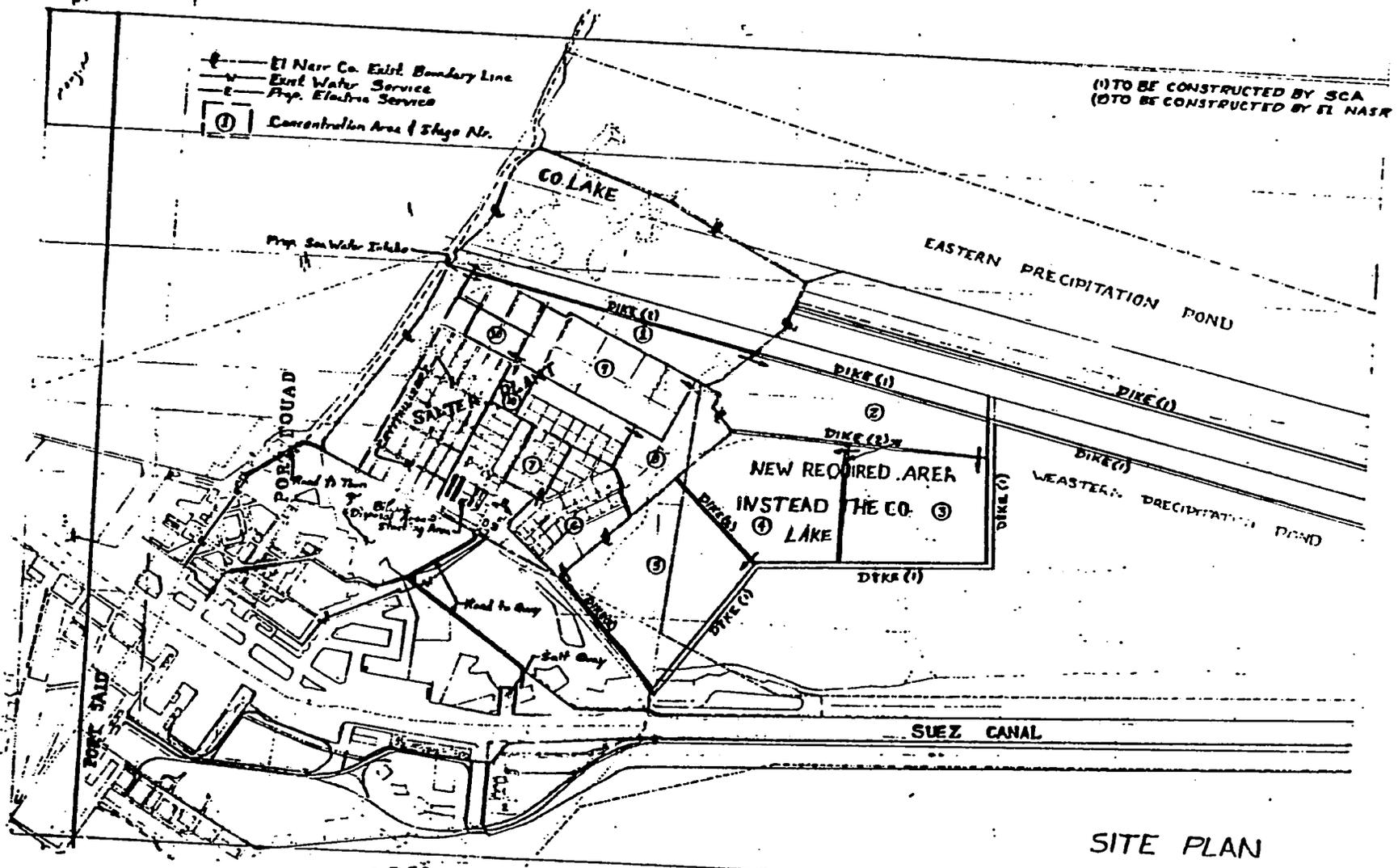


EL NASR SALINES COMPANY: PORT BAID SALINES ORGANIZATION

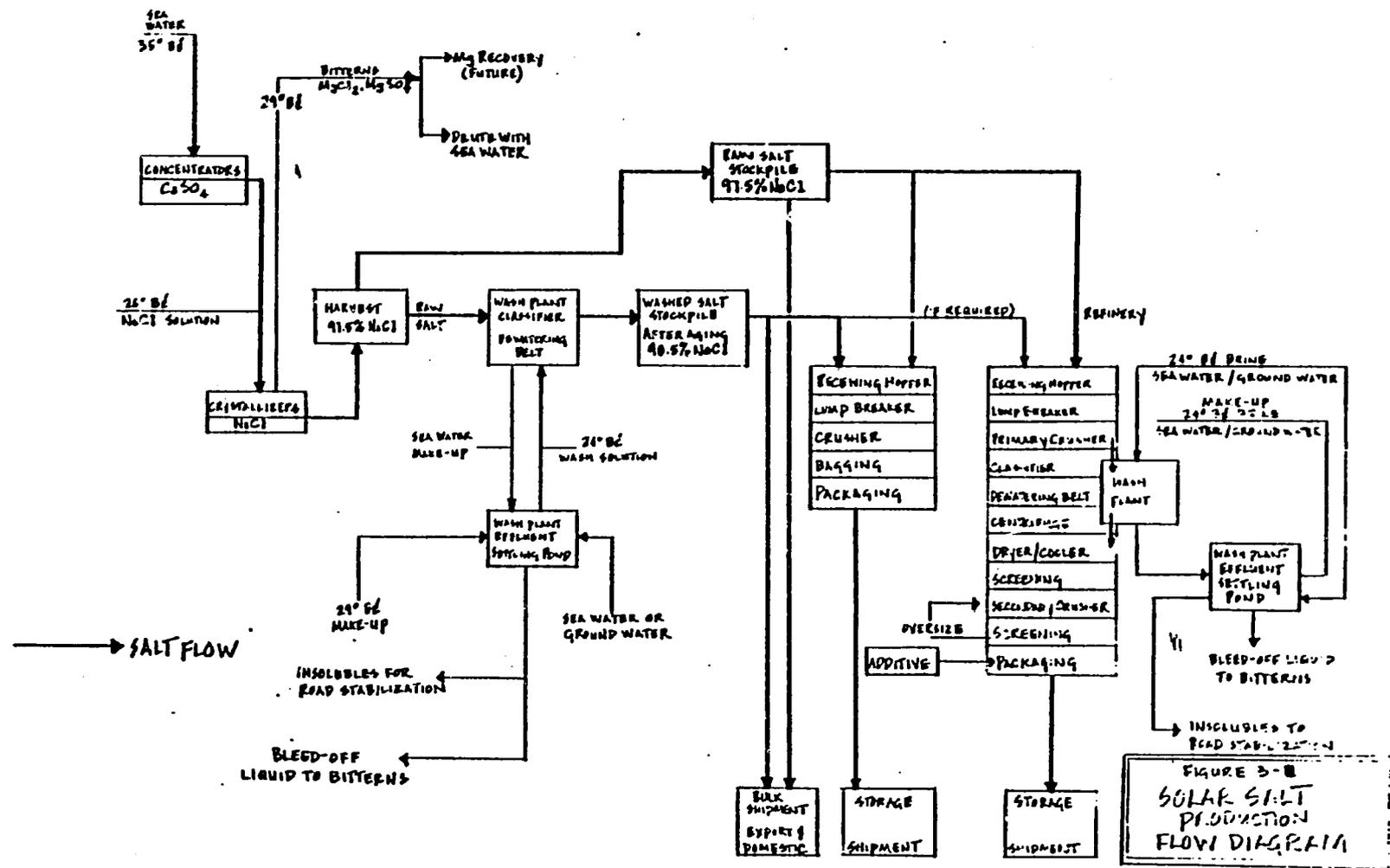
ANNEX F-2

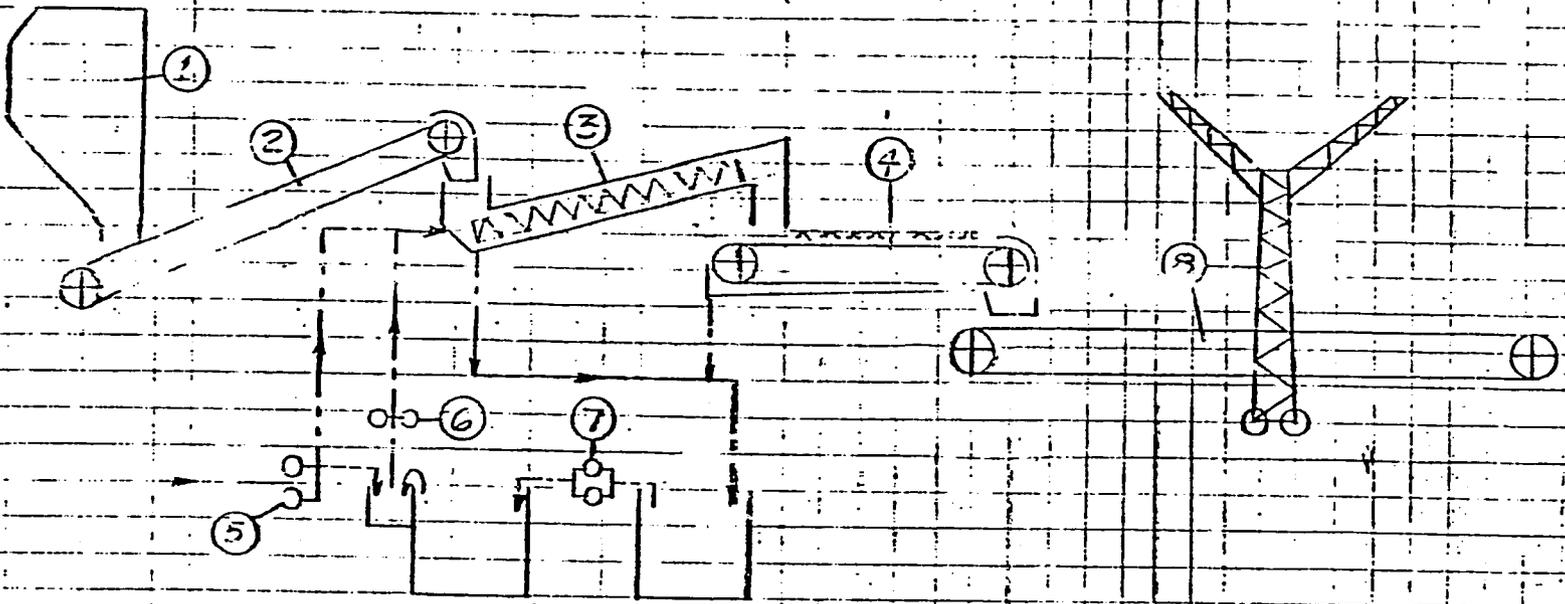






SITE PLAN



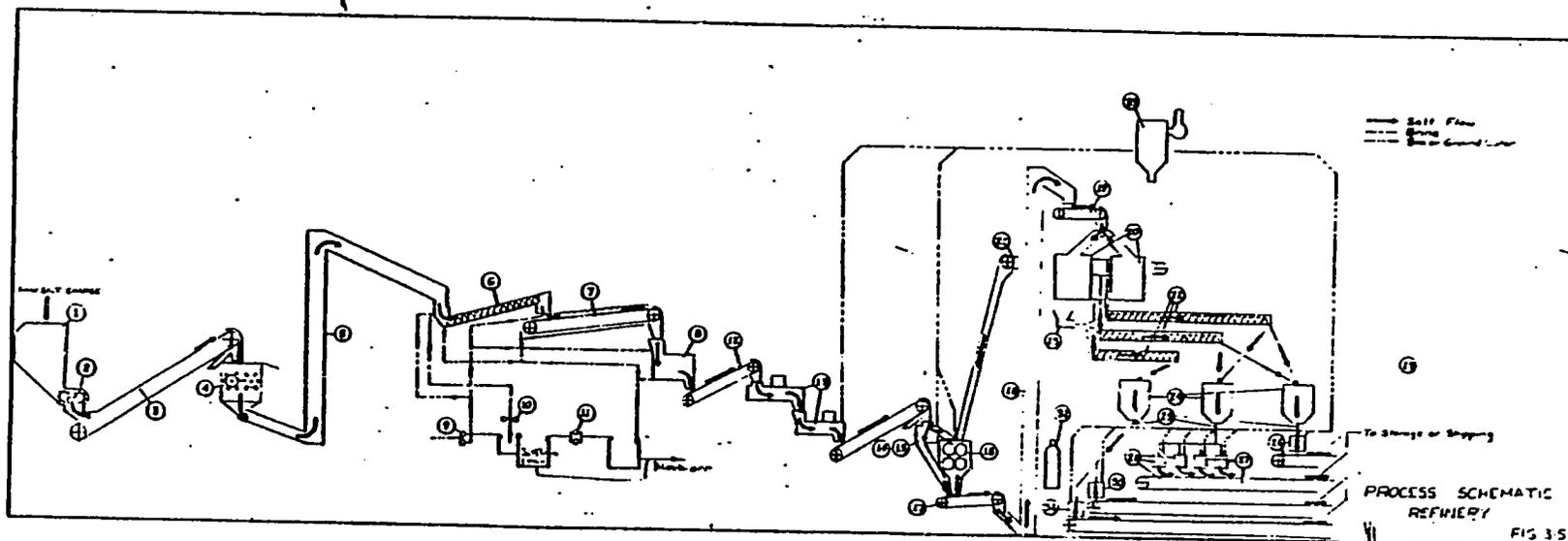


PROCESS SCHEMATIC
WASH PLANT

Salt Washing and Stockpiling Equipment

The design capacity of the salt washing and stockpiling equipment is based upon the ability to handle the full harvesting rate of approximately 150 TPH.

<u>Item</u>	<u>No. Units</u>	<u>Description</u>
1	1	<u>Dump Hopper</u> - Driveover, steel construction, minimum side slope 60°, corrosion-protected, nominal capacity 30 M ³ .
2	1	<u>Feed Conveyor</u> - Inclined troughed, rubber belt, corrosion-protected, capacity 150 TPH.
3	1	<u>Spiral Classifier</u> - Slow turning, large pool settling area, stainless steel screw and trough, nominal capacity 150 TPH.
4	1	<u>Dewatering Belt</u> - Stainless steel mesh on rubber coated flat carrier rolls, nominal length 18 M, nominal width 1.2 M, capacity 150 TPH.
5	2	<u>Salt Water Pump</u> - Centrifugal pump casing and impeller, monel material, pump capacity 85 M ³ per hour (375 GPM).
6	2	<u>Classifier Brine Pump</u> - Centrifugal or axial flow, casing and impeller, monel material, maximum capacity 170 M ³ (750 GPM).
7	2	<u>Slurry Pump</u> - Centrifugal slurry pump, monel material, maximum capacity 23 M ³ per hour (100 GPM).
8	1	<u>Stockpiling Conveyor</u> - Troughed rubber belt conveyor and corrosion-proofed structure, complete with tripper and wing type stacker; total storage pile capacity 125,000 tons, hourly capacity nominally 150 TPH.



Salt Refining Equipment

The design of the refinery equipment is based on an output of 60,000 TPY of refined salt. A 12% processing loss is anticipated.

<u>Item</u>	<u>No. Units</u>	<u>Description</u>
1	1	<u>Dump Hopper</u> - Steel construction with corrosion proofing, 60° minimum side slope, Grizzly over-the-top with 15 cm x 15 cm clear openings, nominal capacity 20 M ³ .
2	1	<u>Lump Crusher</u> - To reduce salt lumps to workable size for feeder belt and primary crusher, nominal capacity 15 TPH.
3	1	<u>Salt Feed Conveyor</u> - Troughed rubber belt feeder with magnetic head pulley for iron removal, steel construction corrosion-proof coating, capacity 15 TPH.
4	1	<u>Hammermill Primary Crusher</u> - Capacity 15 TPH, steel construction.
5	1	<u>Bucket Elevator</u> - Stainless steel or monel buckets mounted on rubber belt, corrosion-proofed framework, capacity 15 TPH.
6	1	<u>Screw Classifier</u> - Corrosion-proofed shell and framework, stainless steel or monel shaft and flights, large pool settling area, nominal capacity 15 TPH.
7	1	<u>Dewatering Belt</u> - Mesh belt for flushing and dewatering salt, mesh of stainless steel or monel wire weave, flat carrier and return rolls rubber covered, size nominally 1 M wide by 5 M long, nominal capacity 15 TPH.
8	1	<u>Centrifuge</u> - All internal and salt contact surfaces of stainless steel, neoprene or monel covered, framework of corrosion-proofed steel, nominal capacity 15 TPH.
9	2	<u>Spray Pump</u> - Pump for sea water or ground water, centrifugal wetted parts monel capacity 17 M ³ per hour (75 GPM).

-2-

10	2	<u>Brine Pump</u> - 24° Baume brine, wetted parts monel, capacity 17 M ³ per hour (75 GPM).
11	2	<u>Slurry Pump</u> - Centrifugal pump, wetted parts monel, capacity 35 M ³ per hour (150 GPM).
12	1	<u>Dryer Feed Conveyor</u> - PVC White food grade belting, corrosion-proofed structure, nominal capacity 14 TPH.
13	1	<u>Salt Dryer and Cooler</u> - Complete salt drying unit consisting primarily of a rotary dryer and cooler, with all salt contact surfaces of stainless steel, all other components of corrosion-proofed material, complete with furnace, blowers, and automatic controls, nominal through-put 14 TPH, moisture output 0.2%.
14	1	<u>Secondary Crusher Feed Conveyor</u> - Troughed conveyor, PVC white food grade belting, corrosion-proofed structure, magnetic head pulley, nominal capacity 14 TPH.
15	1	<u>Scalping Screen</u> - Single mesh size, stainless steel construction, capacity 14 TPH.
16	1	<u>Secondary Crusher</u> - Double sets cast iron rolls, nominal capacity 14 TPH.
17	1	<u>Crushed Salt Transfer Conveyor</u> - Troughed conveyor, PVC white food grade belting, corrosion-proofed structure, nominal capacity 14 TPH.
18	1	<u>Bucket Elevator</u> - Corrosion resistant buckets mounted on rubber belt with corrosion-proofed framework, capacity 14 TPH.
19	1	<u>Screen Feed Conveyor</u> - Troughed conveyor, PVC white food grade belting, corrosion-proofed structure with split discharge chute of stainless steel construction, nominal capacity 14 TPH.
20	2	<u>Rotary Screens</u> - 3 deck, 3 mesh size, stainless steel construction, nominal capacity each screen 7.0 TPH

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- 21 1 Oversize Return Conveyor - Troughed conveyor, oversize return PVC white food grade belting, corrosion-proofed structure, nominal capacity 4 TPH

- 22 3 Salt Mixing and Transfer Conveyor - Combination mixing and screw transfer conveyors between screens and storage bins, stainless steel construction, nominal capacity 5 TPH each screw.

- 23 3 Salt Additive System - Salt additive units for metering iodizing or freeflowing materials to salt flow, capable of introducing up to 0.5% of salt tonnage on a continuous basis, one on each screw, stainless steel construction.

- 24 3 Final Salt Holding - Bins stainless steel, supporting framework to be corrosion-proofed, nominal capacity each bin 10 M³

- 25 3 Salt Transfer Conveyors - Screw conveyors, stainless steel, corrosion-proofed supporting structure, bottom multiple discharges to feed alternate packing machines, nominal capacity of screw conveyor 5 TPH each.

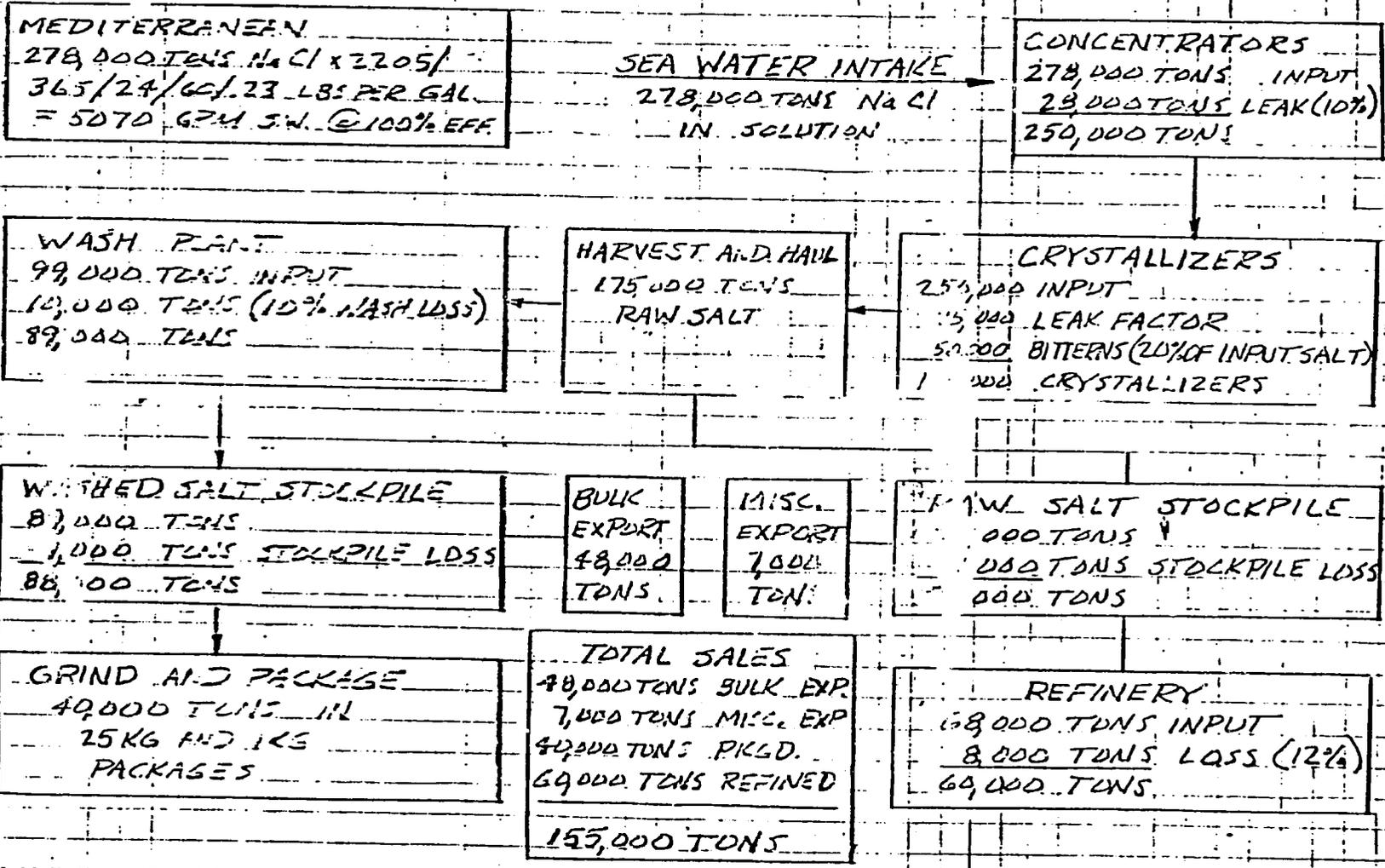
- 26 1 Salt Bagging Machines - Gross weigher filling machine to fill 25 kg open mouth bags, complete with sealing units and take away conveyors. Sealing units capable of closing either plastic or jute bags. All parts in contact with salt stainless steel, nominal capacity 23,000 TPY or 30 bags per minute rated capacity.

- 27 1 Salt Packaging Machine - Filling machine for 0.5 kg plastic pouches, connected to overhead screw feed conveyors by hoopers and chutes for gravity feed, completed with sealing units and take away conveyors leading to packing area. All parts in contact with salt: stainless steel, capacity 35 pouches per minute.

-4-

- 28 3 Salt Packaging Machine - Same as Item 27 except 1 kg pouches, capacity 105 pouches per minute each machine.
- 29 1 Carton Forming Machine - ~~To~~ shape boxes from pre-cut and pre-printed flat sheets, cartons to encase plastic pouches as required.
- 30 1 Salt Tablet Forming Machine - To compress salt into 0.5 gram tablets. All parts in contact with salt: stainless steel, complete with take away conveyor leading to packing area, capacity 3.5 kg per minute, total capacity 1000 TPY.
- 31 1 Cattle Brick Forming Machine - To compress Salt into kg bricks. All parts in contact with salt: stainless steel, complete with take away conveyor leading to packing area, capacity 3.5 kg per minute total capacity 1000 TPY.
- 32 1 Dust Collection System - Nominal air movement not less than 1100 meters per minute, complete with wet scrubber or cyclone and duct pipes, fans, supports, controls, etc.
- 33 1 Air compressor - To supply compressed air to plant system as required. Nominal capacity not less than 3.0 standard cubic meters per minute.

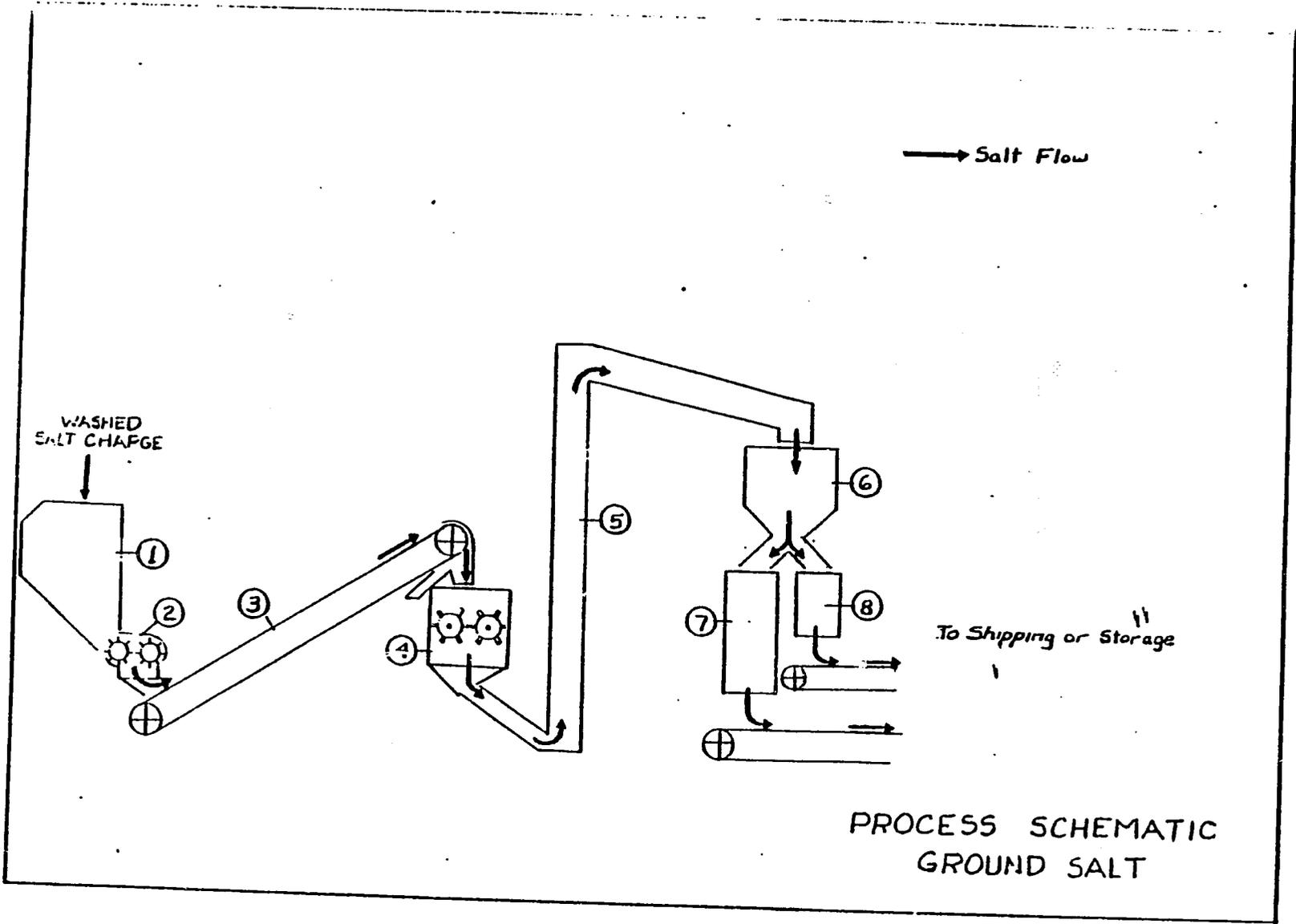
PORT SAID OPERATIONS
SALT (NaCl) BALANCE - 175,000 TONS RAW SALT / YEAR



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ANNEX 7

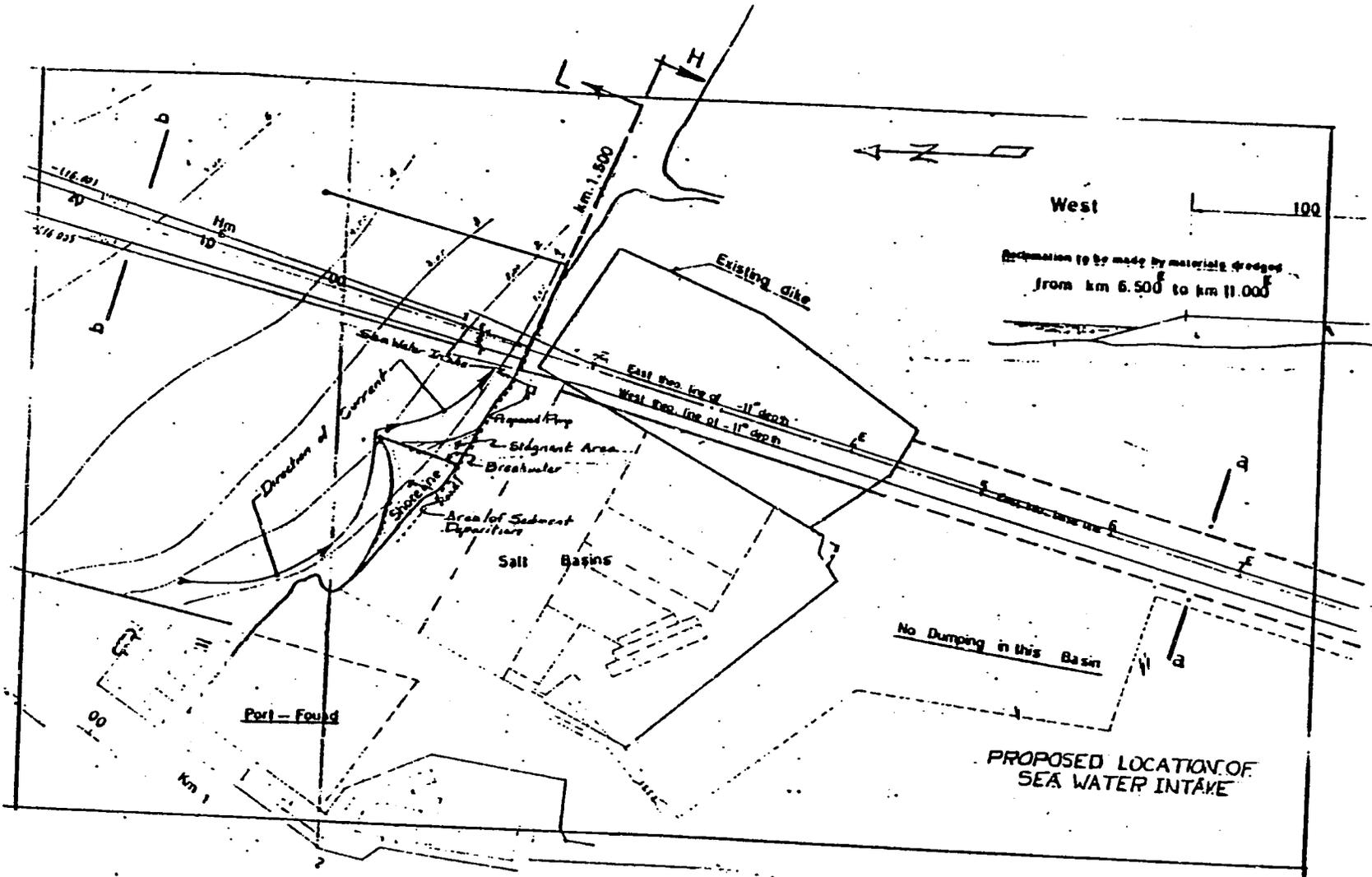
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Ground Salt Equipment

The design of the ground salt equipment is based on an output of 40,00 TPY. The feed material is washed salt.

<u>Item</u>	<u>No. Units</u>	<u>Description</u>
1	1	<u>Dump Hopper</u> -Drive over, steel, minimum side slope 60°, corrosion-protected 15 cm x 15 cm Grizzly, nominal capacity 20 M ³ .
2	1	<u>Lump Crusher</u> - To reduce salt lumps to workable size for feeder belt and crusher, nominal capacity to TPH.
3	1	<u>Crusher Feed Conveyor</u> - Throughed rubber belt feeder with magnetic head pulley for iron removal, capacity 10TPH.
4	1	<u>Hammermill Crusher</u> - Capacity 10 TPH.
5	1	<u>Bucket Elevator</u> - Corrosion-resistant buckets mounted on a rubber belt, with corrosion-proofed framework, capacity 10 TPH.
6	1	<u>Salt Holding Bin</u> - Stainless steel, supporting steel framework, corrosion-proofed, dual compartments, double discharge, nominal capacity 15 M ³ .
7	1	<u>Ground Salt Bagging Machine</u> - Gross weigher scale for 25 kg open-mouth bags, complete with closure attachment and bag take away conveyor, all parts in contact with salt: stainless steel, capacity 3.5 bags per minute.
8	1	<u>Filling Machines</u> - For 1 kg plastic pouches, complete with sealing units and take away conveyors leading to packing area, all parts in contact with salt: stainless steel, capacity 52 pouches per minute.



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West 100

Reclamation to be made by material dredged from km 6.500 to km 11.000

No Dumping in this Basin

PROPOSED LOCATION OF SEA WATER INTAKE

Peri - Fouled

Salt Basins

Significant Area

Direction of Current

Existing dike

East two km of -11' depth
West two km of -11' depth

-11' depth

km 20

km 10

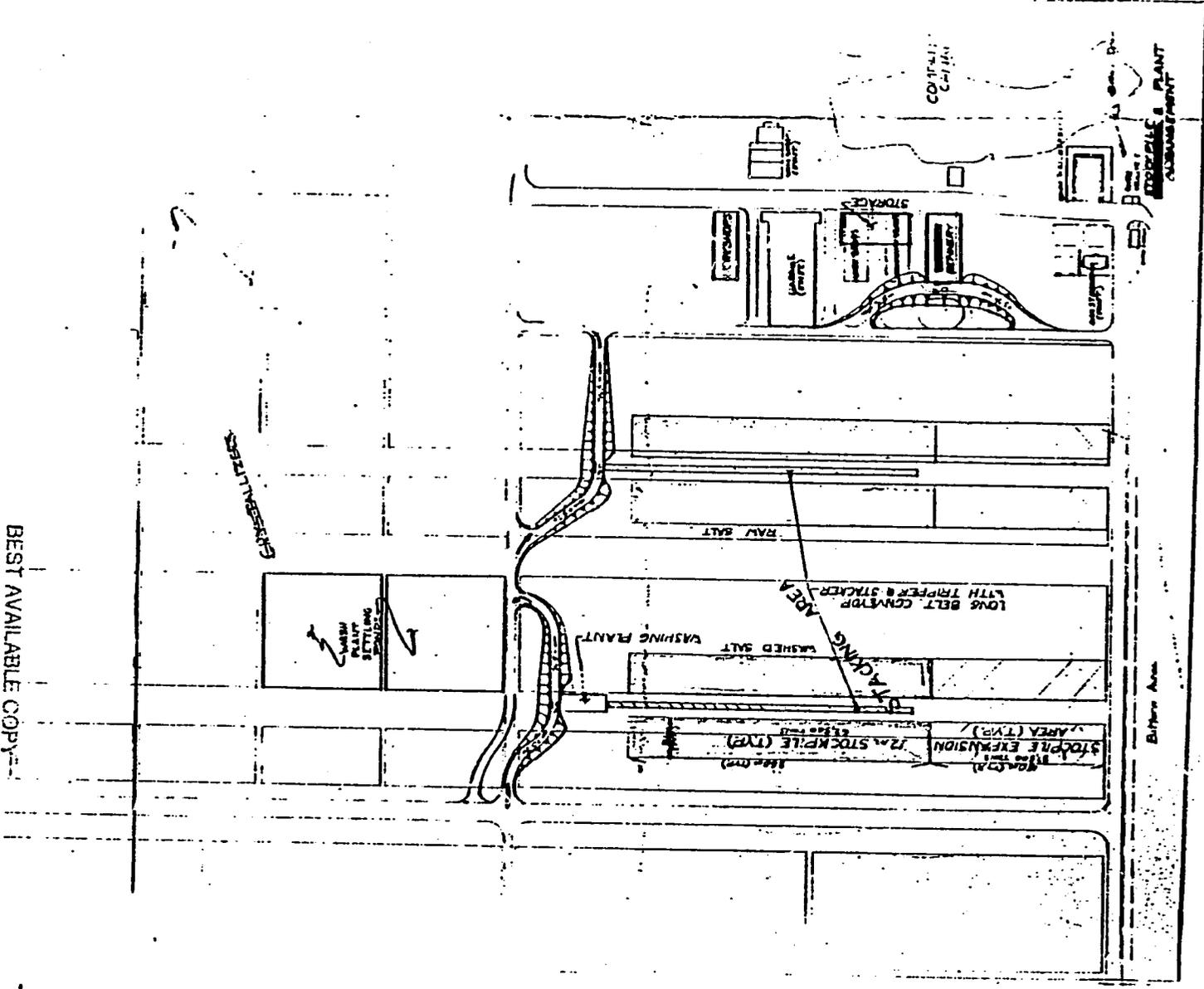
km 1.500

km 1

km 20

km 10

km 20



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PROJECT COST ESTIMATE

<u>COST CATEGORY</u>	<u>DOLLAR COSTS</u>	<u>LOCAL COSTS</u>	<u>TOTAL</u>
Salt Production Equipment	8,115	35.8	8.151
U.S. Construction Materials	1,322	14.3	1,336
Engineering, Procure- ment and Management	1,835	38.6	1,874
Civil Works		3,679	3,679
Plant Construction		1,028	1,028
Subtotal	11,272	4,796	16,068
Contingencies 15%	1,690	719	2,409
Total	\$12,962	\$5,515	\$18,477
	=====	=====	=====

TABLE 8-1

PROJECT COST ESTIMATE

<u>SALT PRODUCTION EQUIPMENT</u>	<u>QUANTITY</u>	<u>UNIT COST (IN THOUSANDS OF U.S. DOLLARS)</u>	<u>TOTAL COST (IN THOUSANDS OF U.S. DOLLARS)</u>
<u>Salt Harvesting Equipment</u>			
Salt Harvester	2	\$ 112	\$ 224
Road Grader	1	92	92
Tractor	2	21	<u>42</u>
SUB TOTAL			\$ 358
<u>Brine Intake Equipment</u>			
Sea Water Intake Pumps	2	28	56
Interstage Transfer Pumps	4	22	88
Bittern Drain Pumps	2	20	40
Desalting Pumps	2	2	4
Fuel Oil Handling Systems	4	4	16
Sea Water Intake Pipe	1	27	<u>27</u>
SUB TOTAL			\$ 231

Notes: Production Equipment

1. Unit prices are based on September, 1977 costs.
2. All spare parts costs are included in the unit costs.
3. Manufacturer services are included in the unit costs.

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TABLE 8-1 (Cont.)

Washing and Stockpiling Equipment

Dump Hopper	1	\$	22	\$	22
Feed Conveyor	1		15		15
Spiral Classifier	1		70		70
Dewatering Belt	1		34		34
Salt Water Pump	2		6		12
Classifier Brine Pump	2		8		16
Slurry Pump	2		3		6
Stockpiling Conveyor	1		600		600
Piping and Valves	LS		115		115
Electrical Distribution	LS		180		180
SUB TOTAL					\$ 1070

Raw Salt Stockpiling Equipment

Dump Hopper	1		22		22
Stockpiling Conveyor	1		600		600
Electrical Distribution	LS		95		95
SUB TOTAL					\$ 717

TABLE 8-1 (Cont.)

Salt Refining Equipment

Dump Hopper	1	\$ 20	\$ 20
Lump Crusher	1	8	8
Salt Feed Conveyor	1	6	6
Hammermill Primary Crusher	1	18	18
Bucket Elevator	1	13	13
Screw Classifier	1	26	26
Dewatering Belt	1	17	17
Centrifuge	1	95	95
Spray Pump	2	4	8
Brine Pump	2	4	8
Slurry Pump	2	3	6
Dryer Feed Conveyor	1	8	8
Salt Dryer and Cooler	1	200	200
Secondary Crusher Feed Conveyor	1	4	4
Scalping Screen	1	11	11
Secondary Crusher	1	35	35
Crushed Salt Transfer Conveyor	1	4	4
Bucket Elevator	1	16	16
Screen Feed Conveyor	1	4	4
Rotary Screens	2	11	22
Oversize Return Conveyor	1	4	4
Salt Mixing and Transfer Conveyor	3	9	27
Salt Additive System	3	7	21
Final Salt Holding Bins	3	8	24
Salt Transfer Conveyors	3	8	24
Salt Bagging Machine	1	22	22
Salt Packaging Machine (0.5 kg)	1	55	55
Salt Packaging Machine (1 kg)	3	53	159

TABLE 8-1 (Cont.)

Salt Refining Equipment (Cont.)

Carton-Forming Machine	1	\$ 51	\$ 51
Salt Tablet Forming Machine	1	55	55
Cattle Brick Forming Machine	1	130	130
Dust Collection System	1	18	18
Air Compressor	1	12	12
Piping and Valves	LS	50	50
Electrical Distributor	LS	75	75
Duct and Chute Work	LS	60	60
SUB TOTAL			\$1315

Ground Salt Equipment

Dump Hopper	1	\$ 18	\$ 18
Lump Crusher	1	6	6
Crusher Feed Conveyor	1	6	6
Hammermill Crusher	1	18	18
Bucket Elevator	1	13	13
Salt-Holding Bin	1	12	12
Ground Salt Bagging Machine	1	17	17
Filling Machines	1	85	85
Electrical	LS	15	15
Duct and Chute Work	LS	25	25
SUB TOTAL			\$ 215

TABLE 8-1 (Cont.)

Materials Handling Equipment

Haulage Vehicles	18	\$ 40	\$ 720
% SUB TOTAL			\$ 720

Salt Reclaiming Equipment

Bulldozer	1	\$ 160	\$ 160
Wheel Loader	3	93	<u>279</u>
SUB TOTAL			\$ 439

Shiploading Equipment

Shiploading Unit	1	\$ 450	\$ 450
SUB TOTAL			\$ 450

Package-Moving Equipment

Forklift	3	\$ 24	\$ 72
SUB TOTAL			\$ 72

Quality Control Equipment

Quality Control Equipment	LS	\$ 24	\$ 24
SUB TOTAL			\$ 24

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TABLE 8-1 (Cont.)

Mobile Equipment

Ditching Machine	1	\$ 35	\$ 35
3/4-Ton (4 Wheel Drive), Pickup Truck	4	8	32
Fuel Oil Tank Truck	1	18	18
25-Ton Mobile Crane	1	150	150
Portable Welding Truck	1	22	22
Portable Lubrication Truck	1	19	19
10-Ton Capacity Boom Type Crane Truck	1	21	21
6" Centrifugal Portable Pumps	2	6	12
Truck Scale - Drive Over	1	25	25
54-Passenger Autobus	1	60	60
Passenger Van	1	11	<u>11</u>
SUB TOTAL			\$ 405
PRODUCTION EQUIPMENT TOTAL			\$ 6017
Sea Freight - CIF Port Said			\$ <u>325</u>
SUB TOTAL			\$ 6342
Contractor Profit - 7%			\$ <u>444</u>
SUB TOTAL			\$ 6786
Escalation (Mid-point construction, 16 months @ 0.6% per month - 9.6%)			<u>652</u>
TOTAL PRODUCTION EQUIPMENT			\$ 7438

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TABLE 8-1

PROJECT COST ESTIMATE

<u>U.S. CONSTRUCTION MATERIALS</u>	<u>TOTAL COST (IN THOUSANDS OF U.S. DOLLARS)</u>
Refinery ¹	\$ 475
Workshop	180
Storage	245
Wash Plant and Stockpiling Facility ²	50
Raw Salt Stockpiling Facility ²	<u>30</u>
SUB TOTAL	\$ 980
Freight - CIF Port Said	80
SUB TOTAL	\$ 1060
Contractor's Profit @ 7%	\$ <u>75</u>
SUB TOTAL	\$ 1135
Escalation (Mid-point construction, 16 months a 0.6% per month = 9.6%)	<u>109</u>
TOTAL U.S. CONSTRUCTION MATERIALS	\$ 1244

- ¹ Building materials include equipment supports, platforms, etc.
² Includes supports for stockpiling equipment.

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TABLE 8-1

PROJECT COST ESTIMATE

<u>ENGINEERING, PROCUREMENT AND MANAGEMENT</u>	<u>COST (IN THOUSANDS OF U.S. DOLLARS)</u>	<u>COST (IN THOUSANDS OF EGYPTIAN POUNDS)</u>
Preliminary Engineering	\$ 160	LE 5
Project Management	250	-
Survey and Test Boring	30	1
Final Design Service	420	5
Equipment and Materials Procurement	280	2
Construction Supervision	220	1
Start-Up and Testing Service	80	1
Operator Training and Operator Manuals	<u>160</u>	<u>10</u>
ENGINEERING EQUIPMENT SUB TOTAL	\$ 1600	LE 25
Contractor Profit at 7%	\$ <u>112</u>	
SUB TOTAL	\$ 1712	
Escalation - 12 months @ 0.6% per month	\$ <u>123</u>	LE <u>2</u>
TOTAL ENGINEERING AND PROCUREMENT	\$ 1835	LE 27

Note:

1. LE cost represents the cost of liaison by El Nasr with the contractor.
2. Unit cost includes overhead costs.

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TABLE 8-1 (Cont.)

PROJECT COST ESTIMATE

<u>CIVIL WORKS</u>	<u>QUANTITY</u>	<u>UNIT COST</u> <u>(EGYPTIAN POUNDS)</u>		<u>TOTAL COST</u> <u>(IN THOUSANDS OF</u> <u>EGYPTIAN POUNDS)</u>
		LS	LE	LE
Site Preparation				10
Dike Construction				
New	9925 m		150	1,489
Fix SCA	6700 m		70	469
Roadways				
Plant	770 m		240	185
To Quay	2000 m		40	80
Sea Water Intake Installation	150 m		30	5
Electrical Connection to Port Fouad	LS			40
On Site Utility Installations	LS			25
Engineering (El Nasr)	LS			45
- SUB TOTAL				LE 2,348
Escalation (Mid-point construction 15 months @ 0.6% per month = 9.5%)				225
TOTAL - CIVIL WORKS				LE 2,573

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TABLE 8-1
PROJECT COST ESTIMATE

<u>PLANT CONSTRUCTION</u>	<u>COST</u> <u>(IN THOUSANDS OF</u> <u>EGYPTIAN POUNDS)</u>
Refinery 1	LE 392
Workshop 1	69
Storage 1	85
Wash Plant and Stockpiling Facility 1	43
Raw Salt Stockpiling Facility 1	23
Pump Houses (4) 2	<u>44</u>
 SUB TOTAL	 LE 656
Escalation (Mid-point construction; 16 months @ 0.6%/month - 9.6%)	LE <u>63</u>
 TOTAL - PLANT CONSTRUCTION	 LE 719

Note:

1. Includes all materials and labor for foundations and floor slabs. Does not include materials for remainder of building.
2. Includes all materials and labor for construction.

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109
REPRESENTED IN THE MIDDLE
EAST AND GENERAL AREA
OF THE WORLD

FARID S. MANSOUR

CHARTERED ACCOUNTANTS
REPRESENTATIVE OF
COOPERS & LYBRAND

TELEPHONE 01100
CABLED "COOPERAND"
171, MOHAMED FARID STR.
SUITE 402
CAIRO - EGYPT

August 15, 1977

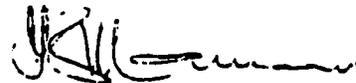
U S A I D
Cairo, Egypt

Gentlemen:

In accordance with your instructions, I enclose herewith
EL NASR SALINES COMPANY Financial Statements for the years
1973 thru 1976, in quadruplicate, in English.

The attached notes to the Financial Statements set out the
explanations required in your instructions, while the
planned expansion program is set out in the attached
Appendix A.

Very truly yours,



FARID MANSOUR

AL NASR SALINES COMPANY
A MINING SECTOR COMPANY
BALANCE SHEET

December 31, 1976 and 1975

ASSETS

	<u>Note</u>	<u>1976</u>	<u>1975</u>
		£E	£E
<u>Current Assets :</u>			
Cash		1,991	235,957
Trade accounts receivable	2	141,344	61,935
Other accounts receivable	3	205,439	256,589
Inventories	4	1466,910	1374,978
Prepaid expenses - letters of credit		38,753	20,293
		<u>1854,437</u>	<u>1949,752</u>
Property, plant and equipment at cost less depreciation	5	2593,209	1933,679
Projects in progress	6	2017,702	1589,513
Investments	7	33,906	33,096
		<u>6499,254</u>	<u>5506,040</u>
		=====	=====

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LIABILITIES

	<u>Note</u>	<u>1976</u>	<u>1975</u>
		£E	£E
<u>Current Liabilities :</u>			
Bank Loan		169,254	-
Current portion of long term debt		207,302	128,590
Accounts payable and accrued expenses	8	957,493	852,120
Income Tax		67,792	-
		<u>1401,841</u>	<u>980,710</u>
Long term debt, less current portion	9	240,297	353,200
STOCKHOLDERS' EQUITY			
Capital account	10	3983,088	3400,830
Non distributable reserves	11	102,441	99,208
Distribution reserves	12	771,587	770,262
Retained earnings		-	(108,170)
		<u>4857,116</u>	<u>4162,130</u>
		<u>6499,254</u>	<u>5506,040</u>
		=====	=====

ANNEX P-2

AL NASR SALINES COMPANY
A MINING SECTOR COMPANY
STATEMENTS OF INCOME AND
RETAINED EARNINGS

For the years ended December 31, 1976, & 1975

	<u>1976</u>	<u>1975</u>
INCOME		
Net Sales	£E 1,867,183	£E 1,664,460
Other Income	28,487	59,988
	<u>1,895,670</u>	<u>1,724,448</u>
COSTS AND EXPENSES		
Cost of sales	934,448	885,970
Selling, general and administrative expenses	883,274	752,940
	<u>1,817,722</u>	<u>1,638,910</u>
Income before items shown below	77,948	85,538
Prior year income - Port Said salines war damage grant	133,169	72,785
Prior year charges	(9,744)	(8,046)
Income before taxation	201,373	150,277
Income tax	68,709	2,088
Net income for year	132,664	148,189
Retained earnings, (losses) beginning of year	(108,170)	(256,359)
Transfer to reserves and distributions	24,444	(108,170)
	24,494	-
Retained earnings (losses), end of year	£E -	£E (108,170)
	=====	=====

AL HASR SALINES COMPANY
A MINING SECTOR COMPANY
STATEMENT OF CHANGES IN FINANCIAL POSITION

ANNEX P-4 112

For the years ended December 31, 1976 and 1975

<u>WORKING CAPITAL PROVIDED BY</u>		<u>1976</u>	<u>1975</u>
Net income for the year	£E	132,664	148,189
Add :			
Depreciation and other items not requiring current outflow of work- ing capital		<u>289,065</u>	<u>96,138</u>
Total from operations		421,729	244,327
Government redeemable capital participation		202,545	925,000
Government Port Said war damage grant		379,713	271,904
Total	£E	<u>1,003,987</u>	<u>1,441,231</u>
<u>WORKING CAPITAL USED FOR</u>			
Profit distribution		18,370	-
Expenditure for property, plant and equip.		950,161	590,907
Project in progress		428,189	1,188,539
Reduction in long term debt		122,903	-
Investments		810	-
Total	£E	<u>1,520,433</u>	<u>1,779,446</u>
Net increase (decrease) in working capital	£E (<u>516,446)</u>	<u>(338,215)</u>
<u>Increase (decrease) in working capital :</u>			
<u>Current Assets</u>			
Cash	£E	(233,966)	(105,664)
Accounts receivable		28,259	(106,512)
Inventories		91,932	254,507
Prepaid expenses		18,460	5,720
Total Current Assets	£E	<u>(95,315)</u>	<u>48,051</u>
<u>Current Liabilities</u>			
Bank Loans		(169,254)	-
Current portion of long term debt		(78,612)	84,489
Accounts payable		(105,473)	301,777
Income tax provision		(67,792)	-
Total current Liabilities	£E	<u>(421,131)</u>	<u>386,266</u>
Increase (decrease) in working capital	£E	<u>(516,446)</u>	<u>£E(338,215)</u>

AL NASR SALINES COMPANY
A MINING SECTOR COMPANY
NOTES TO FINANCIAL STATEMENTS

1) Summary of significant accounting policies :

(a) Inventories

Inventories are stated at the lower of cost and net realisable value. Cost consists of direct materials, labour and attributable expenses, calculated on an average cost basis.

(b) Accounts receivable :

Bad debts are fully provided for as they arise and provision is made for all doubtful debts.

(c) Depreciation of plant, property and equipment :

Depreciation is calculated to write-off the book value on a straight line basis over the expected useful lives of the assets concerned. Depreciation has been calculated from the day of acquisition and is charged as the asset is used on a daily basis at the rate of 300 shifts per annum, at the following rates :

Buildings	2 - 5	$\frac{1}{2}$ %
Plant & Machinery	5 - 10	$\frac{1}{2}$ %
Vehicles	10 - 20	$\frac{1}{2}$ %
Tools	5 - 25	%
Furniture		10%

Where fully depreciated assets are used, one quarter of the depreciation is charged to costs and credited to distributable reserves.

(d) Foreign Currencies :

Assets and liabilities arising in foreign currencies are converted to Egyptian Pounds at the rates of exchange ruling at the balance sheet date. Profits and losses on exchange are charged to income or expenses during the year, other than those arising from significant changes in rate, such as the change from official rate to incentive rate, which are included in extraordinary items.

2) Trade accounts receivable :

Trade accounts receivable consisted of :

	<u>1976</u>	<u>1975</u>
Trade accounts receivable.	£E 218,175	£E 140,442
<u>Less</u> : Provision for doubtful debts	76,831	78,507
	<u>£E 141,344</u>	<u>£E 61,935</u>
	-----	-----

3) Other accounts receivable :

Other accounts receivable consisted of the following :

	<u>1976</u>	<u>1975</u>
Refundable deposits	£E 18,660	£E 22,863
Employees advances	36,863	36,719
Other receivables	29,197	56,237
Payments in advance to suppliers	51,666	80,153
Ministry of Finance - employees bonus due to profit shortfall	69,053	34,395
Employees compulsory savings repayments	-	26,222
	<u>£E 205,439</u>	<u>£E 256,589</u>
	-----	-----

4) Inventories

Inventories are comprised of the following :

	<u>1976</u>	<u>1975</u>
Raw materials	£E 1,514	£E ,128
Work in progress	25,004	21,627
Finished goods	938,367	796,892
Fuel	7,183	4,583
Spare parts	370,734	383,001
Packing material	117,685	158,653
Waste materials	6,423	10,094
	<u>£E 1,466,910</u>	<u>£E 1,374,978</u>
	-----	-----

5. Property, plant and equipment :

	Land	Buildings	Plant: & Machinery	Vehicles	Tools	Furniture & Office Equipment	Total
	<u>£E</u>	<u>£E</u>	<u>£E</u>	<u>£E</u>	<u>£E</u>	<u>£E</u>	<u>£E</u>
Cost to 1.1.1976	-	1,309,865	416,023	1,182,462	8,305	53,828	3,015,483
Additions	-	347,426	213,641	395,349	3,280	6,254	965,950
Disposals	-	(179)	(900)	(14,710)	-	-	(15,789)
Reclassifications	7995	(7,995)	12,796	(14,250)	1,454	-	-
Cost to 12.31.1976	7995	1,649,117	686,560	1,548,851	13,039	60,082	3,965,644
Cumulative Depreciation to 1.1.1976		331,280	329,725	374,864	4,041	41,893	1,081,803
Reclassification		-	11,609	(12,690)	1,081	-	-
Charges for year		57,694	30,691	206,928	783	2,526	298,622
Disposals		(179)	(900)	(6,911)	-	-	(7,990)
Total Depreciation to 12.31.1976	-	388,795	371,125	562,191	5,905	44,419	1,372,435
Net book value	7995	1,260,322	315,435	986,660	7,134	15,663	2,593,209

6) Projects in progress

Projects in progress consisted of the following :

Max Project :

Washing locations	£E	4,023	
Stoacking facilities		220,095	
Mechanical foundations		22,346	
Arteezian Wells		1,300	
Washing machinery		714,745	
Centrifuge for refinery		88,727	
Gass room		752	
Connection between sea and lake		2,000	
Civil work for stoacking plant		1,997	
Railway		12,952	
Furniture		1,128	
Overhead crane		,250	
Cables for washing plant		10,405	
Sundry expenses		1,012	
			<hr/>
			1,081,932

Port Said Project :

Construction		271,181	
Drianage canals		4,900	
Sundry		3,523	
Deradying and reclamation of stacking area		185,700	
Overall of crystallizers		182,382	
Overall of locomotives		30,301	
Overall of decovill tubs		24,488	
Overall of barges		79,758	
Machine and sundry expenses		1,907	
			<hr/>
			784,140

Fayoum Project : Cost to-date

20,168

Letters of credit expenses to-date

131,462

£E 2,017,702

7) Investments :

Investments consisted of the following :

	<u>1976</u>		<u>1975</u>
<u>Government Securities</u> :			
Production Loan 3½ %	£E 30,906	£E	30,096
<u>Others</u> :			
1500 shares @ £E 2, - each in the General Company for Mineral Wealth	3,000		3,000
	£E 33,906	£E	33,096
	=====		=====

The market value of both is unknown.

8) Accounts Payable :

Accounts payable consisted of the following :

	<u>1976</u>		<u>1975</u>
Suppliers	£E 349,095	£E	247,455
Suppliers of assets	69,303		92,354
Other payables	129,199		123,399
Custom duties on plant and machinery which may be waived	107,968		125,000
Accrued expenses, including £E 123,162 and 163,162 respectively interest due to the government on its capital contribution	139,845		176,345
Payments received in advance	52,662		62,943
Profit distribution - Government (note 14)	13,778		-
Profit distribution - Employees (note 14)	4,868		,275
Sundry accounts payable	27,775		24,349
	£E 957,493	£E	852,120
	=====		=====

9) Long term debt :

Long term debt consists of six installments due after 12 months of the balance sheet date for the purchase of washing equipment .

The installments are due in May and November 1978 thru 1980 of £E 40,049 each payable in Deutsch Mark at the official rate of exchange DM = £E 0.148485 the installment being DM 269,720.-

£E 240,297

N.B. See contingent liabilities (Note 13).

10) Capital :

Up to December 31, 1974
182,500 shares of £E 2,000 each fully paid
belonging to the Government of Egypt

£E 365,000

Increased at the 1975 annual general meeting as from January 1, 1975 by transferring the balance of the " Redeemable Government of Egypt Participation Account " to capital. This represents payments made by the government to Al Nasr Salines Company to date without specifying how many shares this represents.

2,110,830

Capital account as from 1.1. 1975

2,475,830

Since 1.1. 1975 Al Nasr Salines Company has received further sums which are credited to the Redeemable Government Participation Account

727,545

Capital account as of 12. 31. 1976

3,203,375

Amounts paid by the Government of Egypt to Al Nasr Salines Company up to 12.31. 1976, without indicating that they are redeemable, towards repairing the effects of war damage to the Port Said Salines.

779,713

£E 3,983,088

11) Non Distributable Reserves :

Non distributable reserves consisted of :

		<u>1976</u>	<u>1975</u>
5 ½ Statutory reserve	£E	70,310	69,085
5 ½ Government Securities reserve		<u>37,131</u>	<u>30,123</u>
	£E	<u>102,441</u> =====	<u>99,208</u> =====

12) Distributable Reserves :

Distributable reserves consisted of :

		<u>1976</u>	<u>1975</u>
Profit on sale of assets	£E	110,510	108,819
General reserve		319,979	317,530
Income tax provision not required		62,142	62,142
Reserve in lieu of depreciation of written off assets		184,273	171,030
Profit equalisation reserve		26,348	26,348
Sundry provisions		-	84,393
	£E	<u>771,587</u> =====	<u>770,262</u> =====

13) Contingent Liabilities :

A contingent liability, at the balance sheet date, amounted to £E 191,000.- being the approximate additional cost of settling the long term debt at the incentive rate instead of official rate. (See note 9).

14) Profit Distribution:

1976 was the first year since 1972 which had profits available for distribution. These were distributed as follows : -

5 ½ Statutory reserve	£E 1,225
5 ½ Government Securities reserve	1,225

10%	General reserve	2,449
5%	Replacement value of assets reserve	1,224
	Employees share of profit	4,593
	Government Share of profit	13,778
		<hr/>
	£E	24,494
		<hr/>

N.B. The employees share is

(i)	paid cash	£E 2,112
(ii)	credited to a services fund	1,837
(iii)	credited to a social fund	,919
		<hr/>
	£E	4,868
		<hr/>

AL NASR SALINES COMPANY
A MINING SECTOR COMPANY
BALANCE SHEET

December 31, 1975 and 1974.

ASSETS

	<u>Note</u>	<u>1975</u>	<u>1974</u>
		£E	£E
Cash		235,957	341,621
Trade accounts receivable	2	61,935	239,575
Other accounts receivable	3	256,589	185,461
Inventories	4	1374,978	1120,471
Prepaid expenses - letters of credit		20,293	14,573
		<hr/>	<hr/>
Total current assets		1949,752	1901,701
Property, plant and equipment at cost less depreciation	5	1933,679	1459,975
Projects in progress		1589,513	400,974
Investments	6	33,096	33,096
		<hr/>	<hr/>
£E		5506,040	3795,746
		=====	=====

LIABILITIES

	<u>Note</u>	<u>1975</u>	<u>1974</u>
		£E	£E
Current portion of long term debt		128,590	44,101
Account Payable and accrued expenses	7	852,120	550,343
Income Tax		<hr/>	<hr/>
		980,710	594,444
		<hr/>	<hr/>
Long term debt less current portion		363,200	91,296
		<hr/>	<hr/>
STOCK HOLDERS' EQUITY			
Capital account		3400,830	2475,830
Non distributable reserves		99,208	99,209
Distribution reserves		770,262	791,326
Retained earnings		(108,170)	(256,359)
		<hr/>	<hr/>
Total stockholders' equity		4162,130	3110,006
		<hr/>	<hr/>
£E		5506,040	3795,746
		=====	=====

AL NASR SALINES COMPANY
A MINING SECTOR COMPANY
STATEMENT OF INCOME & RETAINED EARNINGS

For the years ended December 31, 1975 & 1974

INCOME	<u>1975</u>	<u>1974</u>
Net Sales	£E 1,664,460	1,467,232
Other Income	59,988	25,970
Government Grant towards Port Said Salines loss of production	-	96,365
	<u>1,724,448</u>	<u>1,589,567</u>
COSTS AND EXPENSES		
Cost of Sales	885,970	772,245
Selling, general & administrative expenses	752,940	684,905
Port Said Salines expenses	-	167,982
	<u>1,638,910</u>	<u>1,575,132</u>
Income before items shown below	85,538	14,435
Prior year income	-	31,347
Prior year income - Port Said salines war damage grant	72,785	-
Prior year charges	(8,046)	(20,450)
	<u>150,277</u>	<u>25,332</u>
Income taxation (before)	2,088	1,752
	<u>148,189</u>	<u>23,580</u>
Net income for year	148,189	23,580
Retained earnings (losses), beginning of year	(256,359)	(279,939)
Retained earnings (losses), end of year	£E (108,170)	£E (256,359)

AL NASR SALINES COMPANY
A MINING SECTOR COMPANY
STATEMENT OF CHANGES IN FINANCIAL POSITION

For the years ended December 31, 1975 and 1974.

<u>WORKING CAPITAL PROVIDED BY :</u>		<u>1975</u>	<u>1974</u>
Net income for the year	£E	148,189	23,580
Add :			
Depreciation and other items not requiring current outflow of working capital		96,138	60,204
Total from operations		244,327	83,784
Government redeemable capital participat- ion		925,000	570,000
Long term debt		271,904	91,296
Total	£E	<u>1,441,231</u>	<u>745,080</u>
<u>WORKING CAPITAL USED FOR :</u>			
Profit distribution		-	-
Expenditure for property plant and equip.		590,907	448,577
Projects in progress		1,188,539	261,482
Investments		-	12,000
Total	£E	<u>1,779,446</u>	<u>722,059</u>
Net increase (decrease) in working capital		<u>(338,215)</u>	<u>23,021</u>
		=====	=====
<u>Increase (decrease) in working capital :</u>			
Current Assets			
Cash	£E	(105,664)	(39,478)
Accounts receivable		(106,512)	34,394
Inventories		254,507	109,864
Prepaid expenses		5,720	6,319
Total of Current Assets		<u>48,051</u>	<u>111,099</u>
Current Liabilities			
Current portion of long term debit		84,489	44,101
Accounts payable		301,777	43,977
Total current liabilities		<u>386,266</u>	<u>88,078</u>
Increase (decrease) in working capital	£E	<u>(338,215)</u>	<u>23,021</u>
		=====	=====

AL NASR SALINES COMPANY
A MINING SECTOR COMPANY
NOTES TO FINANCIAL STATEMENTS

1) Summary of significant accounting policies :

(a) Inventories

Inventories are stated at the lower of cost and net realisable value. Cost consists of direct materials, labour and attributable expenses, calculated on an average cost basis.

(b) Accounts receivable :

Bad debts are fully provided for as they arise and provision is made for all doubtful debts.

(c) Depreciation of plant, property and equipment :

Depreciation is calculated to write-off the book value on a straight line basis over the expected useful lives of the assets concerned. Depreciation has been calculated from the day of acquisition and is charged as the asset is used on a daily basis at the rate of 300 shifts per annum, at the following rates :

Buildings	2	-	5%
Plant & Machinery	5	-	10%
Vehicles	10	-	20%
Tools	5	-	25%
Furniture	10		%

Where fully depreciated assets are used, one quarter of the depreciation is charged to costs and credited to distributable reserves.

(d) Foreign currencies :

Assets and liabilities arising in foreign currencies are converted to Egyptian Pounds at the rates of exchange ruling at the balance sheet date. Profits and losses on exchange are charged to income or expenses during the year, other than those arising from significant changes in rate, such as the change from official rate to incentive rate, which are included in extraordinary items.

2) Trade accounts receivable :

Trade accounts receivable consisted of :

		<u>1975</u>	<u>1974</u>
Trade accounts receivable	£E	140,442	287,892
<u>Less</u> : Provision for doubtful debts		78,507	48,317
	£E	<u>61,935</u>	<u>239,575</u>

3) Other accounts receivable :

Other accounts receivable consisted of the following :

		<u>1975</u>	<u>1974</u>
Refundable deposits	£E	22,863	19,116
Employees advances		36,719	25,261
Other receivables		56,237	65,727
Payments in advance to suppliers		80,153	44,492
Ministry of Finance - employees bonus due to profit shortfall		34,395	30,865
Employees compulsory savings repayments		26,222	-
	£E	<u>256,589</u>	<u>185,461</u>

4) Inventories :

Inventories are comprised of the following :

		<u>1975</u>	<u>1974</u>
Raw materials	£E	,128	,337
Work in progress		21,627	22,939
Finished goods		796,892	687,918
Fuel		4,583	6,486
Spare parts		383,001	265,501
Packing material		158,653	121,902
Waste materials		10,094	15,387
	£E	<u>1,374,978</u>	<u>1,120,471</u>

5) Property, plant and equipment :

	<u>Building</u>	<u>Machines</u>	<u>Vehicles</u>	<u>Tools</u>	<u>F & E</u>	<u>Total</u>
	£E	£E	£E	£E	£E	£E
Cost to 1.1.75	1,180,721	433,800	757,666	6,533	45,857	2,424,577
Transfers	-	(267)	-	267	-	-
Additions	143,753	34,261	489,743	2,880	8,514	679,151
Disposals by selling	(5,143)	(6,770)	(52,866)	(1,375)	(543)	(66,697)
Disposals	(9,466)	-	(12,081)	-	-	(21,547)
Cost to 12. 31. 75	1,309,865	461,024	1,182,462	8,305	53,828	3,015,484
Cum. Dep. 1.1.75	317,155	313,935	288,872	4,120	40,521	964,603
Transfers	-	(233)	-	233	-	-
Charges for year	28,733	22,501	141,297	473	1,893	194,897
Disposals by selling	(5,143)	(64,78)	(52,824)	(785)	(520)	(65,750)
Disposals	(9,466)	(-)	(2,481)	-	-	(11,947)
Total dep. to 12. 31. 75	331,279	329,725	374,864	4,041	41,894	1,081,603
Net Book Value	978,586	131,299	807,598	42, 64	11,934	1,933,681

6) Investments :

Investments consisted of the following :

	<u>1975</u>	<u>1974</u>
<u>Government Securities</u> :		
Production Loan 3½ %	£E 30,096	£E 30,096
<u>Others</u> :		
1500 shares @ 2p each in the General Company for Mineral Wealth	3,000	3,000
	<u>33,096</u>	<u>33,096</u>

The market value of both is unknown -

7) Accounts Payable :

Accounts payable consisted of the following :

	<u>1975</u>	<u>1974</u>
Suppliers	£E 247,455	167,352
Suppliers of assets	92,354	29,383
Other payables	123,399	£2,612
Custom duties on plant and machinery which may be waived	125,000	-
Accrued expenses, including £E 163,162 & 193,162 respectively interest due to the government on its capital contribution	176,345	200,136
Payments received in advance.	62,943	27,960
Profit distribution - employees	,275	,275
Sundry accounts payable	24,349	22,625
	<u>£E 852,120</u>	<u>550,343</u>

AL NASR SALINES COMPANY
A GENERAL EGYPTIAN ORGANISATION FOR FOODSTUFFS CO.

BALANCE SHEET

December 31, 1974 and 1973

ASSETS

Current Assets :

	<u>Note</u>	<u>1974</u>	<u>1973</u>
Cash		£E 341,621	£E 381,099
Trade accounts receivable	2	239,575	161,304
Other accounts receivable	3	185,461	229,338
Inventories	4	1,120,471	1,010,607
Prepaid expenses - letters of credit		14,573	8,254
Total current assets		1,901,701	1,790,602

Property, plant and equipment at cost less depreciation

5 1,459,975 998,995

Project in progress - Max

400,974 139,492

Investments

6 33,096 21,096

£E 3,795,746 2,950,185

LIABILITIES

Current Liabilities :

Current portion of long term debt
 Accounts payable and accrued expenses

£E 44,101 £E -

7 550,343 506,366

Total current liabilities

594,444 506,366

Long term debt less current portion

8 91,296 -

STOCKHOLDERS' EQUITY

Capital account
 Non distributable reserves

9 2,475,830 1,905,830

Distribution reserves
 Retained earnings

10 99,209 99,209
 11 791,326 718,718
 (256,359) (279,938)

Total stockholders' equity

3,110,006 2,443,819

£E 3,795,746 2,950,185

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AL NASR SALINES COMPANYA GENERAL EGYPTIAN ORGANIZATION FOR FOODSTUFFS CO.STATEMENT OF INCOME AND RETAINED EARNINGSFor the years ended December 31, 1974 and 1973 .

INCOME	<u>1974</u>	<u>1973</u>
Net Sales	£E 1,467,232	1,373,613
Other Income	25,970	20,040
Government GRANT towards Port Said		
Salines loss of production	96,365	68,000
	<u>1,589,567</u>	<u>1,461,653</u>
COSTS AND EXPENSES		
Cost of Sales	772,245	675,833
Selling, general & administrative expenses	634,905	689,922
Port Said Salines expenses	167,982	106,658
	<u>1,575,132</u>	<u>1,472,413</u>
Income before items shown below	14,435	(10,760)
Income Tax	1,752	1,860
	<u>12,683</u>	<u>(12,620)</u>
Retained earnings (losses), beginning of year	(279,939)	(251,574)
Prior year charges	(20,450)	(19,357)
Prior year income	31,347	3,612
	<u>(256,359)</u>	<u>£E(279, 939)</u>

=====

AL NASR SALINES COMPANY
A GENERAL EGYPTIAN ORGANIZATION FOR FOODSTUFFS CO.
STATEMENT OF CHANGES IN FINANCIAL POSITION
For the years ended Dec. 31 1974 & 1973

	<u>1974</u>	<u>1973</u>
<u>WORKING CAPITAL PROVIDED BY</u>		
Net income for the year	£E 12,683	£E (12,620)
Add :		
Depreciation and other items not requiring current outflow of working capital	71,101	- 46,615
Total from operations	83,784	33,995
Government redeemable capital participation	570,000	125,000
Long term debt	91,296	
Total	<u>745,080</u>	<u>158,995</u>
 <u>WORKING CAPITAL USED FOR :</u>		
Profit distribution	-	-
Expenditure for property plant and equipment	448,577	11,328
Projects in progress	261,482	44,738
Investments	12,000	
Total	<u>722,059</u>	<u>56,066</u>
Net increase (decrease) in working capital	£E 23,021	£E 102,929
 <u>Increase (Decrease) in working capital:</u>		
<u>Current Assets</u>		
Cash	£E (39,478)	£E 28,704
Accounts receivable	34,396	118,400
Inventories	109,864	30,056
Prepaid expenses	6,319	8,185
Total current assets	<u>111,099</u>	<u>185,345</u>
<u>Current Liabilities</u>		
Current portion of long term debt	44,101	
Accounts payable	43,977	82,416
Total current liabilities	£E 88,078	82,416
Increase (decrease) in working capital	£E 23,021	102,929

AL NASR SALINES COMPANY
A GENERAL EGYPTIAN ORGANISATION FOR FOODSTUFFS CO.
A MINING SECTOR COMPANY
NOTES TO FINANCIAL STATEMENTS

1) Summary of significant accounting policies :

(a) Inventories

Inventories are stated at the lower of cost and net realisable value. Cost consists of direct materials, labour and attributable expenses, calculated on an average cost basis.

(b) Accounts receivable :

Bad debts are fully provided for as they arise and provision is made for all doubtful debts.

(c) Depreciation of plant, property and equipment :

Depreciation is calculated to write-off the book value on a straight line basis over the expected useful lives of the assets concerned. Depreciation has been calculated from the day of acquisition and is charged as the asset is used on a daily basis at the rate of 300 shifts per annum, at the following rates :

Buildings	2 - 5 %
Plant & Machinery	5 - 10 %
Vehicles	10 - 20 %
Tools	5 - 25 %
Furniture	10 %

Where fully depreciated assets are used, one quarter of the depreciation is charged to costs and credited to distributable reserves.

(d) Foreign currencies :

Assets and liabilities arising in foreign currencies are converted to Egyptian Pounds at the rates of exchange ruling at the balance sheet date. Profits and losses on exchange are charged to income or expenses during the year, other than those arising from significant changes in rate, such as the change from official rate to incentive rate, which are included in extraordinary items.

2) Trade accounts receivable :

Trade accounts receivable consisted of :

	<u>1974</u>	<u>1973</u>
Trade accounts receivable	£E 287,892	£E 295,672
Less : Provision for doubtful debts	<u>48,317</u>	<u>134,370</u>
	£E 239,575	£E 161,302
	=====	=====

3) Other accounts receivable :

Other accounts receivable consisted of the following :

	<u>1974</u>	<u>1973</u>
Refundable deposits	£E 19,116	£E 19,056
Employees advances	25,261	18,728
Other receivables	65,727	66,819
Payments in advance to suppliers	44,492	27,792
Ministry of Finance - employees bonus due to profit shortfall	30,865	28,943
Government production grant	-	68,000
	<u>£E 185,461</u>	<u>£E 229,338</u>
	=====	=====

4) Inventories :

Inventories are comprised of the following :

	<u>1974</u>	<u>1973</u>
Raw materials	£E 337	440
Work in progress	22,939	31,712
Finished goods	687,918	641,000
Fuel	6,486	2,183
Spare parts	265,501	243,266
Packing material	121,909	77,405
Waste material	<u>15,387</u>	<u>14,601</u>
	£E 1,120,471	£E 1,010,607
	=====	=====

(5) Property, plant and equipment:

	<u>Buildings</u>	<u>Machines</u>	<u>Vehicles</u>	<u>Tools</u>	<u>F & E</u>	<u>Total</u>
	£E	£E	£E	£E	£E	£E
Cost to 1.1.74	1,149,238	384,681	391,780	55,86	44,714	1,975,999
Reclassification	-	-	-	-	-	-
Additions	314,83	63,185	465,227	1,071	1,168	562,134
Disposals	(-)	(14,066)	(99,341)	(124)	(25)	(113,556)
Cost to 12. 31. 74	1,180,721	433,800	757,666	6,533	45,857	2,424,577
Cum. Dep. to 1.1.74	289,671	306,197	338,450	3,847	39,012	977,177
Reclassification	-	-	-	-	-	-
Charges for year	27,484	21,181	48,793	383	1,524	99,365
Disposals	(-)	(13,443)	(98,371)	(110)	(16)	(111,940)
Total dep. to 12.31. 74	317,155	313,935	288,872	4,120	40,520	964,602
Net book value	863,566	119,865	468,794	2,413	5,337	1,459,975

6) Investments :

Investments consisted of the following :

	<u>1974</u>	<u>1973</u>
<u>Government Securities</u> :		
Production Loan 3½	£E 30,096	£E 18,096
<u>Others</u> :		
1500 shares @ £E 2, each in the General Company for Mineral Wealth	3,000	3,000
	£E <u>33,096</u>	£E <u>21,096</u>
	-----	-----

The market value of both is unknown.

7) Accounts Payable :

Accounts payable consisted of the following :

	<u>1974</u>	<u>1973</u>
Suppliers	£E 167,352	£E 148,796
Suppliers of assets	29,383	20,733
Other payables	102,612	65,127
Accrued expenses, including interest	200,136	238,753
£E 193,162 and 231,722 respectively interest due to the government on its capital contribution		
Payments received in advance	27,960	12,017
Profit distribution - employees	275	275
Sundry accounts payable	22,625	20,665
	£E <u>550,343</u>	£E <u>506,366</u>
	-----	-----

8) Long term debt :

Long term debt consists of installments due in 1976 and 1977 for the following purchases :

4	installments of £E 4,391 for 6 skoda trucks	£E 17,563
3	installments of £E 5,687 for 5 shovel loaders	£E 17,060
4	installments of £E 5,836 for 8 skoda trucks	£E 23,343
4	installments of £E 8,333 for 13 skoda chassis	£E 33,330

£E91,296

9) Capital :

Up to December 31, 1974	£E	365,000
182,500 shares of £E 2000 each fully paid belonging to the Government of Egypt.		

Payments made by the Government of Egypt to Al Nasr Salines Company and credited to the Redeemable Government participation account .

2,110,830

£E 2,475,830

10) Non Distributable Reserves :

Non distributable reserves consisted of :

		<u>1974</u>	<u>1973</u>
5% Statutory reserves	£E	69,085	69,085
5% Government Securities reserve		30,124	30,124
	£E	<hr/> 99,209	<hr/> 99,209
		=====	=====

11) Distributable Reserves :

Distributable reserves consisted of :

		<u>1974</u>	<u>1973</u>
Profit on sale of assets	£E	88,632	36,518
General reserve		167,530	167,530
Incomes tax provision not required		62,913	62,912
Reserve in lieu of depreciation of written off assets		155,751	134,751
Profit equalisation reserve		26,348	26,348
Sundry provisions		290,152	290,659
		<hr/>	<hr/>
	£E	791,326	718,718
		<hr/>	<hr/>

AL NASR SALINES COMPANY
A General Egyptian Organisation for Foodstuffs Company

BALANCE SHEET

December 31, 1973 and 1972

<u>ASSETS</u>				<u>LIABILITIES</u>			
	<u>Note</u>	<u>1973</u>	<u>1972</u>		<u>Note</u>	<u>1973</u>	<u>1972</u>
<u>Current Assets:</u>				<u>Current Liabilities</u>			
Cash		£E 381,099	£E 352,395				
Trade accounts receivable	2	161,304	97,592				
Other accounts receivable	3	229,338	174,650				
Inventories	4	1,010,607	980,551				
Prepaid expenses - letters of credit		<u>8,254</u>	<u>69</u>	Accounts payable and accrued expenses	7	£E 506,366	£E 423,950
Total current assets		1,790,602	1,605,257	Total current liabilities		<u>506,366</u>	<u>423,950</u>
Property, plant & equipment at cost less depreciation	5	998,995	1,015,670				
Projects in progress - Max		139,492	94,754				
Investments	6	<u>21,096</u>	<u>21,096</u>				
	£E	<u>2,950,185</u>	<u>£E2,736,777</u>				
				<u>STOCKHOLDERS' EQUITY</u>			
				Capital account	8	1,905,830	1,780,830
				Non distributable reserves	9	99,209	99,209
				Distribution reserves	10	718,718	684,362
				Retained earnings		(279,938)	(251,574)
				Total stockholders' equity		<u>2,443,819</u>	<u>2,312,827</u>
					£E	<u>2,950,185</u>	<u>£E2,736,777</u>

AL NASR SALINES COMPANY
A General Egyptian Organisation for Foodstuffs Company

STATEMENT OF INCOME AND

RETAINED EARNINGS

For the years ended December 31, 1973 & 1972

<u>INCOME</u>	<u>1973</u>	<u>1972</u>
Net Sales	EE 1,373,613	EE 2,029,623
Other Income	20,040	42,071
Government, Grant towards Port Said		
Salines loss of production	68,000	27,475
	<u>1,461,653</u>	<u>2,099,169</u>
 <u>COSTS AND EXPENSES</u>		
Cost of sales	675,833	1,153,779
Selling, general and administrative expenses	689,922	884,093
Port Said Salines expenses	106,658	149,554
	<u>1,472,413</u>	<u>2,187,426</u>
Income before tax	(10,760)	(88,257)
Income tax	(1,859)	(1,091)
Net income for year	(12,619)	(89,348)
Retained earnings (losses), beginning of year	(251,574)	(176,197)
Prior year income	3,612	26,772
Prior year charges	(19,357)	(12,801)
Retained earnings (losses), end of year	EE (279,938)	EE (251,574)

AL NASR SALINES COMPANYA General Egyptian Organisation for Foodstuffs CompanySTATEMENT OF CHANGES IN FINANCIAL POSITIONFor the year ended December 31, 1973

<u>WORKING CAPITAL PROVIDED BY</u>		<u>1973</u>
Net income for the year	EE	(28,364)
Add:		
Depreciation and other items not requiring current outflow of working capital		<u>62,359</u>
Total from operations		<u>33,995</u>
Government redeemable capital participation		<u>125,000</u>
Total		<u>158,995</u>
<u>WORKING CAPITAL USED FOR</u>		
Profit distribution		-
Expenditure for property, plant and equipment Projects in progress		<u>11,328</u> <u>44,738</u>
Total		<u>56,066</u>
Net increase (decrease) in working capital	EE	<u>102,929</u>
<u>INCREASE (DECREASE) IN WORKING CAPITAL:</u>		
Current Assets		
Cash	EE	28,704
Accounts receivable		118,400
Inventories		30,056
Prepaid expenses		8,185
Total Current Assets		<u>185,345</u>
Current Liabilities		
Accounts payable		<u>82,416</u>
Total Current Liabilities		<u>82,416</u>
Increase (Decrease) in working capital	EE	<u>102,929</u>

A General Egyptian Organisation for Foodstuffs CompanyNOTES TO FINANCIAL STATEMENT1. Summary of significant accounting policies :(a) Inventories

Inventories are stated at the lower of cost and net realisable value. Cost consists of direct materials, labour and attributable expenses, calculated on an average cost basis.

(b) Accounts receivable

Bad debts are fully provided for as they arise and provision is made for all doubtful debts.

(c) Depreciation of plant, property and equipment

Depreciation is calculated to write-off the book value on a straight line basis over the expected useful lives of the assets concerned. Depreciation has been calculated from the day of acquisition and is charged as the asset is used on a daily basis at the rate of 300 shifts per annum, at the following rates:

Buildings	2 - 5%
Plant & machinery	5 - 10%
Vehicles	10 - 20%
Tools	5 - 25%
Furniture	10%

Where fully depreciated assets are used, one quarter of the above depreciation is charged to costs and credited to distributable reserves.

(d) Foreign currencies

Assets and liabilities arising in foreign currencies are converted to Egyptian Pounds at the rates of exchange ruling at the balance sheet date. Profits and losses on exchange are charged to income or expenses during the year, other than those arising from significant changes in rate, such as the change from official rate to incentive rate, which are included in extraordinary items.

2. Trade accounts receivable:

Trade accounts receivable consist of:

	<u>1973</u>	<u>1972</u>
Trade accounts receivable	EE 295,672	EE 225,139
<u>Less: Provision for</u> doubtful debts	134,370	127,547
	<u>EE 161,302</u>	<u>EE 97,592</u>

3. Other accounts receivable:

Other accounts receivable consisted of the following:

Refundable deposits	EE 19,056	EE 19,072
Employees advances	18,728	20,433
Other receivables	66,819	99,350
Payments in advance to suppliers	27,792	35,795
Ministry of Finance - employees bonus due to profit shortfall	28,943	-
Government production grant	68,000	-
	<u>EE 229,338</u>	<u>EE 174,650</u>

4. Inventories:

Inventories are comprised of the following:

Raw materials	EE 440	EE 298
Work in progress	31,712	27,211
Finished goods	641,000	626,076
Fuel	2,183	3,030
Spare parts	243,266	220,253
Packing material	77,405	92,315
Waste materials	14,601	11,368
	<u>EE 1010,607</u>	<u>EE 980,551</u>

5. Property, plant and equipment:

	Buildings ££	Machines ££	Vehicles ££	Tools ££	F & E ££	Total ££
Cost to January 1, 1973	1,129,326	371,851	414,183	4,708	44,604	1,964,672
Additions	23,760	12,830	15,334	879	110	52,913
Disposals	(3,848)	-	(37,737)	-	-	(41,585)
Cost to December 31, 1973	1,149,238	384,681	391,780	5,587	44,714	1,976,000
Cum. dep. to January 1, 1973	264,428	285,605	358,549	3,337	37,082	949,001
Charges for year	28,506	20,668	17,495	334	1,930	68,933
Disposals	(3,335)	-	(37,594)	-	-	(40,929)
Total dep. to December 31, 1973	289,599	306,273	338,450	3,671	39,012	977,005
Net Book Value	859,639	78,408	53,330	1,916	5,702	998,995

6. Investments :

Investments consisted of the following:

	<u>1973</u>	<u>1972</u>
<u>Government Securities</u>		
Production Loan 3½%	EE 18,096	EE 18,096
<u>Others</u>		
1500 shares @ EE 2 each in the General Company for Mineral Wealth	3,000	3,000
	<u>EE 21,096</u>	<u>EE 21,096</u>

The market value of both is unknown.

7. Accounts Payable:

Accounts payable consisted of the following:

Suppliers	EE 148,796	EE 120,313
Suppliers of assets	20,733	9,373
Other payables	65,127	60,338
Accrued expenses, including EE 231,722 and EE 193,422 respectively interest due to the Government on its capital contribution	238,753	195,709
Payments received in advance	12,017	13,058
Profit distribution - Employees	275	275
Sundry accounts payable	20,665	24,884
	<u>EE 506,366</u>	<u>EE 423,950</u>

8. Capital:

	<u>1973</u>	<u>ANNEX P-36</u> <u>1972</u>
Up to December 31, 1973 182,500 shares of EE 2 each, fully paid, belonging to the Government of Egypt	EE 365,000	EE 365,000
Redeemable Government of Egypt participation account	1,540,830	1,415,830
	<u>EE 1,905,830</u>	<u>EE 1,780,830</u>

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9. Non Distributable Reserves:

Non distributable reserves consisted of:

5 % statutory reserve	EE 69,085	EE 69,085
5 % Government securities reserve	30,124	30,124
	<u>EE 99,209</u>	<u>EE 99,209</u>

10. Distributable Reserves:

Distributable reserves consisted of:

Profit on sale of assets	EE 36,518	EE 25,083
General reserve	167,530	167,530
Income tax provision not required	62,912	78,001
Reserve in lieu of depreciation of written off assets	134,751	109,264
Profit equalisation reserve	26,348	13,000
Sundry provisions	290,659	291,484
	<u>EE 718,718</u>	<u>EE 684,362</u>

EL MASH SALINES CO.
PORT SAID SALINES PROJECT
PROJECTED INCOME STATEMENT
(LE 000)

	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>
<u>Gross Sales (LE 000)</u>	LE <u>989.0</u>	<u>1754.5</u>	<u>2118.0</u>	<u>2174.0</u>	<u>2202.0</u>	<u>2230.0</u>	<u>2230.0</u>	<u>2230.0</u>	<u>2230.0</u>	<u>2230.0</u>
<u>Expenses:</u>										
Labor and Administration	54.6	98.2	136.5	147.5	153.0	158.4	158.4	158.4	158.4	158.4
Fuel	25.9	46.6	64.7	69.9	72.5	75.1	75.1	75.1	75.1	75.1
Maintenance - Equipment	31.2	56.0	77.9	84.2	87.3	90.4	90.4	90.4	90.4	90.4
Maintenance - Building	3.3	6.0	8.3	8.9	9.3	9.6	9.6	9.6	9.6	9.6
Power	26.9	47.7	66.4	71.7	74.4	77.0	77.0	77.0	77.0	77.0
Packing	134.6	241.8	336.2	363.0	376.7	390.0	390.0	390.0	390.0	390.0
Inland Transportation	60.0	110.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
Shiploading	3.5	6.3	11.7	13.5	14.4	15.3	15.3	15.3	15.3	15.3
Depreciation Expense	164.1	290.8	408.0	436.6	453.1	469.0	305.7	305.7	305.7	305.7
Amort. Exp. Deferred Deprec.	0	0	0	0	0	23.7	23.7	23.7	23.7	23.7
Interest Expense	318.1	563.6	783.6	846.3	823.0	789.3	720.3	644.3	60.8	467.0
Amort. Exp. Deferred Interest	0	0	0	0	0	80.0	80.0	80.0	80.0	80.0
Sub-Total Expenses	<u>822.2</u>	<u>1366.6</u>	<u>2013.3</u>	<u>2161.6</u>	<u>2183.7</u>	<u>2297.8</u>	<u>2065.5</u>	<u>1989.5</u>	<u>1906.0</u>	<u>1812.2</u>
<u>Profit (Loss) Before Taxes</u>	166.8	387.9	104.7	12.4	18.3	(67.8)	164.5	240.5	324.0	417.8
<u>Income Taxes</u>	<u>65.1</u>	<u>151.3</u>	<u>40.8</u>	<u>4.8</u>	<u>7.1</u>	<u>0</u>	<u>64.2</u>	<u>93.8</u>	<u>126.4</u>	<u>163.0</u>
<u>Net Profit (Loss)</u>	LE <u>101.7</u>	<u>236.6</u>	<u>63.9</u>	<u>7.6</u>	<u>11.2</u>	<u>(67.8)</u>	<u>100.3</u>	<u>146.7</u>	<u>197.6</u>	<u>254.8</u>

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EL NASR SALINES CO.
PORT SAID SALINES PROJECT
PRODUCTION AND SALES SCHEDULE PROJECTION

Annex Q-2

	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>
Beginning Salt Stockpile (000 tons)	30	55	110	130	140	145	145	145	145	145
Salt Harvest After Loss (000 tons)	75	145	145	145	145	145	145	145	145	145
Salt Available (000 tons)	105	200	255	275	285	290	290	290	290	290
Ending Stockpile (000 tons)	55	110	130	140	145	145	145	145	145	145
Salt Produced and Sold (000 tons)	50	90	125	135	140	145	145	145	145	145
<u>PRODUCED AND SOLD (000TONS)</u>										
Refined: Domestic 1 kg. bags	10	15	20	20	20	20	20	20	20	20
Export 25 kg. bags	20	35	40	40	40	40	40	40	40	40
Washed & Ground-Bagged & Domestic 1 kg.	20	40	40	40	40	40	40	40	40	40
Bulk Washed Export			25	35	40	45	45	45	45	45
<u>SALES PRICE (LE 000)</u>										
Refined Domestic 1 kg.	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5
Export 25 kg.	23.2	23.2	23.2	23.2	23.2	23.2	23.2	23.2	23.2	23.2
Washed & Ground-Bagged & Domestic 1 kg	15.5	15.5	15.5	15.5	15.5	15.5	15.5	15.5	15.5	15.5
Bulk Washed-Export	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6
<u>GROSS SALES (LE 000)</u>										
Refined Domestic - 1 kg.	215.0	322.5	430.0	430.0	430.0	430.0	430.0	430.0	430.0	430.0
Export - 25 kg.	464.0	812.0	928.0	928.0	928.0	928.0	928.0	928.0	928.0	928.0
Washed Ground - Domestic 1 kg.	310.0	620.0	620.0	620.0	620.0	620.0	620.0	620.0	620.0	620.0
Bulk Washed - Export			140.0	196.0	224.0	252.0	252.0	252.0	252.0	252.0
TOTAL	989.0	1754.5	2118.0	2174.0	2202.0	2230.0	2230.0	2230.0	2230.0	2230.0

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EL NASR SALINES COMPANY
PORT SAID SALINES PROJECT
CALCULATION OF PROJECTED ANNUAL DEFERRED INTEREST AND DEPRECIATION EXPENSES

	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>
1. Production Capacity (000 Tons)	-0-	-0-	50.0	90.0	125.0	135.0	140.0	145.0	145.0	145.0	145.0	145.0
2. Capacity at Full Production (000 Tons)	-0-	-0-	145.0	145.0	145.0	145.0	145.0	145.0	145.0	145.0	145.0	145.0
3. Percent Capacity	-0-	-0-	34.5	62.0	86.2	93.1	96.6	100.0	100.0	100.0	100.0	100.0
4. Percent Capitalized	-0-	-0-	65.5	38.0	13.8	6.9	3.4	-0-	-0-	-0-	-0-	-0-
5. Interest Expense ^{1/} (Total) (LE 000)	122.4	699.3	909.0	909.0	909.0	909.0	852.0	789.3	720.3	644.3	560.8	467.0
6. Amount Capitalized ^{4x5} (LE 000)	122.4	699.3	590.9	345.4	125.4	62.7	29.0	-0-	-0-	-0-	-0-	-0-
7. Amount Expensed ⁵⁻⁶ (LE 000)	-0-	-0-	318.1	563.6	783.6	846.3	823.0	789.3	720.3	644.3	560.8	467.0
8. Amortization Expense ^{2/} - Deferred Interest (LE 000)	-0-	-0-	-0-	-0-	-0-	-0-	-0-	80.0	80.0	80.0	80.0	80.0
9. Depreciation Expense ^{3/} (Total) (LE 000)	-0-	-0-	469.0	469.0	469.0	469.0	469.0	469.0	305.7	305.7	305.7	305.7
10. Amount Capitalized (LE 000) ^{4x10}	-0-	-0-	304.9	178.2	61.0	32.4	15.9	-0-	-0-	-0-	-0-	-0-
11. Amount Expensed (LE 000) ⁹⁻¹⁰	-0-	-0-	164.1	290.8	408.0	436.6	453.1	469.0	305.7	305.7	305.7	305.7
12. Amortization Expense ^{4/} - Deferred Depreciation (LE 000)	-0-	-0-	-0-	-0-	-0-	-0-	-0-	23.7	23.7	23.7	23.7	23.7

^{1/} See Annex , Loan Repayment and Interest Expense.

^{2/} Total of capitalized interest, LE 1975, amortized over the remaining life of the plant, 25 years.

^{3/} See Annex , Calculation of Depreciation Expense.

^{4/} Total of capitalized depreciation, LE 592, amortized over the remaining life of the plant, 25 years.

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EL NASR SALINES COMPANY
PORT SAID SALINES PROJECT

Annex Q-4

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ANNEX

LOAN REPAYMENT AND INTEREST EXPENSE
(\$000)

YEAR	LOAN DISBURSEMENTS	PRINCIPAL BALANCE	PRINCIPAL REPAYMENT	INTEREST EXPENSE	ANNUAL PAYMENT
1977	-0-				
1978	3500	3500.0	-0-	175.0	175.0
1979	9500	13000.0	-0-	1000.0	1000.0
1980		13000.0	-0-	1300.0	1300.0
1981		13000.0	-0-	1300.0	1300.0
1982		13000.0	-0-	1300.0	1300.0
1983		12184.3	815.7	1300.0	2115.7
1984		11287.1	897.3	1218.4	2115.7
1985		10300.0	987.0	1128.7	2115.7
1986		9214.4	1085.7	1030.0	2115.7
1987		8020.1	1194.3	921.4	2115.7
1988		6706.4	1313.7	802.0	2115.7
1989		5261.4	1445.1	670.6	2115.7
1990		3671.9	1589.6	526.1	2115.7
1991		1923.4	1748.5	367.2	2115.7
1992		-0-	1923.4	192.3	2115.7

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ANNEX 25

EL NASR SALINES COMPANY
 PORT SAID SALINES PROJECT
 CALCULATION OF DEPRECIATION EXPENSE
 (\$ 000)

	FOB COST	CIF DEPRECIABLE BASIS	SALVAGE VALUE	ESTIMATED LIFE	EXPENSE
Salt Harvesting	358.0	483.0	161.0	6.0	53.7
Brine Intake	231.0	312.0	78.0	10.0	23.4
Washing and Stockpiling	1070.0	1445.0	361.3	15.0	72.3
Raw Salt Stockpiling	717.0	968.0	242.0	15.0	48.4
Salt Refining	1316.0	1777.0	444.3	20.0	66.6
Ground Salt	215.0	290.0	72.5	20.0	10.9
Materials Handling	720.0	972.0	324.0	6.0	108.0
Salt Reclaiming	439.0	593.0	197.7	10.0	39.5
Shiploading	450.0	608.0	152.0	15.0	30.4
Package Moving	72.0	97.0	32.3	6.0	10.8
Quality Control	24.0	32.0	8.0	10.0	2.4
Mobile Equipment	405.0	547.0	182.3	6.0	60.8
SUBTOTAL	6017.0	8124.0	2255.4		527.2
U.S. Construction Materials	980.0	1323.0	331.0	30.0	33.0
Plant Construction - Completed & to be Completed	-0-	1274.0	318.0	30.0	31.9
SUBTOTAL	980.0	2597.0	649.0		64.9
Barges	-0-	114.0	28.5	20.0	4.3
Civil Works	-0-	3679.0	-0-	50.0	73.6
GRAND TOTAL		\$ 15219.0	\$ 2932.9		\$ 670.0
or		LE 10653.0			LE 469.0

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ANNEX R.

EL NASR SALINES COMPANY
CASH FLOW STATEMENT
(L.E. 000)

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Net Income - Other Tax	101.7	236.6	63.9	7.6	11.2	[67.8]	100.3	146.7	197.6	754.0
Annual Depreciation Expense	164.1	290.8	408.0	436.6	453.1	305.7	305.7	305.7	305.7	305.7
Actual Interest Expense	318.1	563.6	783.6	846.4	823.0	789.3	720.3	644.3	560.8	467.0
Capitalized Interest	590.9	345.4	125.4	62.7	29.0	-0-	-0-	-0-	-0-	-0-
Amortization Expense Depreciation						23.7	23.7	23.7	23.7	23.7
Amortization Expense Interest							80.0	80.0	80.0	80.0
Cash Available Beginning	1174.8	1436.4	1380.9	1353.2	1316.3	1294.2	1230.0	1200.4	1167.8	1131.2
Balance Forward	-0-	264.8	791.2	1262.1	1134.4	969.8	783.1	432.2	251.7	[61.4]
Annual Debt Service	910.0	910.0	910.0	1480.9	1480.9	1480.9	1480.9	1480.9	1480.9	1480.9
Ending Balance: Forward	264.8	791.2	1262.1	1134.4	969.8	783.1	532.2	251.7	[61.4] ^{1/}	[411.1] ^{1/}

^{1/} Beginning with year 1988, projection shows a regular cash flow. However, analysis has assumed that sales price of salt will remain constant, which in reality, they will not. Debt service will remain constant, thus we would expect that cash flow would in fact be positive.

EL NASR SALINES COMPANY
PORT SAID SALINES PROJECT
ECONOMIC RATE OF RETURN
(IN 000 LE)

Total Costs

Year	Total Revenues	Capital Costs	Operating & Maintenance Costs	Net Revenues	Cumulative Discounted Cash Flow
					17.2%
1978	-	5250.0		(5250)	(5250)
1979	-	7875.0		(7875)	(11969.3)
1980	1742.6		430.6	1312.0	(11014.1)
1981	3115.0		773.7	2341.3	(9559.8)
1982	3784.2		1025.2	2759.0	(8097.4)
1983	3885.0		1091.3	2793.7	(6834.0)
1984	3935.3		1124.7	2810.6	(5749.5)
1985	3985.8		1157.5	2828.3	(4818.3)
1986	3985.8		1157.5	2828.3	(4023.8)
1987	3985.8		1157.5	2828.3	(3345.9)
1988	3985.8		1157.5	2828.3	(2767.5)
1989	3985.8		1157.5	2828.3	(2273.9)
1990	3985.8		1157.5	2828.3	(1852.8)
1991	3985.8		1157.5	2828.3	(1493.5)
1992	3985.8		1157.5	2828.3	(1186.9)
1993	3985.8		1157.5	2828.3	(925.4)
1994	3985.8		1157.5	2828.3	(702.2)
1995	3985.8		1157.5	2828.3	(511.7)
1996	3985.8		1157.5	2828.3	(349.2)
1997	3985.8		1157.5	2828.3	(210.6)
1998	3985.8		1157.5	2828.3	(92.3)
1999	3985.8		1157.5	2828.3	(- 0 -)

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THRESHOLD DECISION BASED ON
INITIAL ENVIRONMENTAL EXAMINATION

Project Location: Egypt

Project Title: Port Said Salines

Funding (Fiscal Year and Amount): FY 77 \$13 million

IEE Prepared By: C. J. Patalive

Date: September 14, 1977

Environmental Action Recommended: Negative Determination
(Environmental Assessment, Negative Determination, etc.)

Bureau for Near East Decision:
(Approval/Disapproval of Environmental Action Recommended in the IEE.)

APPROVED: _____

DISAPPROVED: _____

DATE: _____

Clearances:

NE/GC: _____ Date: _____

NE/TECH: _____ Date: _____

SER/ENGR: SP Date: 9/16/77

TA/OST: _____ Date: _____

(as necessary)

INITIAL ENVIRONMENTAL EXAMINATION
NARRATIVE DISCUSSION

1. Project Location: Egypt
2. Project Title: Port Said Salines
3. Funding (Fiscal Year and Amount): FY 77 \$13 million
4. Life of Project: 30 years
5. IEE Prepared By: C. J. Patalive Date: September 14, 1977
6. Action Recommended: Negative Determination
7. Discussion of Major Environmental Relationships of Project Relevant to Attached Impact Identification and Evaluation Form:

See attached **Environmental Analysis** prepared by STV, Inc.

IMPACT IDENTIFICATION AND EVALUATION FORM

Impact Areas and Sub-areas

Impact Identification and Evaluation

A. LAND USE

- 1. Changing the character of the land through:
 - a. Increasing the population
 - b. Extracting natural resources
 - c. Land clearing
 - d. Changing soil character
- 2. Altering natural defenses
- 3. Foreclosing important uses
- 4. Jeopardizing man or his works
- 5. Other factors

N
N
L
L
L
L
N

B. WATER QUALITY

- 1. Physical state of water
- 2. Chemical and biological states
- 3. Ecological balance
- 4. Other factors

L
L
L

- 1/N - No environmental impact
- L - Little environmental impact
- M - Moderate environmental impact
- H - High environmental impact
- U - Unknown environmental impact.

C. ATMOSPHERIC

- 1. Air additives
- 2. Air pollution
- 3. Noise pollution
- 4. Other factors

L
L
L

D. NATURAL RESOURCES

- 1. Diversion, altered use of water
- 2. Irreversible, inefficient commitments
- 3. Other factors

N
L

E. CULTURAL

- 1. Altering physical symbols
- 2. Dilution of cultural traditions
- 3. Other factors

N
N

F. SOCIOECONOMIC

- 1. Changes in economic/employment patterns
- 2. Changes in population
- 3. Changes in cultural patterns
- 4. Other factors

N
N
N

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IMPACT IDENTIFICATION AND EVALUATION FORM

ANNEX T-5

G. HEALTH

- 1. Changing a natural environment
- 2. Eliminating an ecosystem element
- 3. Other factors

N

N

H. GENERAL

- 1. International impacts
- 2. Controversial impacts
- 3. Other factors

L

L

I. OTHER POSSIBLE IMPACTS (not listed above)

Prepared By: C. J. Patalive Date: 9/14/77

Project Location: Egypt

Project Title: Port Said Salines

ENVIRONMENTAL ANALYSIS

DESCRIPTION OF THE PROJECT

The objective of the project is to reestablish El Nasr's Port Said Salines Plant which was partially destroyed in the 1967 and 1973 Arab-Israeli Wars. Prior to 1967, salt operations had been carried out on a continuous basis since the late 1890's. Therefore, rather than the establishment of a salt plant at a new site, the project considers the return of complete salt operations to a site which has successfully accommodated such operations in the past. This fact has a significant bearing on the extent and outcome of the environmental assessment. If the project scope involved selecting a new site for the salt plant, then it is possible that the present site might not be chosen as the best available location.

In reestablishing the Port Said Salines, El Nasr seeks to modernize the operation through the addition of new materials handling, and salt washing and refining equipment. In addition to various vehicle needs (salt harvesters, dump-truck trucks, fork-lift trucks, etc.), El Nasr's plan calls for the construction of a 3 story, 7500 square meter salt refinery and storage area, a salt washing facility with stacking equipment, a new pump house to bring Mediterranean Sea water into the plant concentration ponds, a vehicle and equipment maintenance workshop, and the construction of dikes for approximately five new concentration ponds.

LOCATION

The Port Said Salines Plant is located in the Port Said urban area. This urban area includes both the settlements of Port Said and Port Fouad, and is immediately adjacent to

the head of the Suez Canal. The area's location within the Arab Republic of Egypt (A.R.E.) is shown in Figure 7-1.

The Port Said Salines is located on the eastern (Port Fouad) side of the Suez Canal. It is bounded on the north by the Mediterranean Sea, on the south and east by Lake Mallaha, and on the west by Port Fouad (see Figure 7-2). El Nasr also uses the Suez Canal Authority's (SCA) shipping quay on the Suez Canal where salt is loaded into barges and transferred to freighters for export. The company is authorized to use a government road for access to the quay.

PROPOSED PRODUCTION PROCESSES AND POTENTIAL ENVIRONMENTAL PROBLEMS

Basic solar salt production is a relatively simple process that has been performed for centuries. Through the use of modern management techniques and material handling equipment, the operation becomes a highly efficient process. There are approximately six steps in the basic salt operation. Briefly, these include the following:

Sea Water Intake

Sea water is drawn from the sea by high volume (approximately 2300 cubic meters per hour or 10,000 gallons per minute) water pumps and discharged into concentrating ponds.

Concentration

The size of the concentration ponds are approximately ten times the total area of the crystallizers (described below). Typically, in a solar salt operation, there are between 10 and 15 concentration ponds. These ponds are usually divided by mud levees, which may be irregular in shape, and are flooded with concentrated sea water to a depth of approximately 30 centimeters (12 inches). In the concentration ponds, water is concentrated to the point of

salt saturation (25° Be° or a specific gravity of 1.21. During the concentration process, calcium sulfate is precipitated out of the solution. If there are sufficient amounts of calcium sulfate it can be recovered.

Crystallization

The remaining brine (saturated sodium chloride solution) is transferred into the crystallizing ponds. These ponds are typically 25,000 square meters (5 acres) in size and of a regular shape to accommodate harvesting equipment. The crystallizers further concentrate the brine to approximately 29° Be° or a specific gravity of 1.26. Salt is harvested when the salt bed attains a depth of 15 to 20 centimeters (7 to 8 inches).

Just before harvesting, the bitterns (concentrated with magnesium chloride and other halogen salts, and from which 80% of the sodium chloride has precipitated) are drained. If magnesium quantities are sufficient, the magnesium is recovered. However, if not, the bitterns must be disposed of. This disposal is normally accomplished by diluting the bitterns with sea water to reduce concentrations from 40 to 10 times that of sea water. This is considered to be a safe level for bittern disposal.

Harvesting

At least once a year, raw salt is harvested from each crystallizer. Harvesting is accomplished mechanically by equipment which resembles highway construction machinery. The harvestable salt cake is removed from a permanent salt floor and loaded into trucks from which it is dumped onto belt conveyors which deliver it to wash plant or refinery areas.

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Refining

The raw salt is immersed in a clean wash brine to remove impurities and additional bitterns which may adhere to the salt crystals. Refining increases the sodium chloride content from approximately 95% to 99%. Depending upon the final product quality desired, sodium chloride crystals may be reduced and screened to required sizes. The salt is then dried, reducing moisture levels to approximately 0.2%.

Impurities removed in the washing process include magnesium, calcium sulfate, and such insoluble matter as silt or sand. These impurities appear in the form of a sludge which is not economically disposable. It is, therefore, normally used for road and dike stabilizing.

Shipping

After refining, the salt is shipped by truck or barge to domestic or export markets. A typical plant will ship 50% of their salt in bulk and 50% in bags.

RELATIONSHIP OF THE PROJECT TO GOVERNMENT OF THE A.R.E. POLICY

Since the reestablishment of the Port Said Salines Plant is sponsored by the Government of the A.R.E., and the General Organization for Industrialization (GOFI), through El Nasr, the project is in accordance with government policy. The project is in line with current national, regional, and local goals and objectives (as described in The Master Plan for Port Said). These goals and objectives support general industrial growth. They include:

- . Increased rates of economic development
- . Increased standard of living through expanded employment at decent wages in healthy, efficient, and pleasant environments.

- . Development of an industrialization plan.
- . Development of an adequate number and range of job opportunities to absorb the available labor force at all growth stages.
- . Use of the Suez Canal as the spine of development, instead of a boundary.

DESCRIPTION OF OTHER PROJECTS IN THE SAME GENERAL AREA
WHICH ARE FINANCED BY U.S. GOVERNMENT AGENCIES

There are two studies in the Port Said area which are financed, or will be financed, by USAID. These are:

- . Port modernization, rehabilitation, and planning.
- . Waterworks and wastewater facilities master plan

There are no other U.S. financed activities in the Port Said area.

Port Modernization, Rehabilitation and Planning

This study is being performed by Frederic R. Harris, Inc., Consulting Engineers, New York, N.Y., U.S.A. The purpose of the study is to prepare an in-depth analysis of port needs, as well as detailed planning for a new, expanded, and modernized port.

Waterworks and Wastewater Facilities Master Plan

USAID will soon award a contract to develop a plan and program for immediate rehabilitation projects. The plan will also include a 25-year development program for waterworks and wastewater facilities.

SOCIOECONOMIC SETTING

Population Trends

The 1976 Master Plan for Port Said (MPPS) estimated

current population at between 290,000 and 330,000 persons. Port Said was evacuated after the 1967 war and people have been returning since 1974. Population is expected to increase rapidly to approximately 750,000 to 1,000,000 persons by the year 2000. The planners reached this forecast by assuming a decline in the fertility rate based in accordance with international experience and a constant rate of migration to Port Said.

Employment Trends

The MPPS projects that the 1966 labor force of 70,000 will grow to 260,000 by the year 2000. Table 7-1 below shows projected population, household, and labor force levels.

Table 1

Port Said - Projected Population, Households, and Labor Force (in thousands)

	<u>1980</u>	<u>1985</u>	<u>1990</u>	<u>2000</u>
Population	384	471	561	750
Male	195	242	288	384
Female	189	229	273	366
Households	83	99	120	169
Labor Force	114	151	184	266
Male	100	130	154	214
Female	14	21	30	51

Source: Master Plan for Port Said; Bullen and Partners, et al., March, 1976

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LOCAL INFRASTRUCTURE

Road System

The Port Said urban area is served by two major inter-regional roads, one to El Qantara and Ismailia to the south, and the other to Damietta to the west. Within the urban area the road system basically consists of a grid network. Within Port Fouad the grid is intersected by several long diagonals.

The MPPS found no instances of traffic congestion within the urban area and, in fact, cited a general over-provision of road space. The plan for the year 2000 envisions increased, but still relatively low car ownership for Port Said residents. The plan emphasizes non-motorized movement, including pedestrians, cyclists, and animal traffic. Most motor vehicle traffic is restricted to regional, arterial, and distributor roads with the urban street system reserved for pedestrians, cyclists, and service vehicles. This plan should ease conflicts between internal and through traffic and help expedite the movement of people and goods through the urban area.

The salines plant, itself, is connected to the road network by a rough, dirt road. In order to improve access to the salines plant for both workers and truck traffic, this access road should be upgraded to modern standards.

Ferries

Ferries (operating across the Suez Canal between Port Said and Port Fouad) play a vital role in unifying the urban area and enabling the movement of people and goods between the two settlements. The service (operated by the Suez Canal Authority) is fast, frequent, and cheap. The ferries are the only means of transportation between Port Said and Port Fouad, and, therefore, all materials bound to or from

Port Fouad (and the salines plant) must come by ferry. In addition, the ferry is the major commutation mode for workers at the salines plant. A company bus meets each shift of workers at the ferry and carries them to the plant.

At present, there are five boats operating. The crossing takes approximately five minutes and total trip time averages approximately thirteen minutes (including waiting time).

The MPPS envisions retention of the ferry system, since forecasted year 2000 movements between Port Said and Port Fouad will not justify a tunnel or high-level bridge. The planners propose that the present ferry service be limited to pedestrian traffic only, and that two additional ferry operations (at different locations) be instituted for vehicular and pedestrian traffic. If implemented, this plan would expedite the movement of people and goods and should be an asset to all in Port Fouad, including the salines plant.

Railroads

At present, there is no rail service to or from Port Said. Rail facilities sustained heavy damage during the 1967 war and service has not yet been reinstated. Reconstruction is currently underway and new lines are contemplated. Restoration and expansion of rail service to Port Said should prove valuable to El Nasr as an alternative shipping mode.

Fresh Water Supply

Port Said draws its fresh water from the Nile River by means of the Abassa Canal (a branch of the Ismailia Canal). Water is treated at the El Raswa Water Treatment Works on the Port Said side of the canal. Port Fouad receives its fresh water by means of two 500 millimeter pipes located under the Suez Canal. Water supply is, at present, considered

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deficient due to a lack of flow in the Abassa Canal and unrepaired war damage inflicted on the El Raswa works.

The SCA has initiated an improvement program for the repair, rehabilitation, modification, and extension of the El Raswa Water Treatment Plant. The improvement of the treatment plant, along with the extension of the water distribution system, should ensure an adequate and reliable fresh water supply for the salt plant.

Electricity

Port Said relies on its own diesel generators (at El Raswa) which are operated by the Egyptian Electricity Authority (EEA). Port Fouad has a separate system with its own diesel generating station operating at 5500 volts (stepped down to 400 and 110 volts), 50 cycle, 3 phase. By 1977, the Port Said and Port Fouad systems will be interconnected by means of submarine cables under the Suez Canal. In 1978, when the EEA has agreed to meet El Nasr's power needs, Port Fouad's power characteristics will be changed to 11,000 volts (stepped down to 380 and 220 volts), 50 cycle, 3 phase.

By 1981, a 220 and 65 kv overhead transmission line from Ismailia will supply the Port Said urban area with power from EEA's 220 kilovolt (kv) network in Lower Egypt. When the Ismailia interconnection is complete, the existing diesel generators will revert to standby duty. This will ensure a highly reliable source of electricity for the salt plant.

Should power fail during the washing or refining process, there will be no harm to the equipment or the environment. Activities will merely come to a halt until the power is restored.

Sewage Disposal

The Port Said side of the Suez Canal is served by a municipal sewerage system which delivers sewage to a treatment plant located at the northwest edge of Port Said, between the coast road and Lake Manzala. Despite several plant expansions, the amount of sewage delivered to the plant far exceeds capacity, and, as a result, is not treated before being discharged into Lake Manzala.

There is limited information available about the sewerage system on the Port Fouad side. The MPPS states that many homes have septic tanks which discharge sewage into drainage channels leading to the Suez Canal, the Mediterranean Sea, or the marshy area east of Port Fouad. In addition, the plan notes, there is a municipal sewerage system with a single pumping station located in the port's workshop area (just south of Port Fouad). Here, untreated sewage is discharged into the Suez Canal.

The MPPS proposes further extensions to the existing plant, and that treated effluent be discharged into the Mediterranean. The proposed wastewater facilities master plan will investigate and evaluate alternatives to determine the most economical method and degree of treatment and type of disposal.

EXISTING AND PROPOSED LAND USE OF SURROUNDING AREA

Existing Land Use

The Port Said Salines Plant is located on a relatively remote land area east of Port Fouad. The site is bounded on the north by the Mediterranean Sea, on the south and east by Lake Mallaha, and on the west by Port Fouad.

The Mediterranean shoreline, to the north, is undeveloped and currently used by the A.R.E. armed forces.

Lake Maliaha is an active fishery lake covering approximately 6 square km. It is an important local source of fish for domestic consumption.

High-rise apartments have recently been built on the eastern edge of Port Fouad, adjacent to land El Nasr is using for bittern disposal and within view of portions of the salt plant. El Nasr has reported that a university may be built on a portion of this bittern disposal area.

Future Land Use

There are three factors which will have a major effect on shaping future land use in the area of the salt plant. These are cross-canal transportation, Suez Canal Bypass, and location of new port facilities.

. Cross-canal transportation - The lack of a direct highway link (bridge or tunnel) between Port Said and Port Fouad is a deterrent to increased development in Port Fouad. At present, all people, materials, and equipment must cross the canal by ferry.

. Suez Canal Bypass - The SCA is creating a bypass canal to reroute northbound tanker traffic that now passes through the port of Port Said (see Figure 7-2). The bypass canal will form the eastern boundary of the salines plant. To compensate El Nasr for land used for the bypass, the SCA is diking and creating new land areas south of the existing plant. Part of this land will be used by the salines plant, while remaining portions will be used for a dredge dumping area by the SCA.

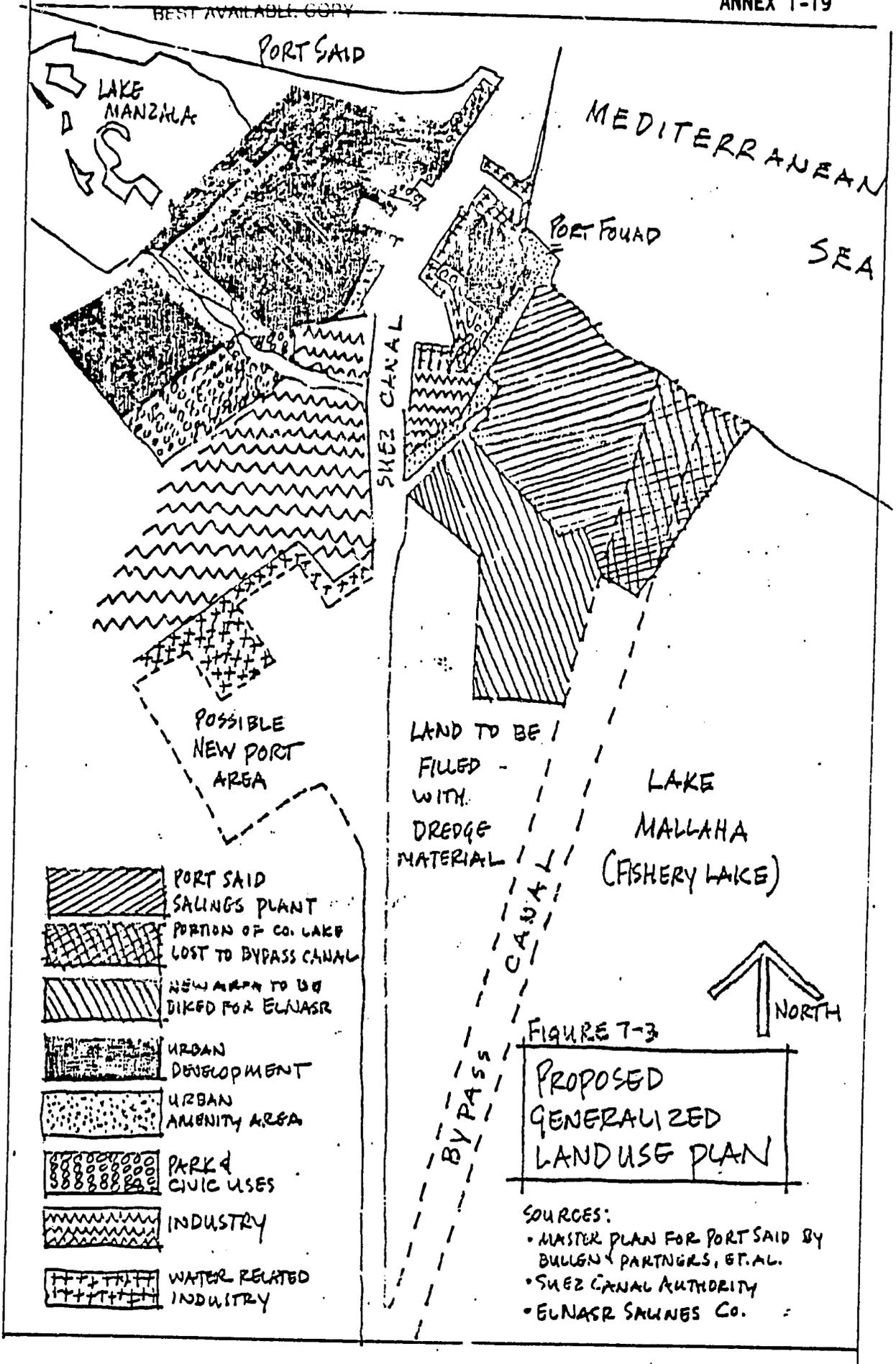
In addition to the impact on ultimate salt production (described in Section 2 of this report), the bypass canal will block the plant from any expansion possibilities on the east. Expansion into Lake Mallaha would increase salt production but might adversely affect the important lake fishery industry.

New port facilities - The MPPS proposes a new port, south of the existing port facilities, on the Port Said side, opposite Lake Mallaha. This proposed site and several alternatives are being reviewed by Frederic R. Harris, Inc. in their Port Modernization, Rehabilitation and Planning Study. One alternative would place the new port on the Mediterranean coast to the west of Port Said, with new ship repair facilities located on reclaimed land south of the salt plant.

If major investments are made in areas on the Port Fouad side of the Suez Canal, and, especially if cross-canal transportation problems are solved, there would be increasing pressure for land development in the vicinity of the salt plant.

The MPPS proposes that the land now held by the salines plant continue in the same use. Agricultural development is planned for land east of the bypass. Immediately west of the plant, the MPPS proposes an "urban amenity area" serving as a buffer between the plant and heavy industry, park land, and Port Fouad.

The Proposed Land Use Plan is shown in Figure 7-3. Due to transportation problems between the east and west banks of the Suez Canal, the plan envisions only limited expansion in Port Fouad. Most development is planned for the Port Said side of the canal, where land reclamation



from Lake Manzala and other low-lying areas is planned to vastly increase Port Said's land area.

ATMOSPHERIC CONDITIONS

Concern with atmospheric conditions centers upon prevailing winds and pollution sources upwind from the salt plant and sensitive land uses downwind from the salt plant. Those sources upwind could have a detrimental effect on the salt plant, while sensitive downwind areas may suffer if air pollutants are released during salt plant operations.

The salt plant would be sensitive to any upwind pollutants that might settle on concentrating ponds, crystallizers or salt stockpiles, impairing salt quality. At El Nasr's El Mex Salines Plant near Alexandria, for example, a neighboring cement plant spews cement dust which settles in crystallizers and even appears in the final salt product.

Downwind land uses may be sensitive to salt dust produced in the refining process. Dust, however, can be eliminated as a pollutant by using dust collectors and wet scrubbers. The salt stacks will not be susceptible to dusting for two reasons. First, the washed or raw salt will contain approximately 6% moisture; and second, during the aging process the salt crystals adhere to one another to form a hard salt cover.

With the exception of minor vehicular pollutants produced from trucks and harvesters, there will be no air pollutants produced.

According to an analysis of monthly wind roses for the Port Said area contained in the MPPS, prevailing winds are from the northwest. There are no existing or planned land developments to the northwest which should produce undue

levels of air pollutants, and none to the southeast which would be sensitive to any pollutants originating from the salt plant.

SOIL CONDITIONS

Operation of the Port Said Salines Plant will not adversely affect soil conditions. The soils at the plant range from a silt to fine sand underlain by clay, silt, and fine sand. Ground water is basically saline because adjacent surface water is salt water from the Mediterranean Sea, Lake Mallaha, and the Suez Canal. The operation of the salt plant will not adversely affect ground water.

Soils within, and adjacent to, the salines plant are not suitable for buildings requiring heavy foundations, but are acceptable for the proposed buildings planned for construction by El Nasr.

Because of unstable soil conditions, care must be taken when selecting the location and height of the salt stacks. Their weight is such that they could cause soil movement which would cause uplift pressures on nearby plant buildings.

SONIC CONDITIONS

Sonic conditions refer to noise pollution probability, the noise sensitivity of surrounding land development, and the sound-carrying characteristics of air at the project site.

Noise levels at specific areas on the site may be objectionable (pump houses, salt washers, trucks, etc.). Despite excellent sound-carrying characteristics, however, noise is quickly dissipated by virtue of the plant's location

and distance from surrounding developed areas. The plant, itself, covers approximately 10 square kilometers and is now surrounded by undeveloped land, marshes, and water bodies which act as buffers.

VISUAL CONDITIONS

Visual conditions are not typically a problem with solar salt plants. Salt plants are usually located away from any developed areas which may be sensitive to visual conditions, i.e., the view of the salt plant from the surrounding area. The Port Said Salines Plant is unusual in that it is quite close to Port Fouad and is in sight of a nearby high-rise apartment complex. Because the salt plant existed at the time the housing was built, it is reasonable to assume that acceptance of the view of the salt plant be a pre-existing condition for residence. It is more logical to ask whether housing should be constructed within view of a salt plant.

WASTE DISPOSAL

Sewage from Port Said and Port Fouad should not pose a threat to final salt quality or sea water quality at the point where El Nasr's sea water intake is planned (see Section 2.2 for details of the proposed sea water intake location).

Ships moving through the Suez Canal are not permitted to dump wastes in the canal or within Egyptian territorial waters. This rule is enforced by the SCA's helicopter patrol. Therefore, shipping should not endanger feed water quality.

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Sewage generated by the salt plant's employees is treated in septic tanks on the southern side of the administration building, guest house, and garage, and is not a threat to salt or water quality.

POTENTIAL ENVIRONMENTAL PROBLEMS

Several minor environmental issues are raised in the planned salt production process to be used at Port Said. However, in each case, a mitigating measure negates or minimizes the problem.

Bittern Disposal

The magnesium in the bitterns is a valuable resource and can be recovered. However, El Nasr plans to dispose of their bitterns since 175,000 tons of raw salt will produce insufficient quantities to make recovery economically feasible. Since the bitterns are concentrated to more than 40 times that of sea water, discharge into the sea would probably have adverse effects on marine and plant life. To remedy this, the bitterns will be first diluted with sufficient quantities of sea water so that the concentration level is reduced to ten times that of sea water. At this level, the water may be safely returned to the sea with no harmful effects. This procedure has been accepted by the U.S. Army Corps of Engineers for bittern disposal in the United States.

Cross-Canal Transportation

Earlier in this section it was shown that lack of a direct highway connection between Port Said and Port Fouad is a deterrent to development in Port Fouad and that the ferry system constrains free movement. This situation is

mitigated by the fact that the saline plant operates well within the constraints of the ferry system, and is, therefore, an ideal industry for the Port Fouad side of the canal. This is so because it can operate, to a large extent, without the ferry system for receipt of its raw materials (sea water) or shipment of a large portion of its final product.

Fuel Oil Storage

Approximately 40,000 liters of diesel fuel will be stored at the salines plant to power the vehicles which El Nasr will operate. Whenever such quantities of fuel are present, steps must be taken to guard against the possibility of spills that may cause ground and groundwater contamination. This will be accomplished by the construction of dikes and containment areas which will hold at least twice the capacity of the fuel oil tanks. The dike area and tank base will also be covered with an impermeable material to contain spills.

CONSTRUCTION PHASE IMPACTS

It will take approximately 24 months to complete the reestablishment and modernization of the Port Said Salines Plant. During this period, between 100 and 200 additional workers will be on the site. Since most workers will be from the local area, there should be no temporary housing problem.

The transportation of construction equipment and material to the salt plant will be constrained by the limited capacity of the cross-canal ferry system, and the added burden on the ferry system will further inhibit the movement of people and goods.

Cost levels may rise slightly, but periodic watering should minimize the problem and should not affect salt quality.

During construction, limited salt production will continue with no foreseen impacts on salt quality.

Construction phase impacts are summarized in Table -2.

SHORT-TERM IMPACTS

Short-term impacts are those extending beyond the construction phase for a short period of time. There are no foreseen adverse short-term impacts.

Short-term impacts are summarized in Table -2.

LONG-TERM IMPACTS

Long-term impacts will last long after the project is completed. There are no foreseen long-term adverse impacts.

This conclusion is supported by the following:

- Salt operations have been successfully carried out on the site for approximately seventy years.

- The creation of the Suez Canal Bypass will form a barrier that will preserve the fishing industry in Lake Mallaha. Fishing might otherwise suffer if the salt plant were to expand into the lake.

Long-term impacts are summarized in Table -2.

REASONABLE ALTERNATIVES TO THE PROPOSED ACTION

Since there are no unresolved conflicts concerning alternative uses of available resources, no analysis is necessary.

FORESEENABLE, UNAVOIDABLE ADVERSE ENVIRONMENTAL EFFECTS

During the construction phase, all construction equipment and plant material will have to cross the canal by ferry. The limited capacity of the ferry system and the added burden placed upon it will further inhibit the movement of people and goods.

LOCAL SHORT-TERM USES OF THE ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

There are no short or long-term losses, and, therefore, no trade-offs to be considered.

IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF NATURAL OR CULTURAL RESOURCES

There are no irreversible or irretrievable commitments of natural or cultural resources.

All salt harvesting, handling, washing, and refining equipment is retrievable and moveable for use at other sites. Most buildings at the salt plant are adaptable to alternative uses. Capital investment in the reconstruction of the salt pans is quite low. Therefore, reinforcing the commitment of this land to a salt plant is reversible and retrievable and the land could be reclaimed for an alternative use.

OTHER U.S. INTERESTS THAT MAY OFFSET ADVERSE ENVIRONMENTAL EFFECTS

With the exception of the cross-canal ferry limitations, there are no adverse environmental effects.

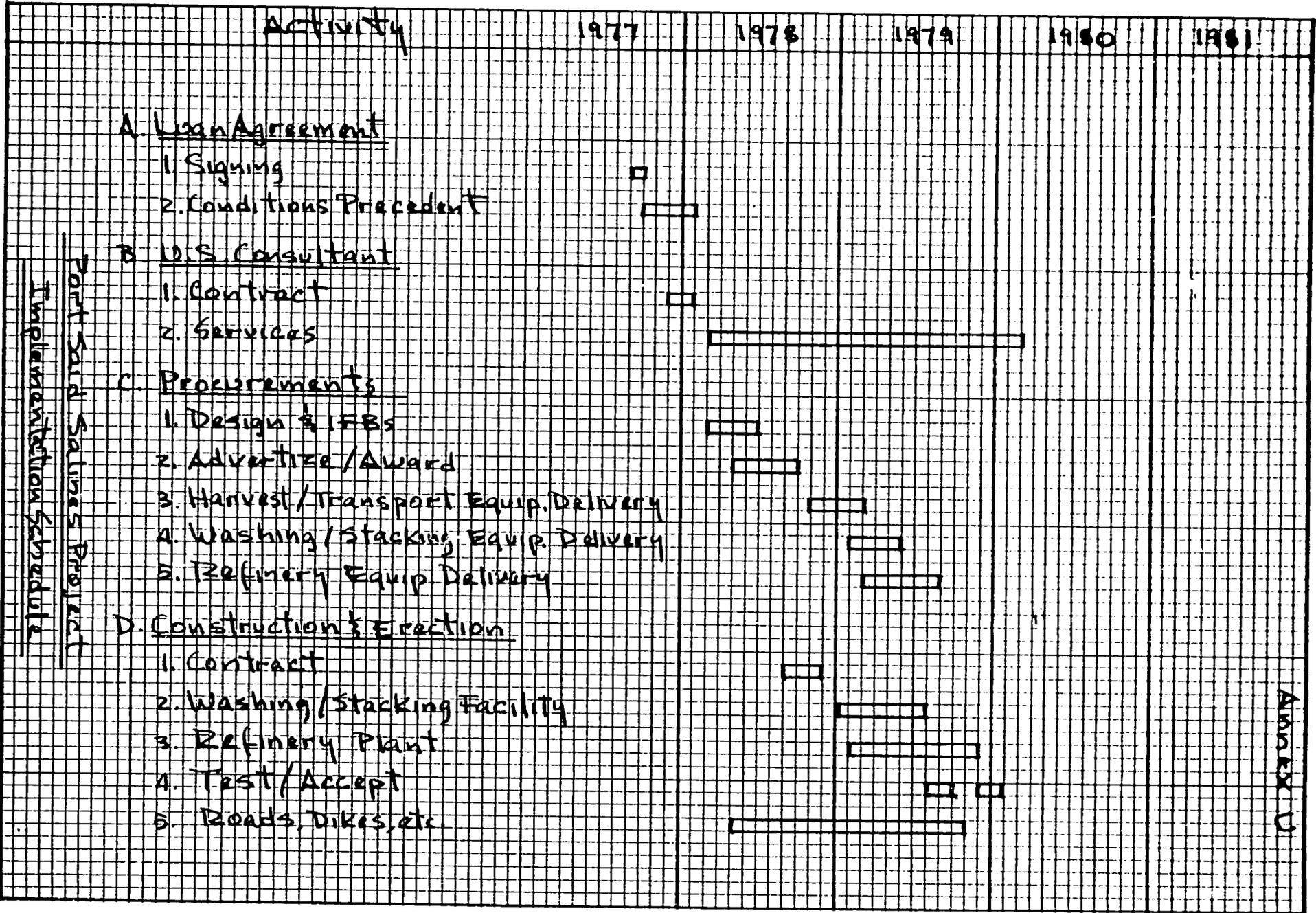
Table 2
Summary of Environmental Impacts

<u>Impact Area</u>	<u>Construction Phase</u>			<u>Short Term</u>			<u>Long Term</u>			<u>Secondary Impacts</u>		
	+	0	-	+	0	-	+	0	-	+	0	-
Air		x			x			x				x
Fresh Water		x			x			x				x
Sea Water		x			x			x				x
Land		x			x			x				x
Flora		NP			NP			NP				NP
Fauna		NP			NP			NP				NP
Socio-Economic Conditions				x			x					x
Solid Waste		x			x			x				x
Noise		x			x			x				x
Radiation		NA			NA			NA				NA
Hazardous Substances		NA			NA			NA				NA
Natural Resources Development		x			x			x				x
Energy Sources		x			x			x				x
Transportation			x			x			x			

Key

- + Positive Impact
- 0 No Impact
- Negative Impact
- NA Not Applicable
- NP Not Present

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Port Said Salinas Project
Implementation Schedule

ANNEX D