2.3 Climate and Hydrology

2.3.1 Climate

The climatological conditions of the Sinai Peninsula are similar to those, which characterize desert areas in other parts of the world. They include extreme aridity, long hot rainless summer months and mild winter. During the winter months some areas of Sinai experience brief but high intensity of rainfall that makes Wadi beds to overflow and sometimes causes severe flush floods which damage the roadways and human lives.

Some parameters of climate are presented below.

Temperature **Unit: ℃**

Station	J	F	M	A	M	J	J	A	S	O	N	D
Nakhl	9.6	11.1	15.8	20.2	24.2	29.1	27.4	30.9	28.5	25.0	16.8	18.7
St. Cath.	9.5	13.2	18.6	22.9	24.6	24.9	23.5	21.1	17.0	11.9	8.6	7.7

Humidity **Unit: %**

Nakhl	67	71	55	42	47	37	49	52	68	63	60	68
St. Cath.	43	45	34	26	31	28	27	28	27	31	38	40

Evaporation **Unit: mm/day**

St. Cath.	6.3	7.3	10.5	13.4	15.8	16.3	17.7	15.2	12.6	9.4	7.2	5.9
S.E.Sheikh	11.6	12.4	14.8	18.0	20.8	25.1	25.8	22.4	20.8	16.2	12.8	11.6

Wind Speed **Unit: m/sec**

Nakhl	5.1	4.1	4.3	4.3	3.8	4.1	2.9	3.3	3.4	3.0	3.8	4.4
St. Cath.	4.0	5.4	5.0	5.3	5.3	5.2	5.0	4.1	4.5	4.2	4.2	3.6

Sunshine **Unit: hr/day**

Nuweiba	7.5	9.0	9.8	10.0	10.3	12.4	12.4	12.0	10.4	9.2	8.7	8.2

2.3.2 Hydrology

Sinai is surrounded almost from all sides by large bodies of saline water of Red and Mediterranean seas. There is no natural streams flowing through the Sinai. The only source of fresh water in Sinai is rainfall in winter months. Therefore, hydrology of Study Area is governed mainly by the surface water flow through the Wadis due to this rainfall.

In a broad view, climate of Sinai may be categorized into two, such as dry and wet. Although annual rainfall is little, all of them occur in the wet season i.e. during the months of October through May. The wet season includes winter, spring and autumn seasons. In the summer i.e. June through September there is no rainfall at all.

There are two hydrological phenomena that responsible for the rainfall. One is the

development of depressions over Cyprus in winter season. When it crosses over the Mediterranean forms cold fronts and causes rainfall in northern Sinai and also in the northern part of Egypt. The other one that causes rainfall events during the spring and autumn is due to the Monsoon depressions formed over Sudan and its movement over northern zones of Red Sea. Sometimes this movement coincides with another depression formed over the eastern part of Mediterranean and causes severe thunderstorms in the area.

According to the existing data in South Sinai, there are many years, which have no rainfall, and when there is some rainfall, the rainy days are very few. On the other hand, rainfall intensity is very high and duration of storms is rather short. Although the duration is short the high intensity is the main reason for flush floods.

Average of annual rainy days (including 0.1 mm) in Ras Sudr are 10, in Ras Nasrani it is 4, in El Tur it is 4, in St. Catherine and Naqb it is 13 days/year. On the other hand, if only more than 5 mm/day is considered it becomes only 1 to 3 days/year. Average annual rainfall of south Sinai varies from 5 mm to 30 mm. The annual total rainfall varies from 0.0 mm to 123.2 mm (in 1937, St. Catherine). The highest daily maximum was recorded as 76.2 mm (8th November 1937 at St. Catherine). However, daily maximums of some selected stations in recent years with their probabilities are tabulated below.

Station	Daily maximum	Month/Year	Probability
Ras El Naqb	35.3mm	Nov./1994	once in 14 year
Sheikh Attia	16.6mm	Feb./1991	(small data set)
Ras Sudr	26.7mm	Feb./1991	once in 30 year
St. Catherine	25.9mm	Mar./1991	once in 10 year
El Tur	18.6mm	Nov./1994	once in 15 year
Ras Nasrani	10.3mm	Oct./1989	once in 6 year
Nuweiba	10.9mm	Feb./1989	(small data set)

It is noteworthy to note that the above daily maximum rainfall might have occurred only by a single storm or few storms with high intensity, not from a continuous 24hrs rainfall.

Isohyetal Map for Sinai is shown in Fig. 2.3-1. Annual and monthly average rainfalls of some stations are presented in Fig. 2.3-2.

2.3.3 Drainage Catchment

The Study Area is divided into 40 catchment areas, of which 16 lie in the eastern block and 24 lie in the western block. Apart from these two blocks, there is about 8,191 km^2

of Wadi El Arish catchment, which lies in the Study area. It is noteworthy to note that the runoff from El Arish catchment flow to the north Sinai. The list of drainage catchments with their respective areas is presented in Table 2.3-1 and in Fig. 2.3-3.

2.3.4 Wadi Flows

1) Past Flood Records

All main Wadis in the area experience flush floods of different magnitudes at least once in two years. There are severe floods occurred in recent years in Wadi Feiran, Wadi Sudr and Wadi Watir. Some of the recorded floods in Wadi Sudr, Wadi Feiran and Wadi Watir are tabulated below.

Wadi Name	Date	Runoff Volume (m^3)	Remarks
Wadi Sudr	Jan. 26/90	237,000	below the weir
	Apr.02/90	279,000	below the weir
	Mar.05/91	25,000	below the weir
	Mar.06/91	328,000	catchment outlet
	Mar.22/91	2,925,000	below the weir
	Mar.23/91	1,107,000	below the weir
	Jan 23/97	240,094	below the weir
	Mar 03/97	195,048	below the weir
Wadi Feiran	Nov.05/89	255,000	at Feiran oasis
	Apr.26/89	22,000	at Watia pass
	Mar.22/91	11,400	catchment outlet
Wadi Watir	Oct.16/87	4,500,000	catchment outlet
	Apr.20/88	1,000,000	catchment outlet
	Oct.16/88	1,500,000	catchment outlet
	Oct.20/90*	3,500,000	catchment outlet
	May 16,17/97	440,640	catchment outlet
	May 28/97	27,720	upstream outlet
	Oct. 18/97	no record	-

(* this flood continued for 6 days (Oct. 19-24)

Floods were observed several times during the Study at the Wadi Sudr, the upstream of the Wadi El Arish and the Wadi Watir. The most significant flood was occurred in the Wadi Watir including the Wadi Hathy and the Wadi Khareiza areas on 18 October 1997. The flood destroyed some sections of Highway to Nuweiba and some peoples were lost. The outline of the flood is presented below.

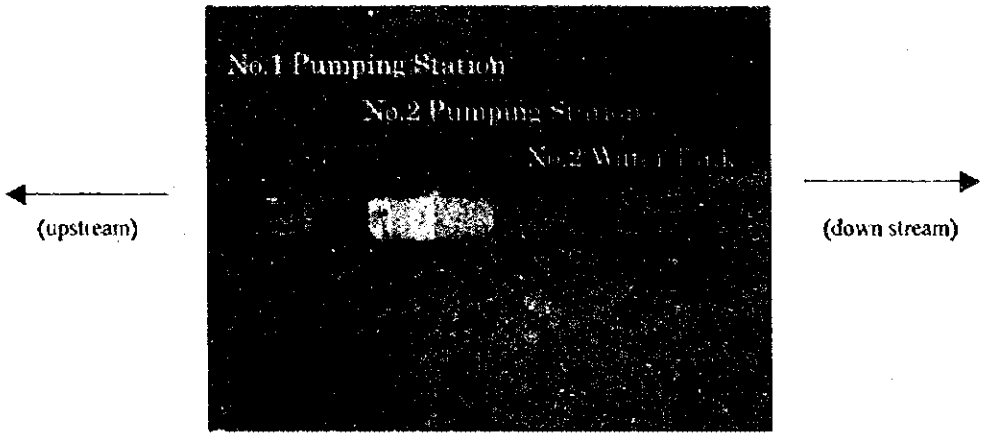
Remarkably developed cumulonimbus clouds were observed in the eastern direction (to the upstream of the Wadi Watir) in the afternoon on 18 October 1997. Information on the flood was given to the Team in the evening on 18 October 1997. Therefore, the Study Team carried out the field survey and interview on the flood occurred in the Wadi Watir.

The Study Team interviewed the owner of a cafeteria in the Wadi Hathy, which is about 20 km from the entrance to the Highway in Naqb. According to him, heavy rain started around 0:30 p.m. and continued up to around 3:00 p.m. Rainfall started again, however, it was weak and accompanied by hail. This weak rainfall continued till about 7:00 p.m. The first floodwater reached near his cafeteria about one hour after the starting of the heavy rainfall. Due to this flood, the Highway to Nuweiba was destroyed at many places. Especially the section of the highway between outlet of the Wadi Khareiza (entrance to the well site J-5) and Sheikh Attia was completely destroyed. Furthermore, some vehicles were involved in the flood. Their conditions are shown in photographs below.

Scattered asphalt fragments of Highway

Taxi crushed by the flood

There is a meteorological station in Sheikh Attia, however, unfortunately it was not working. Therefore, the Study team paid an attention to two (2) water tanks (12m x 12m x 3m= 432m^3) beside pumping station to estimate amount of precipitation. The tanks are shown in the third photograph. No.1 water tank was filled up by muddy water which suggests floodwater. On the other hand, 21cm depth of clean water was confirmed in the No.2 water tank. Mud cracks were recognized in the bottom of the tank. It suggests that the tank was dry before the flood. Judging from these facts, the clean water could be derived from rainfall and total precipitation might reach to 210mm. A photograph of pumping stations and water tanks are presented below.



Pumping Station in Sheikh Attia
(The No. 1 water tank is behind the No.2 Pumping Station)

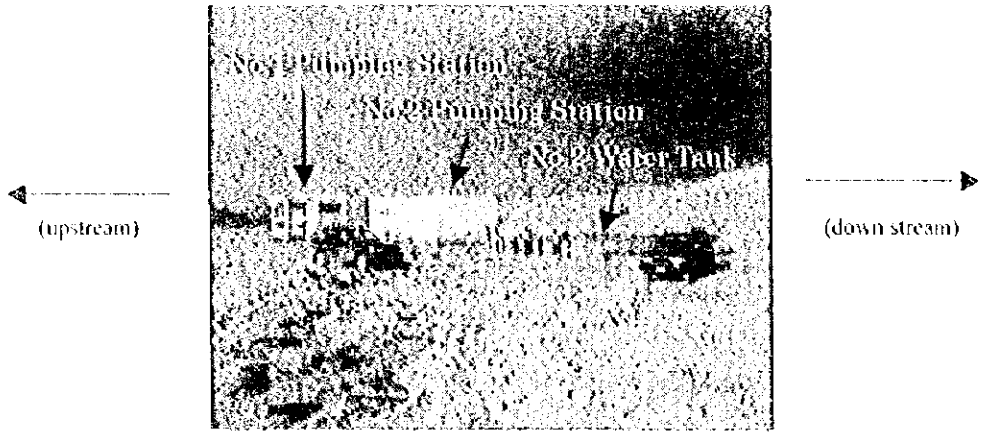
2) Surface Runoff

In Sinai, the most difficult task still to be worked out is the calculation of runoff, which is close to the observed one. In this connection, as long as long-term observed runoff data are not available the problem will remain unsolved. So far, WRRI has data for only few flood events in three major Wadis (W. Sudr, W. Feiran and W. Watir) but most of them are without any rainfall records. The Wadi that has records with rainfall data is Wadi Sudr. However, analysis show that the runoff coefficients of six flood events vary from 1.2 to 39.3 (Hatem, 1992).

Review of previous studies show that various attempts have been made for calculating runoff. In SDS (1985), emphérical formulas were used for computing peak floods, flood volumes and flood duration. Recently, in 1993 WRRI has carried out a comprehensive study titled Surface Water Resources Study (SWRS, 1992) finance by the Commission for the European Communities. A part of the study (Sinai Water Resources Map) was entrusted on Engineering Faculty of Cairo University. Scarcity of suitable number of observed data, the Team used a set of equations focusing on the runoff governing parameters such as geology, slope, area, rainfall etc. Although high level of accuracy can not be obtained however, at the present stage this work may be considered as a complete work on Sinai hydrology which is simple and conceptually valid. Detail of the equations is presented below.

$$V = R * C * A * P$$

where, R is reduction factor
C is runoff coefficient
A is catchment area



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$$V = R * C * A * P$$

where, R is reduction factor
C is runoff coefficient
A is catchment area

P is rainfall depth

And the reduction factor R is given by

$$R = 1.05 - 0.0053\sqrt{A} \quad (A \text{ is in km}^2),$$

the runoff coefficient C is given by

$$C = \left[\left\{D \times \sqrt{(9.81 \times P)}\right\}/G\right](1.0 - S)$$

where, D is drainage density (km/km^2)
P is rainfall in meters
G is an integer number representing geology (varies between 1 and 9)
S is land slope

Using these equations, surface runoff was calculated in each wadi. The results are 12.28 and 40.64 x10^6 m^3/year for eastern and western blocks respectively, which makes a total of 52.92 x10^6 m^3/year. On the other hand, the El Arish catchment within the Study area will produce about 9.50x10^6 m^3/year. The calculated runoff volume for each Wadi is presented in Table 2.3-1.

3) Calculated Amount of Recharge

A theoretical approach with a few assumptions is used to calculate the amount of recharge to groundwater for each wadi catchment. The calculation was performed on an yearly average basis. The result was previously shown in Table 2.3-1. Percentage of recharge rate varies from 10 to 70. The total average amount was found to be 253 x 10^6 m^3/year. Of which about 100 x 10^6 m^3 in the El Arish catchment area and rest are in the eastern and western blocks.

On the other hand, another calculation was performed by the WRRI using a tool developed HEC (Hydrologic Engineering Center) of USA army corps of engineers. JICA study team was provided with the calculated value (in the form of total of Runoff and Recharge). The results are also shown in Table 2.3-1.

4) Wadi Risk

Although rainfall is scarce in Sinai Peninsula, it is very famous for its flush floods with high velocity and causes damages to the infrastructures, disrupt the important communication system and sometimes to the human lives. It is remarkable in the wadis that have geological features of basement rock or shale. Wadi Sudr, Wadi

Gharandal, Wadi Feiran, Wadi Dahab and Wadi Watir are famous for their activeness. Brief descriptions of risky areas are described below. Approximate locations of risky areas are shown in Fig. 2.3-4.

(1) Wadi Sudr Catchment and Outlet

Three (3) to four (4) floods occur per year in average. Floods caused severe damage to the hydraulic cross section at 22 km point from the Tunnel - El Tur highway, where the side wall of the weir has been flushed away. The downstream of this Wadi has a sedimentation problem on the highway.

(2) Wadi Sudr Outlet—Abu Zenima

There are also two (2) active Wadis in this stretch namely, Wadi Wardan and Wadi Gharandal. Their outlets and some stretches in the Wadi Gharandal are subject to flood damages. The distances of these stretches from the highway are about 2 km where Wadi crosses the road and 7 km where road has already been destroyed (in front of the army camp).

(3) Wadi Feiran Outlet

In the area of Wadi Feiran outlet, local floods occur around the entrance of the Highway to St. Catherine. Sand, gravel and stones have disrupted the traffic cover the highway.

(4) Wadi Feiran Catchment

The Wadi Feiran is one of the most active wadis. Past floods have destroyed many parts of the road, washed away the water level recorder. The damages are always more in two Oasis areas, Oasis Feiran and Tarfa,

(5) Outlet of Wadi Feiran-El Tur (El Qaa Plain)

This section does not have any major problem. The surface flows from El Qaa Plain carries a lot of sediment and sometimes creates a blockade on the main road. The point where the Wadi El Awag crosses the highway near El Tur is a risky zone due to absence of any suitable structure to ease the flow path.

(6) Sharm El Sheik-Naqb-Dahab

Generally, this section does not have a major problem.

(7) Dahab Area

This area is situated at the downstream of an active Wadi, the Wadi Dahab. The Wadi carries a huge amount of flood flow from the main tributaries such as Wadi Zaghara, Wadi Nasb and Saal.

(8) Dahab-Nuweiba Stretch

Only short Wadis are present in this stretch. Floods are generated in this area and go directly to the gulf of Aqaba without causing any major problems.

(9) Wadi Watir Catchment-Nuweiba

The Wadi Watir is an active wadi as well as the Wadi Feiran. Nuweiba is situated at the downstream of the wadi. One of the important highways passes in this wadi and leads to Nuweiba. The Highway has been suffered from heavy floods that caused severe damages. Nuweiba is also always under threat. Some protection works have been done, still there are many parts that are vulnerable to risk.

(10) Nakhl Area

Many tributaries of the Wadi El Arish cross the Suez—Naqb Highway at many places. Among the locations, a stretch west of Nakhl is always under threat because tributaries such as Shibaya, Abu Adib, El Ruth and Ruaq pass through this stretch and causes damage to the road almost every year.

5) Groundwater Recharge Facilities

Annual volume of unused surface runoff is estimated to be 62 x 10^6 m^3 in the Study area. A major portion of this unused amount of runoff could be used in order to increase and accelerate the annual recharge to the groundwater aquifers.

WRRI carried out detail studies for this purpose in the Wadi Watir and Wadi Dahab and a number of dams have been proposed for construction. Total number of structures in Wadi Watir and Wadi Dahab are 22 and 11 respectively.

To fulfill this target, various types of hydraulic structures were recommended in the Study area including the study results by WRRI. They are 13 storage dams, 48 detention dams and four (4) diversion dams. List and locations of proposed facilities are presented in Table 2.3-2 and Fig. 2.3-5, respectively.

In the selection of structure type and location geological, hydrological and physical

parameters were taken into consideration as mentioned below.

(1)Storage dams: locations where there is a suitable place for reservoir, presence of impervious layer and a good hydraulic section with high Wadi walls.

(2)Detention dams: sites where there is a mild land slope with pervious soil. This kind of structures is already in use in Sinai by the Bedouins.

(3)Diversion dams: near the outcrop areas in order to divert and spread the runoff water over the outcrop area for facilitating the infiltration process.

It is note worthy to mention that the locations/types/numbers of the recommended structures are not absolute one. Therefore, before taking any decision for construction of these structures more detail study is necessary.

Table 2.3-1 Calculated Surface Runoff and Recharge

Code No.	Wadi Name	Area (Km^2)	Total Rainfall ($1,000m^3$/year)	Runoff (m^3/year)	Recharge (m^3/year)	JICA Study Team Runoff & Recharge (m^3/year)	WRRI Runoff & Recharge (m^3/year)
A. Eastern Block							
E-1	Nuweiba Taba Zone	526	10,520	3,071,810	4,818,160	7,890,000	790,000
E-2	Wadi Watir	3,516	70,320	14,116,740	38,623,260	52,740,000	52,700,000
E-3	Nuweiba-Dahab Zone	225	4,080	1,489,200	1,315,800	2,805,000	640,000
E-4	Wadi Mekamen	70	1,120	408,800	361,200	770,000	180,000
E-5	Wadi Amid	69	1,035	402,960	287,040	690,000	170,000
E-6	Wadi El Wadi	40	600	233,600	166,400	400,000	100,000
E-7	Wadi Dahab	2,067	28,938	9,807,915	8,795,085	18,603,000	31,000,000
E-8	Wadi Kena	121	1,694	706,640	382,360	1,089,000	300,000
E-9	Wadi El Kabila	193	2,509	1,127,120	416,880	1,544,000	1,450,000
E-10	Wadi Kid	1,093	13,080	6,365,600	1,264,400	7,630,000	2,730,000
E-11	Wadi Om Raka	39	468	85,410	187,590	273,000	0
E-12	Wadi Om Adawi	340	4,080	1,985,600	210,270	2,195,870	0
E-13	Wadi El Siga	86	860	219,730	284,490	504,220	0
E-14	Wadi El Marikha	116	928	63,510	121,500	185,010	0
E-15	Wadi El Atia El Sharki	150	1,200	328,500	276,225	604,725	0
E-16	Wadi Awaga	254	1,778	231,775	276,225	508,000	0
	Sub total	8,932	143,210	40,644,910	57,786,885	98,431,825	90,060,000
B. Western Block							
W-1	Wadi Sudr	712	10,680	259,880	6,860,120	7,120,000	1,100,000
W-2	Wadi Wardan	1,454	20,356	636,852	12,449,148	13,086,000	2,900,000
W-3	Wadi Seada	94	1,316	34,310	811,690	846,000	0
W-4	Wadi El Kalwat	126	1,764	22,995	1,111,005	1,134,000	0
W-5	Wadi Gharandal	966	13,524	528,885	8,165,115	8,694,000	7,200,000
W-6	Wadi Wst and Abu Meharat	172	2,408	81,614	1,466,386	1,548,000	0
W-7	Wadi Tal	117	1,638	51,246	1,001,754	1,053,000	1,200,000
W-8	Wadi Tiba	385	5,390	281,050	3,183,950	3,465,000	2,890,000
W-9	Wadi Khaboba	124	1,736	113,150	1,002,850	1,116,000	930,000
W-10	Wadi Baba	96	1,344	52,560	811,440	864,000	430,000
W-11	Wadi El Garf	742	11,130	812,490	6,607,510	7,420,000	3,710,000
W-12	Wadi Sidri	1,095	16,425	1,398,863	9,551,138	10,950,001	5,500,000
W-13	Wadi Feiran	1,830	34,770	2,671,800	22,948,200	25,620,000	13,000,000
W-14	Balaiem El Tur Zone	386	4,632	140,890	2,561,110	2,702,000	1,100,000
W-15	Wadi El Awag	1,934	25,142	3,529,550	11,942,450	15,472,000	5,800,000
W-16	Wadi Emlaha	236	2,596	215,350	1,200,650	1,416,000	710,000
W-17	Wadi Isla	386	3,860	366,314	1,563,686	1,930,000	390,000
W-18	Wadi Thiman	307	2,763	280,138	947,863	1,228,001	0
W-19	Wadi El Mhash	318	2,544	290,175	663,825	954,000	0
W-20	Wadi El Latchia	134	938	122,275	145,725	268,000	0
W-21	Wadi Agsha	140	980	127,750	152,250	280,000	0
W-22	Wadi Om Mrikha	73	511	66,613	79,388	146,001	0
W-23	Wadi Amlk	111	777	101,288	120,713	222,001	0
W-24	Wadi El Ate El Garbi	101	707	92,163	109,838	202,001	0
	Sub total	12,039	167,931	12,278,201	95,457,804	107,736,005	46,860,000
	Total (A+B)	20,971	311,141	52,923,141	153,244,689	206,167,830	136,920,000
C. Wadi El Arish (within study area)							
Arish-1	(Wadi Bruk)	1,242	24,840	453,330	18,176,670	18,630,000	24,800,000
Arish-2	(Wadi Ruaq)	6,044	102,748	7,721,210	64,806,790	72,528,000	75,600,000
Arish-3	(Wadi Aqaba)	905	22,625	1,321,300	16,778,700	18,100,000	18,100,000
	Sub total	8,191	150,213	9,495,840	99,762,160	109,258,000	118,500,000
	Grand total (A+B+C)	29,162	461,354	62,418,981	253,006,849	315,425,830	255,420,000

Table 2.3-2 List of Recharge Facilities

Wadi Name	Rock Type	Slope	Type	Number	Objectives
Wadi Sudr	L.stone, Marl	Flat	Detention	3	U.cretaceous L.stone & alluviumaquifers
Wadi Wardan	L.stone, Shale	Steep	Detention	3	U.cretaceous L.stone & quaternary fan
Wadi Gharandal	S.stone, L.Stone, Sand, Gravel	Steep	Detention	4	L.cretaceous S.stone & U.cretaceous
Wadi El Garf	S.stone, Granite, L.stone, Marl,	Steep	Storage	1	Storage
Wadi El Sidri	Igneous, Volcanic, L.stone, Marl,	V. steep	Diversion	2	L.cretaceous S.stone
Wadi Feiran	Basement, Volcanic	V. steep	Diversion Detention	2 2	L.cretaceous S.stone & quaternary aquifer
El Qaa Plain	Igneous rock, S.stone	Flat	Detention	3	Quaternary reservoir
Wadi Isla	Igneous rock, Metamorphic	V. steep	Storage	1	Storage
Wadi El Mhash	Granite, Quaternary	V. steep	Detention	1	Quaternary aquifer
Wadi Om Adawi	Basement, Quatrernary	V. steep	Storage	1	Storage
Wadi Kid	Igneous, Volcanic, Metamorphic rock	V. steep	Detention Storage	2 1	Quaternary aquifer
Wadi El Arish	Lime stone	Mild	Detention	6	L.stone aquifer
Wadi Dahab	Basement, Shale	Steep	Detention Storage	7 4	Storage, S.stoneaquifer
Wadi Watir	Basement, Shale	Steep	Detention Storage	17 5	Storage, S.stoneaquifer

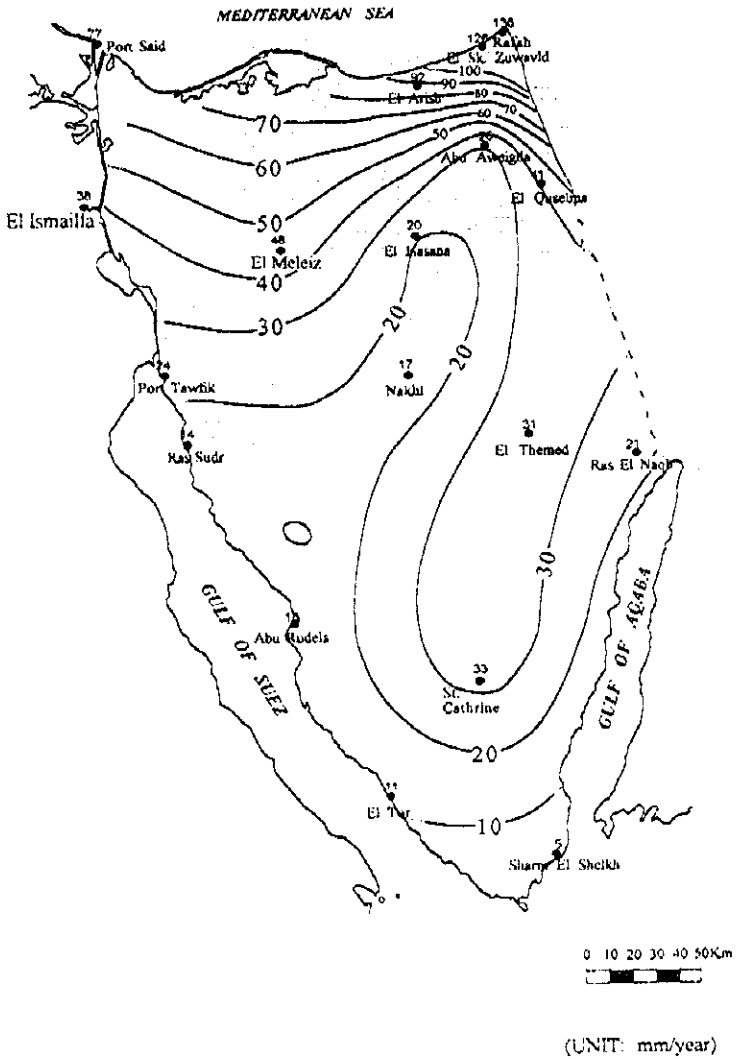
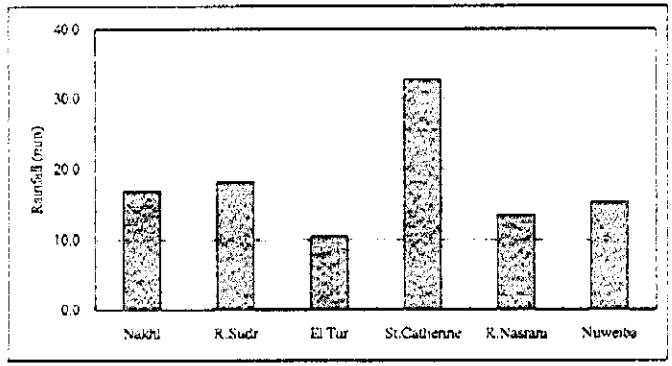
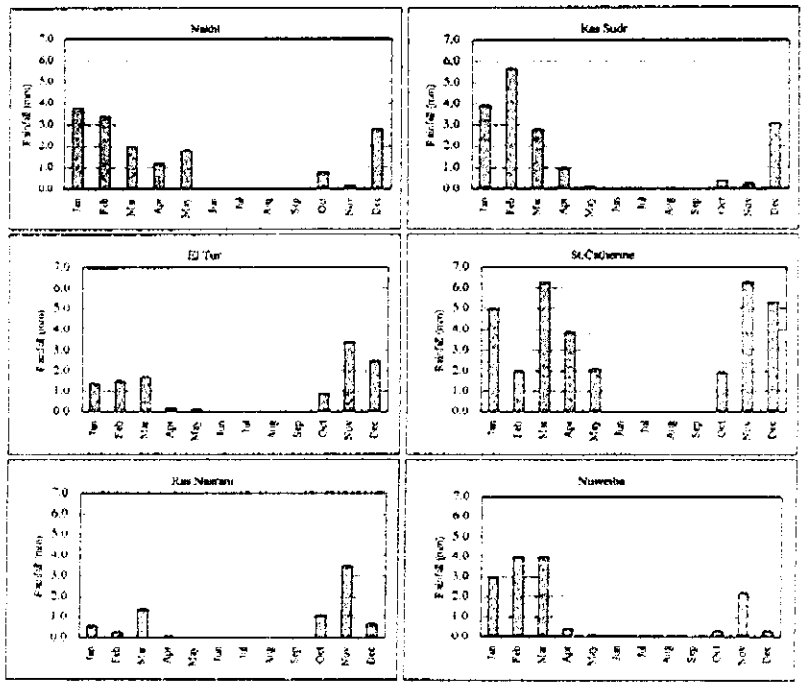


Fig. 2.3-1 Isohyetal Map of Sinai

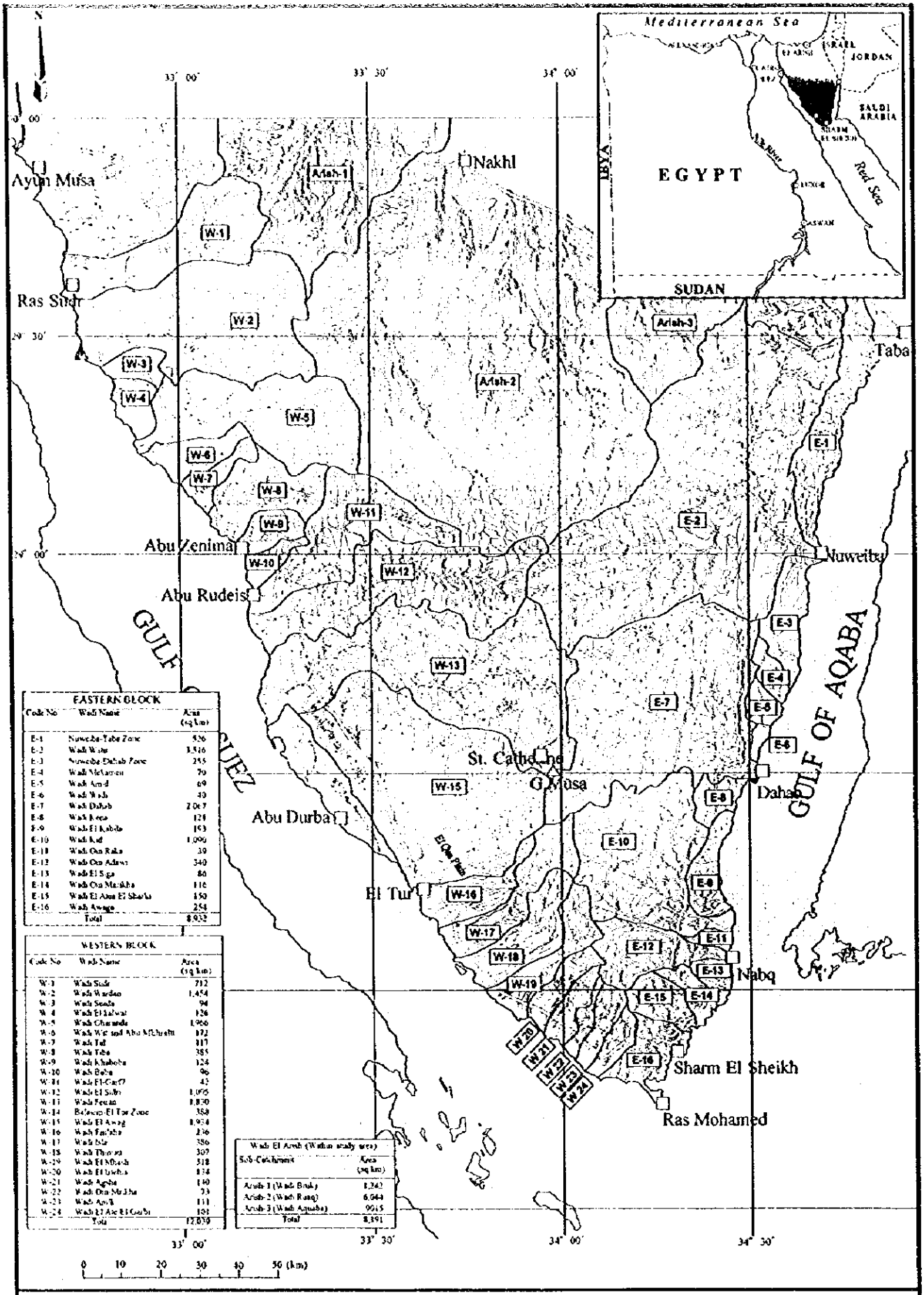


Annual Average Rainfall in South Sinai



Monthly Average Rainfall

Fig. 2.3-2 Annual and Monthly Average Rainfall of South Sinai



EASTERN BLOCK

Code No	Wadi Name	Area (sq km)
E-1	Nuweiba-Taba Zone	926
E-2	Wadi Watir	3,516
E-3	Nuweiba-Dahab Zone	255
E-4	Wadi Mekarren	70
E-5	Wadi Amd	69
E-6	Wadi Wash	39
E-7	Wadi Dahab	2,067
E-8	Wadi Bweb	121
E-9	Wadi El Kabida	193
E-10	Wadi Kid	1,006
E-11	Wadi Om Reka	39
E-12	Wadi Om Adawi	340
E-13	Wadi El Sega	86
E-14	Wadi Om Mankha	116
E-15	Wadi El Aeia El Sharki	150
E-16	Wadi Awaga	254
	Total	8,932

WESTERN BLOCK

Code No	Wadi Name	Area (sq km)
W-1	Wadi Sidr	712
W-2	Wadi Wardan	1,454
W-3	Wadi Sendu	94
W-4	Wadi El Salwat	126
W-5	Wadi Gharanda	1,966
W-6	Wadi Wet and Abu Mkharib	372
W-7	Wadi Tal	117
W-8	Wadi Taba	385
W-9	Wadi Khaboba	124
W-10	Wadi Baba	96
W-11	Wadi El-Gaeif	43
W-12	Wadi El Sidri	1,095
W-13	Wadi Feiran	1,830
W-14	Between El Tur Zone	388
W-15	Wadi El Assig	1,934
W-16	Wadi Faeiba	236
W-17	Wadi Isla	386
W-18	Wadi Thoraya	307
W-19	Wadi El Mukeb	518
W-20	Wadi El Isbeita	834
W-21	Wadi Ageba	140
W-22	Wadi Om Mdiha	73
W-23	Wadi Arek	111
W-24	Wadi El Aie El Gaubi	101
	Total	12,039

Wadi El Arish (Within study area)

Sub-Catchment	Area (sq km)
Arish-1 (Wadi Brak)	1,242
Arish-2 (Wadi Raaq)	6,044
Arish-3 (Wadi Aqaaba)	905
Total	8,191

Fig. 2.3-3 Drainage and Catchment

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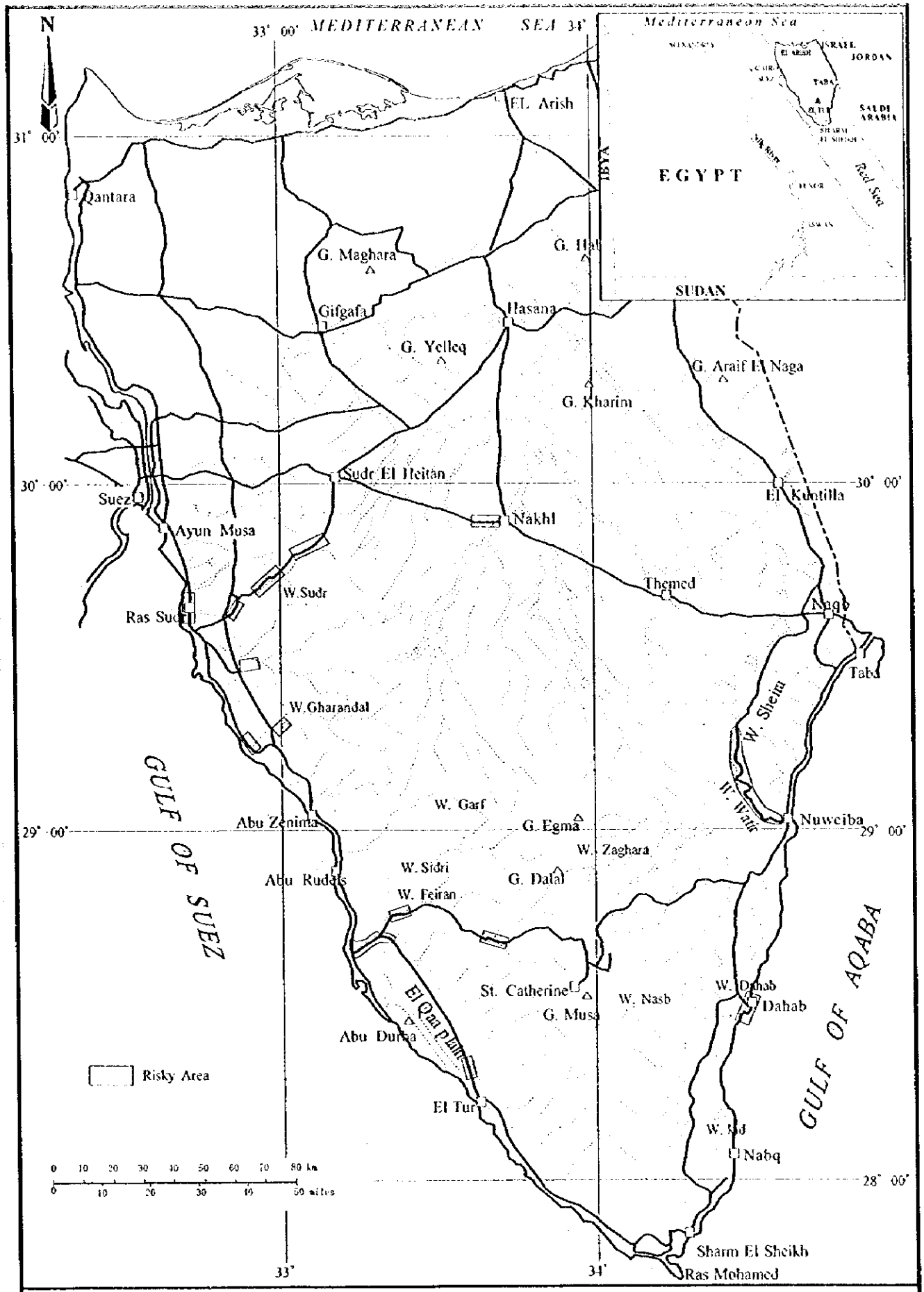

Fig. 2.3-4 Risky Areas in Wadi Against Flood

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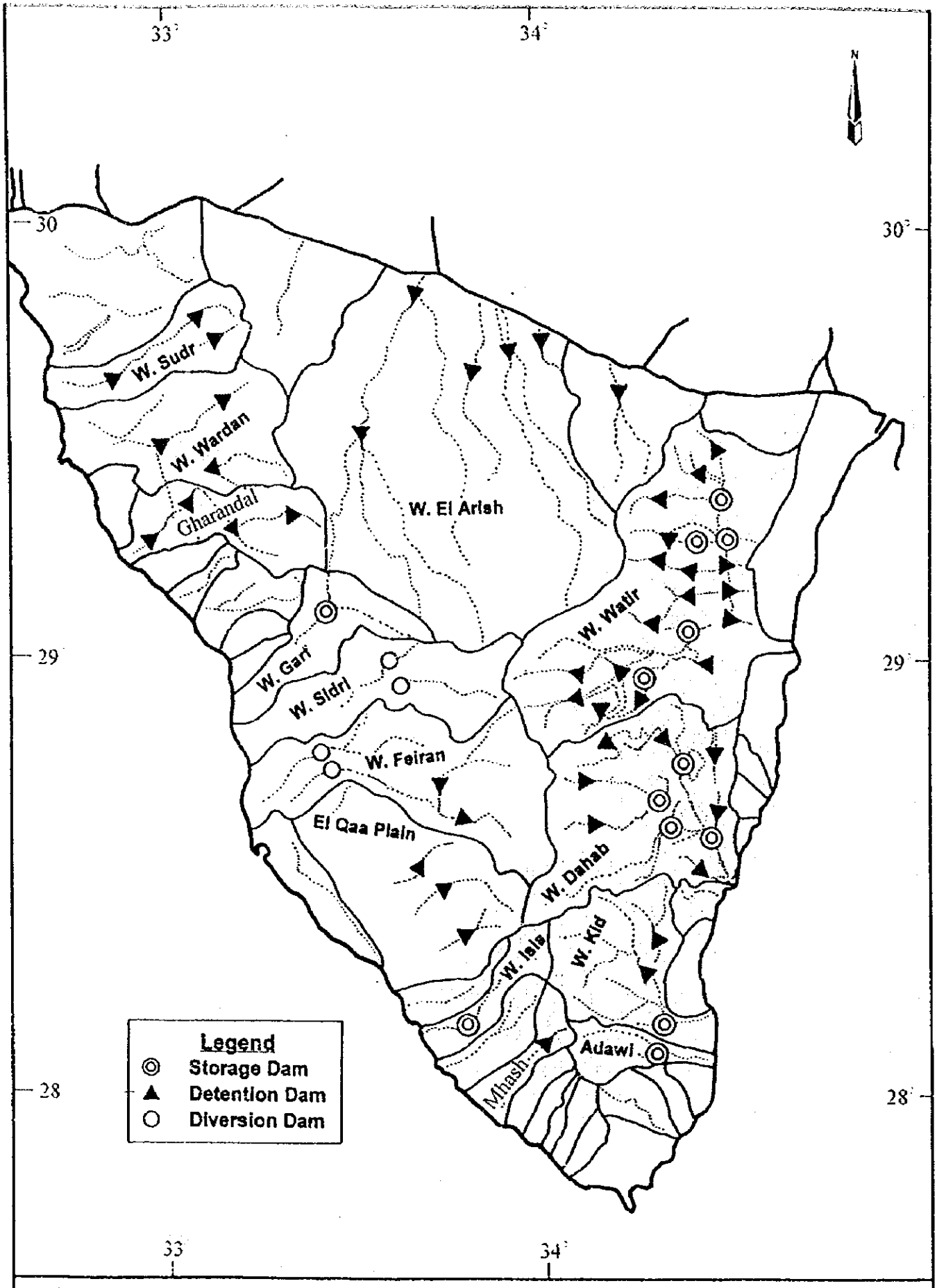

Fig. 2.3-5 Location of Proposed Recharge Facilities

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2.4 Socio-Economic Aspects

2.4.1 Administration

Egypt administratively consists of 26 Governorates, which are classified into four geographical parts, namely, four Urban Governorates, nine Lower Governorates, eight Upper Governorates and five Frontier Governorates. South Sinai Governorate, the project area of the current study, is one of the Frontier Governorates.

In South Sinai Governorate, there are eight cities, as shown in the below table. Among them, El Tur is the capital city of the Governorate. In the Governorate, however, there are no villages as legally called as local government unit. Instead of villages, there are several tens of Bedouin communities. The Bedouins are literally a nomadic desert people, so some of them are still moving around in and out of the Sinai Peninsula. Therefore, they do not always live in settled communities, although the government pushes on them to settle down in communities. The settled communities are under jurisdiction of the neighbouring cities. As of the 1986 census year, the number of communities is enumerated at 78, which are distributed as shown in the following table.

No.	Name of City	Number of Communities
1	El Tur	11
2	Ras Sudr	9
3	Abu Zenima	11
4	Abu Rudeis	11
5	St. Catherine	15
6	Sharm El Sheikh	7
7	Dahab	5
8	Nuweiba	9
Total		78

2.4.2 Population

According to the 1996 census by Central Agency for Public Mobilisation and Statistics (CAPMAS), Egypt had a population of 59.3 million. This population increased by 11.0 million as compared to the 1986 census. During this decade, the average growth rate was 2.1% per annum.

In South Sinai Governorate, a population in the 1996 census year was 54,495. This population accounted for only 0.09% of the country. Since the population was 28,929 in the 1986 census, the average growth rate was 6.5% per annum between the two censuses. This growth rate was higher than that of the country, i.e., 2.1%.

Among eight cities in South Sinai, El Tur City was the largest in terms of population. Its population was 14,155 in the 1996 census. The growth rate for ten years since the last census was 8.1% per annum on average, which was larger than that of the governorate average. The population in Sharm El Sheikh has increased at the highest growth rate of 16.6% per annum.

More than fifty percent of Sinai's population is said to be Bedouin. While the majority of South Sinai's inhabitants are of Bedouin descent, their status has changed to urban dwellers of inhabitants with increasing urbanisation and settlement. An urban population of the governorate was counted at 29,323 in 1996, accounting for 54% of the total population. The urban population grew at 9.9% per annum on average between the two censuses, which was higher than the total population (6.5%). In particular, Sharm El Sheikh recorded the highest growth rate of 18.6%. On the other hand, the governorate being predominantly rural had a rural population of 25,172, accounting for 46% of the total. The rural population grew at 3.7% per annum on average.

With a population of 54,495 on 28,438 km^2 of a land area in South Sinai Governorate, the governorate constitutes 2.9% of Egypt's total land area but contains only 0.09% of the national population. Then, a population density of the governorate was 1.9 persons per km^2 in the 1996 census. The density of the country was 59.4 persons per km^2 in the same year, so the governorate was scarcer than the country. An average density of the eight cities was 255.5 persons per km^2. The density of the respective cities ranged from the largest one of 2,701.2 persons per km^2 in Sharm El Sheikh to the smallest of 69.8 persons per km^2 in Dahab.

2.4.3 Economic Activities

1) Gross Domestic Product

After the start of the open door economic policy in 1974, an economic growth was accelerated to average more than 9% for the second half of the decade. The real growth of gross domestic product (GDP) kept high performance but gradually declined for the 1980's. In the first half-decade of the 1980's, it recorded around 8% on average. In the second half-decade, however, it was less than 5% according to the International Monetary Fund (IMF) recording an annual average of GDP. Performance since the 1990's has been erratic because of the 1990/91 Gulf crisis and structural adjustment. Thus, the real growth slowed down to 2.4% in 1990/91 and 2.0% in 1991/92 with the IMF records.

Egyptian government introduced an economic reform policy to stabilise the macro-

economy and accepted the recommendation of IMF and the World Bank, "Economic Reform and Structural Adjustment Program (ERSAP)" from 1990 to mid-1993. The economic reform has proved successful and performed the modest real growth of GDP, i.e., 2.5% in 1992/93 and 3.6% in 1993/94.

For these five years, GDP grew at the low rate of 2.5% in 1992/93 and at high rate of 5.3% in 1996/97, or an average growth rate of 4.0% per annum between 1991/92 and 1996/97. Per capita GDP grew at the low rate of 0.4% in 1992/93 and at the high rate of 3.2% in 1996/97, or an average growth rate of 2.1% for the five years.

In 1997, the government published "The Fourth Five-year Plan of Economic and Social Development (1997/98-2001/02). It proposes the economic prospect for the planning period. The real growth is expected to grow at a rate of 6.9% per annum on average during the planning period.

2) Agriculture

South Sinai Governorate is considered to have some development potentials for increasing cultivated land, livestock and fish production owing to available natural resources such as land and water resources. In the Sinai Development Plan, South Sinai is expected to bear more agricultural lands by means of development of groundwater and runoff water including the construction of dams and dykes.

In South Sinai, the total amount of cultivated land area was approximately 14,000 feddan (about 6,000 ha) in 1993. They are distributed in El Qaa Plain, Wadi Feiran, Ras Sudr and Nuweiba. Most of them are under rainfed agriculture under intermittent cultivation. Besides, some small areas are cultivated also under intermittent condition in scattered wadi beds. Sparse rainfall supports about 650,000 trees of date palms in South Sinai Governorate. Moreover, traditional crops are fruit and vegetables such as tomatoes, onions, watermelons, potatoes, squash, cucumbers, melons, green peppers, beans, cauliflower, cabbage, carrots, spinach, lettuce, eggplant, okra, garlic, globe artichokes, cow peas, broad beans, olives, oilseed crops, wheat and barley. Their production is not stable due to sparse rainfall.

The livestock production is traditionally very important for Sinai. Camel, goat and sheep produce milk, meat, fibre, hide, and in the case of camel, provide means of transportation. In 1993, the livestock population was enumerated at around 78,000 heads in total.

In 1993, Egypt landed 51,000 tons of fish from the Red Sea. Almost all of this fishing is conducted out of the Port of Suez. According to the Sinai Development Plan, the

fish production in both North and South Sinai areas was approximately 3,600 tons in total. In South Sinai Governorate, its production was considerably small. This is because appropriate port facilities and vessels are lacking in the coastlines of South Sinai Governorate, despite favourable conditions.

3) Mining

The petroleum sector is the most lucrative in the Sinai Peninsula. Crude oil is produced by Public Petroleum Company and private Petrobel Company. Besides oil, the Sinai Peninsula has numerous areas of known mineral potential. In South Sinai Governorate, the lots of important mineral deposits are reported. In the governorate, there are two public mining companies, which are located in El Tur and in Abu Zenima.

4) Industry

The industrial sector in South Sinai is still very limited, although it has a high industrial development potential owing to mineral resources. According to Statistical Data Book of South Sinai Governorate, there were only 60 manufacturing establishments in 1996. Of the total 60 establishments, 23 establishments or 38% were classified into petroleum industry. There was a small oil refinery factory on Wadi Feiran. In 1995, it produced a capacity estimated at 400,000 tons. Following to the petroleum industry, 20 establishments or 33% produced food products. Others were classified in the fields of (1) building material production, (2) mechanical and electrical appliance production and (3) mineral products.

5) Tourism

South Sinai Governorate has a wide range of tourism resources. They are classified into the following three types:

(1) Recreational tourism, of which the tourist spots extend along the coast of South Sinai Governorate.

(i) Coasts along Gulf of Aqaba and Gulf of Suez for seaside recreational tourism.

(ii) St. Catherine and its surrounding areas for mountain climbing and camping.

(iii) Deserts in central Sinai for desert safari tourism.

(2) Cultural and religious tourism, which is developed in archaeological and

historical spots such as St. Catherine monastery, Gebel Musa, etc..

(3) Scientific tourism, including the studies of flora and fauna in St. Catherine and Ras Mohamed National Park.

Despite the above tourism potentials, the present tourism is limited to the seaside recreational tourism and the religious tourism in St. Catherine. The number of tourists to South Sinai Governorate reached 1.55 million tourist nights in 1995 and 2.55 million in 1996. In 1995, there were 26 hotels with an accommodation capacity 10,436 rooms. Then, an average hotel occupancy rate was 67% in 1996.

2.4.4 Infrastructure

1) Transportation

Egypt has a well-developed road system following an extensive modernisation and expansion programme in the 1980's. In South Sinai Governorate, there was 1,761 km of paved roads in 1995. This meant 20 inhabitants per km of paved roads, which is the largest density among 26 governorates in the country. The network of paved roads is classified into a national network administered by the Ministry of Transport (Roads and Bridges Authority or RBA), and a local network administered by local authorities. For the two decades between 1972 and 1992, 2,670 km of paved roads was constructed throughout the Sinai Peninsula, which were administered by RBA.

South Sinai is well endowed with air transport system. There are nine airports in the governorate. In terms of port, there were few port facilities in the past. The access from land to sea and sea to land was mainly from the beaches or from small piers. At present, protected harbours with ancillary facilities on shore are installed at El Tur, Abu Zenima, Abu Rudeis and Sharm El Sheikh.

2) Electricity

The electric power loads onto the respective power stations in South Sinai Governorate were 20.1 MW in 1993/94. The loads in Sharm El Sheikh recorded the largest (12.5 MW) among the existing power plants. The power plants were located in six cities in the same year. The total maximum capacity of electric generation was 82.4 MW. Thus, it still seems to have power capacity enough to cover the future increasing power demand.

In 1996, the total power consumption in South Sinai Governorate was recorded at 17,280 MWh per annum. This means a per capita consumption rate of electric power

was around 317 KWh per annum, since the population was estimated at 54,495 in the 1996 census.

3) Water Supply and Sewerage

Potable water is a key factor in settlement in the Sinai Peninsula. The Nile River is considered a main source of potable water in the peninsula. At present the water reached to El Tur from Suez via pipeline of 600-mm diameter. It is being extended to Sharm El Sheikh. Subsidiary pumping stations are installed along the pipeline to ensure that water reaches its destination with the required quantity and pressure.

The potable water demand in South Sinai Governorate was estimated at 5,640 m^3/day in 1993/94. On the other hand, the existing capacity of water supply was 5,500 m^3/day. Thus, 140 m^3/day of potable water was deficit. This shortage was partly overcome by artesian stations and small portable filtration units using well water. In the same manner, about 500 m^3/day of sewage treatment capacity was deficit in total.

According to the Statistical Data Book of the South Sinai Governorate, the total water demand for all consumers was estimated at 17,400 m^3/day in total in 1996. On the other hand, the existing production capacity of water supply was 18,400 m^3/day. Thus, around 1,000 m^3/day of potable water was surplus. In four cities, however, the supply capacity was insufficient. They were Nuweiba, St. Catherine, Abu Rudeis and Abu Zenima in order of deficit volume.

4) Telecommunication

The telephone service is not adequate for modern business and administrative requirements. Each city is linked to the national telephone networks. The telephone exchange has reformed into automatic system even in South Sinai Governorate. The telephone exchange system has been improved abruptly in settlement program in South Sinai. In 1996, the telephone exchange lines increased to 14,200 in South Sinai Governorate.

5) Education

As of school year 1995/96, the number of school classes of pre-university education and their enrolment in South Sinai Governorate was recorded as follows. Hence, the pre-university education includes primary, preparatory and secondary levels:

Item	General	Al-Azhar*1	Total
Number of Classroom	491	93	584
Number of Students	9,032	1,064	10,096

Note: *1 Education system based on Islamic doctrine.

In terms of high education, there is one institute in South Sinai Governorate in 1995. It had an enrolment of 1,056 students.

6) Health

In 1996, there were nine hospitals in total in South Sinai Governorate. The hospitals had 104 physicians and 333 beds. A bed capacity rate of hospital was 6.1 beds for 1000 population. In the same year, the national average rate of the bed capacity was 2.0 beds for 1000 population. The level of the bed capacity rate in South Sinai was considerably higher than that of the country.

Bilharziasis disease is one of the most popular endemic diseases in the South Sinai Governorate as well as Egypt. In 1995, 3,931 patients of bilharziasis disease were recorded in the governorate. Among them, 2,139 patients were suffered through urine and the rest was through stool.

2.4.5 Financial Situation

1) Public Finance

The government has a chronic financial deficit problem for a long time. In order to reduce this deficit, the government makes all possible efforts. It conducted an overall review of expenditure items, in particular subsidy cuts to reduce public expenditures. It also conducted tax reform including sales tax and energy tax to increase public revenues. Furthermore, it undertook the fiscal liberalisation, such as removing the nominal ceilings on interest rates and foreign exchange controls for allowing unrestricted international capital mobility. Besides them, it has freed the prices of almost all-industrial products, removed almost all non-tariff barriers for promotion of external trades, and promoted privatisation for leading the government's reform agenda.

In fact the fiscal deficit has been reduced owing to the economic reform. The deficit was LE17.0 billion in 1990/91. It went down to LE 6.2 billion in 1991/92 and to LE2.3 billion in 1996/97, although it showed slightly to go up to LE3.0 billion in 1995/96. In expenditure side, the subsidies decreased from LE7.2 billion in 1991/92 to LE3.3 billion in 1993/94 or down to less than a half for the two years, although afterwards it was reversed gradually to go up to LE4.3 billion in 1995/96. In the revenue side, the tax coverage ratio against the total expenditures has been increased from 51% in 1991/92 to

60% in 1995/96.

The state budget has been set up with an aim of lowering the overall deficit. The fiscal deficit could be verified through its ratio to GDP. As a result, the ratio was reduced from 4.7% in 1991/92 to 0.9% in 1995/96. In the same manner, the ratio of expenditure to GDP also decreased from 36% in 1991/92 to 27% in 1995/96.

2) Balance of Payment

Egypt used to have large deficits on the current account. Since 1990, however, it has recorded its current account surplus, despite the large trade deficit. The main factors of this surplus were large inflows on the export of services and positive net transfers. The large parts of these services mainly consist of tourism as well as Suez Canal earnings. The net public transfer has kept high level traditionally. This is because the high level of gross development assistance from OECD and OPEC member countries, although the level is declining these years. The continuing strength of remittances from expatriate workers, however, has offset the declining public transfer to keep the net transfer high.

The government promotes foreign investment in Egypt and revised the investment law in 1989. In 1992, it announced further promotion policies to attract additional foreign investment. Thus, the direct investment increases gradually. Besides, the total inflows of loans have decreased for these years although Egypt was one of the most heavily indebted countries in the Arab world. Egypt's debt to private creditors remains small. Anyhow, the amortisation is still heavy for the capital balance. As a result, the country has kept the capital-account deficit. Accordingly, Egypt has not been stable in balance of payment.

3) Foreign Assistance and Debt

Gross receipts of official development assistance (ODA) from OECD, Arab countries and multilateral agencies aggregated to US$ 16.5 billion for the recent four years and averaged US$4.1 billion per year between 1990 and 1994.

An average annual receipt of ODA accounted for approximately 26% of an annual expenditure of the governments on average in the same period. It ranged from maximum 36% in 1991 and minimum 14% in 1994.

In 1994, the total external debt was US$ 33 billion, accounting for 59% of GDP (approximately US$56 billion equivalent). In 1994, the outstanding of long-term debt was US$31 billion. The total debt-service was US$2.3 billion, comprising US$0.9

billion of principal repayment and US$1.4 billion of interest payment. Thus, the debt-service ratio decreased to 14% in 1994 from 23% in 1990.

2.5 Environment

2.5.1 Flora and Fauna

1) Flora

Vegetation in South Sinai is generally scarce under a desert climate. Grass grows up temporally after rain along wadis and gullies. Larger acacia trees are also dotted along some of the wadis.

Nevertheless, flora of total 480 species is recorded in South Sinai, 389 species in these belong to rare species, which have a limited distribution. Out of these, rare species are 31 endemic, 23 endangered, 16 vulnerable, and three (3) "extinct" species.

Gebel Catherine, Wadi El Arbaeen, Gebel Musa, the surrounding of the famous monastery and the Wadi El Deir are extraordinarily rich in species with a considerable amount of endemic. There are also several endangered and vulnerable species. About 36.1 % of the endemic species are recorded from Gebel Catherine and the Wadi El Deir. Moreover 54.5 % of the endangered and vulnerable species are found in Gebel Catherine, Gebel Musa and the Wadi El Deir.

2) Fauna

The mammal fauna of South Sinai includes only seven (7) orders composed of 16 families, 26 genera and 34 species.

(1) Mammals

Endangered species of wild mammals include *Caracal caracal schmitzi* (Caracal), *Panthera paradus jarvisi* (Leopard), *Capra ibex nubiana* (Ibex) and *Gazella dorcas* (Dorcas gazelle). Vulnerable species include *Jaculus orientalis* (Greater Egyptian jerboa) and *Procavia capensis syriaca* (Hyrax). 11 species were found to be rare: Two (2) of them are threatened, that are including *Hyaena hyaena dubbah* (Striped hyena) and *Felis sylvestris tristrami* (Wild cat).

(2) Birds

There are some 264 species of birds that have been recorded in South Sinai on a temporary transient basis; either on migration during spring and autumn, or as winter visitors. There are also about 50 species of birds known to breed in South Sinai.

(3) Reptila

45 species of herpetofauna is recorded in South Sinai. There is not any endemic species of herprtofauna in South Sinai, however 14 species are restricted to Sinai in their distribution in Egypt. Most of these species are found in the core area of the protected area. *Uromastyx ocellatus ornatus* (Ornate dabb-lizard) and *Dermochelys coriacea* (Leatherback) in these species are endangered species. Especially, *Caretta caretta* (Red-brown loggerhead turtle) and *Chelonia mydas* (Green turtle) had been exposed to severe collection for exportation before designation of protected area.

3) Sea Flora and Fauna

180 species of Fish is recorded in the Gulf of Aqaba. These species belong to 106 genera, 55 families and 15 orders. Ras Mohamed area has the largest number of fish species, being 172 species, followed by Abou Galoum which includes 54 species. Then, Nabq has the lowest number of 42 species.

Also, 56 coral species belonging to 16 families is recorded in the three sites of Ras Mohamed, Nabq and Abu Galum; 32 species in Ras Mohamed, 27 species in Nabq and 33 in Abu Galum.

2.5.2 Population and Residential Areas

Population of residential area in South Sinai is estimated at 39,009 in 1996. The population growth of 11 years (1986 to 1996) shows 10,021 and the population growth rate have gone up by 34.6 %. The majority of residential areas are located along the coastal line of the Gulf of Suez and Gulf of Aqaba. El-Tur is the largest settlement in population size and St. Catherine is also an only large settlement in the mountain area.

2.5.3 Economic Activities

Economic activities in South Sinai are represented by tourism and agriculture.

The traditional agriculture in this area has been practiced for long time. However, several decades ago, irrigated farming was introduced to the area, particularly to the St. Catherine area. The size of agriculture lands was estimated at 480 feddans in 1979, however, it increased to 1,400 feddans in 1994.

The irrigated crop production distributes mainly in the coastal areas of the Gulf of Suez and the Gulf of Aqaba, particularly in El Tur, Abu Zenima, Dahab and Nuweiba areas.

The primary crops are olives, almonds, palms, vegetables and fruits.

Historically, tourism in South Sinai was limited to religious purpose. St. Catherine with its famous monastery and Gebel Musa have been aimed for long time.

At present, tourism is distributed mainly in the three purposes of sightseeing, nearby complementary resources, and swimming and diving in resorts. St. Catherine is a world-class cultural, sightseeing resource with its famous monastery and Gebel Musa. Also, the coastal areas of the Gulf of Suez and Gulf of Aqaba have been functioned as resort of swimming and diving. In fact, these areas are blessed with rare marine, terrestrial flora and fauna, pleasant climate, cultural resources and visual resources. The number of tourists has increased in this several decades.

Other production activities are industry and mining. Petroleum industry (oil and gas) constitutes 25 % of the national petroleum industry. Petroleum industry is distributed in the coastal area along the Gulf of Suez.

2.5.4 Ruins and Cultural Properties

Significant ruins and cultural properties in South Sinai concentrate into three areas of St. Catherine Area, Feiran area and Serabit El-Khadim area.

The monastery of St. Catherine is located in a valley at the foot of Gebel Musa; and it has been a center of Christian worship trough over 1,600 years, containing one of the worlds' most ancient and important monastic libraries. In inscriptions of Feiran Area, the most imposing example is in "Wadi Mukattab" i.e. "Valley of the Inscription"; and the inscriptions in South Sinai are a source of information especially on the ancient mining and expedition system. Also, the temple of Serabit El-Khadem is one of the very few Egyptian temples constructed outside the Nile Valley.

2.5.5 Organization and Distribution of Tribes

Original population in Sinai is Bedouins. The population of Bedouin in South Sinai was estimated at 24,000 in 1996. Bedouins consist of several tribes.

In the latest 20 years, some activities have been newly introduced to the area and are practiced by the Bedouins. These activities consist of irrigation agriculture, guide for tourists and fishing. New economic activities have increased Bedouin's income and have changed their life styles. Nowadays, they live in concrete blocks-made houses and buy various kinds of goods, visit doctors in Suez or Cairo, send children to school in El Tur or Nuweiba to continue their education.

2.5.6 Protected Area in South Sinai

In total 16 protected areas of Egypt, five (5) protected areas in South Sinai was declared under the Law No. 102 as shown in Fig. 2.5-1. They are;

(1) Ras Mohamed National Park

(2) Nabq Protectorate

(3) Abu Galum Protectorate

(4) Saint Catherine Protectorate

(5) Taba Protectorate

The Ras Mohamed National Park with an area of 480 km^2 is the first and only national park in Egypt. The park includes marine and terrestrial areas at the Ras Mohamed peninsula, the island of Tiran and all shorelines to the highest annual tide between the main Sharm el Sheikh harbour and the southern boundary of the Nabq.

The St. Catherine Protectorate (declared in 1987) has the widest area and includes the 6-century monastery and the surrounding area. The characteristic of this area is very rugged High Mountain of Gebel Catherine (2,642 m), Gebel Musa (2,285 m) and Gebel Umm Shaumar (2,586 m). These mountains have the highest elevations in Egypt. Therefore, flora and fauna are rich and include a large number of valuable and rare species.

The Nabq Protectorate and the Abu Galum Protectorate were declared in 1992; these protectorates are located along Gulf of Aqaba.

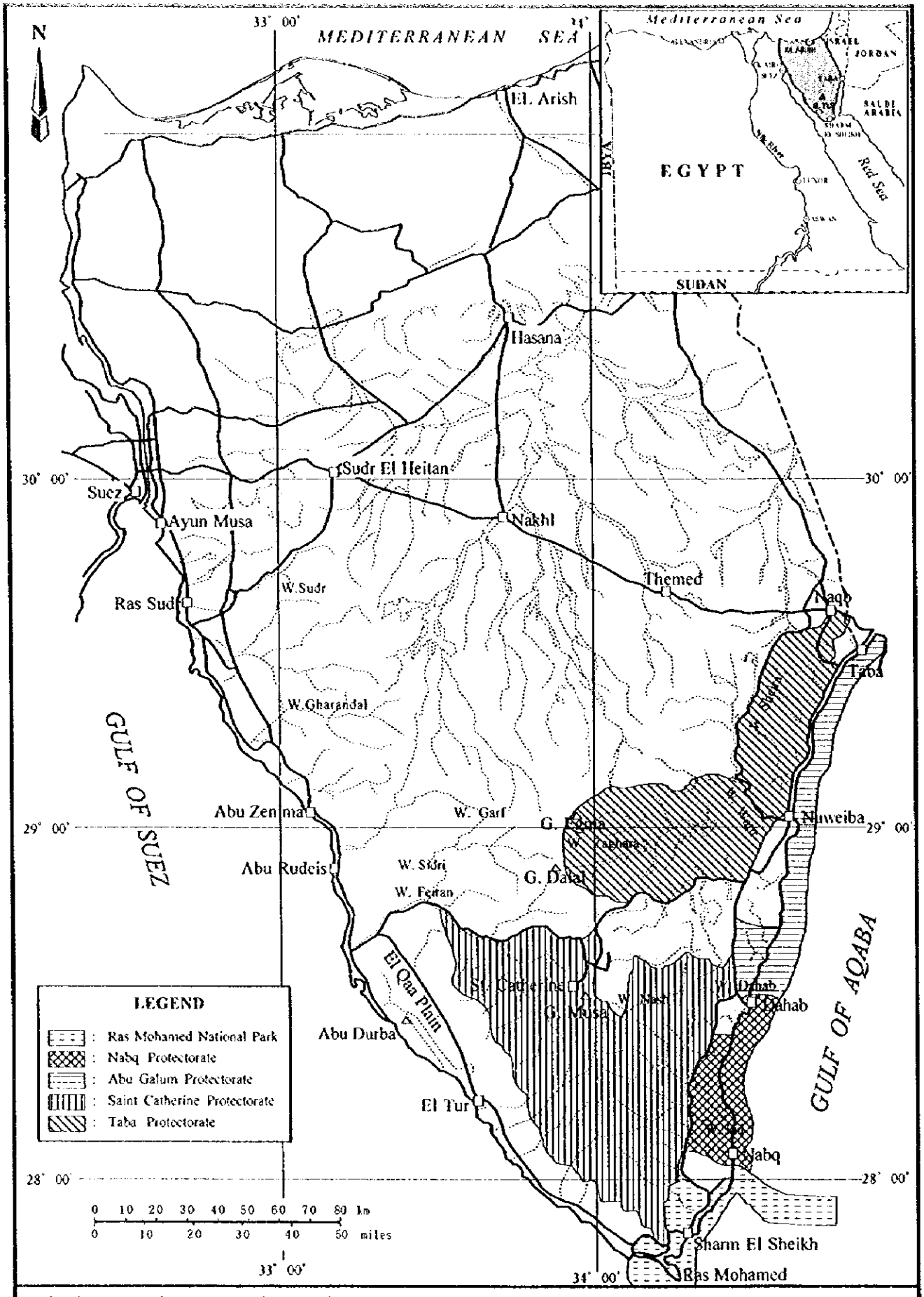

Fig. 2.5-1 The Protected Areas in South Sinai

CHAPTER III HYDROGEOLOGY

3.1 General

Groundwater aquifers in South Sinai appear in the following geological units;

(1) Quaternary Deposits

(2) Upper Cretaceous Sedimentary Rocks

(3) Lower Cretaceous Sedimentary Rocks

(4) Precambrian Basement Rocks

Previous studies have been executed in the limited areas such as El Qaa Plain, Wadi Feiran, Wadi Gharandal and Wadi Sheira, and scarce study has been carried out in the central plateau area (Egma and El Tih Plateaux). Therefore, most of attention was paid to the central plateau area and wadi areas in this study.

As the results of the Study, well inventories of water sources and a series of Groundwater Resources Maps were prepared to evaluate the groundwater resources in South Sinai. Simultaneously, the Hydrogeological Map and Groundwater Resources Evaluation Map for North Sinai were updated based on the new data obtained since 1992 when the previous Study was completed.

3.2 Well Inventory and Existing Database

3.2.1 Well Inventory

A database system was constructed by WRRI during Sinai Groundwater Resources Study (SGRS). In order to supplement the database, a series of inventory survey was carried out by the JICA Study Team. Newly surveyed areas are Wadi Sudr, Wadi Gharandal, Wadi El Garf, Wadi Babaa, the eastern side of the El Qaa Plain, Wadi Kid, Wadi Zaghara, Wadi Nasb, Wadi Dahab, Wadi Zalaga, Wadi Saal, Wadi Taba and the upstream of Wadi El Arish.

The survey covered a total of 454 water points consisting of 157 cased wells, 256 dug wells and 41 springs in 16 different areas.

Well Inventories of groundwater sources in South Sinai were established as a result of the survey. The inventories are presented in Table 3.2-1 to 3.2-17. Location maps for them are presented in Fig. 3.2-1 to 3.2-17.

In addition, supplementary survey in North Sinai was also carried out during the Study

period to update the Hydrogeological Map and Groundwater Resources Map for North Sinai prepared in 1992. For reference, revised inventories of existing wells and newly constructed wells after 1992 in North Sinai are presented in Table 3.2-18 and 3.2-19, respectively.

3.2.2 Existing Database

WRRI has been used two (2) types of database software (BADGE and CHRONO) developed by BRGM for management of groundwater data. The BADGE manages time independent data such as lithology and technical data relating to wells and springs, and is available to deal with statistics, mapping and listing. The CHRONO manages time series of chemical data and water levels, and makes their lists and graphs.

New system, MapInfo, has been introduced in WRRI in 1998. It is a kind of simplified GIS (Geographical Information System) and is enable to link with database.

Table 3.2-1 (1) Well Inventory (El Qaa Plain 1/2)

Sr	Well Identification and Location					Well Specification				Water Quality Data				Hydrogeological Data					Remarks			
	Identification		Location			Drilling Depth	Cased Depth	Screen Position (m)	Aquifer	JICA Study Team		Periodical Measurement by WRRI		S.W.L	D.W.L	Discharge Rate	Specific Capacity	Trans-missivity	Owner	Use for	Present Condition
	WRRI	Well	Coordinates		Elev.					TDS	Chemical	since/to	interval								
No	Code No.	Name	Lat.	Long.	(mASL)	(mBGL)	(mBGL)	(thickness)	(Strata)	(mg/l)	Analysis			(mBGL)	(mBGL)	(m^3/h)	(l/s/m)	(m^2/day)			
1	37DA-001	QAA 1	283343	332460	98	200.0	145.0	98-140 (42)	Q (S+G)	3220		11/88-12/89	1M,6M	69.76	82.50	90	1.96	1433		irrigation	not in use
2	37DE-001	RIWR 8	283623	332611	105.87	200.0	175.0	150-170 (20)	Q (S+G)	4230	(Feb/Aug 97)			80.74					WRRI	Pz	on use
3	37DA-002	RIWR 6	283354	332942	102.5	300.0	196.0	175-190 (15)	Q (S+G)			3/89-11/89	1M,3M	75.30					WRRI	Pz	on use
4	37EA-001	QAA 18	283306	332095	100	200.0	110.0	70-100(30)	Q (S+G)			10/88-12/89	1M	96.23	68.05	40	6.11	1175	Tasnee	irrigation	not in use
5	37EA-009	QAA 6	282843	333101	78	200.0	155.0	90-150(50)	Q (S+G)	2170		3/89-6/89	1M	45.85	55.42	67.1	1.95	462	private	irrigation	not in use
6	37EA-002	QAA 5	283107	333139	69	120.0	115.0	80-110 (30)	Q (S+G)	1610		10/88-12/89	1M	43.13	69.83	50	0.52	227	Tasnee	irrigation	not in use
7	37EE-001	QAA 10	282817	333143	64	160.0	100.0	65-95(30)	Q (S+G)	1640	(Feb/Aug 97)	10/88-6/95	1M,7M,66M	39.43	60.65	25	0.33	138		irrigation	abandoned
8	37EA-004	QAA 9	282947	333224	75	200.0	120.0	85-115(30)	Q (S+G)	1470		10/88-8/89	1M,3M,9M	45.43	52.35	75	3.01	1026	private	irrigation	not in use
9	37EA-005	QAA 7	282838	333343	76.13	200.0	110.0	75-105 (30)	Q (S+G)	1225		3/89-6/89	1M	58.22	64.00	100	4.81	2130	Tasnee	irrigation	not in use
10	37EA-008	QAA 17	282902	333407	95	200.0	80.0	55-80(25)	Q (S+G)			10/88-12/89	1M	68.50	71.95	20	1.91	106		irrigation	abandoned
11	37EA-003	QAA 5/1	283108	333139	71.5	200.0	115.0	80-110(30)	Q (S+G)					42.52					Tasnee	Pz	on use
12	37EA-006	QAA 2/1	282839	333345	80	110.0	110.0	75-105 (30)	Q (S+G)										Tasnee	Pz	not in use
13	37EA-007	QAA 2/2	282839	333349	82.5	200.0	110.0	75-105 (30)	Q (S+G)					58.26	65.19	115	4.58	2150	Tasnee	Pz	on use
14	37EE-002	Saltwel 1	282926	333533	132			66-89(25)												oil exp	
15	37EE-001	RIWR 7	283136	333501	126.29	405.0	145.0	125-140 (15)	Q (S+G)					102.12					WRRI	Pz	on use
16	48AA-001	QAA 16	282741	333410	78	256.0	100.0	65-95(30)	Q (S+G)			10/88-5/90	1M,2M,9M	55.50	55.53	55	5.08	762	private	irrigation	not in use
17	48AB-003	QAA 8	282643	333436	64.2	250.0	100.0	65-95(30)	Q (S+G)	1085	(Feb/Aug 97)	10/88-3/96	1M,3M,6M,11M	47.40					private	irrigation	not in use
18	48AB-004	QAA 4	282442	333436	55.52	120.0	105.0	75-100(25)	Q (S+G)	2300		7/90-9/91	4M,6M,16M	38.77	50.60	45	1.06	196		irrigation	abandoned
19	48AB-001	QAA 25	282730	333441	80	200.0	95.0	66-89(25)	Q (S+G)			12/89-6/95	2M,9M,7M						private	irrigation	on use
20	48AB-007	QAA 7	282203	333550	56	250.0	120.0	75-115(40)	Q (S+G)	1330		1/89-6/95	1M,6M	34.17	40.37	101.5	4.55	1226	Tasnee	irrigation	not in use
21	48AB-002	QAA 25/1	282729	333441	78.9	200.0	89.0	66-89(25)	Q (S+G)					55.22					Tasnee	Pz	on use
22	42AB-012	RIWR 6/1	282429	333749	98.17	500.0	357.0	310-332,342-354 (34)	Q (S+G)					79.35	152.85	20.3	0.08	9		Pz	abandoned
23	42AB-013	RIWR 6/2	282429	333745	98.075	359.0	359.0	300-350(50)	Q (S+G)											irrigation	productive
24	48BB-006	QAA 12	281759	333740	34.27	200.0	95.0	60-90(30)	Q (S+G)	588	(Feb/Aug 97)	10/88-3/96	1M,3M,6M	15.55	41.75	50	0.53	81	Tasnee	domestic	on use
25	48BB-007	QAA 24	282039	333825	45	200.0	75.0	50-70(20)	Q (S+G)			10/88-12/89	1M,2M,9M						Tasnee	domestic	not in use
26	48BB-009	QAA 13	281957	333846	44.17	300.0	95.0	50-90(40)	Q (S+G)	420	(Feb/Aug 97)	10/88-3/96	1M,4M,7M,11M	21.80	26.00	60	3.97	218	Tasnee	domestic	on use
27	48BB-005	T 2 (army)	281801	333855	44		102.0	26-100(74)	Q (S+G)			10/88-3/96	1M,3M,8M,12M					744	Army	domestic(SES**)	on use
28	48BB-007	QAA 23	281907	333910	50	157.0	95.0	60-70(40)	Q (S+G)	448	(Feb/Aug 97)	10/88-3/96	1M,3M,6M,11M						Tasnee	domestic	on use
29	48BB-009	QAA 20	281848	334005	65.22	153.0	95.0	65-87(22)	Q (S+G)			10/88-3/96	1M,3M,8M,12M	44.02	53.17	50	1.52	279	Tasnee	domestic	on use
30	48BB-008	QAA 21	281917	334029	77	200.0	115.0	75-110(35)	Q (S+G)	490	(Feb/Aug 97)	1/89-3/96	1M,4M,8M,11M						Tasnee	domestic	on use
31	48BC-001	QAA 22	281830	334053	80	200.0	115.0	75-110(35)	Q (S+G)			1/89-9/90	1M,5M,8M						Munic	domestic	on use
32	48BB-001	QAA 13	282119	333634	42.1	110.0	100.0	65-95(30)	Q (S+G)			1/89-3/91	1M,5M	23.80	34.70	75	1.91	451	Tasnee	irrigation	not in use
33	48BB-002	QAA 1	282125	333731	47.24	250.0	120.0	65-85,105-115(30)	Q (S+G)	910		10/88-3/89	5M	27.96	32.00	100	6.88	2145	Tasnee	irrigation	not in use
34	48BB-014	QAA 14	282116	333956	69.85	110.0	105.0	75-105(30)	Q (S+G)			10/88-3/96	1M,3M,9M,35M						Tasnee	irrigation	on use
35	48BB-013	RIWR 5	282117	333935	62.68	274.0	226.0	220-230 (10)	Q (S+G)			2/89-11/89	2M,3M	46.00					WRRI	Pz	not in use
36	48BB-015	QAA 21/1	281920	334031	76.65	200.0	115.0	75-110(35)	Q (S+G)										Tasnee	Pz	not in use
37	48BB-016	QAA 29	282012	333953	60				Q (S+G)	425	(Feb/Aug 97)	1/93-3/96	12M,26M								
38	48BC-002	QAA 28	282024	334057	84				Q (S+G)			1/93-3/96	5M,9M,12						Munic	domestic	on use
39	48CB-006	T 1 (army)	281609	333919	55.97		126.0	38-123(85)	Q (S+G)			10/88-3/96	1M,8M,12M,27M					580	Army	domestic(SES**)	on use
40	48CB-005	Abu Kalem	281409	333815	9.48				Q (S+G)	2124	(Feb/Aug 97)	5/89-3/96	1M,4M,7M,35M						Kalem	irrigation	on use
41	48CB-003	Qarsen	281434	333841	31.24			15-26(9)	Q (S+G)			1/89-6/95	1M,4M,9M,35M						Qarsen	irrigation	on use
42	48CC-006		281629	334036	78															oil exp	
43	48CB-001	RIWR 1	281536	333616	5.11	49.0	40.0	15-39 (15)	Q (S+G)			1/89-3/89	1M	4.31					WRRI	Pz	on use
44	48CB-002	RIWR 2	281552	333650	19.74	54.0	51.0	28-51 (23)	Q (S+G)					11.95					WRRI	Pz	on use
45	48CB-007	T 1/1 (army)	281615	333931	57.23				Q (S+G)			10/89-9/96	1M,7M,9M,36M	39.48					Army	Pz	on use
46	48CB-008	T 1/2 (army)	281615	333931	57.23	63.0			Q (S+G)			10/89-9/96	1M,3M,9M,36M	41.39					Army	Pz	on use
47	48CC-002	QAA 26	281507	333956	38.92	170.0	93.0	35-75(20)	Q (S+G)			2/89-3/96	1M,6M,9M,18M						Tasnee	domestic	on use
48	48CC-007	D 4	281616	334107	86.24															domestic	abandoned
49	48CC-008	Oil Test																		oil exp	
50	48CC-003	T 7 (army)	281450	334010	58.86				Q (S+G)					44.57					Army	Pz	on use
51	48CC-004	RIWR 1A	281639	334115	88.26	300.0	281.0	260-270 (10)	Q (S+G)			1/89-11/89	1M	73.85	81.86			52.3	WRRI	Pz	on use
52	48CC-005	RIWR 1B	281639	334115	88.24	123.0	120.0	105-115	Q (S+G)			3/89-11/89	1M	70.30					WRRI	Pz	on use
53	48CC-009	RIWR 3	281404	334036	133	200.0	195.0	130-190(60)	Q (S+G)					dry						not confirmed	
54	48CC-006	RIWR 1C	281640	334115	89	290.0	290.0	260-280(20)	Q (S+G)					73.96	108.90	26.4	0.21		WRRI	Pz	on use
55	48CB-009	El Tor 1*	281067	333747	1.2	1011.0						11/89-12/89	1M							oil exp	
56	47AB-005	RIWR 4/1	282000	334004	140	186.0	186.0	150-175(25)	Q (S)					dry						dry	
57	47AB-009	El Qaa 1	282225	333729	58	350.0	335.0	134-209, 263-325(137)	Q (S+G)	2150				39.60	50.25	39.6	1.07	162	WRRI	domestic	
58	47AB-010	El Qaa 2	282352	333734	84	350.0	280.0	140-180, 205-230, 250-275(90)	Q (S+G)	1024				63.06	80.68	52	0.82	116	WRRI	domestic	
59	47AB-011	El Qaa 3	282326	333802	82	150.0	150.0	71-95, 105-117, 126-138(68)	Q (S+G)	1700				60.65	63.57	40.8	7.38	2283	WRRI	domestic	
60	47AB-012	El Qaa 4	282255	333824	76	148.0	146.0	81-93, 113-123(30)	Q (S)					56.95	61.17	72	4.37	1622	WRRI	domestic	
61	47AB-013	El Qaa 5	282231	333850	73	162.0	160.0	82-107, 131-147(41)	Q (S+G)					51.50	53.33	40.9	9.23	2639	WRRI	domestic	
62	48AB-017	No.6/96 El Qaa	281835	333616	32	133.0	132.5	93-113 (50)	Q (S+G)	1052	(Drilling Report)			21.27	29.47	48.6	1.65	242	WRRI		capped
63	48BB-018	No.7/97 El Qaa	281915	333615	40	160.0	159.2	76-149 (62)	Q (S+G)	1954	(Drilling Report)			27.07	29.88	60.45	5.98	342	WRRI		capped
64	48ED-001	Petrobel 3	280244	334947	60	200.0	176.0	98-116(18), 119-137(18), 151-175(24)	Q (S+G)	4928	(1997/6/6)			90.20		6			PETROBEL	industry	on use
65	48ED-002	Petrobel 2	280240	334943	60	200.0	197.5	175-179(4)	Q (S+G)	4928	(1997/6/6)			75.00		6			PETROBEL	industry	on use
67	48ED-003	JICA 7	280829	335218	285	251.0	250.0	199-229(40)	Q (S+G)	493	17/Aug/99			148.94	234.00	6	0.00	0.684	JICA/WRRI	test well	on use

Note: Well with (*) is also listed in the Inventory for Pre-Quaternary Wells ** SES: Sharm El Sheikh

Table 3.2-1 (2) Well Inventory (El Qaa Plain 2/2)

Sr. No.	Well Identification and Location: Identification: WRRI Code No.	Well Identification and Location: Identification: Well Name	Location: Coordinates: Lat.	Location: Coordinates: Long.	Location: Elev. (mASL)	Well Specification: Drilling Depth (mBGL)	Well Specification: Cased Depth (mBGL)	Well Specification: Screen Position (m) (thickness)	Well Specification: Aquifer (facies)	Water Quality Data: JICA Study Team: TDS (mg/l)	Water Quality Data: JICA Study Team: Chemical Analysis	Water Quality Data: Periodical Measurement by WRRI: since/to	Water Quality Data: Periodical Measurement by WRRI: interval	Hydrogeological Data: S.W.L (mBGL)	Hydrogeological Data: D.W.L (mBGL)	Hydrogeological Data: Discharge Rate (m^3/h)	Hydrogeological Data: Specific Capacity (l/s/m)	Hydrogeological Data: Trans-missivity (m^2/day)	Remarks: Owner	Remarks: Use for	Remarks: Present Condition
	El Qaa Plain Dug Wells																				
2	48AB-013	Salem Soliman	281725	333627	18	9.0	-	-	Q					6.00					private	irr./ dom.	in use
3	48AB-014	Zekri	281739	333658	25	19.0	-	-	Q					11.70					private	irr./ dom.	in use
4	48AB-015	Salem Aoda	281734	333638	17	6.0	-	-	Q					5.30					private	irr./ dom.	in use
5	48AB-016	West Wadi	281707	333631	15	6.0	-	-	Q					3.70					private	irr./ dom.	in use
6	48AB-017	East Wadi	281710	333645	15	2.0	-	-	Q					1.90					private	irr./ dom.	in use
7	48BB-019	Wind mill	281656	333646	16	8.5	-	-	Q					8.00					private	irr./ dom.	in use
8		Mansour Aoda	281657	333654	17	10.0	-	-	Q					7.80					private	irr./ dom.	in use
9		Solimman Mohammed	281701	333652	19	10.0	-	-	Q					10.00					private	irr./ dom.	in use
11	48AB-018	El Tamir	281628	333631	10	6.0	-	-	Q					5.30					private	irr./ dom.	in use
12		Soliman Abu Lodeed	281730	333629	17	11.0	-	-	Q					9.10					private	irr./ dom.	in use
13	48AB-019	Hag Sobah	281728	333632	17	11.0	-	-	Q	1250	(Feb/Aug 97)			8.10					private	irr./ dom.	in use
14	48AB-020	Husson Mutter	281659	333631	15	8.0	-	-	Q					6.20					private	irr./ dom.	in use
15		Salem Abu Lodeed	281656	333629	15	13.0	-	-	Q					10.00					private	irr./ dom.	in use
16	48AB-021	Salama Mussa	281642	333631	13	10.0	-	-	Q					6.90					private	irr./ dom.	in use
17	48AB-022	Soliman Farag	281628	333626	10	7.0	-	-	Q					4.40					private	irr./ dom.	in use
18	48AB-023	Farag Aoda	281655	333712	25	15.0	-	-	Q					12.40					private	irr./ dom.	in use
19	48AB-024	Yossif Sabah	281714	333712	30	20.0	-	-	Q					18.40					private	irr./ dom.	in use
20		Hameed Aoda	281315	333753	10	5.0	-	-	Q					4.50					private	irr./ dom.	in use
21	48CB-008	Hag Menefy	281320	333750	9	4.0	-	-	Q					3.50					private	irr./ dom.	in use
22	48CB-009	Hassasa	281330	333741	5	5.0	-	-	Q					4.00					private	irr./ dom.	in use
23	48CB-010	Foad Salem 1	281211	333806	9	6.0	-	-	Q					3.80					private	irr./ dom.	in use
24	48CB-011	Salem Aoda	281227	333828	18	15.0	-	-	Q					12.50					private	irr./ dom.	in use
25		Foad Salem 2	281215	333806	9	8.0	-	-	Q					6.90					private	irr./ dom.	in use
26	48CB-012	M. Abu Salem 1	281204	333803	8	7.0	-	-	Q	3280	(Feb/Aug 97)			4.00					private	irr./ dom.	in use
27		M. Abu Salem 2	281202	333801	7	4.0	-	-	Q					2.40					private	irr./ dom.	in use
28	48CB-013	Hemdan Salem	281154	333822	9	4.0	-	-	Q					3.00					private	irr./ dom.	in use
29	48CB-014	Ahmed Badry	281155	333743	3	4.0	-	-	Q					1.30					private	irr./ dom.	in use
30	48CB-015	Abdel Am S	281132	333757	7	5.0	-	-	Q					4.00					private	irr./ dom.	in use
31		Hameed Aoda	281208	333837	16	4.0	-	-	Q										private	irr./ dom.	in use
	El Qaa Plain Springs																				
1		Hamam Musa*	281603	333549	14	-	-	-	Q	9378	(Feb/Aug 97)								government	bathing	in use
2	47EC-001	W. Hibran	283025	334105	350	-	-	-	Q	900	(Feb/Aug 97)								-	domestic	in use
3	48AC-002	W. Mir	282647	334223	300	-	-	-	Q	685	(Feb/Aug 97)								-	domestic	in use
4	48CE-002	W. Thiman	281216	335645	600	-	-	-	Q	834	(Feb/Aug 97)								-	domestic	in use
5	48CF-001	W. Isla	281438	335254	485	-	-	-	Q	765	(Feb/Aug 97)								-	domestic	in use

Note: Well with (*) is also listed in the Inventory for Pre-Quaternary Wells

Table 3.2-2 Well Inventory (Wadi Feiran and El Tarfa)

Sr. No	Well Identofocation and Location: Well Identification: WRRI Code No	Well Identification: Well Name	Location: Coordinates: Lat.	Location: Coordinates: Long.	Location: Elev. (mASL)	Well Specification: Drilling Depth (mHGL)	Well Specification: Cased Depth (mBGL)	Well Specification: Screen Position (m) (thickness)	Well Specification: Aquifer (facies)	Water Quality Data: JICA Study Team: TDS (mg/l)	Water Quality Data: JICA Study Team: Chemical Analysis	Water Quality Data: Periodical Measurement by WRRI: since/to	Water Quality Data: Periodical Measurement by WRRI: interval	Hydrogeological Data: S.W.L (mBGL)	Hydrogeological Data: D.W.L (mBGL)	Hydrogeological Data: Discharge Rate (m^3/h)	Hydrogeological Data: Specific Capacity (l/s/m)	Hydrogeological Data: Trans-missivity (m^2/day)	Remarks: Owner	Remarks: Use for	Remarks: Present Condition
	W. Feiran																				
1-8	missing number																				
									Q					welded					private		not in use
9	47CB-001	Red Avd	284140	335651			-	-	Q	443				welded					private		not in use
12	47CB-002	M. Atayq	284129	335639			-	-	Q					20.20		4			private	irrigation	in use
26	47CC-001	Mohamed Mansour	284251	333946		25.0	-	-	Q (S+G)	576 (15/9/96)		1/94,1/95	12M	21.00		4			private	irrigation	in use
27	47CB-002	Mohamed Salem 1	284241	333921		22.0	-	-	Q (S+G)	796 (Feb/97)	(Feb/Aug 97)			17.35		4			private	irrigation	in use
28	47CB-003	Mohamed Salem 2	284241	333923		20.0	-	-	Q (S+G)	640 (15/9/96)		1/94,1/95	12M						private		
29	47CB-017	Feiran (Muni)	284242	333921					Q					17.50		4			private	irrigation	in use
30	47CB-004	Aoda M. Hassan	284240	333920		20.0	-	-	Q (S+G)	512 (15/9/96)				8.83		4			private	irrigation	in use
31	47CB-007	Hassan Gebaly 1	284207	333911		10.0	-	-	Q (S+G)	512 (15/9/96)		1/94,1/95	12M	10.77		3			private	irrigation	in use
32	47CB-006	Emrazeq 1	284232	333908		12.0	-	-	Q (S+G)	512 (15/9/96)				10.93		3			private	irrigation	in use
33	47CB-008	Hassan Gebaly 2	284210	333855		12.0	-	-	Q (S+G)	640 (15/9/96)		1/95	one data						private		
34	47CB-018	Emrazeq 2	284207	333916					Q					13.70		6.00			private	irrigation	in use
35	47CB-005	Hassan Dief				20.0	-	-	Q (S+G)	520 (15/9/96)									private		
36	47CB-019	Hassan Hamady	284216	333849					Q					-	-					domestic	in use
37	47DE-011	Aleian (Spring)	284209	333858		-	-	-	Q (S+G)	257 (15/9/96)				13.20		3			private	irrigation	in use
38	47CB-009	Aoda Hassan	284219	333841		15.0	-	-	Q (S+G)	660 (15/9/96)				26.00		3			private	irrigation	in use
39	47CB-010	Fitech Hassan 1	284236	333838		27.0	-	-	Q (S+G)	576 (15/9/96)				11.70		3			private	irrigation	in use
40	47CB-011	Fiteeh 2	284234	333838		13.0	-	-	Q (S+G)	704 (15/9/96)		1/95	one data	12.64					private	irrigation	in use
41	47CB-013	El Binga	284242	333838		14.0	-	-	Q (S+G)	576 (15/9/96)									private		
42	47CB-020	El Sheikh Saal	284243	333823					Q					11.02		3			private	irrigation	in use
43	47CB-012	Mobark Emam	284248	333824		12.0	-	-	Q (S+G)	640 (15/9/96)		1/95	one data	23.08		4			private	irrigation	in use
44	47CB-014	El Rahebar	284231	333718		25.0	-	-	Q (S+G)	517 (15/9/96)				14.33		15			private	irrigation	in use
45	47CB-015	Mosalam Saleh	284245	333709		15.5	-	-	Q (S+G)	540 (15/9/96)									private		
46	47CB-021	Ramadan Salem	284256	333707					Q					13.90		4			private	irr./dom.	in use
47	47CB-017	El Hesswa	284257	333655		15.0	-	-	Q (S+G)	580 (15/9/96)		1/95	one data	14.95		6.25			private	irr./dom.	in use
48	47CB-022	Refa	284244	333715		17.0	-	-	Q (S+G)	694 (Feb/97)	(Feb/Aug 97)										
	El Tarfa													15.00		6			private	irrigation	in use
10	47CE-002	Eid Saleh Eid	284136	335648		15.0	-	-	Q (S+G)	384 (15/9/96)		1/94,1/95	12M	14.00		6			private	irrigation	in use
11	47CE-003	Mohamed Sbael	284132	335644		16.0	-	-	Q (S+G)	448 (15/9/96)				13.32		6			private	irrigation	in use
13	47CE-006	Hossen Mehana	284135	335627		16.0	-	-	Q (S+G)	512 (15/9/96)				13.00		6			private	irrigation	in use
14	47CE-007	Abd El Rahman	284139	335628		16.0	-	-	Q (S+G)	448 (15/9/96)				14.20		6			private	irrigation	in use
15	47CE-005	Gomaa Khamis	284134	335629		16.0	-	-	Q (S+G)	448 (15/9/96)	(Feb/Aug 97)	1/94,1/95	12M	13.90		2			private	irrigation	in use
16	47CE-008	Embabi Awad	284141	335623		16.0	-	-	Q (S+G)	640 (15/9/96)				18.00		4			private	irrigation	in use
17	47CE-009	Yassen Matter	284148	335618		18.0	-	-	Q (S+G)	640 (15/9/96)				10.87		7			private	irrigation	in use
18	47CE-010	Hassan Awad Mohame	284150	335602		19.0	-	-	Q (S+G)	640 (15/9/96)		1/94,1/95	12M	14.30					private	irrigation	in use
19	47CE-011	Mobarak Saleh 1	284149	335659		18.0	-	-	Q (S+G)	550 (15/9/96)				14.50		4			private	irrigation	in use
20	47CE-012	Eid Hemed	284147	335657		18.0	-	-	Q (S+G)	576 (15/9/96)				14.12		3			private	irrigation	in use
21	47CE-013	Farha Slama	284147	335649		18.0	-	-	Q (S+G)	576 (15/9/96)		1/94,1/95	12M	14.00		4			private	irrigation	in use
22	47CE-014	Raffe Salama	284142	335641		18.0	-	-	Q (S+G)	640 (15/9/96)		1/94,1/95	12M	14.14					private	irrigation	in use
23	47CE-015	Mobarak Saleh 2	284137	335633		18.0	-	-	Q (S+G)	704 (15/9/96)		1/94,1/95	12M	14.17					private	irrigation	in use
24	47CE-016	Abd El RAhman 2	284150	335623		18.0	-	-	Q (S+G)	707 (15/9/96)				41.91		4			private	irrigation	in use
25	47CD-001	Sahab	284256	334628		42.5	-	-	Q (S+G)	704 (15/9/96)		1/94,1/95	12M								

Table 3.2-3 Well Inventory (St. Catherine)

Sr. No.	Identification and Location: Well Identification: WRRI Code No.	Identification and Location: Well Identification: Well Name	Location: Coordinates: Lat.	Location: Coordinates: Long.	Location: Elev. (mASL)	Well Specification: Drilling Depth (mBGL)	Well Specification: Cased Depth (mBGL)	Well Specification: Screen Position (m) (thickness)	Well Specification: Aquifer (facies)	Water Quality Data: JICA Study Team: TDS (mg/l)	Water Quality Data: JICA Study Team: Chemical Analysis	Water Quality Data: Periodical Measurement by WRRI: since/to	Water Quality Data: Periodical Measurement by WRRI: interval	Hydrogeological Data: S.W.L (mBGL)	Hydrogeological Data: D.W.L (mBGL)	Hydrogeological Data: Discharge Rate (m^3/h)	Hydrogeological Data: Specific Capacity (l/s/m)	Hydrogeological Data: Trans-mussivity (m^2/day)	Remarks: Owner	Remarks: Use for	Remarks: Present Condition
	St. Catherine Cased Well																				
1	57DA-002	St. Catherine Well	283627	335937		100			Q (S+G)					48.80					WRRI	test well	in use
2		St. Catherine/ Pz 1							Q										WRRI	monitoring	in use
3		St. Catherine/ Pz 2							Q										WRRI	monitoring	in use
4		St. Catherine/ Pz 3				130	128.35	59-124(65)	Q (S+G)										WRRI	monitoring	in use
	St. Catherine Dug Well																				
5	57DA-001	Zaituna Well	283541	335933		49	-	-	Q	337 (Sep/97)				43.22		($40m^3/d$)					
6	47DE-002	Harouna Well	283407	335756		31	-	-	Q	575 (Feb/97)	(Feb/Aug 97)			29.70		($300m^3/d$)					
7	57CA-004	Sowra 1	283305	335800		10	-	-	Q (S+G)	676 (Feb/97)	(Feb/Aug 97)			2.40		1			private	irrigation	in use
8	57CA-003	Sowra 2	283402	335902			-	-	Q			1/94,1/95	12M	welded					private	irrigation	in use
9	57CA-001	El Watha	284128	335855	1250	35.25	-	-	Q (S+G)	418 (9Mar97)		1/94,1/95	12M	30.63		10			government	domestic	in use
10	47DE-001	Ramadan Gabaly	284001	335809		13	-	-	Q (S+G)	576 (15/9/96)		1/94,1/95	12M	12.00		6			private	irrigation	in use
11	missing number																				
12	47DE-003	Mohamed Farag 1	283332	335731		9	-	-	Q (S+G)	704 (15/9/96)				3.65		6			private	irrigation	in use
13	47DE-004	Khedr A. Salem	283332	335718		16	-	-	Q (S+G)	384 (15/9/96)				14.40		4			private	irrigation	in use
14	47DE-005	Saleh M. Farag	283319	335718		12	-	-	Q (S+G)	384 (15/9/96)		1/94,1/95	12M	9.70		4			private	irrigation	in use
15	47DE-006	Saady Farag	283343	335735		12	-	-	Q (S+G)	256 (15/9/96)				9.00		4			private	irrigation	in use
16	47DE-007	Mohamed Farag 2	283350	335655		12	-	-	Q (S+G)	256 (15/9/96)		1/94,1/95	12M	7.65		4			private	irrigation	in use
17	47DE-008	Esmail Ebrahem	283556	335602		10	-	-	Q (S+G)	640 (15/9/96)		1/94,1/95	12M	4.37		4			private	irrigation	in use
18	47DE-009	Mohamed Mansoor 1	283512	335514		10	-	-	Q (S+G)	448 (15/9/96)				4.15		4			private	irrigation	in use
19	47DE-010	Mohamed Mansoor 2	283508	335512		10	-	-	Q (S+G)	220 (15/9/96)		1/94,1/95	12M	4.65		4			private	irrigation	in use
20	47EE-001	Ahamed Mansour	283128	335541		16	-	-	Q (S+G)	256 (15/9/96)		1/94,1/95	12M	12.50		4			private	irrigation	in use
21	57CA-002	El Halwagy	284009	335927																	
22	missing number																				
23	47DE-012	El Rabba (Spring)	283315	335644	1600		-	-		160 (9Mar.97)	(Feb/Aug 97)										in use
24	57CA-004	Bir El Suwoir	283847	340002	1330	12.23	-	-		643 (9Mar.97)				2.49							in use
25	57CA-005	Farag Sabaa Farm	284305	340335	1290	17	-	-		423 (9Mar.97)				15.10							in use
26	missing number																				

Table 3.2-4 Well Inventory (Wadi El Garf and Wadi Babaa)

Sr. No.	Identification and Location: Well Identification WRRI Code No.	Well Name	Location: Coordinates Lat	Long	Elev. (mASL)	Well Specification: Drilling Depth (mBGL)	Cased Depth (mBGL)	Screen Position (m) (thickness)	Aquifer (facies)	Water Quality Data: JICA Study Team TDS (mg/l)	Chemical Analysis	Periodical Measurement by WRRI since/to	interval	Hydrogeological Data: S.W.L (mBGL)	D.W.L (mBGL)	Discharge Rate (m^3/h)	Specific Capacity (l/s/m)	Trans-missivity (m^2/day)	Remarks: Owner	Use for	Present Condition
	Wadi El Garf Dug Well																				
1	36DE-001	W. El Garf L	290416	332323	420		-	-	Q	3116				12.30					private	domestic	in use
2	36DE-002	W. El Garf M	290401	332230	400	16.0	-	-	Q	2604				11.08					private	domestic	in use
3	36DE-003	W. El Garf N	290357	332302	405	15.4	-	-	Q	2080				14.79					private	domestic	in use
4	36DE-004	W. El Garf O	290354	332358	430	14.1	-	-	Q					12.66					private	domestic	in use
5	36DE-005	W. El Garf P	290358	332425	440	13.0	-	-	Q	2668				10.68					private	domestic	in use
6	36DE-006	W. El Garf Q	290400	332504	450	11.0	-	-	Q	2105				7.52					private	domestic	in use
7	36DE-007	W. El Garf R	290415	332553	480	9.3	-	-	Q	2252				8.64					private	domestic	in use
8	36DE-008	W. El Garf S	290423	332559	490	10.0	-	-	Q					9.02					private	domestic	in use
9	36DE-009	W. El Garf T	290433	332618	500	10.8	-	-	Q	1766				10.40					private	domestic	in use
10	36DE-010	W. El Garf U	290520	332704	520	20.1	-	-	Q	906				18.85					private	domestic	in use
11	36CE-001	W. El Garf V	290708	332423	540	15.0	-	-	Q	787				14.90					private	domestic	in use
	Wadi Babaa Dug Well																				
1	36DE-001	W. Babaa 1	290322	332143	370	11.3	-	-	Q	1804				11.26					private	domestic	in use
2	36DE-002	W. Babaa 2	290312	332137	365	12.2	-	-	Q	1702				11.41					private	domestic	in use
3	36DE-003	W. Babaa 3	290303	332131	360	6.6	-	-	Q	1587				5.91					private	domestic	in use
4	36DD-001	W. Babaa 4	290257	332125	350	8.7	-	-	Q	1644				8.56					private	domestic	in use
5	36DD-002	W. Babaa 5	290301	332125	350	10.2	-	-	Q	1548				9.62					private	domestic	in use
6	36DD-003	W. Babaa 6	290151	332110	340	7.1	-	-	Q					5.88					private	domestic	in use
7	26DD-004	W. Babaa 7	290149	332112			-	-	Q	1824				7.02					private	domestic	in use

Table 3.2-5 Well Inventory (Wadi Gharandal)

Sr. No.	Identification and Location: Well Identification WRRI Code No.	Well Name	Location: Coordinates Lat	Long	Elev. (mASL)	Well Specification: Drilling Depth (mBGL)	Cased Depth (mBGL)	Screen Position (m) (thickness)	Aquifer (facies)	Water Quality Data: JICA Study Team TDS (mg/l)	Chemical Analysis	Periodical Measurement by WRRI since/to	interval	Hydrogeological Data: S.W.L (mBGL)	D.W.L (mBGL)	Discharge Rate (m^3/h)	Specific Capacity (l/s/m)	Trans-missivity (m^2/day)	Remarks: Owner	Use for	Present Condition
	W Gharandal Dug Well																				
1	36QA-001	W. Gharandal A	291923	330001	125	11.6	-	-	Q											domestic	in use
2	36QA-002	W. Gharandal B	291944	330020	125	(A dry hole to collect and take water)															not in use
3	36QA-003	W. Gharandal C	291948	330025	130	13.6	-	-	Q	1208(Feb/97)				13.00						domestic	in use
4	36QB-001	W. Gharandal D	292057	330651	235	23.4	-	-	Q											domestic	in use
5	36QB-002	W. Gharandal E	292036	330833	280	25.5	-	-	Q	613(Feb/97)				24.65						domestic	in use
6	36QC-001	W. Gharandal F	291949	331027	320	22.7	-	-	Q	2624(Feb/97)				19.22						domestic	in use
7	36QC-002	W. Gharandal G	291952	331026	320	20.3	-	-	Q	1038(Feb/97)				18.45						domestic	in use
8	36QC-003	W. Gharandal H	292000	331130	340	24.9	-	-	Q	529(Feb/97)				23.85						domestic	in use
9	36QD-004	W. Gharandal I	292018	331539	420	32.6	-	-	Q	445(Feb/97)				31.49						domestic	in use
10	36QD-005	W. Gharandal J	292108	331918	500	19.2	-	-	Q					17.74						domestic	in use
11	36QD-006	W. Gharandal K	292135	331940	520	15.6	-	-	Q	1337(Feb/97)				15.17						domestic	in use
	W Gharandal Spring																				
12	36AD-007	W.Gharandal 1	292219	332100	540		-	-		2944(Feb/97)										domestic	in use
13	35ED-001	W.Gharandal 2	292250	332132	570		-	-		1708(Feb/97)										domestic	in use
14	35ED-002	W.Gharandal 3	292252	332252	570		-	-		1014(Feb/97)										domestic	in use
15		Ain Higiya	292149	332347	670		-	-		834(Feb/97)				1.12						domestic	in use

Table 3.2-6 Well Inventory (Ras Sudr Coastal Plain)

Sr. No	Identification and Location: Well Identification: WRRI Code No.	Well Name	Location: Coordinates: Lat.	Long.	Elev. (mASL)	Well Specification: Drilling Depth (mBGL)	Cased Depth (mBGL)	Screen Position (m) (thickness)	Aquifer (facies)	Water Quality Data: JICA Study Team: TDS (mg/l)	Chemical Analysis	Periodical Measurement by WRRI: since/to	interval	Hydrogeological Data: S.W.L (mBGL)	D.W.L (mBGL)	Discharge Rate (m^3/h)	Specific Capacity (l/s/m)	Trans-missivity (m^2/day)	Remarks: Owner	Use for	Present Condition
	Ras Sudr Dug Well																				
1	25CC-001	Ebraheem Qreny	293638	324246	9.43	10.3	-	-	Q(S)					8.30		60			private	irrigation	in use
2	25CC-002	Soliman Qreny	293700	324246	9.9	9.3	-	-	Q(S)					8.03		60			private	irrigation	in use
3	25CC-003	El Quesny 3	293707	324243	10.2	9.5	-	-	Q(S)	4602 (95)		2/95	one data	6.85		45			private	irrigation	in use
4	25BC-001	Ebahem El Derebe	293710	324248	10.7	11.5	-	-	Q(S)					8.92		50			private	irrigation	in use
5	25BC-025	Awoda Derebg	293658	324253		12.0	-	-	Q(S)	5912 (95)		2/95	one data	9.55		50			private	irrigation	
6	25CE-001	Atia Abou Ashba	293709	324258		6.0	-	-	Q(S)			2/95	one data	5.15		45			private	irrigation	in use
7	25BC-002	Nama Zayed	293717	324303	12.5	13.5	-	-	Q(S)			2/95	one data	11.03		50			private	irrigation	in use
8	25BC-003	Hamad Rashed	293721	324317	12.6		-	-	Q(S)										private	irrigation	abondoned
9	25BC-004	Alian Zedan	293716	324321	13.8	14.0	-	-	Q(S)	2450		2/95	one data	12.22		60			private	irrigation	in use
10	25BC-005	Owdah S Zaied	293725	324250	11.2	11.0	-	-	Q(S)					9.87		45			private	irrigation	in use
11	25BC-006	Desert Institute	293725	324253			-	-	Q(S)	4307		2/95	one data			25			private	irrigation	in use
12	25BC-007	Sowelem M Zayed	293730	324256	12.8	13.5	-	-	Q(S)	2816		2/95	one data	11.75		30			private	irrigation	in use
13	25BC-008	Sowelem Salama Sowelam	293737	324308	15.2	16.0	-	-	Q(S)	3709		2/95	one data	13.84		50			private	irrigation	in use
14	25BC-009	Abdel Kavem Khamos	293801	324256	13.1	14.0	-	-	Q(S)	4565	Aug-97	2/95	one data	11.75		50			private	irrigation	in use
15	25BC-010	Khalefa Werdang	293758	324244		11.5	-	-	Q(S)	4321		2/95	one data	8.17		45			private	irrigation	in use
16	25BC-011	Dabes Khames	293807	324312		13.0	-	-	Q(S)			2/95	one data	9.79					private	irrigation	in use
17	25BC-012	Soliman Hamed	293907	324252		12.0	-	-	Q(S)	3841		2/95	one data	10.61		40			private	irrigation	in use
18	25BC-013	F Masid Ali	293953	324230	7.8	7.5	-	-	Q(S)	4088		2/95	one data	6.50		45			private	irrigation	in use
19	25BC-014	Masid Ali	293947	324226	7.4	7.5	-	-	Q(S)	4652		2/95	one data			40			private	irrigation	in use
20	25BC-015	Mohamed Salama	293838	324312	7.5		-	-	Q(S)							40			private	irrigation	in use
21	25BC-016	Owdah Qreny	293845	324305	8.8	9.5	-	-	Q(S)	4766		2/95,12/95	10M	7.45		40			private	irrigation	in use
22	25BC-017	Aed Khames Mefirag	293817	324223	8.9	11.0	-	-	Q(S)	4522		2/95,12/95	10M	7.65		40			private	irrigation	in use
23	25BC-018	Salman Zedan	293819	324229	3.3	10.0	-	-	Q(S)	4577		2/95,12/95	10M	5.85		40			private	irrigation	in use
24	25BC-026	Gamel Salem	293808	324213			-	-	Q(S)							70			private	irrigation	
25	25BC-019	Salem alg Salem	293800	324220	8.1	11.0	-	-	Q(S)	5309		2/95,12/95	10M	7.17		70			private	irrigation	in use
26	25BC-020	Nafea alg Salem	293809	324225	8.6		-	-	Q(S)										private	irrigation	in use
27	25CC-004	Saf Rowe Dy	293742	324232		11.0	-	-	Q(S)	4064		2/95,12/95	10M	7.90		70			private	irrigation	in use
28	25BC-021	Aod Slem Saba	293726	324218	9	11.0	-	-	Q(S)	3959		2/95	one data	7.43		70			private	irrigation	in use
29	25BC-022	Salmaa Mesalam Zayed	293717	324202	6.8	6.0	-	-	Q(S)	4689		2/95,12/95	10M	4.69		70			private	irrigation	in use
30	25BC-023	Moner Abou Bakr	293713	324223	8	6.0	-	-	Q(S)	4068		2/95,12/95	10M	3.70		70			private	irrigation	in use
31	25CC-005	Ahmed Mostafa Greeny	293653	324209		5.5	-	-	Q(S)	4739		2/95,12/95	10M	5.08		60			private	irrigation	
32	25BC-024	Beg Talat			4.8	4.0	-	-	Q(S)			2/95,12/95	10M						private	irrigation	in use
33	25CC-006	Mohamed Abou Reza	293644	324229		7.8	-	-	Q(S)	7624		2/95,12/95	10M	6.82		60			private	irrigation	
34	25BC-025	Salah Dein Selem	293648	324229	3.8	3.1	-	-	Q(S)			2/95,12/95	10M	6.37		70			private	irrigation	in use
35	25CC-007	Ahamed Mostafa Awed	293554	324043		5.3	-	-	Q(S)			2/95,12/95	10M	7.19		50			private	irrigation	
36	missing number																				

Table 3.2-7 Well Inventory (Wadi Sudr)

Sr. No	Identification and Location: Well Identification: WRRI Code No.	Well Name	Location: Coordinates: Lat.	Long.	Elev. (mASL)	Well Specification: Drilling Depth (mBGL)	Cased Depth (mBGL)	Screen Position (m) (thickness)	Aquifer (facies)	Water Quality Data: JICA Study Team: TDS (mg/l)	Chemical Analysis	Periodical Measurement by WRRI: since/to	interval	Hydrogeological Data: S.W.L (mBGL)	D.W.L (mBGL)	Discharge Rate (m^3/h)	Specific Capacity (l/s/m)	Trans-missivity (m^2/day)	Remarks: Owner	Use for	Present Condition
	W. Sudr Spring																				
37	35AB-001	Ain Dess*	294601	330255		2.3	-	-	(LS)	1150 (15/09/96)		2/95,12/95	10M	0.55		112				domestic	in use
38	35AB-002	Spring	294620	330256		1.6	-	-	(LS)	1150 (15/09/96)		2/95,12/95	10M	4.27						domestic	in use
39	35AB-003	Ain Reeha*	294614	330252		0.5	-	-	(LS)	890 (15/09/96)		2/95,12/95	10M	0.86						domestic	in use
40	35AB-004	Ain Abou Reggem	294735	330326			-	-	(LS)	5650	Feb/Aug 97	2/95,12/95	10M							domestic	in use
41	35AB-005		294752	330325			-	-	(LS)	1280 (15/09/96)										domestic	in use
42	34EB-001	Ain Sadr*	294852	330639		0.5	-	-	(LS)	704 (15/09/96)				0.39		35				domestic	in use
43	35AB-006	Thanlah Sarsya	294759	330817		0.6	-	-	(LS)	448 (15/09/96)		2/95	one data	1.98						domestic	in use
44	35AC-001		294631	331012		1.9	-	-	(LS)	704 (15/09/96)				2.89						domestic	in use
45	35BB-001	Umm Garf	294220	325620		0.5	-	-	(LS)	448 (15/09/96)		2/95	one data	1.88						domestic	in use

Note: Wells with (*) are also listed in the Inventory for Pre-Quaternary Wells

Table 3.2-8 Well Inventory (Taba Area)

Nr.	Well Identification and Location: Identification: WRRI Code No	Well Name	Location: Coordinates: Lat	Long	Elev. (mASL)	Well Specification: Drilling Depth (mBGL)	Cased Depth (mBGL)	Screen Position (m) (thickness)	Aquifer (facies)	Water Quality Data: JICA Study Team: TDS (mg/l)	Chemical Analysis	Periodical Measurement by WRRI: since/to	interval	Hydrogeological Data: S.W.L (mBGL)	D.W.L (mBGL)	Discharge Rate (m^3/h)	Specific Capacity (l/s/m)	Trans -missivity (m^2/day)	Remarks: Owner	Use for	Present Condition
1	65DD-001 spring 1		293121	345246	110				granite	2131									military	-	not in use
2	65DC-001 spring 2		293121	345251	120				granite	3040									military	-	not in use
3	65DD-003 Taba 1		293107	345322	60	46.0	17.0	7-12.2(5.2)	Q	dry				dry					military	-	capped
4	65DD-004 Taba 2		293004	345345	90				Q	>12800				24.50					military	-	capped
5	Cased Well 1		292430	344823		60.0			Q	12346				32.43					private	-	not in use

Table 3.2-9 Well Inventory (Wadi Watir)

Nr.	Well Identification and Location: Identification: WRRI Code No	Well Name	Location: Coordinates: Lat	Long	Elev. (mASL)	Well Specification: Drilling Depth (mBGL)	Cased Depth (mBGL)	Screen Position (m) (thickness)	Aquifer (facies)	Water Quality Data: JICA Study Team: TDS (mg/l)	Chemical Analysis	Periodical Measurement by WRRI: since/to	interval	Hydrogeological Data: S.W.L (mBGL)	D.W.L (mBGL)	Discharge Rate (m^3/h)	Specific Capacity (l/s/m)	Trans -missivity (m^2/day)	Remarks: Owner	Use for	Present Condition
	W. Watir Cased Well													dry	-	-	-	-	WRRI		abandoned
1	W.Watir 1					50.0			Q	dry				dry	-	-	-	-	WRRI		abandoned
2	W.Watir 2					24.0			Q	dry				43.89	56.08	2.7	0.06	4.94	WRRI	domestic	in use
3	WRRI 1 (W.Watir 3)		291229	342914		92.0	85.0	50-76 (20)	Q(G)	1102				12.75	20.75	3.2	0.11	5.6	WRRI	domestic	in use
4	WRRI 3 (W.Watir 4)		291224	342914		100.0	65.0	35-52 (17)	Q (S)	1969				dry	-	-	-	-	WRRI		abandoned
5	W.Watir 5					31.5			Q	dry				14.30		132			WRRI	domestic	in use
6	WRRI 2 (W.Watir 6)		291211	342902		82.0	75.0		Q	1969				14.35	35.31	5.5	0.07	6.24	WRRI	domestic	in use
7	W.Watir 7					82.0	79.0	45-70 (25)	Q (S)	1100											
8	missing number													dry	-	-	-	-	WRRI		abandoned
9	W.Watir 9					24.0	-	-	Q	dry				dry	-	-	-	-	WRRI		abandoned
10	W.Watir 10					21.0	-	-	(Q)	dry											
	W. Watir Spring													3.03	5.00	1800	10.58		municipal	domestic	in use
1	66DA-001 Furtaga 1		290302	343314	220	5.8	-	-		1368 (Feb/97)	(Feb/Aug 97)			4.73	5.00	1800	77.16		municipal	domestic	in use
2	66DA-002 Furtaga 2		290302	343317	220	5.8	-	-		1088 (12/05/94) 32°C (by WRRI)				2.57	5.00	1600	8.57		municipal	domestic	in use
3	66DA-003 Furtaga 3		290906	343320	220	5.8	-	-		1088 (12/05/94) 32°C (by WRRI)				3.90							
4	66DA-004 Furtaga 4		290251	343315	210	8.5	-	-		1207 (4/03/97)											
	Sheikh Attia Area Dug Well						-	-						14.30		8			private	irrigation	in use
1	66BA-001					16.0	-	-	Q					10.60		10			private	irr./dom.	in use
2	66BA-002 Mosalam Horsdan					13.7	-	-	Q	700 (12/05/94) 32°C (by WRRI)		5/94-3/95	3M,7M								
3	Abd Allah 66BA-003 Abu Hemad		291317	342933	600	13.7	-	-	Q	724 (8 Mar 97)		x/94	one data	13.09	12.50	50	-0.98		private	irrigation	in use
4	Salem Abu 66BA-004 Anaze		291315	342927		13.8	-	-	Q	700 (12/05/94) 32°C (by WRRI)		5/94-3/95	10M	10.98	12.00	50	0.57		private	irrigation	in use
5	66BA-005 Medan Salem		291316	342913		11.5	-	-	Q	852				10.66	11.00	50	1.70		private	irrigation	in use
6	66BA-006 M Attawy		291318	342926		12.5	-	-	Q	640 (12/05/94) 32°C (by WRRI)		5/94,8/94	3M	10.58	11.00	50	1.38		private	irrigation	in use
7	66BA-007 Municipal					12.2	-	-	Q	768				11.17	12.00	-			municipal	irrigation	in use
8	66BA-008 Soliman Abu Allaw					11.2	-	-	Q	1200 (12/05/94) 32°C (by WRRI)		8/94-3/96	7M	10.80		10			private	irr./dom.	in use
9	66BA-009 Saleem Attawy		291312	342928		12.2	-	-	Q	768 (12/05/94) 32°C (by WRRI)		5/94-3/95	3M,7M	11.73	12.00	50	2.14		private	irrigation	in use
10	66BA-010 Nassar Aed Mefargy		291318	342928		9.5	-	-	Q	1150 (12/05/94) 32°C (by WRRI)		8/94	one data	7.50	9.00	50	0.40		private	irrigation	in use
11	66BA-011 Zedan Esd		291312	342926		10.7	-	-	Q	896 (12/05/94) 32°C (by WRRI)		5/94-3/96	3M,6M,13M	9.75	10.00	50	2.31		private	irrigation	in use
12	66BA-012 Zedan Rashed		291312	342921		9.8	-	-	Q	1280		3/95	one date	7.32	9.00	50	0.34		private		
13	66BA-013 Hessen Saleem		291302	342926		10.5	-	-	Q	1280		8/94	one date	8.44	9.80	80	0.68		private	irrigation	in use
14	66BA-014 Saleem Abu Makawi		291303	342924		11.0	-	-	Q	1150 (12/05/94) 32°C (by WRRI)		5/94-3/95	3M,7M	8.43	10.00	50	0.37		private	irrigation	in use
15	66CA-001 Soliman Abu Anizan		291306	342917		9.9	-	-	Q	1200				7.93	9.00	50	0.32		private	irrigation	in use
16	66CE-001 Saleh Suleem		291256	342902	580	11.6	-	-	Q	1802 (Feb/97)	(Feb/Aug 97)			9.72	10.50	80	1.19		private	irrigation	in use
17	66CA-002 El Hessi		292227	343323	770	4.7	-	-		952 (8 Mar 97)				4.30	4.50	10	0.58		private	domestic	in use
18	66DA-004 (near Fertaga)		290229	343311	270	7.8	-	-		1316 (Sep/97)				7.21					private	irrigation	in use

Table 3.2-10 Well Inventory (Nuweiba Coastal Plain)

Sr. No.	Identification and Location: Well Identification: WRRI Code No.	Identification and Location: Well Identification: Well Name	Identification and Location: Location: Coordinates: Lat.	Identification and Location: Location: Coordinates: Long.	Identification and Location: Location: Elev. (mASL)	Well Specification: Drilling Depth (mBGL)	Well Specification: Cased Depth (mBGL)	Well Specification: Screen Position (m) (thickness)	Well Specification: Aquifer (facies)	Water Quality Data: JICA Study Team: TDS (mg/l)	Water Quality Data: JICA Study Team: Chemical Analysis	Water Quality Data: Periodical Measurement by WRRI: since/to	Water Quality Data: Periodical Measurement by WRRI: interval	Hydrogeological Data: S.W.L (mBGL)	Hydrogeological Data: D.W.L (mBGL)	Hydrogeological Data: Discharge Rate (m^3/h)	Hydrogeological Data: Specific Capacity (l/s/m)	Hydrogeological Data: Trans -missivity (m^2/day)	Remarks: Owner	Remarks: Use for	Remarks: Present Condition
1	66DB-001	M.El Sakhen	290057	344024	12	7.0	-	-	Q	2430 (10/05/94) 27°C	(by WRRI)	5/94-3/95	3M,7M	6.68	7.00	50	1.81		private	irrigation	in use
2	66DE-002	El Mezena (6)	290048	343959	17	15.0	-	-	Q	1716		8/94-3/96	7M,12M	14.40	14.48	-			private	irrigation	in use
3	66DB-003	Eed Awda	290033	344009	16	12.5	-	-	Q	1600 (10/05/94) 31°C	(by WRRI)	5/94-3/96	3M,7M,12M	12.85	12.90	20	4.63		private	irrigation	in use
4	66DB-004	M.Hemyed	290057	344000	16	11.8	-	-	Q	1660 (10/05/94) 26°C	(by WRRI)	5/94-3/96	3M,7M,12M	11.47	11.80	20	0.70		private	irrigation	in use
5	66DB-005	Ebrahem Hemyed	290054	344006	16	10.4	-	-	Q	2092(Feb/97)	(Feb/Aug/97)	5/94-3/96	3M,7M	10.00	10.75	20	0.31		private	irrigation	in use
6	66DB-006	El Mezena(1)	290047	344014	16	11.8	-	-	Q	1860 (10/05/94) 32°C	(by WRRI)	5/94-3/96	3M,7M,12M	9.90	11.00	80	0.84		private	irr./dom.	in use
7	66DB-007	Fraga Subah	290040	344003	16	10.0	-	-	Q	2800 (10/05/94) 32°C	(by WRRI)	5/94-3/96	3M,7M,12M	10.22	10.30	20	2.89		private	irrigation	in use
8	66DB-008	Hassan Awda	290033	344009	16	10.4	-	-	Q	2240 (10/05/94) 31°C	(by WRRI)	5/94-3/96	3M,19M	9.64	10.00	20	0.64		private	irrigation	in use
9	66DB-009	El Mezena(2)	290029	344017	16	10.8	-	-	Q	3000 (10/05/94) 32°C	(by WRRI)	5/94-3/96	3M,7M,12M	9.99	10.30	80	2.99		Munic.	irr./dom.	in use
10	66DB-010	El Mezena(3)	290015	344018	16	13.5	-	-	Q	2360 (10/05/94) 32°C	(by WRRI)	5/94-3/96	3M,7M,12M	10.31	10.80	80	1.89		Munic	irr./dom.	in use
11	66DB-011	Faragallah Hamdan	290039	344016	10	9.2	-	-	Q	2360 (10/05/94) 36°C	(by WRRI)	5/94-3/96	3M,7M,12M	8.55	9.00	20	0.51		private	irrigation	in use
12	66DB-012	Soliman Khedear	290045	344018	10	8.2	-	-	Q	2430 (10/05/94) 30°C	(by WRRI)	5/94-3/96	3M,19M	7.70					private	irrigation	in use
13	66DB-013	Salem Gomah	290051	344019	12	9.0	-	-	Q	3000 (12/05/94) 30°C	(by WRRI)	5/94-3/96	3M,7M,12M	8.90	9.14	20	0.96		private	irrigation	in use
14	66DB-014	Sallam Soliman	290054	344021	13	9.0	-	-	Q	2040 (12/05/94) 30°C	(by WRRI)	5/94-3/96	3M,19M	8.30	9.00	20	0.33		private	irrigation	in use
15	66EB-001	El Mezena(5)	285821	343940	10	13.0	-	-	Q	3070 (12/05/94) 32°C	(by WRRI)	5/94-3/96	10M,12M	11.95	12.15	80	4.63		Munic	irr./dom.	in use
16	66EB-002	Saf Elbahrawy	285807	343933	10	12.0	-	-	Q	7800 (12/05/94) 32°C	(by WRRI)	5/94	one data	11.00					private	irrigation	in use
17	66EB-003	El Mezena(4)	285830	343943	11	12.6	-	-	Q	4090 (12/05/94) 32°C	(by WRRI)	5/94,2/95	10M	11.84	12.20	80	2.57		private	irrigation	in use
18	66EB-010	Hemdan Hassan	285839	343918	10	11.7	-	-	Q	2300 (12/05/94) 32°C	(by WRRI)	5/94-3/96	3M,7M,12M	10.64	11.00	20	0.64		private	irrigation	in use
19	66EB-011	Awda Hewashy	285833	343926	10	11.0	-	-	Q	2800 (12/05/94) 32°C	(by WRRI)			7.40	9.87	10	0.05		private	irrigation	in use
20	66EB-007	El Gamea	285821	343907	10	5.3	-	-	Q	5767		5/94-2/95	3M,7M	5.18	5.30	5	0.48		private	irrigation	in use
21	66EB-008	Abd Allah Hemed	285824	343857	6	10.3	-	-	Q	3460 (Feb/97)	(Feb/Aug/97)	5/94-3/96	3M,7M,12M	10.24	10.40	20	1.45		private	irrigation	in use
22	66EB-012	Arawy Soliman	285816	343906	4	3.5	-	-	Q	7700 (12/05/94) 32°C	(by WRRI)	5/94-3/96	3M,7M,12M	2.74	2.80	-			private	irrigation	in use
23	57CC-001	Salama	285848	343906	4	3.1	-	-	Q	6605		5/94	one data	2.50		1			private		in use
24	66EB-004	Gomaa Awad	285815	343859	5	7.0	-	-	Q	3300 (12/05/94) 32°C	(by WRRI)	5/94	one data	7.20					private	irrigation	in use
25	66EB-006	El Arishi	285816	343855	4	4.5	-	-	Q	6700 (12/05/94) 32°C	(by WRRI)			3.90	3.95	-			private	irrigation	in use
	Nuweiba Coast Well																				
26	66DB-015	REGWA 1	290041	343807	32	60.0	53.0	38-53 (15)	Q (S+G)	2810 (10/05/94) 30°C	(by WRRI)	5/94,8/94	3M	33.38					Tasmir	domestic	in use
27	66DB-016	REGWA 2	290033	343828	32	61.0	54.0	40-54 (14)	Q (S+G)	1700 (10/05/94) 29°C	(by WRRI)	5/94,8/94	3M	40.15					Tasmir	irrigation	in use
28	66DB-017	REGWA 5	290039	343845	30	55.0	50.0	35-50 (15)	Q (S+G)	4992 (10/05/94) 28°C	(by WRRI)	5/94,8/94	3M	33.70					Tasmir	irrigation	in use
29	66EB-005	REGWA 6	290019	343849	30	52.0	47.0	32-47 (15)	Q (S+G)	1200 (12/05/94) 28°C	(by WRRI)	5/94,8/94	3M	28.50					Tasmir	irrigation	in use
30	66DB-018	REGWA 8	290045	343844	32	58.0	53.0	40-53 (13)	Q (S+G)	2900 (10/05/94) 28°C	(by WRRI)	5/94,8/94	3M	36.76					Tasmir	irrigation	in use
		WRRI-RI Data Nuweiba (Water-B)	290025	343826		80.0	77.0	53-70 (17)	Q (WB)	3000				22.36	35.04	17.21	0.35	839	WRRI	domestic	in use

Table 3.2-11 Well Inventory (Wadi Zalaga)

Sr. No.	Well Identification and Location: Identification: WRRI Code No.	Well Identification and Location: Identification: Well Name	Well Identification and Location: Location: Coordinates: Lat.	Well Identification and Location: Location: Coordinates: Long.	Well Identification and Location: Location: Elev. (mASL)	Well Specification: Drilling Depth (mBGL)	Well Specification: Cased Depth (mBGL)	Well Specification: Screen Position (m) (thickness)	Well Specification: Aquifer (facies)	Water Quality Data: JICA Study Team: TDS (mg/l)	Water Quality Data: JICA Study Team: Chemical Analysis	Water Quality Data: Periodical Measurement by WRRI: since/to	Water Quality Data: Periodical Measurement by WRRI: interval	Hydrogeological Data: S.W.L (mBGL)	Hydrogeological Data: D.W.L (mBGL)	Hydrogeological Data: Discharge Rate (m^3/h)	Hydrogeological Data: Specific Capacity (l/s/m)	Hydrogeological Data: Trans -missivity (m^2/day)	Remarks: Owner	Remarks: Use for	Remarks: Present Condition
1	66CA-001	1	290816	342921	430	10.2	-	-	Q	1286				9.01					private	irr./dom.	in use
2		Ain Umm Ahmed(Ammel)	290333	342441	645	5.8	-	-	Q	1796(Feb/97)	(Feb/Aug/97)			5.16							
3	56DE-003	2	290313	342429	650	4.9	-	-	Q	2061				2.77					private	irr./dom.	in use
4	56DE-004	3	290306	342420	650	6.2	-	-	Q	1734				3.07					private	irr./dom.	in use
5	56DE-005	4	290259	342417	655	4.3	-	-	Q	1818				2.82					private	irr./dom.	in use
6	56DE-006	5	290226	342407	680	7.8	-	-	Q	1568				6.64					private	irr./dom.	in use
7	56DE-007	6	290049	342305	695	10.8	-	-	Q	1875				10.20							
8		Ain U Ahmed(spring)*	290304	342446	620	(about 360 m^3/day)			granite	2234						363					
9		Ain Khudra	285346	342515	650	6.5	-	-		1241 (9Mar.97)				6.20							in use
10		Ain Khudra(spring)	285346	342515	650	(about 10 m^3/day)															

Table 3.2-12 Well Inventory (Wadi Zaghara)

Sr No	Identification and Location: Well Identification WRRI Code No.	Well Name	Location: Coordinates Lat.	Long.	Elev. (mASL)	Well Specification: Drilling Depth (mBGL)	Cased Depth (mBGL)	Screen Position (m) (thickness)	Aquifer (facies)	Water Quality Data: JICA Study Team TDS (mg/l)	Chemical Analysis	Periodical Measurement by WRRI since/to	interval	Hydrogeological Data: S.W.L (mBGL)	D.W.L (mBGL)	Discharge Rate (m^3/h)	Specific Capacity (l/s/m)	Trans -missivity (m^2/day)	Remarks: Owner	Use for	Present Condition
	W.Zaghara Dug Well																				
1	57DC-001	W. Zaghara	283805	341533	750	12.4	12.4		Q	880(Feb/97)	(Feb/Aug 97)			11.00					private	domestic	in use
2	57DC-002	W. Zaghara 2	283959	341815	700	4.9	-	-	Q	900 (Sep/97)				4.90					private	domestic	in use
	W. Nasb Dug Well																				
1		Nasb 1	283204	341430	940	2.2	-	-	Q	627(10Mar.97)				2.00					private	irr./dom.	in use
2		Nasb 2	283204	341430	940	2.2	-	-	Q					2.00					private	irr./dom.	in use
3	57EC001	Nasb 3	283158	341346	955	2.7	-	-	Q					2.50					private	irr./dom.	in use
4	57EC002	Nasb 4	283154	341346	955	2.2	-	-	Q					2.00					private	irr./dom.	in use
5	57EC003	Nasb 5	283203	341344	960	4.5	-	-	Q	609(10Mar.97)				4.00					private	irr./dom.	in use
6	57EC004	Nasb 6	283150	341303	1000	11.8	-	-	Q	609(10Mar.97)				11.67					private	irr./dom.	in use

Table 3.2-13 Well Inventory (Wadi Saal)

Sr No	Identification and Location: Well Identification WRRI Code No.	Well Name	Location: Coordinates Lat.	Long.	Elev. (mASL)	Well Specification: Drilling Depth (mBGL)	Cased Depth (mBGL)	Screen Position (m) (thickness)	Aquifer (facies)	Water Quality Data: JICA Measurement TDS (mg/l)	pH / Temp.	Periodical Measurement by WRRI since/to	interval	Hydrogeological Data: S.W.L (mBGL)	D.W.L (mBGL)	Discharge Rate (m^3/h)	Specific Capacity (l/s/m)	Trans -missivity (m^2/day)	Remarks: Owner	Use for	Present Condition
	W. Saal Dug Well																				
1	57BC-001	Abdala	284530	341439	820	8.9	-	-	Q	3782 (Jun.97)	8.15 / 21.5			7.32					private	domestic	not in use
2	57BC-002	Salem	284519	341452	820	9.9	-	-	Q	363 (Jun.97)	7.23 / 25.0			9.24					private	domestic	in use
3	57BC-003	Israelie	284523	341451	820	11.5	-	-	Q	157 (Jun.97)	7.07 / 25.9			5.04					private	domestic	in use
4	57BC-004	Swelmh	284512	341451	820	9.7	-	-	Q	986 (Jun.97)	7.96 / 25.4			9.06					private	domestic	in use
5	57BC-005	Salama	284522	341508	810	9.1	-	-	Q	138 (Jun.97)	7.64 / 25.3			6.29					private	domestic	in use
6	57BC-006	Nasr Mesead	284517	341504	810	12.3	-	-	Q	1434 (Jun.97)	7.82 / 26.3			10.12					private	domestic	in use
7	57BC-007	Aoda	284524	341529	800	9.2	-	-	Q	1251 (Jun.97)	7.98 / 26.2			4.81					private	domestic	in use
8	57BC-008	Fraga Musa	284523	341540	800	12.7	-	-	Q	1036 (Jun.97)	7.71 / 25.8			5.14					private	domestic	in use
9	57BC-009	Eng Aoda	284530	341528	800	5.4	-	-	Q	1427 (Jun.97)	7.81 / 26.4			4.67					private	domestic	in use
10	57BC-010	Eng Musa	284526	341521	810	12.5	-	-	Q	1223 (Jun.97)	8.04 / 28.3			8.50					private	domestic	in use
11			284522	341702	810	10.7			Q					8.58					private	domestic	in use
	Bir Safra Dug Well																				
1	57BD-001	Safra 1	284525	342042	680	7.9	-	-	Q	1894 (Jun.97)	7.47 / 23.7			4.00					private	domestic	in use
2	57BD-002	Safra 2	284539	342008	690	7.6	-	-	Q	1127 (Jun.97)	7.69 / 26.0			7.40					private	domestic	in use
3	57BD-003	Safra 3	284535	342004	690	10.8	-	-	Q	1792 (Jun.97)	7.95 / 28.6			8.87					private	domestic	in use
4	57BD-004	Safra 4	284552	342003	690	8.9	-	-	Q	1702 (Jun.97)	7.74 / 27.0			8.10					private	domestic	in use
5	57BD-005	Safra 5	284549	342002	690	9.9	-	-	Q	1408 (Jun.97)	7.83 / 27.9			8.45					private	domestic	in use
6	57BD-006	Safra 6	284549	341958	695	8.9	-	-	Q	1260 (Jun.97)	7.92 / 26.1			8.16					private	domestic	in use
7	57BD-007	Safra 7	284553	341954	700	9.5	-	-	Q	1350 (Jun.97)	7.41 / 26.1			8.70					private	domestic	in use
8	57BD-008	Safra 8	284546	341821	740	6.0	-	-	Pre-C	dry											
9	57BD-009	Safra 9	284521	341734	760	7.0	-	-	Pre-C	dry											
10	57BD-010	Safra 10	284553	341706	770	8.1	-	-	Q	1446 (Jun.97)	7.64 / 26.2			5.59					private	domestic	in use
11	57BD-011	Safra 11	284555	341715	770		-	-	Q	1702 (Jun.97)	7.74 / 27.0			2.60					private	domestic	in use
12	57BD-012	Safra 12	284554	341702	770	under drilling (as of June 97)													private	-	-
13	57BD-013	Safra 13	284555	341705		4.0	-	-	Q					3.50					private	domestic	in use

Table 3.2-14 Well Inventory (Wadi Dahab)

Sr. No	Identification and Location: Well Identification: WRRI Code No.	Identification and Location: Well Identification: Well Name	Identification and Location: Location: Coordinates: Lat.	Identification and Location: Location: Coordinates: Long.	Identification and Location: Location: Elev. (mASL)	Well Specification: Drilling Depth (mBGL)	Well Specification: Cased Depth (mBGL)	Well Specification: Screen Position (m) (thickness)	Well Specification: Aquifer (facies)	Water Quality Data: JICA Study Team: TDS (mg/l)	Water Quality Data: JICA Study Team: Chemical Analysis	Water Quality Data: Periodical Measurement by WRRI: since/to	Water Quality Data: Periodical Measurement by WRRI: interval	Hydrogeological Data: S.W.L (mBGL)	Hydrogeological Data: D.W.L (mBGL)	Hydrogeological Data: Discharge Rate (m^3/h)	Hydrogeological Data: Specific Capacity (l/s/m)	Hydrogeological Data: Trams-missivity (m^2/day)	Remarks: Owner	Remarks: Use for	Remarks: Present Condition
1		W. Dahab 2				50.0			Q	2500				30.00		144			Taamir		
2		W. Dahab 4				55.0			Q	2500				32.00		240			Taamir		
3		W. Dahab 5				55.0			Q	2500				32.00		240			Taamir		
4		W. Dahab 6				60.0			Q	3000				35.00		384			Taamir		
5		W. Dahab 7				60.0			Q	2500				33.00		240			Taamir		
6		W. Dahab 8				65.0			Q	3000				35.00		600			Taamir		
7		W. Dahab 9				60.0			Q	3000				34.00		720			Taamir		
8		W. Dahab 10				70.0			Q	3000				28.00		480			Taamir		
	*Well Nos. are not confirmed (Temporary No. by the JICA Study Team)																				
1	57EE-001	Dahab (WP 36)	283023	342900																	
2	57EE-002	Dahab (WP 37)	283022	342904																	
3	57EE-003	Dahab (WP 38)	283021	342907																	
4	67EA-001	Dahab (WP 39)	283004	342939																	
5	57EE-004	Dahab (WP 40)	283450	342808																	
	*: These coordinates shall be correlated with wells Wadi Dahab 2 to 10.																				

Table 3.2-15 Well Inventory (Wadi Kid)

Sr. No	Identification and Location: Well Identification: WRRI Code No.	Identification and Location: Well Identification: Well Name	Identification and Location: Location: Coordinates: Lat.	Identification and Location: Location: Coordinates: Long.	Identification and Location: Location: Elev. (mASL)	Well Specification: Drilling Depth (mBGL)	Well Specification: Cased Depth (mBGL)	Well Specification: Screen Position (m) (thickness)	Well Specification: Aquifer (facies)	Water Quality Data: JICA Study Team: TDS (mg/l)	Water Quality Data: JICA Study Team: Chemical Analysis	Water Quality Data: Periodical Measurement by WRRI: since/to	Water Quality Data: Periodical Measurement by WRRI: interval	Hydrogeological Data: S.W.L (mBGL)	Hydrogeological Data: D.W.L (mBGL)	Hydrogeological Data: Discharge Rate (m^3/h)	Hydrogeological Data: Specific Capacity (l/s/m)	Hydrogeological Data: Trams-missivity (m^2/day)	Remarks: Owner	Remarks: Use for	Remarks: Present Condition
1	58DE-001	W. Kid 1	281001	342124	90	-	-	-	Q					50.29 (Feb.97)					Taamir		
2	58AG-001	D.W.1	282124	341001	750	7.9	-	-	Q	337(Mar.97)				7.16					private	irr./dom.	in use
3	58AC-002	D.W.2	282119	341005	740	4.5	-	-	Q					3.60					private	irr./dom.	
	Wadi Kid Spring																				
1		Kid Spring	282109	341016	650																

Table 3.2-16 Well Inventory (Wadi El Arish)

Sr. No	Well Identification and Location: Identification: WRRI Code No.	Well Identification and Location: Identification: Well Name	Well Identification and Location: Location: Coordinates: Lat.	Well Identification and Location: Location: Coordinates: Long.	Well Identification and Location: Location: Elev. (mASL)	Well Specification: Drilling Depth (mBGL)	Well Specification: Cased Depth (mBGL)	Well Specification: Screen Position (m) (thickness)	Well Specification: Aquifer (facies)	Water Quality Data: JICA Study Team: TDS (mg/l)	Water Quality Data: JICA Study Team: Chemical Analysis	Water Quality Data: Periodical Measurement by WRRI: since/to	Water Quality Data: Periodical Measurement by WRRI: interval	Hydrogeological Data: S.W.L (mBGL)	Hydrogeological Data: D.W.L (mBGL)	Hydrogeological Data: Discharge Rate (m^3/h)	Hydrogeological Data: Specific Capacity (l/s/m)	Hydrogeological Data: Trams-missivity (m^2/day)	Remarks: Owner	Remarks: Use for	Remarks: Present Condition
	W. El Ansh Dug Well																				
1		W. El Mishaies	292730	341440	700	6.5	-	-	Q(wadi)	3250(03/10/97)				4.97					private	irr./dom.	in use
2		farm(near J 3)	293102	333239	570	12.0	-	-	Q(wadi)	3150(05/05/97)				11.15					private	irr./dom.	in use

Table 3.2-17(1) Well Inventory (Pre-Quaternary 1/2)

Sr No	Identification and Location: Well Identification: WRRI Code No	Well Name	Location: Coordinates: Lat	Long	Elev. (mASL)	Well Specification: Drilling Depth (mBGL)	Cased Depth (mBGL)	Screen Position (m) (thickness)	Aquifer (facies)	Water Quality Data: JICA Study Team: TDS (mg/l)	Chemical Analysis	Periodical Measurement by WRRI: since/to	interval	Hydrogeological Data: S.W.L (mBGL)	D.W.L (mBGL)	Discharge Rate (m^3/h)	Specific Capacity (l/s/m)	Trans-missivity ($/m^2/day$)	Remarks: Owner	Use for	Present Condition
	Pre- Quaternary Cased Well																		WRRI		
1		Taba 2				46.0	17.0		Pre-C	-											
2		Wadi Watir				350.0			Q, LC							264					
3	65DA-001	Sheira 1	292904	343538	820	804.0	804.0	720-804(84)	LC(SS)	1562 (Feb/97)	(Feb/Aug 97)			353.00		22			WRRI	monitoring	in use
4	65DA-002	Sheira 2	292820	343500	825	325.0	325.0	175-325(150)	UC(LS)	1100				85.00		5			WRRI	monitoring	in use
5	65CA-001	Sheira 1(K83)	292923	343458	835	830.0	828.0	697-815 (93.15)	LC	1200	D. Report			349.45	353.32	29.5	2.12	539.9	MPWWR		
6	65CA-002	Sheira 2 (K82)	292933	343458	810	735.0			LC	1080				347.00		1200			MPWWR		
7	65CA-003	El Hithi 1 (K72.5)	292337	343359	740	355.0		104-346 (126)	LC	1269					(no pumping test due to too samll capacity)				MPWWR		
8	65CA-004	El Hithi 2 (K70.5)	292234	343317	720	408.0			LC	1050				93.00		72			MPWWR		
9	56BE-001	Sheira No.3 (K52)	291613	343002	562	920.0	917.0	768-904 (105.4)	LC	1080	D. Report			141.10	147.58	50	2.14	156.8	MPWWR		
10	56BE-002	Sheira No.4 (K53)	291446	342954	579	860.0	858.9	709-846 (111.6)	LC	1068	D. Report			149.30	159.75	46.1	1.23	168.7	MPWWR		
11	missing number																		WRRI		
12	missing number																		WRRI		
13	missing number																		WRRI		
14	37BE-001	Feiran 1	284712	332552	280	776.0	500.0	244-450(128)	LC(SS)	784	D. Report			37.74	54.20	50.41	0.85	113.5	WRRI	monitoring	not in use
15	37BE-002	Feiran 2	284645	332435	280	676.5	628.8	390-622 (120)	LC(SS)	840	D. Report			57.30	63.18	60.4	2.85	312	WRRI	monitoring	not in use
16	37BE-003	Feiran 3	284745	332655	325	366.0	322.9	115-317 (114)	LC(SS)	850				39.39	49.70	74.9	2.02	281.16	WRRI	monitoring	not in use
17	37BE-004	Feiran 4	284740	332552	270	600.0	560.0	379-541 (137)	LC	1152				66.87	74.51	56.6	2.06	414.72	WRRI		
18	37BE-005	Feiran 5	284718	332424	280	552.0	472.0	253-458 (112)	LC	972				37.39	48.85	66	1.60	293.76	WRRI		
19	37BE-006	Feiran 6	284725	332604	285	512.0	217.4	124-198 (50)	*LC	832				40.05	46.75	72	2.99	50.11	WRRI		
20	37BE-007	Feiran 7	284745	332655															WRRI		
21	37BE-008	Feiran 8	284529	332657	205	300.0	-		UC	dry				dry		dry			WRRI		not in use
22	36CC-001	Wadi Gharandal 1	292003	330932	270	550.0	515.0	418-502 (73.63)	UC	1822	D. Report			78.20	87.76	50	1.45	194	WRRI		not in use
23	36AC-002	Wadi Gharandal 2	291956	331047	290	230.0	228.5	109-225 (60.46)	UC	8048	D. Report			20.66	77.34	5	0.02	1.3	WRRI	monitoring	in use
24	36AC-001	Wadi Gharandal 3	292003	331131	300	930.0	777.0	656-770 (113.24)	P(SS)	5060	D. Report			96.90	105.53	50	1.61	157	WRRI	monitoring	in use
25	24EC-001	Ayun Musa 1	285304	323858	4	1661.0	152.0	110-122 (6)	LC(SS)	2599 (Feb/97)	(Feb/Aug 97)			11.00		20	1.9m3/h/m		oil exp	irrigation	not in use
26	24CE-002	Ayun Musa 2	295309	324020	26	1770.0	268.0	122-268(146)	LC(SS)	3860 (18/02/92) 38.9°C	by WRRI			14.00		70	3.2m3/h/m		oil exp	irrigation	not in use
27	44ED-001	Nakhl 1	295129	334636	435	1020.0	1020.0	827-964(80.94)	LC(SS)	1690	D. Report			254.47	258.87	41.9	1.73	460			
28	44DC-001	Nakhl 2*	295540	334252	420	1095.0	1095.0	920-1082(124.53)	LC(SS)	1630	D. Report			236.23	237.45	40.9	3.37	665.3			
29	44EE-001	Nakhl 3*	295005	335242	477																
30	44DD-001	Nakhl 4*	295626	334623	380	1170.0	1159.6	1005-1148(142.8)	LC(SS)	1536	D. Report			200.58	201.41	40.9	3.18	561.35	MPWWR	irrigation	in use
31	44DD-002	Nakhl 5*	295720	334006	380	1194.0	1192.7	1049-1180(130.6)	LC(SS)	1614	D. Report			198.47	202.53	35.68	2.44	1164.5			
32	44DD-003	Nakhl 6*	295356	334502	410	1200.0	1197.0	1016-1184(127)		1634	D. Report			219.63	226.14	54.3	2.32	596.2	MPWWR	irrigation	in use
33	44EC-001	Nakhl 7*	295225	334220	425	1160.0	1157.0	958-1144(141.94)	LC(SS)	1732	D. Report			227.50	232.72	44.77	2.38	468.2	MPWWR	irrigation	in use
34	55BD-001	Nakhl 8 (Themed 2)*	294054	341814	600	747.0	745.2	559-733(111.6)	LC(SS)	1728	D. Report			376.84	387.06	40.45	1.10	592.2	MPWWR	irrigation	in use
35	55BD-002	El Themed 1	294032	341831	615	805.0	789.4	607-772(142.5)	LC(SS)	1768	D. Report			382.35	383.17	18.9	6.40	1016.6			
36	34CD-001	Sudr El Hitan	295922	331634	443	1040.0	996.0	858-990 (114.25)	LC(SS)	1656 (Jan/91)	D. Report			270.00	300.00	20	0.19				
37		Sudr El Hitan 1	295925	331636	440	268.0															
38		Sudr El Hitan 2				277.0															
39		El Malha 1				212.0															
40		El Malha 2				213.0	179.0	115-164(49.6)	UC(LS)	1906	D.Report			14.50	113.29	3.86	0.01	0.226			
41	45BB-001	JICA 1	294231	333908	520	1254.0	1100.0	907-1081(162)	LC(SS)	1205				312.77	317.87	39.6	2.15	950.4	JICA/WRRI	test/obser	in use
42	55CA-001	JICA 2	293435	340143	657	1260.0	1257.4	1101-1245(118.18)	LC(SS)	1182	JICA	-	-	423.96	443.37	22.95	0.33	109.21	JICA/WRRI	test/obser	in use
43	45CA-001	JICA 3	293353	333215	544	1004.0	968.6	801-950 (149)	LC(SS)	470	JICA	-	-	284.35	290.38	35.55	1.64	470.3	JICA/WRRI	test/obser	in use
44	55EA-001	JICA 4	292621	340256	775	1130.0	1087.0	863-1068(136)	LC(SS)	1047	JICA	-	-	501.00	501.18	10.56	2.48	19.9	JICA/WRRI	test/obser	in use
45	56AB-001	JICA 5	292018	342241	740	557.0	512.0	362-512(98)	LC(SS)	Dry	NA	-	-	-	-	-	-	-	JICA/WRRI	test/obser	in use
46	46AB-001	JICA 6	291940	333648	710	900.0	787.0	610-768(126)	LC(SS)	1520	JICA	-	-	438.53	439.26	9.62	3.66	114.79	JICA/WRRI	test/obser	in use

Note: Wells with (*) are also listed in the Inventories for North Sinai Newly Wells.

Table 3.2-17 (2) Well Inventory (Pre-Quaternary 2/2)

Sr No	Identification and Location: Well Identification: WRRI Code No	Well Name	Location: Coordinates: Lat	Long	Elev. (mASL)	Well Specification: Drilling Depth (mBGL)	Cased Depth (mBGL)	Screen Position (m) (thickness)	Aquifer (facies)	Water Quality Data: JICA Study Team: TDS (mg/l)	Chemical Analysis	Periodical Measurement by WRRI: month	interval	Hydrogeological Data: S.W.L (mBGL)	D.W.L (mBGL)	Discharge Rate (m^3/h)	Specific Capacity (l/s/m)	Trans-missivity (m^2/day)	Remarks: Owner	Use for	Present Condition
	Oil Exploratory Well (source:NDS)																				
49	44DC-001	Nakhel No.1*	295545	334241	430	1699.0															
50	44ED-001	Dareg No.1	295126	334626	446	836.0															
51	44DB-001	Abu Hamth No.1	295757	333847	423	2174.0															
52	24DE-001	El Hamra No.1	295818	325402	322	1460.0															
53	24EC-003	Mesaila No.1	294980	324015	36	585.0															
54	48DB-001	El Tor No.1***	281047	333748	12	1011.0															
55	25AD-001	Abu Qitesfa 1	294528	324837	126	654.0															
56	25CD-001	Sudr No.2	293037	324547	30	2142.0															
57	25DD-001	Matarma No.1	293035	324727	35	1857.0															
58	25DE-001	Asl No.24	292736	325024	90.5	1995.0															
59	25BE-001	Nebwt No.4	292246	325124	82	1956.0															
60	26BE-001	Lagia No.2	291334	325344	2	2555.0															
61	37AC-001	Ruders No.1	285330	331051	5	2380.0															
62	37AB-001	Sidri No.1	285200	331045	15																
63	47CC-002	Feiran 1	284345	331300	10	2031.0															
64	24EC-004	Ayun Musa Well No.14	295130	324230	60	630.0															
65	24EC-005	Wadi Baba Well	2900**	331330		1900.0															
	Pre-Quaternary Dug Well (W.Qidera & Maiha area)																				
1	56AD-001	Bir Qidera	291716	342037	785	3.2	-	-	UC(LS)	2253 (10/6/97)									private	un./dom.	in use
2	45EA-001	Abd Allah Soleman 1	292438	332908	635		-	-	UC(LS)	1648 (Feb 1997)	(Feb/Aug 97)			9.60					private	un./dom.	in use
3	45EA-002	Abd Allah Soleman 2	292434	332912	640	10.4	-	-	UC(LS)	1572 (Feb 1997)	(Feb/Aug 97)			9.95					private	un./dom.	in use
4	45EA-003	Salama Abu Asd	292324	333128	620	9.9	-	-	UC(LS)	1485 (12/6/97)				9.50					private	un./dom.	in use
5	45EA-004	Asd Salah	292319	333132	620		-	-	UC(LS)										private	un./dom.	in use
6	45EA-005	Kedel Saad 1	292325	333139	625	11.4	-	-	UC(LS)	1059 (12/6/97)				9.45					private	un./dom.	in use
7	45EA-006	Gamaan	292300	333145	625		-	-	UC(LS)										private	un./dom.	in use
8	45EA-007	Lofy Amhamed	292306	333212	630	14.0	-	-	UC(LS)	1498 (12/6/97)				13.80					private	un./dom.	in use
9	45EA-008	Salama Asd 1	292312	333210	630		-	-	UC(LS)										private	un./dom.	in use
10	45EA-009	Salama Asd 2	292315	333217	630		-	-	UC(LS)										private	un./dom.	in use
11	45EA-010	Kedel Saad 2	292330	333000	625		-	-	UC(LS)										private	un./dom.	in use
12	45EA-011	Salah Asd (farm)	292337	333154	630		-	-	UC(LS)										government	un./dom.	not in use
13	45EA-012	Shaleh Slaiman	292352	333131	620		-	-	UC(LS)										private	un./dom.	in use
14	45EA-013	Hosein Sniman (1)	292451	332906	620	10.4	-	-	UC(LS)	1734 (Oct/1997)				8.67					private	un./dom.	in use
15	45EA-014	Hosein Sniman (2)	292459	332911	620	9.7	-	-	UC(LS)	4500 (Oct/1997)				7.66					private	un./dom.	in use
16	45EA-015	Bir El Maiha	292515	332909	620	7.1	-	-	UC(LS)	1581 (Oct/1997)				6.26					private	un./dom.	in use
17	45EA-016	Salha Hamad	292545	333213	640	14.8	-	-	Q (wadi)	9276 (Oct/1997)				14.60					private	un./dom.	in use
	Pre-Quaternary Spring																				
1	24EC-011	Ayun Musa	295150	323851	10	-	-	-	LC(SS)	2559 (Feb/97)	(Feb/Aug 97)								government	domestic	in use
2	35BA-001	Hammam Faraoun	291149	325719	0	-	-	-	UC(LS)	12930 (Feb/97)	(Feb/Aug 98)								public	bathing	in use
3	56DA-001	Ain Umm Ahmed**	290304	342446	620				PC(Gn)	5123 (Feb/97)	(Feb/Aug 99)								public	domestic	in use
4		Hamam Musa***	281603	333549		-	-	-	Q	9378	(Feb/Aug 97)								government	bathing	in use
5	34EB-001	Ain Sudr****	294852	330639		0.5	-	-	(LS)	704 (15/09/96)				0.39		35				domestic	in use
6	35AB-003	Ain Reaha****	294614	330252		0.5	-	-	(LS)	890 (15/09/96)		2/95,12/95	10M	0.86						domestic	in use
7	35AB-001	Ain Dese****	294601	330255		2.3	-	-	(LS)	1150 (15/09/96)		2/95,12/95	10M	0.55		112				domestic	in use
8		Ain Erga	292026	332813						1894(Jun/97)											
9		Ain Abu Miteguna	291439	333030																	

Note: Wells with (*), (**), (***) and (****) are also listed in the Inventories for North Sinai Newly Drilled Wells, Wadi Zalaga Wells, El Qaa Plain Wells and Wadi Sudr Wells respectively.

Table 3.2-18(1) Well Inventory prepared in the Previous Study (North Sinai 1/2)

	Well name	Grid	Elevation (m)	Lat.	Long.	Drilling Depth		Water Level				Top of Tertiary			Top of U.C			Top of L.C			Top of Pre C	
						mBGL	mASL	mBGL	mASL	TDS	Aquifer	mBGL	mASL	thick.(m)	mBGL	mASL	thick.(m)	mBGL	mASL	thick.(m)	mBGL	mASL
1	Dang No.1	G5d	446	29°51'26"	33°46'26"	844	-398	183	263	1,490	L.C		—	—		—	—	810	-364	34		—
2	Nakhl1	G5c	450	29°55'45"	33°42'41"	1,696	-1,246	181	269	1,635	L.C		—	—	59	391	812	871	-421	247	1,118	-668
3	Nakhl2	G5d	470	29°54'30"	33°45'40"	1,083	-683	210	260	1,200	L.C	25	445	76	101	369	769	870	-400	213		—
4	Bir Guraid	G6c	505	29°48'29"	34°11'26"	340	165		—				—	—	127	378	213		—	—		—
5	El Themed	G6b	630	29°40'11"	34°18'34"	760	-130		—	3,500	L.C~Cen		—	—	24	606	530	554	76	206		—
6	Sheira Well 1	H3c	760	29°57'52"	34°34'21"	804	-44	340	420	1,575	L.C		—	—	20	740	544	564	196	246	810	-50
7	Sheira Well 2	H3c	760	29°57'52"	34°34'21"	300	430	81	679	1,100	U.C(Tur)		—	—			—		—	—		
8	Naqb 2	H4a	700	29°38'34"	34°41'45"	160	540		—	Dry			—	—		—	—	18	682	102	120	580
9	Naqb 3	H4a	690	29°39'38"	34°39'35"	608	82	400	290	00~40,000	U.C(Tur)		—	—	114	576	494		—	—		—
10	Bir El Abd	J6b	20	30°57'30"	34°21'30"	306	-286		—			62	-42	244		—	—		—	—		—
11	Quina Well No.1	J6d	25	30°55'	32°45'	350	-325	20	5	00~15,000	Q. 25m/H	247	-222	105		—	—		—	—		—
12	South Shohat	J6c	25	30°51'37"	32°37'35"	345	-320		—			240	-215	105		—	—		—	—		—
13	Pi Gifgafa	K1c	298	33°13'26"	30°26'	850	-552	219	79	3,500	U.C(Cen)		—	—	20	278	830		—	—		—
14	Abu Ghazala	K1c	320	30°25'	33°07'	1,322	-1,002	219	101		L.C		—	—		—	—	1,225	-905	97		—
15	No. 68 El Hagnib	K1c	312	30°24'58"	33°10'32"	186	126		—				—	—	33	279	153		—	—		—
16	No. 69 Wadi Umm Zroub	K1c	339	30°22'30"	33°10'35"	160	179		—				—	—	19	320	141		—	—		—
17	No. 70 Wadi El Maleiz 1	K1d	395	30°16'05"	33°18'34"	293	102	97	298	8,480	U.C(Sen)		—	—	0	395	293		—	—		—
18	No. 71 Wadi El Baha 1	K1a	450	30°13'	33°13'	276	174		—				—	—	6	444	270		—	—		—
19	Sadr El Hetan	K1a	475	30°01'04"	33°13'18"	1,025	-550	270	205	1,246	L.C		—	—	0	475	790	790	-315	202	992	-517
20	Bir Hasana	K2d	260	30°28'	33°47'	875	-615	118	142	1,500	U.C(Cen)		—	—		—	—		—	—		—
21	El Monshareh No.1	K2c	290	30°17'40"	33°44'45"	300	-10		—			6	284	296		—	—		—	—		—
22	El Resha No.1	K2c	358	30°17'35"	33°37'48"	150	208		—				—	—	6	352	144		—	—		—
23	No. 49 El Arish Well No.14	K2c	247	30°29'	33°46'	210	37	140	107	2,200	U.C(Sen)		—	—	0	247	210		—	—		—
24	No. 50 El Arish Well No.15	K2d	229	30°27'15"	33°51'35"	295	-66	190	39	7,000	U.C(Tur)		—	—	0	229	295		—	—		—
25	No. 57A El Arish Well No.19	K2c	331	30°19'14"	33°40'25"	502	-171	162	169	2,740	U.C(Cen)		—	—	0	331	502		—	—		—
26	No. 61 El Bruk No.1	K2a	304	30°14'12"	33° 16'42"	300	4		—			6	298	38	44	260	256		—	—		—
27	No. 62 El Bruk No.2	K2a	315	30°16'20"	33°43'56"	306	9		—				—	—	77	238	229		—	—		—
28	No. 65 El Mensherа2	K2a	342	30°17'40"	33°44'45"	300	42		—				—	—	0	342	300		—	—		—
29	No. 66 Umm Gholam No.1	K2c	309	30°21'30"	33°41'15"	300	9		—				—	—	6	303	294		—	—		—
30	No. p18 Egyptian Army Hasana	K2c	345	30°18'07"	33°39'	1,060	-715	185	160	1,500	L.C		—	—		—	—	860	-515	200		—
31	P4 El Hasana	K2d	235	30°28'	33°47'	1,038	-803	172	63	4,120	U.C(Cen)		—	—		—	—		—	—		—
32	Talet El Badan	K3c	240	30°26'31"	34°01'14"	651	-411	168	72	5,360	L.C		—	—		—	—	316	-76	335		—
33	No. 46 El Arish Well 11	K4b	270	30°41'17"	33°16'55"	251	19	60	210	3,600	J(Mas)		—	—		—	—		—	—	37	233
34	No. 47B El Arish Well 12	K4b	255	30°43'25"	33°18'58"	200	55	104	151	1,650	J(Mas)		—	—		—	—		—	—	106	149
35	No. 51B El Arish Well 16	K4b	320	30°41'15"	33°29'50"	200	120		—		J(Mas)		—	—		—	—	4	316	141	145	175
36	No. 52A El Arish Well 17A	K4b	270	30°45'30"	33°26'30"	249	21	123	147	3,450	J(Mas)		—	—		—	—		—	—	47	223
37	No. 53A El Arish Well 18	K4d	260	30°45'35"	33°28'18"	158	102	28	232	3,810	J(Mas)		—	—		—	—		—	—	43	217
38	No. 54A El Fath Well 4	K4b	280	30°45'15"	33°26'25"	249	31	113	167		J(Mas)		—	—		—	—		—	—	33	247
39	No. 55 El Massajid Well No.4	K4b	277	30°41'35"	33°23'29"	300	-23	115	162	2,800	J(Mas)		—	—		—	—		—	—	6	271
40	No.5 Coal Mine	K4b	334	30°40'45"	33°19'41"	215	119	29	305	4,140	J(Saf)		—	—		—	—		—	—	0	334
41	No.6 Coal Mine	K4b	330	30°40'38"	33°19'22"	217	113	29	301	7,300	J(Saf)		—	—		—	—		—	—	0	330
42	No.8 Coal Mine	K4b	329	30°40'38"	33°18'49"	331	-2		—	7,455	J(Saf)		—	—		—	—		—	—	0	329
43	No.WX2 Coal Mine	K4b	277	30°44'08"	33°23'05"	200	77	120	157	2,700	J(Mas)		—	—		—	—		—	—	25	252
44	Baghdad No.1	K5a	135	30°39'55"	33°41'26"	993	-858		—			0	—	92	92	43	901		—	—		—
45	El Hemma	K5a	220	30°36'58"	33 °32'10 "	120	100		—				—	—		—	—		—	—		—
46	No. 41 El Arish Well No.6	K5c	166	30°47'15"	33°34'28"	153	13		—			25	141	128		—	—		—	—		—
47	No. 42 El Arish Well No.7	K5d	104	30°49'	33°51'10"	100	4		—			3	101	97		—	—		—	—		—
48	No. 43 El Arish Well No.8	K5c	100	30°45'30"	33°44'30"	128	-28		—			0	—	128		—	—		—	—		—
49	No. 45A El Arish Well No.10	K5a	210	30°37'20"	33°31'45"	290	-80	22	188	5,200	T(Mio)	2	208	288		—	—		—	—		—
50	No. 48 El Arish Well No.13	K5b	195	30°39'	33°45'	98	97		—			0	—	98		—	—		—	—		—
51	No. 60 Gebel Halaj Well No.1	K5d	148	30°46'14"	33°57'20"	300	-152		—				—	—	0	148	300		—	—		—
52	No. 63A Gebel Libni No.1	K5d	190	30°45'32"	33°48'34"	300	-110	132	58	4,500	U.C(Sen.)	0	—	60	60	130	240		—	—		—
53	No. 63C Libni Well No.3	K5b	190	30°43'46"	33°48'14"	231	-41	132	58	4,500	U.C(Sen.)		—	—		—	—		—	—		—
54	No. 64 Libni No.4	K5d	130	30°43'	33°49'	282	-152		—			6	124	84	90	40	192		—	—		—
55	El Girai	K6c	85	30°57'30"	34°21'30"	350	-265		—			48	37	302		—	—		—	—		—
56	Mian 1	K6c	97	30°57'38"	34°02'45"	259	-162	27	70	10,450	T(Mio)	16	81	243		—	—		—	—		—
57	No. 58 El Rawafa1	K6c	100	30°49'55"	34°08'11"	300	-200		—				—	—		—	—		—	—		—

Table 3.2-18(2) Well Inventory prepared in the Previous Study (North Sinai 2/2)

	Well name	Grid	Elevation (m)	Lat.	Long.	Drilling Depth		Water Level		Water Quality		Top of Tertiary			Top of U.C			Top of L.C			Top of Pre C	
						mBGL	mASL	mBGL	mASL	TDS	Aquifer	mBGL	mASL	thick (m)	mBGL	mASL	thick (m)	mBGL	mASL	thick (m)	mBGL	mASL
58	No. 76A Wadi El Amro No.2	K6d	200	30°52'29"	34°21'50"	226	-26	203	-3			6	194	79	85	115	141					
59	No. 76B Wadi El Amro No.1	K6d	200	30°52'29"	34°21'50"	62	138					6	194	56								
60	P16 El Amro	K6d	210	30°52'50"	34°22'15"	980	-770	35	175	4,000	U.C(Cen)	0		52	52	158	928					
61	Abu Raty	K6a	205	30°32'33"	34°22'15"	268	-63								0	205	268					
62	El Halal Israeli Well	K6a	185	30°41'15"	34°07'43"	900	-715	161	24	1,410	LC											
63	El Monbateh Well2	K6a	200	34°11'	30°40'	1,004	-804	124	76	3,200	U.C(Cen)				0	200	604	604	-404	400		
64	No. 78 Wadi El Hussainy	K6a	205	30°44'54"	34°14'04"	257	-52								8	197	249					
65	No. 79 El Merierah	K6a	185	30°39'	34°09'	290	-105								6	179	284					
66	No. 82 El Gorour	K6a	220	30°35'	34°14'37"	234	-14															
67	Ain Gudeirat	K6b		30°38'23"	34°25'40"					1,440	T(Eoc)											
68	No. 80A El Quseima	K6b	310	30°29'20"	34°21'23"	293	17															
69	No. 81 El Gouderate	K6b	350	30°38'31"	34°24'06"	148	202															
70	No. 83 El Mewaleh Well 1	K6b	280	30°41'17"	34°21'45"	170	110	23	257		T(Eoc.)	3	277	146	149	131	21					
71	No. 84 El Gnifi	K6b	215	30°36'28"	34°15'19"	210	5								16	199	194					
72	El Magdaba	K6c	90	30°53'34"	34°02'28"	978	-898			2,500												
73	Umm Shihan	K6c	140	30°49'33"	34°10'31"	1,003	-863	115	25									800	-660	203		
74	El Barth (R)	K6d	170	31°58'	34°20'	196	-26			3,720	UC(L.S)	24	146	172								
75	El Khahra	K6d	160	30°55'18"	34°15'14"	340	-180	160	0			100	60	240								
76	Kumilla	H4c	580	29°46'10"	34°39'35"	645	-65								56	524	441	497	83	148		
77	El Goura Well No.1	O2a	90	31°07'03"	34°09'17"	482	-392					60	30	422								
78	No. 5.5 Lehfin Well No.2	O2b	45	31°01'53"	33°51'15"	300	-255					50	-5	250								
79	Abu Hamth	G5c	423	29°57'57"	33°38'47"	2,174	-1,751					0		4	4	419	765	769	-346	1,405		
80	Manna 1	J6d	20	31°00'17"	32°57'47"							277	-257	-277				2,225	-2,205	-2,225		
81	Sheh 1	J6c	34	30°54'	32°37'30"	2,990	-2,956					370	-336	2,620				1,950	-1,916	1,040		
82	Katib	J6b	256	30°30'45"	32°51'20"	1,000	-744											80	176	30	110	146
83	Khahra 1	K6d	151	30°55'18"	34°15'14"										103	48	627	730	-579	976	1,706	-1,555
84	Bougaz 1	N3b	0	31°08'50"	32°48'38"													3,090		-3,090		
85	Rommana 1X	N3a	9	31°01'04"	32°30'39"							564	-555	-564								
86	Gofer 1	O1b	4	31°01'37"	33°17'01"	2,042	-2,038					245	-241	1,797				895	-891	1,147		
87	Polusion	O1a	14	31°04'49"	33°03'43"							550	-536	2,650	3,200	-3,186	-3,200					
88	Slav 1	O1b	14	31°04'01"	33°25'03"							400	-386	-400				1,065	-1,051	25	1,090	-1,076
89	Anish 1	O2b	50	31°04'33"	33°55'							0		260	260	-210	115	375	-325	865	1,240	-1,190
90	Haruvit 1	O3c	10	31°14'44"	34°05'22"							146	-136	-146				1,903	-1,893	-1,903		
91																						
92	JNo.1 El Medan	O2b	30	31°07'19"	33°34'55"	52	-22					43	-13	9								
93	JNo.2 El Tawil	O2b	30	31°04'41"	33°53'54"	100	-70					72	-42	28								
94	JNo.3 El Tawil	O2b	50	31°06'50"	33°58'19"	80	-30	47	3.0	5,562	Q	75	-25	5								
95	JNo.4 Rawafa Dam	K6c	139	30°46'28"	34°07'13"	100	39					35	104	65								
96	JNo.5 El Khuroba	O3b	48	31°08'19"	34°00'40"	73	-25	39.9	8.1	4,290	Q	53	-8	20								
97	JNo.6 El Sheikh Zuwayed	O3c	43	31°10'45"	34°02'42"	98	-55	38.1	4.9	4,830	Q	94	-51	4								
98	JNo.7 El Sheikh Zuwayed	O3c	50	31°10'15"	34°08'22"	120	-70	45.5	4.5	5,560	Q	89	-39	31								
99	JNo.8 El Massora	O3c	75	31°12'38"	34°13'20"	110	-35	69.8	5.2	2,192	Q	86	-11	24								
100	JNo.10 Barth	K6d	157	30°58'14"	34°17'58"	63	94	53	104	3,622	Q	56	101	7								
101	JNo.11 Barth	K6d	157	30°56'44"	34°18'32"	45	112					32	125	13								
102	JNo.18 Lehfen	K5d	57	30°59'25"	33°52'58"	64	-7					46	11	18								
103	JNo.9 El Massora	O3c	78	31°09'35"	34°11'34"	91	-13	77.3	0.7	3,470	T(Mio)	6	72	85								
104	JNo.12 Mingherah	K2a	380	30°17'41"	33°39'35"	300	80	182	198	2,973	L.C							4	376	296		
105	JNo.13 Falig	K1d	355	30°23'34"	33°16'42"	403	-48	288	67		L.C							0	355	403		
106	JNo.14 Halal	K6a	320	30°37'46"	34°01'52"	300	20											0	320	300		
107	JNo.15 Naqb	H3c	850	29°28'07"	34°39'54"	400	450								0	850	295	295	555	105		
108	JNo.16 El Bruk 1	K2a	355	30°11'32"	33°12'22"	799	-444	152	203	2,318	L.C				0	355	493	493	-138	223	716	-361
109	JNo.17 El Bruk 2	K2a	355	30°11'32"	33°12'59"	188	167	132	223	5,628	U.C(Cen)				0	355	188					
110	JNo.19 Arif El Naga	K3d	455	30°16'53"	34°29'04"	900	-445	296	159	3,008	L.C				0	455	556	556	-101	166	722	-267
111																						

Table 3.2-19 Inventory of Newly Drilled Wells since 1992 (North Sinai)

Sr. No.	Well Identification and Location: Identification: WRRI Code No.	Well Name	Location: Coordinates: Lat.	Long.	Elev. (mASL)	Well Specification: Drilling Depth (mBGL)	Cased Depth (mBGL)	Screen Position (m) (thickness)	Aquifer (facies)	Water Quality Data: TDS (mg/l)	Chemical Analysis	Measurement by WRRI: since/to	interval	Hydrogeological Data: S.W.L (mBGL)	D.W.L (mBGL)	Discharge Rate (m^3/h)	Specific Capacity (l/s/m)	Trans-missivity (m^2/day)	Remarks: Owner	Use for	Present Condition
1		Abu Ghazala	302540	330859	310	1500				2660	15/Aug./98					45			Military	Irrigation	in use
2		Anf El Naga 1	301855	342522	455	877	827.0	695-808	L.C	3200				286.00					Military	Irrigation	in use
3		Anf El Naga 2	301817	342620	450	870	813.0	637-791	U.C	3821				271.00					Military	Irrigation	in use
4		Anf El Naga 3	301725	342753	450	228	223.0	120-213	U.C	2300				93.00					Military	Irrigation	in use
5		Anf El Naga 4	301655	342833	455	526	526.0	350-520	U.C	3584	17/Aug./98			110.00					Military	Irrigation	in use
6		El Auga	305325	342153		1231	1099.1	881-1086(148)	U.C	13644	1/Jul./97	(Drilling Report)		186.45	254.37	15.7	0.06	3.35	MPWWR		
7		El Bruk 1	301045	334502	321	1000	986.3	636-975	U.C	5184	25/Nov./93	(Drilling Report)		110.00	73.05	35	0.13	61.42	MPWWR		not in use
8		El Bruk 2	301144	334420	320	189	187.0	146-181	U.C	5376	27/Feb./94	(Drilling Report)		128.00	9.14	20.07	0.63	20.66	MPWWR	Irrigation	not in use
9		El Bruk 3	301128	334224	350														MPWWR	Irrigation	not in use
10		El Bruk 4	301140	334236	330	955	875.0	678-940	L.C	3500				137.00		40		60	MPWWR		under const.
11		El Hasana 1	302653	334956	260	1065	1063.0	949-1061(100)	L.C	2838	17/Nov./96	(Drilling Report)		163.56	172.39	51.8	1.63	252.8	MPWWR	Irrigation	in use
12		El Hasana 2	302730	334922	250	1241	1214.0	1028-1202 (111)	L.C	3710	10/Aug./96	(Drilling Report)		165.70	166.44	54.5	20.46	797.9	MPWWR	Irrigation	in use
13		El Hasana 3	302703	335106	260	1227	1173.3	1005-1161(135)	L.C	4646	2/Aug./97	(Drilling Report)		165.94	167.85	50.5	7.34	303.83	MPWWR	Irrigation	under const.
14		El Hasana 4	302045	334117	310	1052	1046.2	837-1040(145)	L.C	4154	27/Jan./97	(Drilling Report)		178.32	189.73	49	1.20	116.33	MPWWR	Irrigation	in use
15		El Kuntilla 2	300019	344205	520	1125	1088.0	858-1075(216)	L.C	1914	26/Jun./95	(Drilling Report)		355.62	357.43	50	7.67	1013.8	Military	Irrigation	in use
16		El Kuntilla 3	300033	344203	520	1121	1106.3	864-1094(151)	L.C	1978	23/Oct./96	(Drilling Report)		353.42	356.78	41.6	3.49	452.2	Military	Irrigation	in use
17		El Kuntilla 4	300042	344117	490	1110	1060.6	855-1042 (164)	L.C	1816	25/Dec./96	(Drilling Report)		353.00	353.22	33.9	4.40	647.3	Military	Irrigation	in use
18		El Themed 1	294032	341831	615	805.0	789.4	607-772(142.5)	LC(SS)	1768	21/Jan./95	(Drilling Report)		382.35	383.17	18.9	6.40	1016.6	MPWWR	Irrigation	in use
19		El Themed 2 (Nakhel 8)*	294054	341814	600	747.0	745.2	559-733(111.6)	LC(SS)	1728	3/Oct./96	(Drilling Report)		376.84	387.06	40.45	1.10	592.2	MPWWR	Irrigation	in use
20		G. Faliq 1	302512	331303	316	2835	1342.0	867-1317(173)	L.C	1800	15/Aug./98	(4042 Dec/97 by DIR)		344.00		50			MPWWR	Irrigation	in use
21		G. Khanim 1	301735	340251	285	1375	1373.8	1206-1361(136)	L.C	5778	19/Jun./98	(Drilling Report)		111.00	158.52	38.54	0.23	23.88	MPWWR	Irrigation	not in use
22		Magara New	304556	332748	260	275				3200				92.00		65					
23	44ED-001	Nakhl 1*	295129	334636	435	1020.0	1020.0	827-964(80.94)	LC(SS)	1690	D. Report			254.47	258.87	41.9	1.73	460			
24	44DC-001	Nakhl 2*	295549	334252	420	1095.0	1095.0	920-1082(124.33)	LC(SS)	1630	D. Report			236.23	237.45	40.9	3.37	665.3			
25	44CE-001	Nakhl 4*	295626	334623	380	1170.0	1159.6	1005-1148(142.8)	LC(SS)	1536	19/Apr./95	(Drilling Report)		200.58	201.41	40.9	3.18	561.35	MPWWR	Irrigation	in use
26	44DD-001	Nakhl 5*	295720	334606	380	1194.0	1192.7	1049-1180(130.6)	LC(SS)	1614	22/Sep./95	(Drilling Report)		198.47	202.53	35.68	2.44	1164.5			
27	44DD-002	Nakhl 6*	295356	334502	410	1200.0	1197.0	1016-1184(127)	LC(SS)	1634	10/Aug./96	(Drilling Report)		219.63	226.14	54.3	2.32	596.2	MPWWR	Irrigation	in use
28	44EC-001	Nakhl 7*	295225	334220	425	1160.0	1157.0	958-1144(141.94)	LC(SS)	2250	10/Aug./96	(Drilling Report)		227.50	232.72	44.77	2.38	468.2	MPWWR	Irrigation	in use
29		P18 Army Hasana	302043	334116	305														Military		
30		Quseima 1	304115	342001	295	90	80.0	36-70(24)	Eoc (LS)	5616	3/Aug./93	(Drilling Report)		22.55	20.42	12	0.61	13.91	MPWWR	Irrigation	under const.
31		Quseima 2	304109	342023	290	68			Eoc (LS)					14.00		25			MPWWR	Irrigation	under const.
32		Quseima 3	304051	342015	285	78	76.0	43-76(24)	Eoc (LS)	6380	29/Oct./93	(Drilling Report)		16.11	31.45	7.2	0.06	6.66	MPWWR	Irrigation	under const.
33		Umm Shihan	304951	340954	165	905	870.0	578-858(217)	U.&L.C.	4750	2/May./96	(Drilling Report)		113.08	121.30	34	1.14	597.31	MPWWR	Irrigation	in use

Note: Wells with (*) are also listed in the Inventories for Pre-Quaternary wells.