

Environmental Profile of Ismailia Governorate

2007

Thanking and appreciating

Environmental Management Unit (EMU) of Ismailia governorate would like to thanks EEAA in Cairo as well as DANIDA (ESP, EMU component) for their support and training and guidance for the EMU of Ismailia governorate during the preparation of this Environmental Profile.

Also Ismailia EMU would like to thank all governmental authorities in Ismailia for their cooperation by supplying Ismailia EMU with the documented information that stands for the real current environmental sources (human, economical and natural resources) under the supervision of his Excellency the Governor of Ismailia and the General Secretary, as well as the direct follow up from the Assistant Secretary General.

Ismailia EMU would like to present this job as one of the major bases for the GEAP (Governmental Environmental Action Plan) of Ismailia, on the other hand the EMU is also appreciating the efforts of her loyal sons who cooperated to highlight this work with the honorable shape with respect to the scientific accuracy and honesty during performing this hard mission which spent a lot of time and effort.



Introduction

Ismailia governorate is considered the East gate for Egypt to Asia continental and Arab countries , it is specified by its special geographical position, and a very civilized and political history which had a very big impact on the political reality of Egypt, in addition to its high economical importance with its fish wealth and tourism, as well as its agriculture products all these sources makes Ismailia one of the governorates that attracts investments in different fields either tourism , industrial and agricultural fields.

If we put into our consideration the ancient history of the governorate and the investment opportunities, we find out that Ministry of State for Environmental Affairs had to implement the balance between the community well fair to increase the development on one hand, and the environmental impacts that affects this community on the other hand, as development and environment are engaged together tightly in all sectors.

If we consider working in the environmental field is a big honor (honors all who work in it) then we all have this chance for this big honor by our cooperation and coordination to achieve a concrete results that the citizen of Ismailia can feel in all the fields of the environmental work on the governmental level and the local level.

The Environmental Profile of Ismailia is in our hands now, and this job (which we all cherish) would not have been done without the loyal cooperation of all authorities in Ismailia which are considered the major partner in all the environmental activities in the governorate.

This Environmental Profile is considered the preface to prepare an integrated GEAP in which all ministries and NGOs contribute to reach a goal that his Excellency the President Mubarak established “ Conserving the Environment is no more considered a luxury but had become one of the priorities to protect our natural resources for the future generations”.

Minister of State for Environmental Affairs

Eng/ Maged George Elias

Introduction

We never exaggerate ... when we say that Ismailia is living the most prosperous time for integrated development, on all levels, as the development movement is becoming more concrete for everybody, this leads at the end that Ismailia became at the top list for the governorates. What was implemented in the past 2 years is considered an establishment that fastened the time by the cooperation of all the loyal efforts and the transparency of the work with was aiming for a better future for everybody.



There are many projects in Ismailia that grow more and in all cities and villages of the governorate. There is El Salam water canal that supports the agriculture policy in Egypt and also rearrange the population map of Egypt, comes after that the Huge Technology Valley which transfers us to the high technologies and seines and opens job opportunities inform of the governorate's sons.

Under the new policies which aim to supply services to the citizens, and the emphasis of President Moubarak to lift the suffering of the low- income people, Ismailia is living now a broad jump in all environmental fields in all cities and villages of the Governorate, this jump in the form of environmental projects in Ismailia serve the simple citizen and preserve environment from pollution.

Ismailia is the Canal mermaid, thus it faced beautiful and magnificent development operations such as decorating streets and squares, rearranging them and to be well enough for Ismailia as the Pearl of Canal.

We hope that Ismailia is always in the forefront, Ismailia is always in her loving hearts, we all seek for its development and prosperous and very honest invitation from the heart that God help us to serve this country.

Abdel Galil El Fakharany

Ismailia Governor

Introduction

Ismailia profile is one of the outputs of the cooperation between the Egyptian and Danish government through the ESP which started in 2004 that aims for supporting the country efforts for achieving its environmental goals, and to develop the Environmental management systems to upgrade the environmental status.

The ESP offers technical and financial support complying the environmental conditions for industrial facilities, and to support decentralization of environmental management, in addition to support EMUs in governorates in different fields to upgrade technical and clerical skills, and to supply EMUs with technical equipments to make them able to do their tasks in the field of environment. Also to support EMUs in preparing the Environmental profile and GEAP , and implement some environmental projects in governorates.

The Environmental profile shows the general characteristics of the environmental situation in the governorate and all its natural, industrial and human resources, also it shows how much they are joint to achieve the sustainable development, and it ends with specifying the environmental issues and problems as well as its priorities which is considered the main base for preparing the GEAP that includes the steps of solution for these environmental issues.

It is our pleasure to provide this environmental profile with this hounrabel image, which is a good result for the fruitful cooperation between each of Monistry of State for Environmengal Affairs and DANIDA and Ismailia governorate.

Finally I have nothing but to thank all who contributed in preparing this study.

Head of Environment Management Sector

Manager of ESP

Dr. Fatma Abou Shouk

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1. Introduction

Ismailia is the East Gate of Egypt to pass to the Arab countries and other Asian countries, it is in the middle of Suez Canal territory which includes Canal governorates (Port Saied, Suez) and North and South Sinai.

This location affected the political and national life of the government in the past, and now it affects positively in social and economical life of the governorate.

Ismailia is one of the pioneer governorates in the field of protecting the environment, and in seeking for solving the environmental problems. There are many projects for protecting the environment, for example in the field of recycling the agricultural wastes which is done by NGOs working in the field of environment by recycling Maze wastes, wheat straw and using them in making animal feeding which is one of the main elements for animal production, in addition to the Rice straw that is used in animal barns and then used in making organic fertilizers which is considered the main element for improving soil characteristics in new lands, and this leads to decreasing the use of chemical fertilizers, which means decreasing the input costs in agriculture production.

Another project aims to utilize part of the treated waste water in Sarabium to plant the Wood Forest on area of 500 acres , also projects for making use of solid wastes (garbage) by recycling and making organic fertilizers, projects for land reclamation, and projects for animal, poultry and fish wealth.

Specifying the priorities of the environmental problems of Tamsah lake had been done because of its economical and social importance for Ismailia either on the tourist level or for its wealth of marine creatures, or for the population around the lake, also maps specifying its sources of pollution had been made , as well as environmental monitoring for pollution percentage , in addition to identify a plan for purification the lake and preserve it from decay. Wastes coming out from the establishments on shore of the lake had been linked with the sewage network, and there are environmental plans for purification Tamsah lake to make use of its fortunes, and to attract tourists as an economical resource for the governorate, in addition to a project plan for preparing a shore on the Western lake and a road around it for local tourism (Improving Sports tourism project).

Other environmental projects are also found like funding non environmental coal factories that pollutes the air, and changing them to environmental coal factories, as well as safe disposal of hazardous wastes .

There are plans in the governorate for agriculture development like projects for land reclamation, such as the project for planting 350 acres east of Suez Canal, this will contribute in offering 50,000 job opportunities, and to inhabit 250,000 people. Another project for planting 57 acres east of The Lakes , it will offer 11.4 job opportunities and inhabit 57,000 people, as well as basic environmental projects for watering the projects in the lands east of Suez Canal, such as enlarging Manayef water canal from its start till Ismailia water canal , and establishing a path underneath Suez Canal with 2 pipes the diameter of each one is 2 meters getting ride of 0.5 Million m³/day, in addition to the current path in (Defreswar) and it dumps about 1.5 million m³/day.

EEAA in cooperation with EMU in Ismailia are making environmental monitoring for air quality and emissions from different industrial facilities in addition to supporting EMU of Ismailia with different monitoring equipments, and training stuff with specialized courses, as well as cooperation between EMU of Ismailia and other governmental departments for preserving the environment and developing it.

Since the path of achieving and increasing investments in different fields may affect the environment negatively, and because Ismailia is has a variety of development manifestations , so there was an obligation to insure the commitment to protect the environment during all activities, and this is very clear in this profile.

1-1 The Environmental Profile:

Importance of the Environmental Profile:

The Profile of Ismailia gives the general characteristics of the environmental situation in the governorate, environmental information had been collected from all Markaz and Suez University during meetings and discussions with the involved authorities, by which the current situations had been identified and the main environmental issues and problems, also the civil community had been involved by questionnaires and personal meetings, and through analyzing the collected information from different sources it had been possible to specify a wide range of important environmental issues through different points of views for the involved persons, this method helped to assure the accuracy of the profile and that it represents the reality, in addition to everybody in Ismailia feels the possibility of preparing the GEAP of Ismailia and taking it out to the light, because the profile is the summarize and analysis of the current environmental situation in the governorate, also analyze data and information , view and review scientific researches about the governorate that reflect the important environmental problems.

Data for this profile had been collect from the following sources:

- Local departments inside Ismailia governorate.
- Different Directorates in the governorate.
- Current statistics (located in Information Center in Governorate- Human Development Report 2005)

Profile objectives:

Preparing process for this profile aimed for identifying important environmental problems in Ismailia, and to assure the accuracy of describing these problems, also to put an environmental action plan for the environmental problems in the governorate according to its priorities in order to be sure of the sustainability of the development and the continuity of the investments in the field of environment, as the environmental issues and problems may be a major challenge and also an obstacle for the development of Ismailia.

The profile is also presenting a general frame for the environmental frame in the governorate, and determining the main environmental issues and priorities as a base for the effective participation for the users to identify the actions to be included in the GEAP of Ismailia. The Profile is depending on the technical reports that were prepared by specialists in different sectors. In order to make sure of the accuracy of the analysis and conclusions that was presented by the technical reports, some advices had been held with a wide range of users included a big number of individuals from different geographical sectors to make sure it includes all Markaz in the governorate.

1-2 Development and Environment:

The need for achieving the economical development in Egypt (to fulfill the main needs of the over population), this need had drained a big volume of the natural resources, which lead to the degradation of the environment, so the main political management in Egypt (starting from 1990s) to establish environmental legislation that protects the environment from the dangers of development.

The environmental policy in Egypt is based on close convergence with principals of sustainable development, as the environment in general is a frame that includes all the developing activities, and the strategic aim for the environmental activities in Egypt is to present and summarize the environmental risks related to the protection of human health and management of environmental resources towards all the environmental policies, plans, programs and goals.

On medium run this strategic goal aims for preserve the natural resources and biodiversity and National Heritage with regard to the sustainable development, as for the short term goal , it is reducing the current pollution levels and health hazards to upgrade the quality of life in Egypt.

In order to achieve sustainable development, an integrated strategy for improving economical, social and environmental situations has to be established. Because as much as the economical and social situation of a certain society is decrease.. the neglecting of the environmental situation for this society is increased. It may be recalled that the degradation of the environmental situation imposes huge burdens on the economy on the long run, because the cost of dealing with pollution is increased as much as period of neglecting to cure pollution is increased.

And since the sustainable development means to be fair towards the future generations (meaning that the current generation leaves some balance of resources to the future generation equals to the amount of resources the first one inherited or even better) so there is a must for achieving some goals, most important is: good use for non renewable resources, and putting in mind the limited ability of environment to take wastes.

Good understanding of the relation between development and environment needs to insure the integration between environmental management and sustainable development. Offering environmental action plans are considered an important frame in order to plan and manage sustainable development, also these plans are considered a main tool for decision makers to identify issues and priorities and take an effective role in managing the activities that act with these priorities.

2- The Governorate:

2-1 Location and Administrative boundaries

Ismailia governorate is considered a new established governorate, as it had been cut from Port Said and Sharkiya governorates since 1959, and was considered a governorate in the republic according to the administrative local system in 1960.

Ismailia governorate is located in the eastern parts of Arab Republic of Egypt (A.R.E) at the middle part of Suez Canal. Surrounding it from the East are Sinai and Suez Canal (that penetrates Tamsah lake and Bitter Lakes), at the West is the Eastern borders of Delta along Damietta Nile branch, at the South the way linking Suez with Cairo. Port Said and Manzala Lake at the North. (Map number (1) indicated the administrative borders of Ismailia governorate)

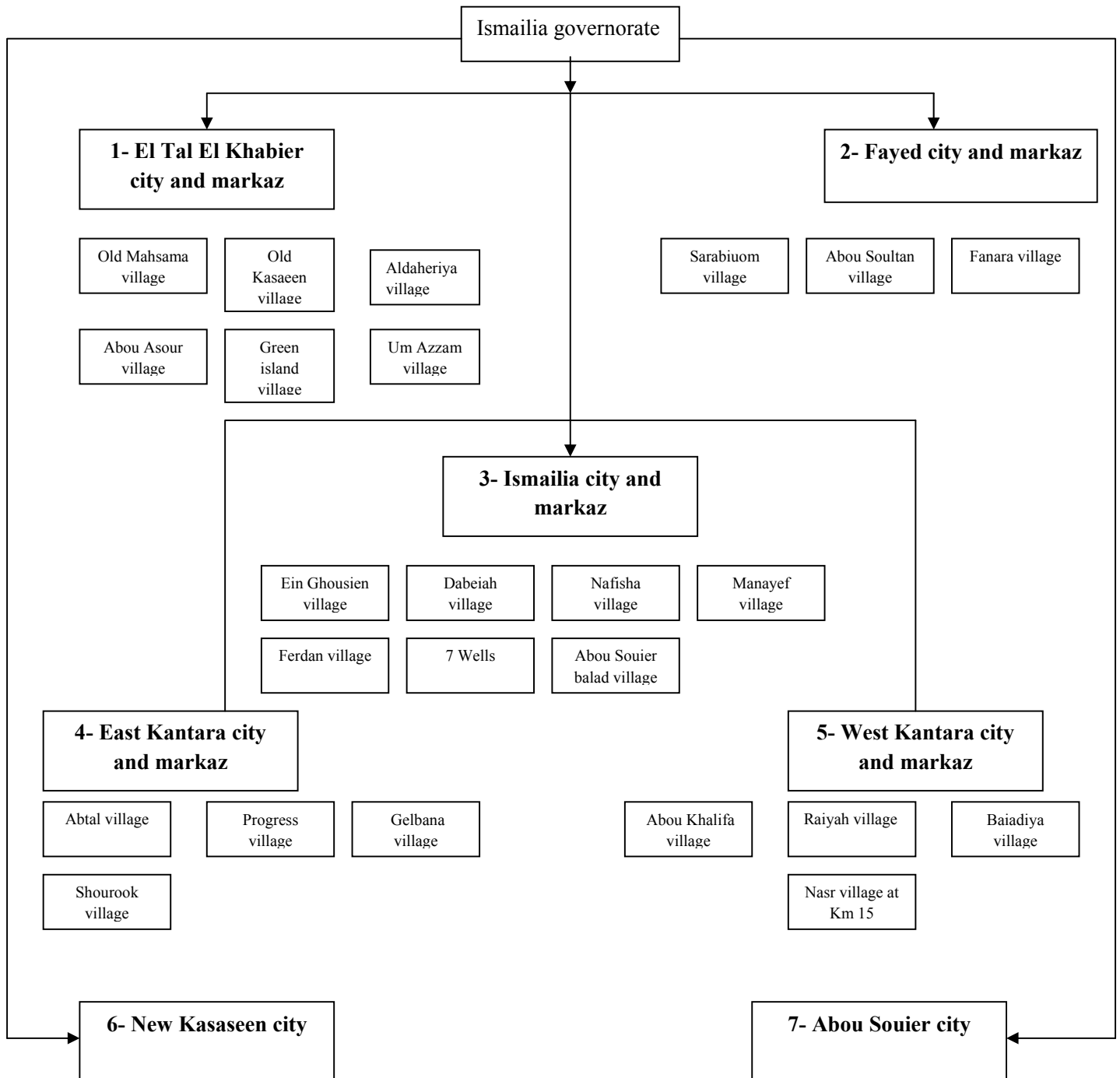
Administrative Departments:

Ismailia area is 5066,94 km², and it consists of 5 Markaz:

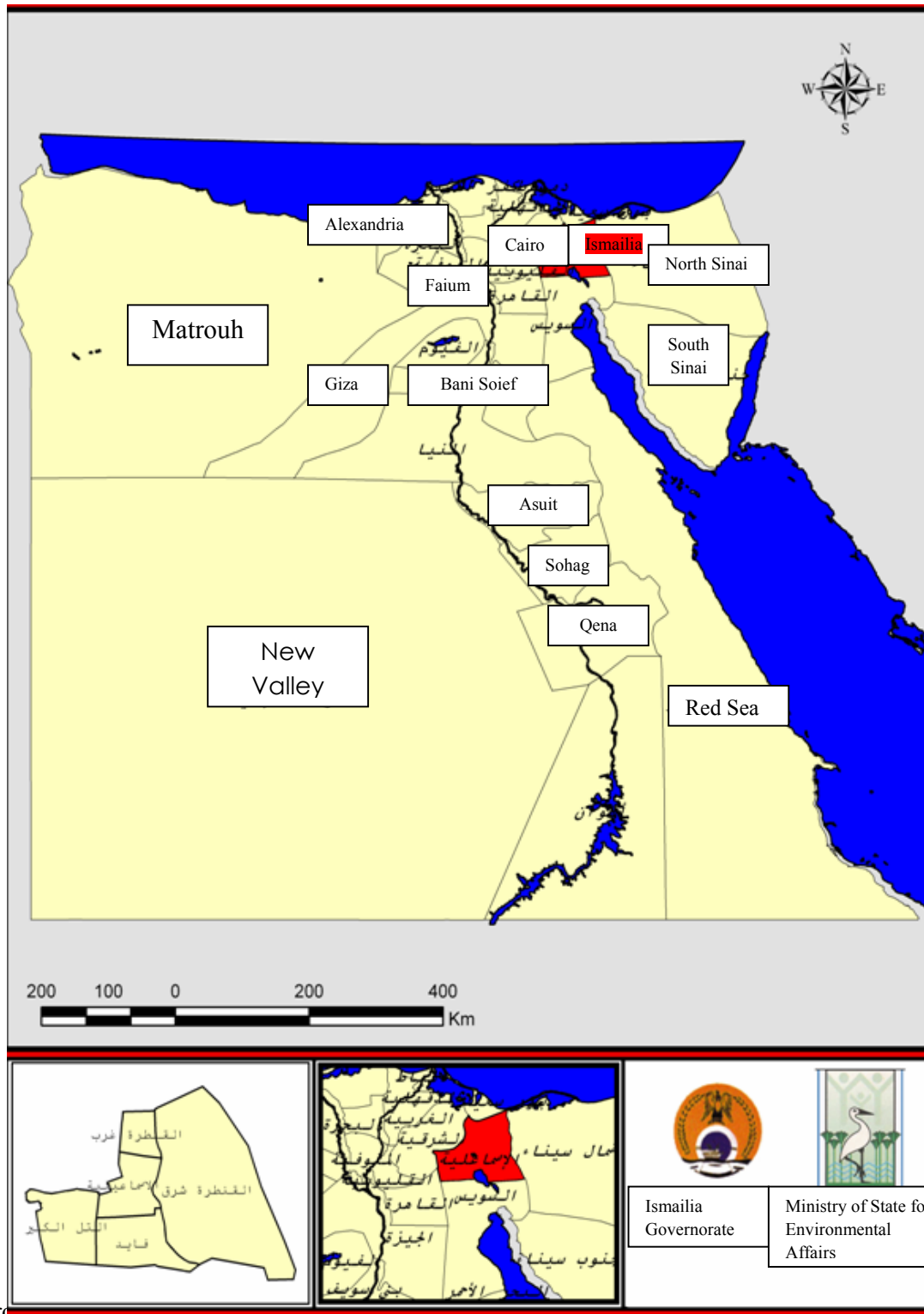
Ismailia city and Markaz, Fayed city and Markaz, El Tal El Kabier city and Markaz, East Kantara city and Markaz, West Kantara city and Markaz, in addition to Abou Souier city, El Kassaseen city, also it includes 25 village and 712 sub-village and ezbet.

The following figure clarifies Markaz and village all over Ismailia , also map number (2) indicates the administrative division of Ismailia.

*** Administrative division of Ismailia governorate:**



Map number (1) The administrative borders of Ismailia Governorate



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2-2 Geographical and Natural characteristics:

Soil:

The unique location of Ismailia offered it a rich environment with fertility soil and good climate, all this helped corps to grow with quality, the most famous plantings in the governorate is vegetables like Tomato, cucumber, green pepper, also fruits specially mango and citrus , water melon, peach, muskmelon by which the governorate is very famous. Also other plantings like wheat, maze, rise, barley, peanut.

Soil also varies in Ismailia, some is clay soil (total area 60,000 acres east of Suez Canal) . Sand soil (total area 340,000 acres) at East of Suez Canal, which is decided to be planted and watered by water drops method or spray according to each area. Ismailia is very specialized be the presence of Ismailia water Canal as a source for water.

Marine Environment:

Ismailia is also enjoying with marine life, as it is located on Tamsah lake and Bitter Lakes which affected on attracting big number of tourists to enjoy beautiful beaches in Ismailia.

Tamsah lake is considered as a natural basin, its volume about 90 Million m³ of salty water, area about 1900 acres, depth is average 5 meters. Water quality depends on the climate circumstances and wind speed and the quantity of water dumped in the lake wither from agriculture drains (carried with chemicals) or industrial waste water from facilities built for repairing boats, or treated sewage from water treatment stations.

Shores of the lakes extends for 50 Km from Defreswar (North of Ismailia) till Kebrit (at the South) , the area of Minor Bitter Lakes 40 Km² (9525 acres), and area of Major Bitter Lakes 194 Km³ (46190 acres).

Tamsah lake, Minor and Major Bitter Lakes all are considered the main base for the tourism development in Ismailia, there are Fishing and Fisheries sector which is one of the most fruitful sectors in the governorate because of the presence of Tamsah lake, Bitter Lakes as well as Suez Canal.

Water sources:

Ismailia Canal is considered the main source for fresh water, as it carries water from the Nile river to the 3 cities of the Suez Canal (Ismailia, Port Saiyed, Suez). Water in Ismailia Canal is used in drinking, irrigation and industry. It is 128,500 Km length , 53Km of it inside the borders of Ismailia governorate.

3 main Canals are subdivided from Ismailia Canal:

- Suez Canal (89.760Km, from which 49.5Km with in Ismailia border)
- Port Saied water cannel, 76.670 Km, from which 45 Km inside the governorate.
- Manayef water Canal, 23.800Km inside the governorate border.

In addition to 36 sub water cannels subdivided from the 4 main water cannels, the total amount of dumped water from Ismailia canal 9.5 million m3/day, the governorate's share from that is 4.7 million m3/day.

Mineral Wealth:

Ismailia governorate is specialized with Quarry materials on which many projects can be established such as loam, lime stone, sands, and stones.

They are found in different areas in the governorate, these Quarry sediments belong to different ages starting from Cretaceous era till Cenozoic Era .

1) Loam sediments:

It covers larges areas of Ismailia, it belongs to the Miocene age, and in found in the form of different layers differ in thickness and also lime stone layers separate them.

These sediments are specialized with its grey color which turns to black in the clay layers. It is usually covered with layers of sands and lime stones, and the thickness of the upper layer does not exceed few meters.

2) Lime stones:

The sediments of Lime stones is considered one of the important sediments in Ismailia, these sediments belongs to the Cretaceous age ,Eocene age, Miocene age. Lime stone is

one of the oldest sediments and is found in Shabraweet mountain, and is formed basically from Limestone cretaceous, dolomite and Marl layers.

Lime stone sediments that belong to the Eocene age specialized by being very hard and white in color, it is also found in Shabraweet mountain at heights reach 100 meters. Lime stones of the Miocene age is found in the form of sequential layers with loam sediments.

3) Sands:

Sand covers huge areas of valleys and smooth areas in Ismailia. Sand sediments spread in locations North and West of Shabraweet mountain forming the main part of the surface sediments that covers these areas, and it ends with flats around Manzala Lake, these sediments belongs to geological ages starting from the Oligocene age till Cenozoic Era.

4) Stones:

Stones sediments are less than quarry sediment in Ismailia. They belong to the Oligocene age and some of them belong to old Miocene age, and they are sediments on loam sediments and lime stones.

The thickness of the stone sediments are vary starting from few centimeters till few meters till 15 meters. They are mainly formed of sandy granules. The size of these sediments is one of the elements to identify the expiry of these sediments, the size is usually about 20-80 mm.

The stone sediments are found in the Red Gouzaa Mountains that ends at Fayed, the stones in this area are found in the form of black groups cover the top of the mountain, its surface is not with same level and cover the lime stone sediments, usually contains overlapping stone layers.

Desert:

Desert surrounds Ismailia from all sides, this helped to establish many projects of land reclamation, these desert areas are specialized by the presence of some Badawy societies, they live on grazing.

Ismailia location played a very important historical role very long ago, in addition it is the civilization transit to reconstruction Sinai and link it with the fertilized valley.

Climate:

Ismailia climate is characterized with 3 forms (cold warm winter for a long time, intermediate with light rains, moderate summer with some humidity) in general it is a moderate climate all over the year.

Rain falls in winter, it does not exceed 50mm in the year, so the limited rain fall in addition to the increase of evaporation leads to appearance of some drought cases unless the presence of Ismailia water channel which is used in irrigation of lands Ismailia could have been a deserted area totally. As for wind it is strong in winter and spring.

Winter low air pressures and hot winds blows in Spring from Desert areas (Quintet wind), North and east North winds prevail in Summer, North and West North winds prevail in Winter, the following table illustrates the climate data for Ismailia governorate.

Table (1): the annual report for climate data

Month	Average of temperature			Humidity	Wind speed	Fog	Evaporation
	Max	Min	Avg				
January	19.9	7.1	11.9	63	1.57	3.2	130.2
February	21.1	7.5	12.3	63	1.80	3.4	140.0
March	23.9	9.4	15.2	45	2.12	3.4	232.5
April	28.7	12.0	17.7	38	1.85	2.7	218.0
May	31.2	15.7	21.4	41	1.71	3.0	303.0
June	35.1	18.7	25.6	43	1.44	1.3	357.0
July	35.1	20.5	25.8	53	1.73	1.1	319.3
August	35.1	20.6	25.8	55	1.57	1.3	288.3
September	32.8	19.1	24.0	52	1.35	1.4	234.0
October	30.3	17.2	21.9	58	1.44	2.1	189.1

November	25.7	14.2	18.2	61	1.17	2.9	135.0
December	21.6	9.3	13.7	61	1.44	3.6	127.1

(Source of Information: General Authority for Meteorology)

The maximum monthly average for temperature is 35.1 C° in July, August. 19.9 in January.

During night the temperature decreases and the minimum average limit is 7.1C° and 20.6 C° in August.

2-3 Population characteristics:

2-3-1 Census and growth rate:

According to the Data Information and Supporting Decision Center (Cabinet of Ministers) the population in Ismailia is 1st of May 2005 is 863.27 persons, with 2.7% growth rate in 2005, while in 1999 the growth rate was 2.9% .

The following table indicates population in 32005 in governorate Markaz as well as growth rate comparing between 1999-2005 .

Table (2): Population distribution and growth rate in Ismailia

Name of Town/ Markaz	Population in 2005	Growth rate of population (%)	
		In 1999	In 2005
Ismailia	513252	2.11	2
El Tal El Khabier	148262	2.67	2.6
Fayed	87236	2.56	2.40
West Kantara	86706	3.7	3.5
East Kantara	27571	3.37	3.1

Information Center and decision support (Ismailia governorate)

According to the following table we find out that the distribution of population is 49.9% in cities, 50.1% in country side, noting that the number of males is 421.878 (51%) and females 49% (403490).

As for the distribution of males in urban areas is 49.9% of the males of the governorate located in urban areas and 51.1% in country side. Females, 49.1% in urban areas and 51.1% in country side .

In general it is clear that the differences in distribution of males and females between urban areas and country side is very minor.

**Table (3): Population distribution according to sex and
estimated population number of Ismailia .**

<u>Age categories</u>	<u>Males</u>			<u>Females</u>			<u>Total</u>		
	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total
Before 5	21821	23540	45361	21113	23696	44809	42934	47236	90170
5	25173	27535	52708	23346	26308	49654	48519	53843	102362
10	27002	30767	57769	25640	28346	53986	52642	59113	111755
15	24746	27221	51967	22980	25993	48973	47726	53214	100940
20	17675	20471	38146	17971	18754	36725	35646	39225	74871
25	14015	15095	29110	15727	15747	31474	29742	30842	60584
30	14918	13347	28265	15596	13026	28622	30514	26373	56887
35	14636	13631	28267	15333	13703	29036	29969	27334	57303
40	14215	10677	24892	13089	9877	22966	27304	20554	47858
45	11192	8636	19828	9485	7849	17334	20677	16485	37162
50	7639	5862	13501	6875	6027	12902	14514	11889	26403
55	5622	4507	10129	4626	3839	8465	10248	8346	18594

60	4908	3952	8860	4420	3641	8061	9328	7593	16921
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**Continue of Table (3): Population distribution according to sex and
estimated population number of Ismailia .**

<u>Age categories</u>	<u>Males</u>			<u>Females</u>			<u>Total</u>		
	Town	Countryside	Total	Town	Countryside	Total	Town	Countryside	Total
65	3573	2754	6327	2473	1960	4433	6046	4714	10760
70	2167	1630	3797	1754	1471	3225	3921	3101	7022
Above 75	1640	1311	2951	1315	1510	2825	2900	2821	5776
Total of Ismailia	210942	210936	421878	201743	201747	403490	412685	412683	825368

Information Center and decision support

Population problems:

Ismailia is suffering from some problems which stand against development movement, such as:

1- Local roads and rails ways.

There is a [problem in the road between Ismailia and Port Saied at Kilo 17 before Abou Khalifa city (land surface is inclined) because of the nature of the soil, also due to the increase of the underground water.

2- Over population on fertilized land for agriculture.

3- Spread of random areas:

- There are 6 random areas in Ismailia and are already developed (El Salam neighborhood, Abou Atwa, El Shohada, El Safa and Marwa, Zamzam)
- In addition to 15 random areas needed to be developed according to the following table:

Table (4): Random areas in Ismailia that need to be developed

Serial	Markaz/ Town/ neighborhood	Area name	Area	Estimated population (per person)
1	Ismailia town and Markaz	2 nd Kilometer	176 acres	255134
		Adam area	159 acres	7500
		El Gelos area	40 acres	2000
		El Bahteny area	170acres	8500
		Nafesa rail way area	80 acres	4000
		El Shohada rail way area	50 acres	2500
		Ein Ghoseen area	130 acres	6500
2	Abou Sweir town	Abou Sweir Station	80 acres	18331
		Abou Sweir town	180 acres	9000
		El Samakeen- Abou		

		Balah	200 acres	10000
3	El Tal El Kabier town and Markaz	El Tal El Kabier town and Markaz	142 acres	31410
4	El Kasaseen town and markaz	New El Kasaseen	120 acres	11948
5	Fayed town and markaz	Fayed town & markaz	853 acres	10652
6	West Kantara town & markaz	West Kantara town & markaz	250 acres	---
7	East Kantara town & markaz	East Kantara town & markaz	209 acres	12116

(Source of information: Urban Planning dep. in the governorate)

2-4 Social properties:

2-4-1 House model & structure:

-Average number of family members about 4.6 persons, in urban areas the average is 4.3, in country side the average is about 4.9.

2-4-2 Age and gender:

-Average age of man is 69.9 years.

-Average age of woman is 69.9 years.

2-4-3 Education:

Illiteracy percentage:

The following table shows the education level of Ismailia citizens, we can see that illiterate people percentage comparing to the whole population is 1.2%, this means that the percentage of

people who can read and write is increasing, and people who are literacy (specially from women) are 22%, therefore the percentage of high educated people is 3.2%

Table (5): population according to the education and culture level

Item	Males	Females	Total	Percentage to the whole population (%)
Illiterate	4353	6152	10505	1.2 %
Were illiterate	3663	9934	13597	1.6 %
Less than university education	99445	96332	195777	22.7 %
University education	14606	12787	27393	3.2 %

Source of information : Information Center and decision support

2-4-4 Living conditions and services:

Water supply:

Ismailia depends on Ismailia water cannel as the main source for drinking water, it starts from North of Cairo and passes through Kalupia, Sharkiya and Ismailia governorates, then divided into 2 sub cannels for fresh water in Port Saied and Suez.

The quantity of water produced by treatment stations in the whole governorate is 650,000m³/day, the number of these treatment stations is 45 stations located in local unites of the governorate.

Sewage service:

The quantity of treated waste water in Ismailia is about 109750 m³/day, also there is a secondary treatment station that serves Ismailia city and locality (Markaz) , El Tal El Kabier, and West Kantara city and markaz.

As for the East Kantara treatment station it serves a part of that town which is the New part. For the rest of towns and villages in the governorate they are not served by sewage, and they use the method of reservoir which is emptied later.

Number of waste water treatment stations serving Ismailia governorate and their details are shown in the following table:

Table (6) Waste water treatment stations in Ismailia

Treatment station name	Location	Capacity	Kind of treatment	Total treated quantity	Amount of final dumping	Sewage location
Sarabioum	Ismailia city	90,000m3/day	Secondary Biologically	90,000m3/day	90,000m3/day	Mahsama
El Tal El Kabier	El Tal El Kabier city	10000m3/day	Secondary Biologically	10000m3/day	10000m3/day	El Wady
Abou Khalifa	Abou Khalifa village- West Kantara	10000m3/day	Secondary Biologically	10000m3/day	10000m3/day	Hesaneyia
East Kantara	East Kantara city	Works partially	Secondary Biologically	Works partially	Works partially	Flat area with drops irrigation network

Source of information: local unites in markaz and cities

Table (7): Individual share from total sewage capacity

Name of markaz and village	Individual share from total sewage capacity
Ismailia markaz and city	319.93 liters/ day
EL Tal El Kabier markaz and city	210 liters/ day
Fayed markaz and city	14.58 liters/ day
West Kantara markaz and city	298.99 liters/ day
East Kantara markaz and village	283.40 liters/ day

Source of information: Information Center and decision support

- Electricity service:

A number of generating electric power stations is serving Ismailia governorate, they are shown in the following table.

Electric consumption in houses is number 1, it is about 1179736041 kilowatt hour/ year, on the other hand electric consumption in industrial and agriculture purposes is about 131081754 KWH/year.

The individual share in electric consumption is about 1519 Kilowatt hour/ year.

Table (8) Electric generation stations in Ismailia governorate

Station name	1- El Ghaziya Youth electric generating station
Station location	10 Km south of El Kasaseen
Number of units	33.5x3 Miga watt
Total capacity	100.5 MW
Production capacity	146.8 million Kilowatt hour (in 2005-2006)
Station name	2- Abou Soultan electric generating station
Station location	Near from Abou Soultan village, 28Km south of Ismailia city on shore of Bitter Lakes
Number of units	150x4 Migawatt
Total capacity	600 MW
Production capacity	2109.7 million Kilowatt hour (in 2005-2006)

Source of information: East Delta Company for electricity production

2-4-5 Health

Table (9): birth and death rates in Ismailia governorate

Item	2003	2004	2005	Notes
Birth rate	29.2	29	28.3	Per 1000 persons
Death rate	6.8	6.5	6.3	Per 1000 persons

Source of information: Health and population authority

The previous table indicates the birth rate, it decreased by 0.2% in 2004 comparing with 2003. It is decreased by 0.7% in 2005 comparing with 2004. This proves that there is an increase in using birth control tools, as well as increasing the health awareness, in addition to the decrease of death rates by 0.3%% in 2004 comparing with 2003. It decreased by 0.2% in 2005 comparing with 2004 which indicates the increase of health services level.

Table (10): Baby death rates and children under 5 death rates in Ismailia

Item	2003	2004	2005	Notes
Baby death rates	19.2	17.2	14.1	Per 1000 living baby
children under 5 death rates	24.8	23.9	20.2	Per 1000 living baby

Source of information: Health and population directorate

The previous table shows the baby death rates is decreased by 2% for each 1000 baby born in 2004 comparing with 2003, it decreased by 3.1% for each 1000 baby born in 2005 comparing with 2004.

Also death rates for children less than 5 years decreased by 1.1% in 2004 comparing with 2003, also decreased to 3.7% in 2005 comparing with 2004.

Death cases inside the governorate was 5318 in 2005 distributed according age in the following table:

Table (11) ratio distribution for death cases according to age

Age range	Less than 1 year	1-5 years	5-15 years	15-45 years	45-65 years	More than 65 years	Total
Death number	362	156	149	694	1597	2360	5318
% for total deaths	6.8 %	2.9 %	2.8 %	13.1 %	30.0 %	44.4 %	100.0 %

Source of information: Health and population directorate

From that table it is shown that the minimum death percentage (2.8%) is occurred in the category from 5-15 years old, and the maximum deaths percentage (44.4%) is in the category 65 years old and more.

Also the less death percentage occurred in the category (1-5 years) and (5-15 years)

Ismailia is very special in health care services, as well as a good health care infrastructure like hospitals, urban centers, country side health units serve all cities and villages in the governorate.

The annex of health shows the health and infrastructure in the govern orate. Also there are 8 medical incinerators in addition to Suez Canal hospital incinerator, and Suez Canal authority hospital.

Kidney dialysis equipments inside governmental hospital reaches 78, other medical installations (52) according to the Health annex.

2-5 Economical Characteristics:

Gross domestic product and income distribution:

Gross domestic product (GDP) in Ismailia is about 0.635 average for each person from GDP 6642.9 Egyptian pounds (LE) according to the Human development Report in 2005.

Table (12): Total local production

Country	Total local production in 2004/2003	Average of person's share from national product 2004/2003
Ismailia	0.635	6642.9
Egypt	0.6	4151.5

Information source: Human development Report 2005

Income distribution and poverty:

Poverty level had increased in Egypt between 1999/2000 and 2004/2005 because of the decrease of spending level with stable prices.

On the national level, poverty indicators show that this increase in poverty from 2000 till 2004, also as the population under the line of poverty increased from 16.7% in 1999/2000 and reached 19.3 in 2004/2005.

Also poverty depth also increased and reached 3.5% in 2004/2005 .

In fact the decrease of the individual share in the annual expenditure with fixed prices from 2717 in 1999/2000 to reach 2566 in 2004/2005 (with a decrease percentage 1.14%) although this decrease happened all over Egypt but was not so sharp in Upper Egypt.

There are 2 different forms for the expenditure distribution change which lead to a big difference between territories regarding different poverty standards, the first form is represented in modification of income distribution, but it was not enough to replace the decrease of the individual share in expenditure in urban governorates and country side in North of Egypt, urban areas in Upper Egypt.

The second form found in urban areas of North Egypt and country side of Upper Egypt. It combines between a slight change in the individual share income from expenditure, and decrease in income distribution which contributes in increasing the poverty degree.

Table (13): Direction of poverty level in Egypt

Year	1990/1991	1999/2000	2004/2005
Population percentage under poverty level	24.32%	16.7%	19.29%
Poor people in million	12.775	10.650	14
Poorest territories	Upper Egypt country side	Upper Egypt country side	Upper Egypt country side
Richest territories	Urban areas in North Egypt	Maritime provinces	Urban governorates
Poorest governorate	Menia	Asuite	Asuite
Richest governorate	Ismailia	Damietta	Damietta
Percentage between poorest and richest territories	6.14%	6.7%	7.11%

Source of information: Ministry of Planning, Issues and Policies of Population and Development Project, UN Population fund)

It is noticed from the above table that Ismailia was the richest governorate in 1990/1991.

3- Natural resources:

3-1 Introduction:

Ismailia governorate is located in the north of Egypt, as a part of the Eastern desert of Egypt, on the West cost of Suez Canal, it is shaped as a triangle, its west border is Sharkiya governorate& Cairo governorates, north border is Port Saied governorate, South border is Suez governorate. Ismailia is linked with North Sinai at the East part of East Kantara city. The governorate's location is considered as a link between Sinai in the East and Nile Delta in the West and Eastern Desert from South.

Total areas of the governorate are about 5066.96 KM2. It is characterized by lakes which form an area about 248 Km2 distributed as following:

- Major Bitter Lakes , 194 km2.
- Minor Bitter Lakes , 40 km2.

- Tamsah lake, 14km².
- Additional part from Sinai about 30 km² along the government's border.

3-2 Geological and Earth nature

3-2-1 Geological situation (map number: 3)

The geological studies proof that Suez Canal territory can be divided into 3 geological ranges:

1- South range:

It is the highest range, includes high mountain belts like Southern belt such as Ataka mountain. Then the Middle belt which is west of Bitter Lakes . Then third belt like Shabraweet Mountain at the west from Fayed city.

2- Middle range:

Found at the north of the Southern range and extends to the north till the borders of Port Saied (at the beginning of the swamps of Manzala lake at north of Kantara city)

Tamsah lake is considered one of the important sites in this area.

3- North range:

Extends from the north of Kantara city till the Mediterranean sea. Manzala lake is considered one of the Geomorphology and geological sites in this area.

3-2-2 Biological and geological structure:

In general Suez Canal territory covers an area of about 4-6 thousand Km², located between Latitude 29:35 – 31:20 north, Longitude 32:05- 32:40 East. In this area lakes are popular as well as mountain heights at the south which can be explained as following:

- Southern heights:

Presented in the borders of Ismailia governorate with Suez till Fayed area at north, east south from Minor Bitter Lakes , such as Ataka mountain 855 meters, Genefa mountain 226 meters, valleys in this high sector are full of sands and stones, in addition to El Mor mountain at the

east side 117 meters. They extend at the north side with slight inclination, and covered by sands.

- **Valleys:**

Most valleys are located at the west south side of the governorate border, most of them ends at Bitter Lakes and South border of Ismailia at North of Suez.

The direction of these valleys is east , west, north east, and south east. The most important valleys are Hagoul vally, El Gafra vally.

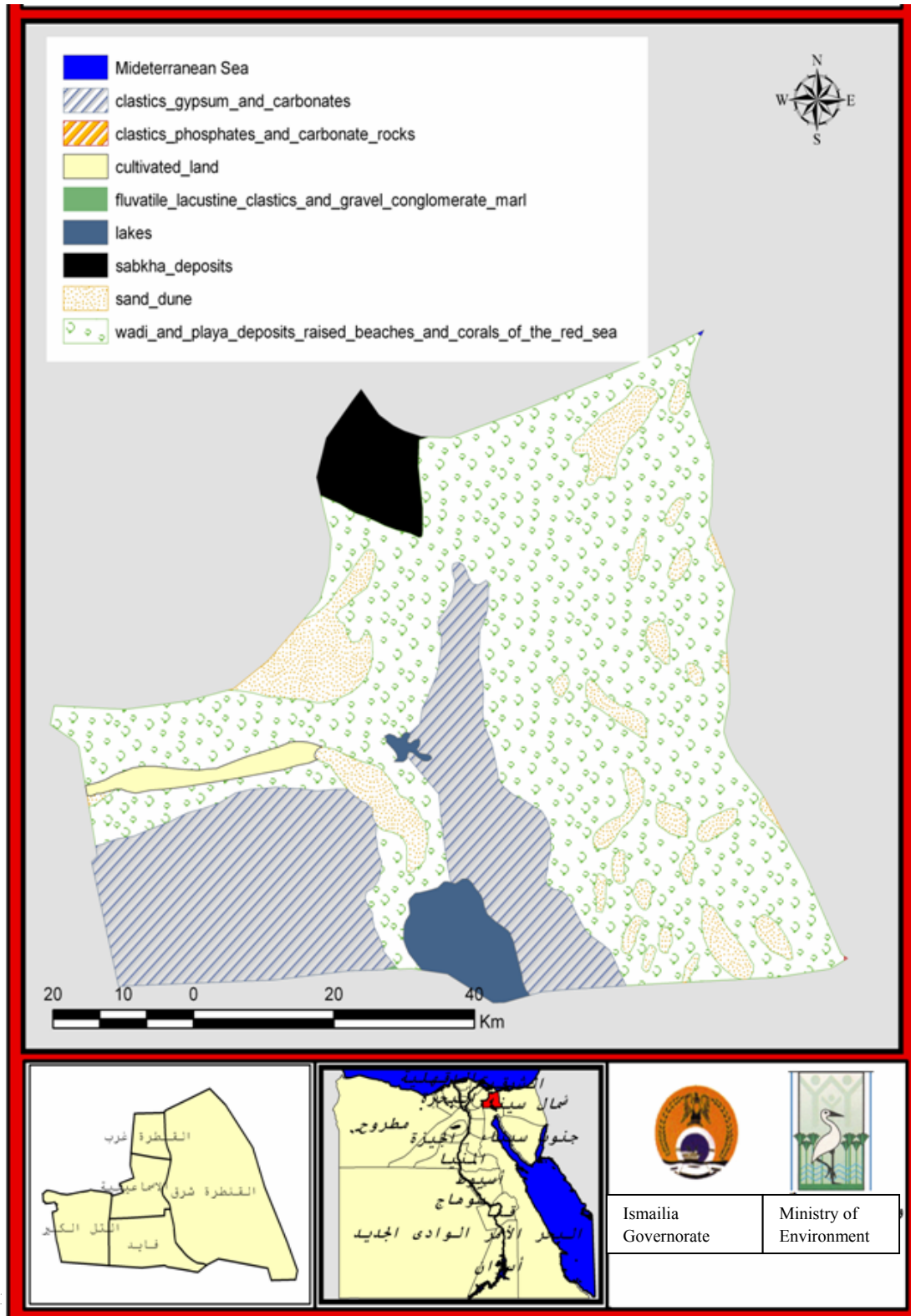
- **Sand Dunes:**

They are considered in the area located between south of east Kantara till the governorate's border with Suez governorate, extending north and south in the form of straight parallel lines.

- **Lakes and water surfaces:**

There are lots of lakes and water surfaces inside the border of the governorate, such as Minor and Major Bitter Lakes , they take a rectangular shape, also Temsah lake which takes a triangular shape, in addition to Manzala lake in Suez Canal territory which is parallel to the Mediterranean coast in the north, and at the south west of Port Saied city.

A geological Map for Ismailia Governorate



- **Swamps :**

They cover a big sector of Ismailia governorate on both sides of Bitter Lakes as well as Tamsah lake, they vary in their salty degree and depth.

- **Surface sediments:**

- They are formed of particles sediments in Ismailia and Suez Canal sector with some soft sands and lime stone. They reflect the geological ages starting from Eocene age till Modern age.

3-2-3 Earth nature in governorate:

Accumulations of sand dunes are considered one of the most important Topographic properties in Ismailia, the height of some sand dunes may reach in some places near Tamsah lake about 25 meters above sea level, the total area of sand lands in Ismailia 345 thousand acres, while the clay lands about 60 thousand acres.

Though sand movement coming from East and West Deserts forms a big danger for Ismailia, because sand movement happened because of sand storms and they accumulate on shore of Suez Canal and other irrigation water canals.

Off course operations to remove these sand accumulations are needed all the time, and also monitoring of irrigation canals and its maintenance is requested periodically to prevent accumulation of these sands.

Moreover sand is considered an environmental problem regarding agriculture because sand storms affect negatively on agriculture lands and natural protected areas as well as other agriculture projects.

One of the important topographic properties is also the presence of irrigation and waste water sewage overlapping network, Ismailia Canal is the most important one of them.

3-3 Water resources:

3-3-1 Surface water resources:

Introduction:

Ismailia governorate depends on Ismailia fresh water canal as a main source of irrigation water, also it is used in drinking water, in addition to water of agricultural drainage which are 4 main drainages, part of their water is used in irrigation of agriculture lands and the rest is dumped in Tamsah lake and Bitter Lakes . There are no sewage waste water dump their water in Ismailia water canal (map 4 shows the water canals and main drainages in Ismailia).

Table (14): water quantity survey in Ismailia (2006)

Serial	Item	Source	Quantity	Notes
1	Drinking water	Nile river/ Ismailia canal	650 thousand m ³ /day	Drinking water for Ismailia governorate
2	Total underground water	Underground wells	125 thousand m ³ / day	347 wells
3	Irrigation water	Ismailia canal and Port Saied and Suez	5750 thousand m ³ / day	---

(Source of information: Water resources and Irrigation authority)

- Surface water quality:

Water quality in Ismailia canal depends on water situation in Nile River. Environmental monitoring indicators (done by Health and population directorate) show an obvious improvement in properties of Ismailia canal water quality, this improvement because of stop dumping Mahsama drain into Ismailia canal (by the Ministry of Water resources decree in 1993). But still the environmental monitoring results for Ismailia canal show that there are still some water properties that does not fit with the standard measurements in the law number 48/ 1982 because of the increase of turbidity.

Table (15): The statement of the samples taken from the canals and the percentage of the samples not identical due to the increase of turbidity percentage.

Serial	Sample location	Health dep.	Number of samples	Identical	Not identical	Percentage
1	Ismailia canal	Ismailia	47	-	47	100%
2	Ismailia canal	Abou Souier	8	-	8	100%
3	Ismailia canal	El Kasaseen	10	-	10	100%
4	Ismailia canal	El Tal EL Kabier	15	-	15	100%
5	Suez water canal	Fayed	10	-	10	100%
6	Port Saied canal	West Kantara	12	-	12	100%
7	Port Saied canal	East Kantara	10	-	10	100%

Source of information: Health and population authority 2006

Table (16): The statement of the samples taken from drainages according to the law 48/1982

Item	Number of samples	Identical	Not identical
Malaria drainage (Fayed)	8	-	8
Mahsama drainage	10	-	10
El Wady drainage (El Tal El Kabier)	10	-	10

North Sinai drainage (El Rouda)	6	-	6
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Fresh water problems:

Maintain and preserve fresh water quality means protecting human health, and insure good quality agriculture products, also insure fish quality and at the end protect the health of Ismailia citizens.

Ismailia canal is facing some environmental pollutants like agriculture drains and throwing wastes and garbage as well as dead animals into the canal. All these activities affected negatively on natural and chemical properties of the water in Ismailia canal and its branches.

So there is a deep need and maximum importance to follow up the properties of water in Ismailia canal through laboratories tests to inspect how much its quality and much it is suitable for man use, and also to determine pollution sources and solve it.

Map number (4)

Main water canal, canals and drains in Ismailia governorate



Environmental profile of Ismailia

3-3-2 Underground water resources:

- Introduction

There are no wells of underground fresh water in Ismailia governorate, but there are 354 wells used in irrigation of agriculture lands according to the information of General department of Irrigation in Ismailia. (water recourses annexes show the underground water locations in Ismailia)

3-3-3 Unusual water resources

*** Treated waste water**

Part of the treated sewage waste water is used in Saraboum to plant 360 acres of the wood forest project, also silkworms project and the remaining treated water is dumped into Mahsama drainage.

There is a trend to increase the area planted for wood forest in Saraboum to reach 1000 acres, by planting Almahuginy trees to produce wood for industrial purposes, also planting Neem trees to prevent mosquitoes, also to increase planting Seecel plant to produce rubber, Jatrova plant to produce oil.

*** Quality of unusual water resources**

It is considered as treated waste water, does not used in irrigation of fruit trees, part of the treated water used in planting wood trees in Saraboum. Total quantity of unusual water resources is 120,000 m³/day. There is no presence of desalination of sea water.

3-4 Sea and lakes

Suez Canal:

Suez canal is considered an important watercourse links between the Mediterranean at the North and the Red sea at South. It is 162 Km long, and if we add the entrances at Port Saied and Suez it reaches about 190 Km long. There are no barrage in Suez canal due to the similarity of water level in both the Mediterranean and the Red sea. This watercourse passes through Tamsah lake and Bitter Lakes . These salty lakes contain about 90% of Suez canal water. Also this watercourse played an important role in the entertainment tourism, also in supplying the

governorate with big quantity of fish, (because most of the governorate is located on most of these lakes' shores) these lakes with their clay sandy shores supported tourism and Summer holidays (also offers most of the governorate's needs of sea fish) as there are big number of fishermen working in different fishing skills.

These lakes represent a renewable source for a number of fungus (marine non skeleton like shrimps) , crap, shells in different kinds. Also different kinds of fish like mullet, pliace fish, Gilthead bream, trout, coral fish, and Rowqad fish.

Many environmental problems occurred in these lakes due to their use which affected negatively on the natural and chemical properties, also affected negatively on the biology of Temsah and Bitter Lakes , as well as the entertainment activities on both lakes.

Main environmental problems of these 2 lakes as following:

- **Temsah lake:**

It forms a natural basin, size about 90 million m³ of salty water, its area about 1900 acres with average depth of 5 meters. Temsah lake forms 14 Km² of the total area of Ismailia governorate. Annual production of fish in the governorate is 1118 tons, 1/2 of it comes from Temsah and Bitter Lakes .

Water quality in Temsah lake depends on climate circumstances and wind speed as well as quantity of waste water that is dumped into the lake either from agriculture waste water (full of chemicals) or industrial waste water from workshops on shore of the lake to repair ships, or treated waste water from water treatment stations.

But Temsah lake suffers from huge quantities of agriculture, industrial and sewage water from El Mahsama drainage that ends at the side lake on the west side of Temsah lake (Abou Gamous drainage).

Also El Forsan drainage that is located on the north of the lake dumps some sewage waste water at the lake side near to the public shore of the Army. This affects on the salty of the lake and increases the precipitations of organic substances in the lake, which consume a lot of Oxygen and decrease its rate at the depth of the lake, so the lake becomes poor in oxygen and sometimes lake of oxygen. This means that no marine creatures can live at the bottom of the lake, and also this leads to polluting the lake with bacteria due to dumping sewage water, presence if heavy metals and insecticides used in agriculture. All these pollutants affect the environment negatively

and transferred through food pyramid till they reach (with high percentage) to the top of the pyramid which is man affecting him negatively on his health and his work and production ability, at the end affecting negatively on the National income of Ismailia governorate.

Also the lake suffers from some petroleum pollutants that comes from the vessels movement, as well as workshops belong to Suez canal authority. These petroleum pollutants affect on water quality, shore kind as well as marine production of fish, non skeleton creatures and shells.

More over the problem of filling up of beaches to establish clubs and shores was randomly done affecting the water properties of these shores, and from the biological side it affects on all creatures and environments depending on these shores.

All these factors had to be monitored and followed up, in order to make scientific studies to put appropriate solutions to cure or avoid them, or minimize their damage, as well as identifying the best way to solve these environmental problems.

- **Bitter Lakes :**

Shores of Bitter Lakes extend for 50 Km from Defreswar at north of Ismailia till Kebreet at south. Area of Minor Bitter Lakes is 40 Km² (9525 acres) and area of Major Bitter Lakes is 194 Km² (46190 acres). Tamsah lake and Major and Minor Bitter Lakes are considered the main source of tourism development in Ismailia, also there is fishing sector and fish farming that is considered one of the fruitful sectors in the local sector because of the presence of Tamsah lake, Bitter Lakes and Suez canal.

As for Bitter Lakes , they also suffer from pollution due to agriculture waste water from agriculture lands surrounding the lakes, as well as waste water sewage from some tourist platforms on shore of the lakes. Also Bitter Lakes suffer from filling of the beaches, accidents of petroleum pollution from vessels pass through Suez Canal. All these factors affects negatively on the shore nature for Bitter Lakes and the creatures and environments depending on the lakes, at the end affecting on fish inside these lakes.

Monitoring and follow up projects had been formed for identifying these pollutants of these lakes to evaluate them as well as environmental impact assessment (EIA) for the lakes and to put ways to cure and minimize its damages.

Also there is a need for a program to follow up the lakes in order to specify the quantity of the metal, petrochemical, bacteriology pollutants of fish farms in Tamsah and Bitter Lakes to determine whether fish is suitable for human feeding, moreover to improve fish quality in parallel with improving the environment of these lakes.

The environment follow up program for the Bitter Lakes will have a great environmental feed back to improve the environmental current situation for the 2 lakes, on the other hand there is a need to put a proposal for evaluating the impact of petroleum pollution because its effect is a deadly effect and the environment suffers from it for tens of years.

3-5 Lands:

- Land use in the governorate:

Land is used with in 5 main sectors in Ismailia, which are: inhabitant sector, agriculture sector, industrial sector, mines and quarries sector and water surfaces sector. The following table indicates the percentage of each sector comparing with each other.

Table (17): Land use in Ismailia governorate

Serial	Type of area	Percentage for total area
1	Inhabitant areas	30%
2	Agriculture areas	50%
3	Industrial areas	5%
4	Mines and quarries areas	2%
5	Water surfaces areas	3%

(Source of information: Housing and facilities authority)

- Land reclamation in the governorate:

Ismailia governorate made a lot of reclamation of lands, its total area is 141414 acres in addition to 514665 acres planned to be reclaimed, and 259208 acres already actually planted in Ismailia.

Table (18): land reclamation priorities in the governorate

Markaz name	Actual planted area	Reclaimed area	Area planned for reclamation (able to be planned)
Ismailia	70321	38187	90181
El Tal El Kabier	83610	27187	25080
Fayed	12263	6062	32270
West Kantara	33014	11788	74584
East Kantara	60000	82590	292550
Total	259208	141414	514665

Source of information: agriculture authority

3-6 Biodiversity:

3-6-1 Biodiversity in Egypt:

Egypt has a very special location in the world, as it is in the middle of the old world contents "Asia, Africa and Europe". Wild life in Egypt varies including mountains, valleys, hills and plateaus. The longest river in the world runs in Egypt which is the Nile River, in addition Egypt includes a number of fresh and salt water lakes. Egypt north border is the Mediterranean, Red sea and Suez Gulf at the east, this geographical varieties reflect a variety in environmental systems and variety in biodiversity either on land or in the water including numbers of plants and animals.

Biodiversity means the presence of numerous living creatures and different environmental systems in which they live inside. The Egyptian environment includes a unique variety of plants and animals that support the relationship between man and the surrounding environmental system. Biodiversity in the Egyptian environment is considered a National Wealth and a rich natural heritage. It is very special and must be protected and developed and avoid the drain of its resources for many main reasons:

- Achieving an integrated environmental body supports man needs and develops his relation with the surrounding environment, also insures stability of species. So non- preferable species can increase and destroy other rare species.
- Protecting and developing species with economical and medical importance, as they play an effective role in supporting the Egyptian economy and preserve man health.
- Offering kinds of animals and plants with nutritional value to achieve safe food free of pollutants with special nutrition values.
- Documenting Egyptian species to protect them from others who try to steal it in order to destroy the Egyptian natural heritage.
- Facing problems caused by the technological and housing development in order to prevent their conflict with preserving natural heritage.

Biodiversity is considered as a pillar for human life and his well fair, as this diversity is considered the main source of human food and oxygen which is coming to the air through trees. This biodiversity allows us to have what we want to wear and what we use as some tools.

Moreover most of pharmaceutical compounds are extracted from plants in the natural environment, in addition to many wild life products.

Although this huge biodiversity of the Egyptian environment but studies done in this field did not cover all species found in the Egyptian environment, due to its richness that is considered a natural heritage must be protected and preserved from damage.

According to EEAA the monitored biodiversity in Egypt includes the following:

Group	Number of species
Viruses	44
Bactria	238
Fungi	1260
Algae	1148

Plants Capillary, non-flourishing	337
Flourishing plants	2094
Insects	10000
Other non skeletons	4701
Fresh water fish	85
Sea water fish	669
Amphibians	8
Land reptiles	99
Marine reptiles	5
Resident reproductive birds	150
Emigration birds	320
Land mammals	95
Marine mammals	13
Bats	22

The Egyptian natural heritage can be classified into: animal species which is represented by the Egyptian Fauna and plants species that is represented in the Egyptian Flora.

First: Egyptian Fauna:

Includes mammals, birds, fish, reptiles, mollusks, arthropods feet, internal Intestinal , amphibians, Sponges and crustaceans.

Second: Egyptian Flora:

Includes: Palmae Arecaceae , Graminaceae family, Fam. Leguminosea or Fabaceae family, Solanaceae Family, Brassicaceae (Cruciferae), leguminous family,Fam family, Cyperaceae family

Natural heritage manifestations in Ismailia are various, summarized as following:

Animal species:

1- Fish:

Classified into 2 main kinds: bony fish that have bones from inside like mullet fish, white fish, tuna fish and other known kinds. The second kind is cartilage fish that includes cartilage from inside like sharks.

Most fish is characterized by its smooth shape, compressed from 2 sides and covered with Chlamydia formed of a bony material varies from a kind to the other. Fish skin contains mucous glands help to slide water from fish body. Fish bodies are provided with fins (double or single or both) usually contain air bladder helps them to swim in different depth.

Fish is classified according to its living environment, it is classified into fresh water fish (fish lives in Nile river, fresh water lakes in Egypt (like Nasr lake) and salt water fish in Mediterranean, Red sea, salt water lakes like Bardaweel lake in North Sinai.

Different kinds of fish live in Ismailia, as following:

1) Snake fish:

It spreads in all lakes of Egypt and also all water canals linked to them. Also they are found in the Atlantic coast from Scandinavia till Morocco. Also found in all rives in north Atlantic ocean, Baltic sea and the Mediterranean.

It was entered artificially to Asia and Middle America and South America.

Snake fish lives in all kinds of water either fresh or sea water. Snake fish is classified into:

Cold water fish that lives in temperature 4-20 C° though it appears in south of the River Nile in warm areas. It is considered a bony fish, its maximum length is 133 cm, max weight is 6.6 Kg, the longest age is 85 years.

These fish immigrates from its places of living either in rivers or Mediterranean lakes and North sea to reproduce in Sargasou sea in South America. They lay eggs in deep water of that sea during winter and spring. They don't reproduce in any other places. Water current of the warm gulf takes the larvae of snake fish till they reach the European shores within 7-11 month, and reach the East of the Mediterranean in 3 years. Larvae turn into transparent fingerlings called "Alive" gather together in big flock and flow into river falls and openings of lakes with the sea.

Small snake fish swims inside lakes and rivers and stay there till males reach 6-12 years and females reach 9-20 years then sexually matured, after that they immigrate to sea water and live in the deep water. They also stop feeding totally till they reach their reproduce places in the Atlantic ocean.

Snake fish feeds on all kinds of water creatures like fish, crustaceans, earth worms that may fall into the water.

2) Indian Mackerel fish:

They spread in Red sea, Suez gulf and Aqaba Gulf. They spread from East Africa till Hawaii Island, their groupings spread to the North till Japan and to the south till Australia. Fish immigrate through Suez canal to form groups at the Mediterranean coasts. They are bony fish with fins, maximum length is 40 cm, they belong to scombridae family, they live in big groups around coral reefs. They feed on shrimps and small fish .

They are caught by big fishing boats with Shanshoula nets. They also live in coral reefs areas in the sub-tropical areas, also live in big quantities in the Red sea.

3) Mullet fish:

They are found in all Egyptian water in Sea, lakes and Nile river, Indian ocean, Atlantic and Pacific. They do not exist in the Caribbean and West Indian coast. They are bony fish with fins. Maximum length is 120 cm, maximum weight is 8 Kg, age till 16 years. They live in water from the surface till the depth of 120 meters. They are found in coastal water and river falls and shore lakes.

They swim together in big groups in mud shores with heavy plants. Mullet fish are river fish feed on minute crustaceans and seabed creatures, in addition to organic substances. Although these fish live in all kinds of water but they don't reproduce but in salty water where they immigrate for laying eggs from July – October. Mullet fish sexually matured at the age of 7-8 years, female lays 5-7 million eggs each time.

4) Grey Mullet fish:

They are found in all Egyptian water, in sea, lakes, & Nile river, they are spread in East of the Atlantic from Norway till Morocco and the Mediterranean and Black sea. They are bony fish with fins max length 70 cm, and maximum weight is 2.9 Kg, longest age is 10 years.

They live at depth of 10 meters, they are surface water fish, found in coastal water and river falls as well as shores of lakes. They live in temperature 8-24 C°. Although they live in all kinds of river water but they don't reproduce but in salty water. They reproduce in

They reproduce from September till February, females lay few millions of eggs which hatch in sea, then larvae swim to shallow water to feed and grow, then they enter to river and lakes to grow till maturity. They feed on minute fungi and organic substances as well as larvae and fish eggs.

They live in all kinds of fresh and salty water even low salt water and warm places.

5) Parrot fish:

They live in all areas of Red sea as well as Suez and Aqaba gulf. They spread internationally, found in both Indian and Pacific Ocean, from Japan at north till the Great Coral reef in Australia in the south. They are bony fish with fins. Maximum length recorded is 90 cm, max weight is 6500 gm. They live in depth vary from 1 meter till 30 meters. They reproduce at temperature from 24-28 C°. They live on shore of corals and around coral islands. They feed on coral reefs animals as well as seabed algae. Grown up fish lives individually, while every matured male keeps a number of females in a flock that he controls and attack any other male comes into his territory. Big and old females turns into bright color males. Color of this fish is vary, mostly are blue and green and red color. Body is covered with very big peels. They have strong jaws and big cutting teeth , they live in coral reefs in semi-tropical areas, and they are one of the most kinds that spreads a lot in the Red sea.

All the above kinds in addition to Sea-bass fish, Sigan, Plaice Fish , cattle fish, Gilthead bream shrimps, crabs and different kinds of sea shells.

Average fish productivity for sea water is about 5500 tons annually. Mullet fish represents 40%, shell fish 30% from the total fish production. The following table indicates the annual fish production in Ismailia governorate.

Table (19): Fish quantities in tons

Fishing locations	Annual production in tons	Arrearage daily production
Fish farms	12103	40.30 tons/ day
Bitter Lakes , Temsah lake and Suez Canal	5244	17.50 tons/ day
Internal water (cannels, drains)	1538	5.10 tons/ day
Rice farms	25	0.10 tons/ day
total	18910	63 tons/ day

Source of information: General authority for developing fish wealth

2- Birds:

Birds are shelf animals, their bodies adapted to fly, though some birds' can't fly. Birds are specialized with smooth shape covered with feathers supported with 2 wings and small tail and a long nick some how. Skin specially in marine birds has oil glands that allows water to slight away from the bird's body so that feathers do not absorb water and prevent the bird from flying.

Birds bones are specialized with light weight and air cavities. Most parts of back bones are joint together to support the bird's body during flying.

Many kinds of birds live in the Egyptian environment in addition to the immigrated birds that visit Egypt during the warm season escaping from the cold areas. There are about 513 species represent the Egyptian birds belong to 69 families and 21 ranks. Birds sometimes are classified according to the area they live in, for example shore birds, Island birds, mountain birds, field birds, garden birds, desert birds. Among the famous Egyptian birds: sea president (Red sea island), Flamingo which lives in the Bardaweel lake and Qaroun lake, also cattle egret (Nile valley and Delta), Egyptian Yellow- billed Kite (lives in Delta and Cairo), White tailed eagle which lives in Manzala lake, Vulture (Gyps rueppellii) which lives in the East Desert, Peregrine Falcon which lives in Sinai mountains and Eastern desert, Great Black- headed gull (pallas's gull) which lives in the Red sea coast, Nile Delta and Valley, Eurasin eagle- owl (lives in the West and East desert, Sinai and Delta), Hoopoe (Delta, West oasis, North Sinai and Canal area), Egyptian Yellow wagtail which lives in Natroun valley, Delta, Faioum and Canal area.

Birds represent one of the main elements in food chain due to the variety of food habits as birds are different in their feeding, some eat worms and others eat insects or fish.

Bird immigration:

Birds take 4 paths during their immigration trip from Europe to Africa through Egypt. First path from East and Central and North Europe to Tabriya lake then enter the Egyptian borders through Naqab desert, then head to Suez and Aqaba gulf in South Sinai, then towards to the South till the Egyptian Sudan borders, till they reach Central and South Africa. Birds of prey are the main birds who take this path in addition to small numbers of Passeriformes. Marine birds are rare in this path, their quantity reach 1½ million birds.

Second path starts from East and Central and North Europe then reaches Egypt in parallel with the Mediterranean till Zaranick natural protected area beside Arish city, then towards to the south across Suez canal to unite with the first path.

Quail and Garganey birds represent most birds in this path, while birds of prey have very small percentage. Number of birds about 1½ a million.

Third path is in Egypt, starting from North lakes then subdivided into another 2 paths: one at Faioum, the other at the Red sea. Most birds in this path include marine birds which reach 1 million birds, and this path is considered the most important path for immigrating birds. The last and fourth path is the one in which birds come from Central Europe passing by Egyptian oases in West desert towards the South to Central Africa. Birds of prey and Passeriformes, stork and some marine birds take this path. Its number can reach tens of thousands, during this path birds do not land in Egypt. Birds found in Isamilia are as following:

1- Cattle Egret

One of the most old birds in Egypt, feed on fish insects, frog, worms. It builds its nest on big trees in huge colonies include big numbers. Female lays 4-6 eggs in the nest. Male and female guard together the egg with each other. Big colonies spread in Nile valley, big numbers are beside

Giza zoo where they live in swamps, also they live in agriculture areas. These birds are protected by the law which caused their increase and doubled its number during the last few decades.

2- Kestrel Falcon

A common inhabitant bird, immigrate from Europe to Egypt in winter. Feeds on insects, rats and small birds. It is considered a useful bird for agriculture. It builds its nest among stones and

rocks and walls and old buildings roofs. Females lay 2-6 eggs after that it guard the eggs and live in agriculture areas, but it spreads a lot lately in most cities of Egypt.

3- Streptopelia senegalensis (The Laughing Dove)

One of the old birds that Egypt is specialized with. It feeds on seeds. Females lays 1-4 eggs in a nest on the trees or walls. Male and female guard eggs and also they feed their babies.

These birds live in places of dense trees. Fields and gardens in village and cities. They spread in Nile valley and Delta, areas of the West Desert, Red Sea and the Mediterranean coast.

4- Collared Dove:

Found among trees, feed on earth. It visits water at day and night, they gather together after reproducing season same like other kinds of doves.

During flying, they rise in flight from the top of the trees. It is specialized that male flirts the female, ass the males fly up quickly then fall spreading their tail and wings. They build their nest on small trees starting from the end of the winter, it is specialized also with their 3 tone voice. It feeds on insects and plants. Female lay 1-4 eggs in the nest. Male and female guard the eggs. These birds are found in Nile valley & Delta, Natron valley, Suez canal area, and Sinai peninsula.

5- Robin

One of the old birds that Egypt is specialized with, it feeds on flying insects like bees and also ants. It builds the nest during spring in groups inside holes in the sandy bridges near trees. Female lays 4-7 eggs in the nest. Male and female guard the eggs. These birds are found in the Nile valley and Delta and Suez canal territory as well as the agriculture areas with low green cover near water.

6- Halcyon

One of the old birds in Egypt that becomes special and common in the past 20 years. It feeds on lizards and fish and crustaceans from the Nile and sometimes small mammals. They build the

nest in the spring in holes of sand bridges near trees. Female lays 4-7 eggs in the nest. Male and female guard eggs. Found in Delta and Suez Canal territory.

7- White wagtail

One of the most common immigrant birds in Egypt. They pass through Egypt in Spring and Autumn and may spend Winter in Egypt. Feeds on insects, small non-skeleton creatures. Found all over the country specially in agriculture areas, cities, wet lands, swamps and semi desert areas.

8- Yellow wagtail

One of the immigrated birds in Egypt, passes through Egypt during spring and autumn, some of it may spend winter in Egypt. Feeds on insects and other non- skeletons. Builds nest from herbals and plant roots in the earth between plants or under small trees.

Females lay 10-12 eggs in the nest and guard them. It is found among fields and wet grass as it follows insects while moving its head and tail.

They gather in groups at night and fly's strongly to the night shelter. It's wrestle is very loud, found in the south of Sinai peninsula , Elba mountain, Ewainat mountain, Suez canal territory, Upper Egypt where there is plenty of wet lands, swaps and low lands as well. In addition to agriculture lands near water, sometimes viewed near the desert.

- Floral kinds:

There is no enough studies for flora kinds in Ismailia, but according to Desert Data Center we find a lot of medical adore plants and trees in Ismailia as shown in the following table:

Table (20) plants in Ismailia governorate

Plant kind	Plants name
- Mesembryanthemum fo rsskalei Hochst (Glue), herbal plant populary found, small in size, hight about 25 am and used as food.	
- Ambrosia maritimal L. Herbal plant ,	

common, used to cure kidney stone and also to fragment stones in liver and kidney. - Cressa Cretica L. Long age herbal. Tree with many branches and leaves. Used as a sexual tonic, and general strength. - Oxalis corniculata L. Acid plant, herbal plant, long aged used to stop bleeding, urine activating, worms repelling. - Sonchus oleraceus L. used for making diarrhea, includes vitamin C, general strength for the body. - Eruca sativa Miller. Herbal plant, common, used to heal burnings and to decrease sugar percentage in blood, and sexual tonic, and sputum pelling. - Cuscuta planiflora . a common plant, with no leaves, used as gar pelling and to heal fatness.	Medicinal Plants
- Oriental roses, jasmine.	Aromatic plants
- Jatropa- Kaya- Neem-Berry- Mango-Citrus (orange, Limon, mandarin) grapes, date palm with all kinds.	Trees

(Source of information: Desert research center)

3-6-2 Environmental changes:

First: Marine environment:

For marine environment a great change had happened in Tamsah lake due to the pollution caused by sewage waste water, industrial and agricultural waste water as well. This pollution affects the salt presence in the lake, and increases the concentrating of organic substances in the lake which absorb a lot of organic oxygen and decrease it at the bottom of the lake with bacteria and heavy metals and insecticides. As for agriculture insecticides used in planting,

they transfer through the food pyramid and reach with high concentrations to the top of the pyramid (man) affecting him negatively on his health and productivity, which turns at the end affecting the national income of Ismailia. Also the lake suffers from other petroleum pollutants caused by vessel movement and workshops of Suez Canal authority. Petroleum pollutants affects the water quality (shore kind) as well as the sea products as fish, shells ..etc.

For Bitter Lakes , they also suffer from agriculture waste water from agriculture lands around them. Also from tourism installations on shore of the lakes. As well as filling of beaches, petroleum pollutants accidents from vessels pass through Suez canal.

Second: Fresh water:

Ismailia water canal faces some environmental pollutants like dumping of garbage, dead animals, some waste water from few citizens, all these factors affect negatively on the nature of natural and chemical characteristics of the water in Ismailia canal and its branches.

Third: Agriculture environment:

Agriculture environment had achieved a positive change due to good use of insecticides, modern irrigation methods as well as reclaiming of many desert areas and planting them.

Fourth: Desert environment:

The movement of sands from the West and East deserts is considered a big danger for Ismailia, this movement happens due to sand storms that concentrates the sand on shores of Suez canal and other irrigation canals. Off course this needs continuous removal of these sand accumulations. Also there is a need for monitoring irrigation canals and make periodical maintenance for them to prevent sand accumulations.

Sand also forms an environmental problem for agriculture because sand storms affect negatively on agriculture lands and other agriculture projects.

3-7 Cultural Heritage

3-7-1 Introduction

There are many antiquate sites in Ismailia Governorate which related to the ancient Egyptian civilization. By seeing them, visitors can know more about the cultural heritage of the Governorate. It has been common since a short time that Ismailia was not inhabited in the ancient times. But the new antiquate excavations have proved that this area was inhabited long time ago. Since the time of pharos and Romans, the extension of Suez Isthmus was the border between Egypt and other countries in the eastern direction. Pharaoh Zoster (Third Dynasty 2686 BC) had built series of forts extended from Beerz (Port Said city now) up to Qulzum (Suez city now). These forts were called the wall of the prince.

Since the borders were the bridge between the Western Asia and North Africa, the ancient and modern Egyptians have realized the importance of both this area and Sinai. Most of the great pharaohs' armies went to the east direction to stop the attacks of foreign invaders such as Ahmou the First who defeated the Hexos in 1567 BC. It is thought that the first rulers of the 19th dynasty, Cite the First and Remises the Second lived for a period of time in Avris, (Kantara City now). The Historians have assured that the current site of Ismailia city and the around areas were called in the ancient Pharos times "Neferayateb". Nowadays, it is known by the name of Tal El-Maskhouta.

The Pharos ages were terminated by the invasion of the Nubians (747BC), Egyptians (667BC) and Persians (525BC). Then; Alexander the Great had driven away the Persians from Pythom (Tal El-Makhouta) as one of the important cities in this area.

The Islamic age began by the defeat of the Byzantine armies before Amr ben El-Ass in the time of Caliph Omer Ben El-Khatib. The Islamic armies passed by the Rafah and Arish in Sinai. Then they went through the coastal way to Pharma (Port Said city) then Megdul city to Ismailia city to Belbis. Amr ben Ass laid a siege on Babylon Fort which ended by existence of Byzantines from Egypt.

Ismailia with its strategic position has represented a very important element in both the First and Second World War. The city played a very vital part during the struggle against the British occupation in 1951. When General Mohamed Nagid became the first Egyptian president of the Republic of Egypt after the revolution, Egypt was attacked several times from the eastern direction. We can say the tripartite aggression in 1956, the Israeli attack in 1967 and October war in 1973 started from the Eastern borders. Hence, Egypt signed peace treaty with Israel in March 1979 under the umbrella of the United States of America.

2-7-3 Historical tourism sites in Ismailia

The museum of Ismailia Antiquate is one of the oldest museums in Egypt. It was built in 1911. It has many ancient antiquates related to all the ages of Egyptian civilization.

Museum of Delays was built in 1859. It was the residence of the French engineer Ferdinand Delaispis. Museum of Abu Atwa Tanks was built in Abu Atwa village, three kilos from Ismailia city, for the memory of the tanks battle between the Egyptian army and people in one hand against the Israeli forces in 1973

Museum of Police was built inside the building of the Directorate of Security in Ismailia. It has many guns and weapons which collected from the people who stood still against the British Occupation in 1952.

Memorial status of the unknown soldier of the allies forces in the south of Ismailia in Mariam Mountain. It stands for the victims of the First World War 1914/ 1918.

Orabi Fort in Tal El-Kebeer represents the battle between the leader Ahmed Orabi and the British army in 1882.

Cemetery of the Commonwealth in (Tal El-Kebeer- Fayed- Qatara East- Ismailia city) has the bodies of soldiers in the Second World War.

The French Catholic Church was built in 1930 on the basilica style in Saad Zaghloul Street.

Kantara East was called by the name of Thao in the Ancient Egyptian civilization. It was called in the Roman times " Seek". It was one of the important forts and center for the armies to launch attacks against the enemies of Egypt.

Tal Abu Sefi is south of Kantara East .A Plamatic fort was discovered and ruins of Roman fort in 1907. The excavators found 116 towers in semi-circle. They also found lion limestone statue and hundreds of potty jugs and heads of arrows.

Tal Hebuh in Kantara East, excavators found the remains of military fort of the modern state of the pharos. All the remains of the monuments belong to several ages (Greek- Roman- Pharos).

In Tal El-Maskhoutha, Tal El-Rotubi and Tal El-Koua, excavators found the monuments of Remises the Second.

There are many other monuments in different other places in Ismailia (Tal Hassan Dawoud- Tal El-Hatabi- Tal Abu Nashamah- Tal El-Hatab- Tal El-Bahr- Tal Sheikh Selim and Aum Berdi- Tal El-Sahabah- Tal El-Naiemah and Gamaleen- Tal El-Omdah and Sakayef. Tal Masoud- Tal El-Kafria AND Seadi – Tal Seribuim.

4- Services and infrastructure

4-1 Service of Potable water

- Introduction

The Governorate of Ismailia depends on Ismailia canal as a main source of drinking water. Two Sub-canal were dug to both Prot said in the north and Suez in the south. Ismailia does not depend on the ground water as source of drinking. The governorate has 45 water plants produce around 650,000 m³ per day to about one million people. The waste of water reaches to 10% to 15 % .The actual drinking water is about 500,000 m³ per day. The per capita of drinking water per day is 250 liter. The washing of the drinking water network is done by washing valves and eliminate the waste water in drains.

Table no (21) the length of potable water pipelines in the main plants

Name of the plant	location	Network length by KM	Production volume
Tal El-Kebeer	Tal El-Kebeer	100 km	57,600 m ³ per day
Fayed	Fayed	200 km	72,000 m ³ per day
Qantra West	Qantra West	100 km	28,800 m ³ per day
Suez Canal Authority	Suez Canal Authority	200 km	200,000 m ³ per day

Source of Information : Housing and Utilities Directorate

The total length of the potable water of Ismailia governorate is about 2,000 km without Ismailia city which affiliated to Suez Canal Authority.

- The rate of potable water consumption

The per capita rate of the potable water is about 250 liter /day. The household consumption is 80% and the governmental sector is 5% and the investment sector is 15%.

Table no (22)
Consumption rate for potable water

Serial no.	Sector	Rate of consumption
1	Household	80%
2	Governmental agencies	5%
3	Investment	%15

- Quality of potable water

The analysis results show that taken microscopic samples are in the safe side 100% in Ismailia governorate. The bacteriological samples show 97.2 %of safety. The Chemical samples show 89.9% of safety as a result of the increase of purification operations in the canals and drains. It

has shown also non-purification of the water tanks due to not following the instructions of the directorate of health and population.

Table no (23) the results of quality control of potable water
From 1/1/2006 up to 30/9/2006
Expel networks

Water Operations	First: The networks									
	Chemical				Bacteriology			Microscopic		
	NO	APPLICABLE	NON APPLICABLE	%	NO	NON APPLICABLE	%	NO	NON APPLICABLE	%
Ismailia	293	201	92	31.4	291	2	7	293	--	--
Abu Sweer	42	26	16	38.1	42	--	--	42	--	--
Kasaseen	26	18	8	30.8	26	--	--	26	--	--
Tal El-Kebeer	51	49	2	3.4	51	--	--	51	--	--
Fayed	215	189	26	12.1	215	--	--	215	--	--
Gantara West	72	61	11	15.3	72	--	--	72	--	--
Gantara East	210	196	14	6.7	210	--	--	210	---	--
Total	909	740	169	18.6	907	2	7	909	---	--

Table no (23) the results of quality control of potable water
From 1/1/2006 up to 30/9/2006
Networks

Water Operations	Second: Expels									
	Chemical				Bacteriology			Microscopic		
	NO	APPLICABLE	NON APPLICABLE	%	NO	NON APPLICABLE	%	NO	NON APPLICABLE	%
Ismailia	1418	1277	141	9,9	1391	26	1,8	1418	--	--
Abu Sweer	202	144	58	28,7	169	33	16,3	202	--	--
Kasaseen	291	232	59	20,2	267	24	8,2	291	--	--
Tal El-Kebeer	605	592	13	2.1	602	3	5	609	--	--
Fayed	366	346	20	5,5	364	2	5	366	--	--
Gantara West	561	512	49	8,7	559	2	4	561	--	--

Gantara East	337	296	41	12.2	322	15	4,5	337	---	--
Total	3780	3399	381	10.1	3675	105	2,8	3780	---	--

Source of information : Directorate of Health and Population 2006

S= samples A = applied NA= non- applied

-The problems of operation of drinking water

- 1- The inefficiency of some of the potable water plants according to the specifications rules of 108 of year 1995.
- 2- Non –applicability of catchments of water specifications.
- 3- Washing plants results were eliminated in the same plants and drains.

-The environmental water quality control problems

- Increase of sediment and operations of purification of canals.
- The small doses of alum
- Non-purification of water tanks as per instructions of the Directorate of Health and Population.

-Supervision of the Water quality control

1- Monitoring Plants

There are no monitoring plants, but the monitoring is through supervisors.

2- The Legal criteria

The laws of the Ministry of Health and Population are implemented by the annual and quarterly periodicals. The instructions of the Central Department of the Environmental Affairs follow according to the specifications rules 108 / 1995

3- Responsible Agency

Directorate of Health and Population

4- Program of monitoring and supervision

The samples are taken from the plans and water networks daily. There is a daily analysis by the technicians and health supervisors by the Directorate of Health and Population as per article 6 of law 27 / 1978 paragraph 3 as per the attached schedules.

4-2 The sanitation

1-Introduction

The waste water treatment in the entire governorate is 109,750 m³ per day. There are secondary waste water treatment plants in Ismailia city, Tal El-Kebeer, Qantra West. There is no waste water treatment service for the rest of towns and markazes. Waste water is in tanks to be eliminated by trucks.

Table no. (24) The quantity of daily waste water

Name of Markaz or Town	Volume of daily waste water
City and Markaz of Ismailia	90,000 m ³ per day
City and Markaz of Tal Kebeer	9,750 m ³ per day
City and Markaz Kantara West	10,000 m ³ per day
City and Markaz Kantara East	No waste water plant
City and Markaz Kantara Fayed	No waste water plant
Kasasseen Town	No waste water plant
Abu Souier Town	No waste water plant

Source of information : Local Units in Markazes and cities

2- Service of Waste water in towns and villages of the governorate

It is easy to eliminate the waste water in the towns served by sanitation network, then through drains. But there are some cities which have been shown in the above table have no sanitation network. These towns eliminate the waste water by using sucking trucks for collecting waste water to be poured in canals and drains

First: Towns and villages served by sanitation network

Table no (25) Villages and cities on service

s. no.	Town or village	Treatment unit	canal	Remarks
1-	Markaz and City of Ismailia 1- Ismilia City 2- 2- Future City 3- Nafisha village 4- Abu Atwa village 5- Bahteeni Village	Waste water treatment plant of Ismailia city in Serabuim	Mahsmah drain	Treated waste water according to law 48/ 1982
2	Kantara West Markaz and city 1- Kantara West City 2- Some other cities 3- Abu Khalifa Village	Kantara West City Abu Khalifa Village	Drain no. 1 North Ismailia Canal	Treated waste water according to law 48 / 1982
3	Tel Kebeer Markaz and City 1- Tal Kebber City 2- Some other villages	Tal Kebber Treatment plant	Wadi drain	Treated waste water according to law 48 /1982

Source of information: National authority fro potable water and sanitation and the Projects Executive Agency of Suez Canal Governorates 2006

Second: villages and cities on the process of designing and execution

Table no (26) Villages and cities on process on designing and executing

s. no.	Town or village	Treatment unit	canal	Remarks
1-	Markaz and City of Ismailia 1- Balah Area 2- Abu Sweer City 3- Sabaa Abar village	Waste water treatment plant of Ismailia city in Serabuim and Sabaa Abar village	Mahsmah drain	Treated waste water according to law 48 /1982
2	Markaz and City of Fayed 1-Fayed City 2-Some other cities 3-Serabuim 4-Abu Soltan	Fayed City In Fanara Waste water treatment plant of Ismailia city	Mahsmah drain 400 feddans in wood forest	Treated waste water according to law 48 /1982
3	Tel Kebeer Markaz and City 1- Villages (Zaheria- Bealwa- Gizeera- Khadra- Abu Ashour- Qareen- Bakarsha) 2- Kassesseen City	Tal Kebber Treatment plant Kassaesseen Treatment Unit	Wadi drain	Treated waste water according to law 48 / 1982

Source of information: National authority fro potable water and sanitation and the Projects Executive Agency of Suez Canal Governorates 2006

Third: villages of no system of sanitation

- 1- Citizens are committed to have isolated solid designed tanks in their houses and to be sucked by sucking sanitation trucks affiliated to the sanitation authority and local units. The waste water poured in the nearest drains and to be related to any waste water treatment plant.
- 2- It is not allowed to the citizens by themselves who have no sanitation system to pour waste water in any drains to protect the environment and citizens' health.

Table no. (27) Villages of no sanitation system

S. No.	Name of city or village	Status of the Drain
1	Local Unit of Zaheria village and satellites	Waste Water Tanks
2	Local Unit of Abu Ashour village and satellites	Waste Water Tanks
3	Local Unit of Green Gizeera village and satellites	Waste Water Tanks
4	Local Unit of Kassasseen villages and satellites	Waste Water Tanks
5	Local Unit of Green Valley village and satellites	Waste Water Tanks
6	Local Unit of Aoum Azam villages and satellites	Waste Water Tanks
7	Local Unit of Old Mahsamah village and satellites	Waste Water Tanks
8	Local Unit of city and Markaz of Tal Kebeer	Waste Water Tanks

Source of information: Directorate of Water resources and Irrigation

3- The sewage waste water disposal

Waste water treatment disposed in the drains then to the lakes. Some of the treated waste water is used in irrigating the 500 feddans of wood forest in Serabuim and silk worms' project affiliated to the Suez Canal Authority. While the villages of non- sanitation system can disposed the waste water in desert areas far from dwelling areas. The following table shows the drains and plans affiliated to the General Department of Sanitation in Ismailia. It shows also the volume of waste water poured in the Suez Canal, Morrah Lake and the pool of Sayadeen.

Table no (28) Drains affiliated to the General Department of Sanitation in Ismailia

Name of the Drain	Volume of waste water	The Mouth
Mahsamah	25 m ³ per second	Sayadeen Pool and Temsah Lack
Ferdan	2 m ³ per second	Suez Canal
Abu Gamous	35 m ³ per second	Sayadeen Pool
Drain no. 3 eat of lacks	0,5 m ³ per second	Suez Canal
Serabuim	6,5 m ³ per second	Suez Canal

Source of information: General Department of Sanitation in Ismailia

**Table no (29) Station following the General dep of Sanitation in Ismailia
Which dispose into Suez Canal and Lakes and Sayadeen lake**

Station name	VVolume of waste water	Expel path
Plumbing of Kasasseen	10vper second	Mahsamah then Sayadeen Pool
Pumping of Mariam Mountain	2 m ³ per second	Suez Canal
Pumping of Balah	4 m ³ per second	Suez Canal
Pumping of Fayed	1 m ³ per second	Morah Lake
Pumping of Fanara	1 m ³ per second	Morah Lake

Source of information: General Department of Sanitation in Ismailia

4- Waste Water Treatment stations

Name of Plant	Site	Capacity	Type of Treatment	Total Treatment	Volume of Drains	Location to Drains
Serabuim	Ismailia City	90,000 m ³ per day	Secondary Biological	90,000 m ³ per day	90,000 m ³ per day	Mahasma
Tal Kebeer	Tal Kebeer City	10,000 m ³ per day	Secondary Biological	10,000 m ³ per day	10,000 m ³ per day	Wadi
Abu Kahlifa	Abu Khalifa – Qnatara West	10,000 m ³ per day	Secondary Biological	10,000 m ³ per day	10,000 m ³ per day	Husseinia
Kantara East	Kantara East	7,200 m ³ per day	Secondary Biological	Under construction	Under construction	Irrigation Network

Source of information: local units and markazes and cities.

The system of treatment in Serabium to the waste water of Ismailia city

The waste water passes through mechanical filters to remove sludge. Then water passes through sand sinks then two aéro sinks. Each sink has 20 blowers. The speed of the blower is 975 in case of low oxygen and 834 in case of high oxygen. The water pass through basic

sinks then the duo sinks. The water stays in this sinks for five days. Then it passes through the final sinks which depend on the sun and sledges for another five days. Some of this water is used to irrigate the wood forest affiliated to the Ministry of Agriculture. Some of the water goes to the project of silk worm affiliated to the Suez Canal Authority. Some is used to clean the equipment of the plant. The final and biggest drain of Mahsmah is poured in Temsah Lack.

5- The Industrial waste water

- The average of industrial waste water flow in the industrial area in Kantara East is 25 m³per hour.

(Source of information: committee of Service Department of industrial Areas in Kantara East)

- The average of industrial waste water flow in the industrial area in Ismailia is 104 m³ per hour

Source of information: committee of Service Department of industrial Areas in Ismailia)

- There is no complete industrial waste water plant in Industrial area but there are seven industrial waste water Treatment units in some of the factories. They are the following
 - Industrial Waste Water Treatment Unit of Arab Albumin Company.
 - Industrial Waste Water Treatment Unit of Mohanedes Company (Comply).
 - Industrial Waste Water Treatment Unit of Juton Company for paints.
 - Industrial Waste Water Treatment Unit of Fertical Jeans.
 - Industrial Waste Water Treatment Unit of Watany marble.
 - Industrial Waste Water Treatment Unit of Aman Company for dyeing.
- There is no Industrial waste water unit treatment in Kantara East

6- Monitoring and observation of Waste Water Quality

Responsible Agency

- Directorate of Health and Population
- Committees of Industrial areas.
- EEAA – Regional Office in Suez.

Legal Criteria of Waste Water

The law no 48 / 1982

**Table no (30) the final results of flow in the Waste Water treatment stations
In Ismailia Governorate as of 2006**

Name of the plant	Item no 66 of law 48 / 1982			Item no 66 of law 48 / 1982	
	sample	A	NA	A	NA
Waste Water Treatment Plant in Tal Kebeer	20	20	--	---	---
Waste Water Treatment Plant in Serabuim	8	---	6	2	--
Waste Water Treatment Plant in Abu Khalifa	8	----	8	--	--
Waste Water Treatment Plant in Kantara East	8	---	--	8	--
Total	44	20	14	10	---

Source of information : Directorate of Health and Population

The **Sanitation annex** illustrates the analysis of samples in the waste water treatment plants by the directorate of Health and Population

As for the industrial waste water treatment samples according to law 93/19620

Table (31) Last results of the Industrial waste water samples according to the decree 44/ 2000 in 2006

Name of Agency	location	No. of samples	Applied	Applied
Pearls Factory for Meat productions	Ismailia	1	1	-----
Medical professions Company	Ismailia	1	1	-----
Waste Water plant of Abu Sultan Electrical Company	Fayed	1	1	-----
Sweet Son bola Factory	Ismailia	1	1	-----
Pepsi Cola Factory	Ismailia	1	1	-----
Heinz Food Factory	Ismailia	1	1	-----
Mona Lisa Factory	Ismailia	1	1	-----

Source of information: Directorate of Health and Population

Sample of Emby Factory

Number of taken samples	Applied	Non- Applied
5	-----	5

The number of non- applied samples is 5 as per ministerial decree 48 of 1982

Legal criteria to be used

- Law 48/ 1982 for waste water
- Law 93 / 1962 for industrial waste water

7- The environmental problems of the waste water sector

The waste water

The waste water system has not been applied in many villages, cities and markazes. There are many fines on the drains and canals which affected passively the quality of water in these drains. Some of the drains pour the waster water directly in Temsah and bitter lakes and Suez Canal.

The industrial waste water

There are no industrial waste water units in most of the industrial establishments. Some of these agencies through the industrial waste water on the ground. The moat important problem is that the mixture of the human and industrial waste water in the treatment plant in Kantara East.

4-3 Solid Waste Management

4-3-1 Introduction

One of the main problems is the solid waste management in the developing countries Although huge efforts have been done since the last few years but there are still many problems to be solved. The local units can not deal with the huge increase of solid waste in cities due to the increase of the human activities and human population. The most important challenging which faces Egypt in this concern are:

- **Inefficiency of Management:** we mean that there is no chart and administrative structure to mange, monitor the collection of waste.
- **Shortage of fund:** Egypt dose not consider the solid waste management as one of its priorities in compare with sanitation, waste water treatment, electricity and paving roads.
- **Shortage of Technical Specifications for license :** there is no fixed clear conditions for providing license to the companies.
- **Shortage of Experiences:** the companies which work in this field have no good experience in dealing with this issue.
- **Reluctance of Civil Society:** the local society and NGOs Do not care for solving this problem.

- **Shortage of land fills**; the governorates do not proper land fill for the solid waste in most of the towns and villages.
- **Unclear policy** for recycling: the government does have clear vision to use the materials of the solid waste. There is no governmental monitoring or system to this important issue.

4-3-2 Sources of solid waste

The most important places of solid waste are:

Houses' waste- streets' waste- Clubs waste- Commercial and industrial waste- Tourist activities waste- buildings waste- non hazardous medical waste

4-3-3 Volume of solid waste

The daily solid waste in Ismailia governorate is 572 tones. The Local Units in cities Markazes manage the solid waste by collecting, transporting, dealing and final Disposing in two recycling factories for compost

Table no (32) the daily volume of Solid Waste in cities and markazes in Ismailia

Name of Markaz	Volume of solid waste by tone per day
City and markaz of Ismallia	336 tons per day
City and markaz of Fayed	73 tons per day
City and markaz of Kantara West	117 tons per day
City and markaz of Qanatara East	26 tons per day
City and markaz of Tal Kebeer	13,5 tons per day
City of Kassassen	2 tons per day
City of Abu Sweer	4,5 tons per day
Total	572 tons per day

Source of information: Local Units in cities and markazes

4-3-4 The components of solid waste

It consists of food waste- paper- plastic bags- materials – plastics – non–recycling matters- glass- textiles.

4-3-5 Solid Waste Management system

The local units in the governorate collect the solid waste in the small containers in the streets and there are also manual tools and some modern equipment such as tractors and trailers. The solid waste transfers to other trucks to go to the public fill land in the desert near Ismailia city. Some other land fill are made in the far distance of Ismailia city. The two recycling factories use the waste to produce compost.

The recycling factories

There are two recycling factories

1-The first factory is in 11 km in Ismailia – Sues Desert road

- **The total area :** 17600 m sq
- **The operation started:** 2001 (6- months was managed by Italian Company- 7 months was managed by contractor- The military forcers managed it as of July 2006).
- **The Current management;** Ismailia City Council.
- **Maximum capacity :** 160 tones per 10 hours
- **The actual current capacity :** 50 tones per 8 hours
- **Number of shifts :** one shift
- **Number of working hours:** 8 hours
- **Number of manpower:** 6 workers plus management. It can increase the number to 15 in time of more capacity.

Production of the factory

Type of Production	Volume of Production per year	Value of production per year
compost	300 m ³	12,000 Egyptian pound
Recycled materials	None	None
Other materials	None	None

The quality and quantity of equipment for the two factories

Name of equipment	Number of equipment
Bulldozer	1
Cat loader(Military factory)	2
Truck	3
Tractor with trailer	4
Scrapping Machine	1
Spray water trailer	1

2-The second factory: New Swiss recycling factory in 11 km Ismailia- Suez Desert Road.

- **The total area :** 250,000 m sq
- **The operation started:** 2004 (stopped them managed it as of July 2006).
- **The factory built :** Military forces
- **The Current management;** Ismailia City Council.
- **Maximum capacity :** 160 tones per 10 hours
- **The actual current capacity :**50 tones per 8 hours
- **Number of shifts :** one shift
- **Number of working hours:** 8 hours

Number of manpower: 6 workers plus management. It can increase the number to 15 in time of more capacity

Production of the factory

Type of Production	Volume of Production per year	Value of production per year
Compost	300 m ³	12,000 Egyptian pound
Recycled materials	None	None
Other materials	None	None

Recycling agriculture waste

There is no recycling agriculture waste factory in Ismailia. There is a compost old factory which shredding the waste of trees and the waste water to be used as compost.

There is unused shedding machine in the Swiss recycling factory. But some of the NGOs have tried to work in the agriculture waste business.

Data about the public land fill

- **Name of the Land fill:** new land fill.
- Address :** Ismailia –Abu Balah Road
- Operating company:** Ismailia City Council
- Ownership:** Ismailia Governorate
- Agency in Charge:** Ismailia City Council
- Date of commence:** 2000
- Total Area:** 400 Fadden
- Total covered area of solid waste:** 25 Fadden
- Total daily solid waste :** 200 tones
- Average of humidity :** not measured
- Type of solid waste:** household, industrial and building waste.
- Components of waste:** **From Cities** (organic waste in limited volume.)
- From Industrial areas:** First, second industrial areas in Ismailia

- (Building waste- Chemicals- industrial materials)
- The average** of the Organic waste ; 5%
- **The Depth of Solid waste** : 2.5 m
- The final depth of waste** : 3.5 m
- **Density of dumping waste** : 150 tones
- The capacity of covering waste**: 8000msq
- Capacity of not used covering waste**: sq
- Working days**: all the week
- Expected number of operating of the land fill** : 50 years
- Feed back system**: manual assorting (plastics- glass- board paper....etc)
- The operating system**: two shifts- eight working hours from 8:00am up to 4:00 pm
From 4:00pm to 12 pm
- Other potentialities** : there is no other potentiality to dumb hazardous waste
- Non- recycled waste**: 60% of the solid waste are disposed in the public land fill
- System of work**: the land fill is about 111 Fadden of Dune sand. It has all types of solid waste. The non- recycled waste can be covered in the land fill.
- The Land fill**: it has no cells. It is not prepared in good way to dispose the solid waste.

4-3-6 Requirements of Solid Waste Management

The Integrate Solid Waste Management System needs the following elements

- The technical and institutional support to have integrated system
- Manpower availability
- Availability of land fill in cities and markazes
- Availability of financial support.
- Modern equipment

4-3-7 Healthcare Waste

One of the very important challenges of the solid waste is the health care waste. There are few numbers of incinerators under the supervision of the Directorate of Health and Population. The number of incinerators is eight as per table plus to the incinerator of Suez Canal Authority hospital.

- Some of the hospitals which have no incinerators collect the hazardous waste in the red plastic kids. Injections and sharp tools are put in controlled packs. The hazardous waste of the clinics, labs, private hospitals contracted with any pubic hospital has incinerators with unprepared trucks.
- There is no real disposal of the ashes of the healthcare waste.
- The inefficiency of incinerators to reduce harmful emissions.

Table (33) data of incinerators in the governorate

S. No.	Name of Incinerator	Capacity	Work	Out of Work	Efficiency
1	Kantara East hospital	50 kg per hour	OK		Applied
2	Kantara West hospital	100 kg per hour	OK		Applied
3	Tal Kebeer Hospital	100 kg per hour	OK		Applied
4	Fevers Ismailia Hospital	100 kg per hour	OK		Applied
5	Blood Bank(two incinerators)	70 kg per hour		OW	Non-applied
6	Ismailia Public Hospital	50 kg per hour		OW	Non-applied
7	Joint Laboratory	50 kg per hour		OW	Non-applied
8	Suez Canal Authority Hospital	100 kg per hour	OK		Applied
9	Suez Canal University Hospital	100 kg per hour	OK		Applied

4-3-8 Slaughterhouse wastes

There are 11 slaughterhouses in Ismailia Governorate.
The number of slaughtered animals is 21325.

Table no (34) slaughterhouses in Ismailia Governorate

Name of City or locality	Number of slaughterhouses	Number of cattle
City and Markaz of Ismailia	3	14109
City and Markaz of Tal Kebeer	2	2145
City and Markaz of Fayed	4	2078
City and Markaz of West Kantara	2	2993
City and Markaz of East Kantara	Out of work	Out of work
Total	11	21325

Source of information: Directorate of Veterinary

The butchering waste was transported to public land fills, while liquid waste of the butchering disposed in the sanitation network. It is some time collected in trucks. Poultry slaughterhouses

such as Ismailia Poultry Slaughterhouse and Second Army slaughter house in Abu Sweer have their own treatment unit.

Table no.(35) Slaughterhouse waste disposal

Markaz	Name of slaughterhouse	Address	Efficiency	Area M2	Production capacity	Disposal
Ismailia	1- Abu Atwa 2- Abu Sweer	Ismailia Abu Sweer	Good	1260 1200	18,000 2,500	Public land fill
Fayed	1- Fayed 2- Fanarah 3- Abu Soltan 4- Serabuim	Fayed Fanarah Abu Soltan Serabuim	Good	1200 200 300 1200	2,500 1,200 1,200 1,200	Public land fill
Tal Kebeer	1- Tal Kebeer 2- Kassasseen	Tal Kebeer Kassasseen	Good	1200 1200	2,500 2,500	Public land fill
Kantara West	1- Kantara West 2- Abu Khalifa	Kantara West	Good	12,600 300	2,500 1,200	Public land fill
Qanatarra East	Qanatarra East	Qanatarra East	Good	300	-----	-----

There are 611 poultry farms in Ismailia used seven Slaughterhouses, listed as following

Table no (36) Poultry slaughterhouses in Ismailia

Name	Authority	Type	Capacity	Stock capacity of the slaughterhouse fridge	Transporting slaughtered poultry	Waste disposal	
						Liquid	Solid
Ismailia for manufacturing meat	Industrial area	Automatic	20,000 Shift		Transported by equipped trucks to Vendors ports	Through sewage network	Through waste units in the factory
Second Army slaughterhouse	Abou Sowier	Semi automatic	8,000 shift	100 Tons		Through sewage network	Through waste units in the factory
Ismailia Egypt for Poultry slaughterhouse	Sarabioum	Semi Automatic	16,000 shift	100 Tons		Through sewage network	Through waste units in Foudina factory

Golden company slaughterhouse	Salam cooperation	Semi automatic	7,000 shift	100 Tons	Transported by equipped trucks to Vendors ports	Through sewage network	Through waste units in Foudina factory
Golden Hen slaughterhouse	Km 7 at Port Saied Road	Manual	500 shift	5 Tons		Through sewage network	Through waste units in Foudina factory
Abou Soultan slaughterhouse	Abou Soultan	Manual	500 shift	5 Tons		Through sewage network	Through waste units in Foudina factory
Integration slaughterhouse	Km 7 at Port Saied Road	Manual	500 shift	5 Tons		Through sewage network	Through waste units in Foudina factory

Source of information: Directorate of Veterinary

4-3-9 Responsible agencies of Solid Waste Management

- Districts – local units on the level of the Governorate.(Solid Waste Management)
- Directorate of Health and Population(Environmental Health Department)
- Directorate of Veterinary (Slaughtering Department)

4-3-10 Used Legal Criteria

- Law 38/ 1967
- Environmental law 94 / 1994

4-3-11 The environmental Impacts on the solid waste

Air : the environmental impacts

- The fines of solid waste by wind.
- The odors and gases of the organic waste.
- Poisonous gases as chemical waste.
- Poisonous gases of open areas.

Water : environmental impacts

- Increase of water Sediment.
- Increase hanging solid waste
- Contaminated water as a result of dirt

- Contaminated ground water as a result of dirt.
- Impact of water quality as a result of treatment of contaminated water

4-3-12 Health impacts

As a result of accumulation of the solid waste, the number of insects and rodents increase rapidly. The health of citizens is threatened by many diseases. The governorate coordinates with the Directorate of Health and Population to eliminate the great number of the insects and rodents.

4-3-13 Policies of Solid Waste Management

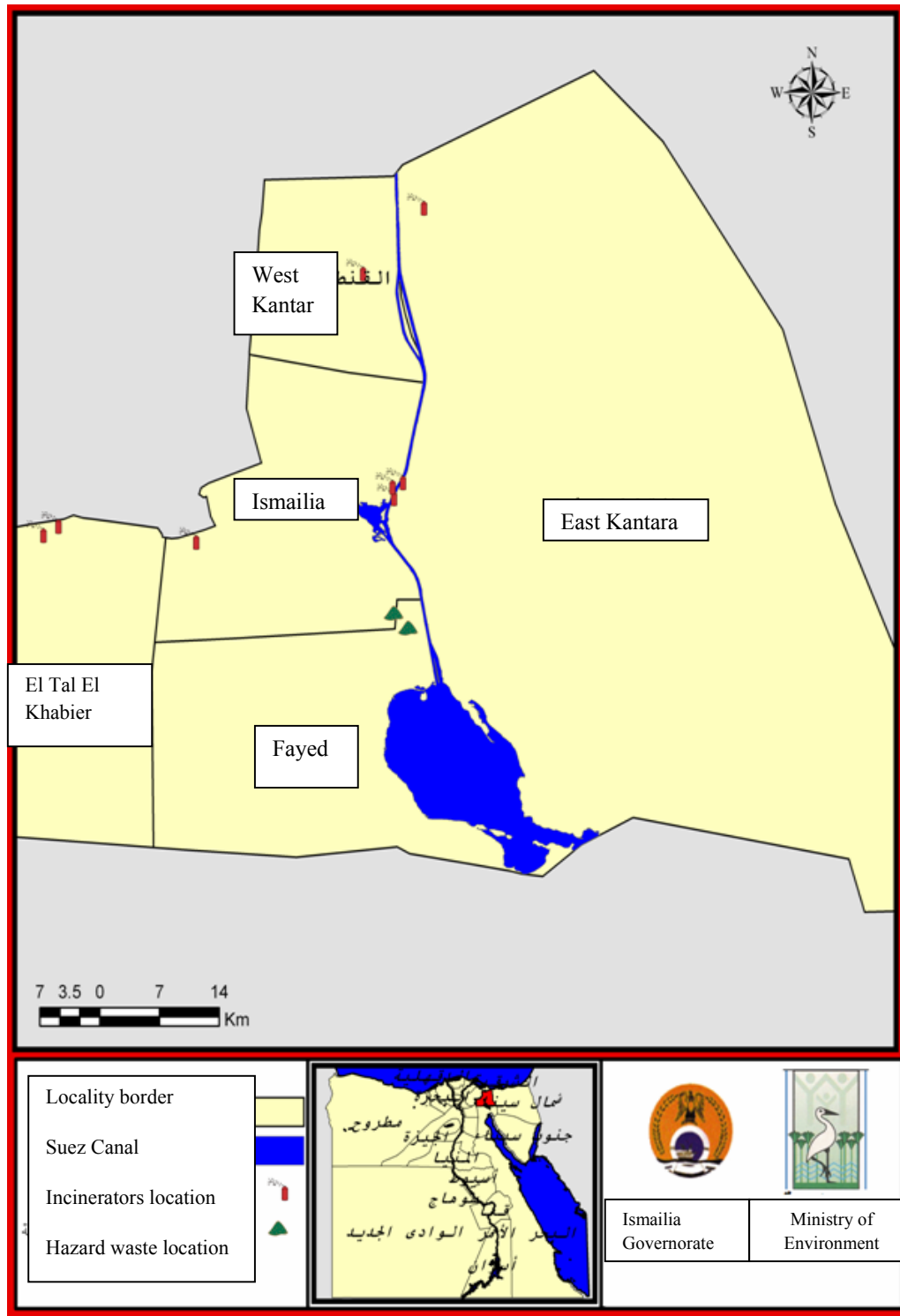
- On the short run

The governorate has tried to eliminate one third of the accumulated daily solid waste. At the same time, it tries modernizing the mechanical fleet and increases the manpower in all the local units.

- On the long run

- The governorate will try to have an integrated management system includes recycling of solid and agricultural waste.
- The Governorate will try to remove all the obstacles which face the recycling factories to produce compost and increase the production capacity of the two existed factories.
- The governorate will try to remove the slaughterhouses in the dwelling areas and to have new specifications to have new environmental rules for building new slaughter houses.

Map number (5)
Solid and Hazardous Waste land fill



Environmental profile of Ismailia

4-4- Energy

4-4-1 Utilizing Energy

Ismailia governorate depends on the electrical energy as the main source of all the other activities. The tables will show the consumption of electrical energy in Ismailia Governorate

Table no. (37) The annual consumption of electricity

Sectors	Annual consumption
Industrial and agricultural production	131,081,754 k watt
Public Utilities	Un limited
Houses	1,179,736,041
Industrial Free zones and investment of industrialization and re-import	Including the industrial and agricultural production

Source of information: Directorate of Electricity and Energy

Table no (38) Consumption of different sectors of electrical energy

Sector	Industrial Production	Agricultural Production	Total	Percentage of Consumption
Local governance	-----	10,675,939	-----	8,94 %
Ministry of Defense	1,650,000	965,000	1,130,000	0,95 %
Business Sector	645,733	2,329,229	2,974,962	2,49%
Public Sector	262,615	-----	262,615	0,22%
Private sector	1,223,890	17,170,004	18,293,894	15,40 %
Investment Sector	4,575,204	702,960	5,277,164	4,42 %
Public Utilities	Quantity	-----	-----	-----
Sanitation	1,987,347	-----	-----	1,66%
Water	3,769,334	-----	-----	3,16 %
Governmental Agencies	7,051,712	-----	-----	5,90 %
Public Lightening	13,120,711	-----	-----	10,99 %
Houses	4,186,263	-----	-----	35,06 %
Industrial Free Zones	379,191	-----	-----	0,32 %

Source of information: Directorate of Electricity and Energy

The average of the per capita of the electrical consumption is 1519 kilo watt annually in the governorate. The EEAA Suez regional Branch has declared the results of the environmental monitoring of the air. The average of holdings in the air is less than the rules of the environmental law 4/1994. Although Ismailia governorate is surrounded by desert areas, that is

why the average of dust and wind is more than usual. The wood forest and Mango trees and dates palms have a very positive impact to reduce the dust and holdings in the air.

As a result of the measurements, the contaminated air is not a big problem to Ismailia governorate

Most of the factories in Ismailia have no contaminations in the air. Moreover, Majority of the big industrial activities in Ismailia are gathered in the First and Second Industrial areas. These areas are far 10 km from Ismailia city. Even the factories in Ismailia city are food and textiles and electronics. The governorate is applying the legal regulations of bakeries, restaurants and private workshops.

The legal limits

Law 4 / 1994 and its executive regulations

Monitoring and observation programs

The EEAA Regional branch in Suez observes and monitors all the industrial activities which may cause damage to the environment. The Energy annex illustrates the measurement of the monitoring laboratory of the pollutants in the air is done by EEAA Regional Branch in Suez as per environmental law 4 / 1994.

Environmental Impacts

There are no environmental impacts on the air in the governorate. As we said before that the clean air of Ismailia is affected by the increasing of green area. Moreover, the industrial areas are far from dwelling areas. At the same time the workshops have been built out the dwelling areas.

Health Impacts

No health impacts are in the air

5- Urban environment

5-1 Introduction

Urban development planning of Ismailia City has been prepared and reviewed since 1976. These have been the causes to be coordinated with the potentialities of development to the city. As follows:

- 1- The immigration to Ismailia Governorate increased among 1976-1986. The phenomena of slums around the city increased gradually to reach to 13 slums.
- 2- The increase of population in both city and markaz reached to 458, 000 by 1995. Naturally, the urban extension grew around the old city. Much agricultural area had been used for building new houses. The extension went into the eastern direction and many areas had been developed to in the western direction.
- 3- The architect style of the old city has been changed to a new modern one

5-2 Current housing, towns and villages

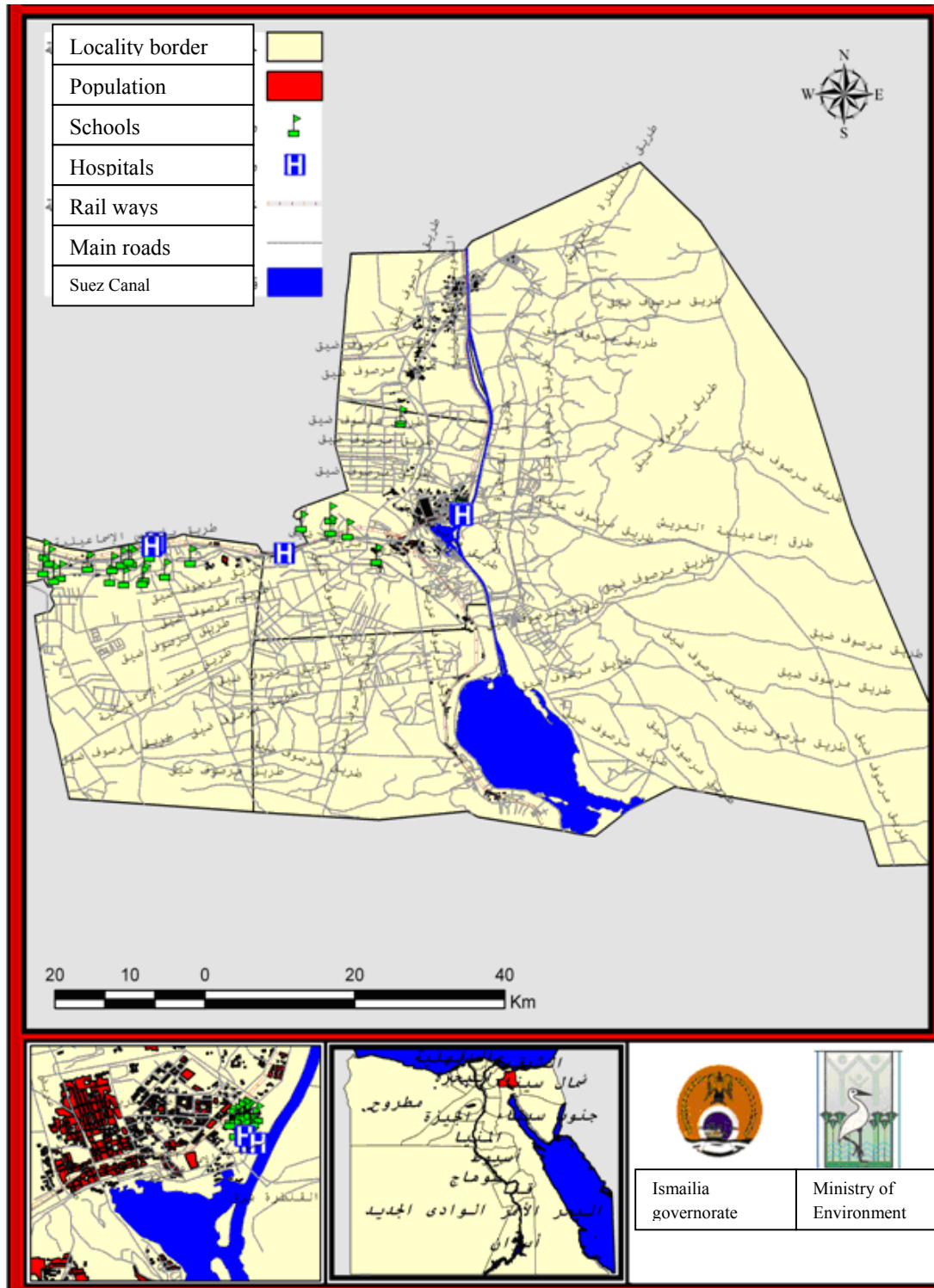
- 1- **urban areas** : 7 cities (Ismailia- Kantara West- Kantara East- Fayed- Tal Kebeer- Kassassen- Abu Sweer)
- 2- **Rural areas**: 25 villages
- 3- **Slums: 21 areas** (6 areas have been developed: Salam District- Abu Atwa- Shouhadaa- Safa and Marwa- Zamzam) the rest of the slums need development.

Table no (39) Total number of cities and villages in Ismailia governorate

Name of Markaz or City	Name of the city	Name of the village
Markaz and city of Ismailia	city of Ismailia	Ain gassen- Dabaya- Nafesha- Manayeeef- Sabaa Abar- Abu sweer- Ferdan
Markaz and city of Tal Kabeer	city of Tal Kabeer	Old mahasmah- old Kassasseen- Zaherya- Abu Ashour- Green Valley- Green Gizeera
Markaz and city of Fayed	city of Fayed	Abu Sultan-Serabuim- Fanarah
Markaz and city of Kantara West	city of Kantara West	Abu Khalifa- Al-Rayah- Baydia- Nasr
Markaz and city of Kantara East	city of Kantara East	Abtal- Takadom- Gelbanah- Sherouk
New Kassasseen City	New Kassasseen City	-----
Abu Sweer City	Abu Sweer City	-----
Total		25 villages

Source of information: Center of information and support decision making

Map number (6)
Residential areas and main roads in Ismailia governorate



Environmental profile of Ismailia

5-3The proposal of new cities

First : planning quandaries to the new cities

The developing of the quatrains around the seven new cities has been completed (Ismailia- Fayed- Tal Kebeer- Qantra West- Qantra East- Kassasseen- Abu Sweer). This planning has been approved by the committee of security and administrative division. It has been approved from the People and local council of Ismailia. Statements of the new survey have been prepared with maps of all the cities. These plans will be sent to the ministry of Local Development in order to take necessary actions.

Second: Urban ownership

1- Ownership of Urban areas

6 of the Governorate's cities have been finished regarding the adoption of tenure, these cities are: (Ismailia, Fayed, East Kantara, West Kantara, El Tal El Khabier, New Kasaseen), and it is currently being prepared for Abou Souier city.

2- Ownership of rural areas

The surveys have been done to all the dwelling areas in the Governorate. Maps have been sent to the Ministry of Agriculture to be documented. Ownership of urban areas is in villages. 25 villages have been document zed. It has been sent to the General Authority of urban planning.

By reviewing table no (4) illustrating the slim areas to be developed in Ismailia Governorate

S. No	City and Markaz	Name of Area	Area	Population
<u>1</u>	City and localities of Ismailia	<u>KM 2</u> <u>Adam</u> <u>Halws</u> <u>Bahteeni</u> <u>Rail Way</u> <u>Nafesha</u> <u>Shohadaa</u> <u>Ain Ghaseen</u>	176 Fadden 159 faddan 40 faddan 170 faddan 80 faddan 50 faddan 130 faddan -----	255134 7500 2000 8500 4000 2500 6500
<u>2</u>	City and localities of Abu Sweer	<u>Abu Sweer Station</u> <u>Abu Sweer Balad</u> <u>Samakeen</u> <u>Abu Balah</u>	80 Faddan 180 Faddan 200 Faddan	18331 9000 10000
<u>3</u>	City and localities of Tal Kebeer	City and Locality of Tal Kebeer	142 km	31410
<u>4</u>	City and localities of Kassasseen	City and Locality of Kassasseen	120 km	11948

<u>5</u>	City and localities of Fayed	City and Locality of Fayed	853 km	15652
<u>6</u>	City and Locality of Kantara West	City and Locality of Kantara West	250 km	----- -
<u>7</u>	City and Locality of Kantara East	City and Locality of Kantara East	209 km	12116

Source of information: Department of Urban planning in the Governorate

5-4 New communities

The new and planned cities and communities:

- 1- Moustabla (Future) city
- 2- Mubarak district (the ring road).
- 3- Technology Valley in Kantara East in 10000 acres.

Moustakbal city is one of these new cities

- Population of the city: 20,000
- Services of the City: 10 Governmental Agencies.
- 2 Governmental Agencies under construction.
- State schools(3 primary schools- Azhari School- One Joint Preparatory School- One Secondary school).
- Number of mosques: (3 state mosques- 2 private mosques).
- Number of Medical centers: one medical centre.
- No Sanitation, Electricity, telephones and potable water networks.

5-5 Use of residential lands

The land use in Ismailia Governorate is divided into 5 main sectors. These areas are inhabited by agricultural areas, industrial areas, and quarries mines coastal areas.

Land use in the Governorate

S. No.	Name of the area	Percentage of used land
1	Inhabited areas	30 %
2	Agricultural areas	50%
3	Industrial areas	5%
4	Mines and quarries	2%
5	Water coastal areas	3%

Source of information: Department of Housing and Utilities

Table no. (40) Total area of the Governorate 5,066,958 km sq distributed among the localities

City and Markaz	Total area (km sq)
City and Locality of Ismailia	1,693,672
City and Locality of Fayed	127,697

City and Locality of Kantara East	2,449,235
City and Locality of Kantara West	88,235
City and Locality of Tal Kebeer, Kassassen – Abu sweer	708,119
Total	5,066,958

Source of information: Center of information and support decision making

Table no (41) Distribution of land use in the Governorate

Data	Total area (km)
Housing in scatter areas	290,315
Utilities and Cemeteries	54,238
Pools and poor land	364,889
Agricultural area inside the quatrains	57,811
Agricultural area outside the quatrains	495,405
The percentage of total inhabited area	30%
the populated areas for total area	17,038
Populated area for total populated areas	564
Total are	5,066,958

Source of information: Center of information and support decision making

Industrials uses

Table no. (42) Distribution of land in the Governorate for industrial uses

Name of Area	Location	Area
First industrial area	West of Ismailia City	365 Faddens
Second Industrial area	West of Ismailia City	170 Faddens
Technology Valley	Industrial area of Kantara east 14 km	6500 Faddens
Free Zone	West of Ismailia city in Cairo- Port Said road	775 Faddens
Industrial area in Qanatra East	Qanatar East to Kantara / Port Foad in the west and east sides	910 Faddens
Industrial area in Abu Khalifa village	Abu Khalifa village	19 Faddens
Industrial area in Kanatra West (undercopenstruction)	Qanatra West	22 Faddens
Total	-----	18761 Faddens

Source of information: Center of information and support decision making

Using the rail ways

Rail ways links the governorate with neighboring governorates such as Cairo, Port Said and Suez

Using the infrastructure

**Table no (43) Distribution of the used roads
In City and Localities of Ismailia**

Total length of Paved roads	70,089 km
Speed roads	175 km
Main roads	207 km
Regional roads	15 km
Small roads	374 km
Population share of paved roads	3,749,461km
Total length of unpaved roads	214 km

In City and Localities of Tal Kebeer

Total length of Paved roads	263 km
Speed roads	-----
Main roads	52km
Regional roads	67 km
Small roads	138km
Population share of paved roads	577,007
Total length of unpaved roads	157km

In City and Localities of West Kantara

Total length of Paved roads	245 km
Speed roads	-----
Main roads	54km
Regional roads	42 km
Small roads	148km
Population share of paved roads	365
Total length of unpaved roads	231km

In City and Localities of East Kantara

Total length of Paved roads	426 km
Speed roads	-----
Main roads	-----km
Regional roads	47 km
Small roads	189km
Population share of paved roads	117
Total length of unpaved roads	32km

In City and Localities of Fayed

Total length of Paved roads	205km
Speed roads	-----
Main roads	56km
Regional roads	32km
Small roads	110km
Population share of paved roads	439
Total length of unpaved roads	48km

Source of information: Center of information and support decision making

Used Green areas

Table no (44) the green areas, parks and gardens in Ismailia

<u>Name of city and locality</u>	<u>No. of gardens and parks</u>	<u>Fadden</u>
First district	108	20,358
Second district	17	32,649
Third District	14	154,976
Suez Canal Authority	13	40,620
City and Locality of Tal Kebeer	4	20 fadden
City and Locality of Fayed	13	14,144
City and Locality of Kantara West	11	5,474
City and Locality of Kantara East	9	9,144
City and Locality of Abu Sweer	1	400 m
New city of Kassasseen	2	One Fadden
Clubs, Olympic villages and tourist villages	-----	282,551

Source of information: gardens and parks Department in the Governorate

Land Use

Table (45) Land use in Ismailia

<u>S.NO.</u>	<u>Name of city and locality (Markaz)</u>	<u>Area</u>
1	City and Locality of Ismailia	<u>6000 m + 250 Faddens extension to Ismailia Urban area</u>
2	City and Locality of Kantara East	<u>600 faddens –east of Suez Canal-10000 Faddens Moustabla city and Technology Valley</u>
3	City and Locality of Kantara West	<u>All land uses owns by people</u>
4	City and Locality of Tal kebeer	<u>3000 m³ free</u>
5	City and Locality of Fayed	<u>Neither public nor private lands</u>
6	City of Kassasseen	<u>Neither public nor private lands</u>
7	City and Locality of Abu Sweer	<u>71 fadden public properties</u>

Source of information: local units of cities and markazes

5-6 Available Urban services

The available services – potable water- sanitation- collection of Solid waste- electricity – Health care.

The Natural Gas

The natural gas network has been done in the second and third districts but the other parts of the governorate are still using the gas cylinder

Telephones

Table no(46) Telephone uses in Ismailia

<u>Name of city and locality</u>	<u>Total number of lines</u>	<u>Telephone users</u>
City and Locality of Ismailia	158736	3
City and Locality of Tal kebeer	23088	7
City and Locality of Fayed	24600	4
City and Locality of Kantara West	16016	6
City and Locality of Kantara East	10000	3

Source of information: Center of information and support decision making

Table no (47) Communication network in Ismailia

City and Locality of Ismailia

Total number of Central	12
Total number of lines	158736
Total number of Post offices	20 offices

City and Locality of El Tal El Khabier

Total number of Central	6
Total number of lines	23088
Total number of Post offices	17 offices

City and Locality of East Kantara

Total number of Central	6
Total number of lines	10000
Total number of Post offices	3 offices

City and Locality of West Kantara

Total number of Central	6
Total number of lines	16016
Total number of Post offices	3 offices

City and Locality of Fayed

Total number of Central	5
Total number of lines	24600
Total number of Post offices	5 offices

Source of information: Center of information and support decision making

Transportation:

External transportation:

- 1- Rental cars (Taxi)
- 2- Pullman bus with fixed times headed to other governorates. (Cairo, Arish, Port Saied, Sharm El Sheik, Dahab, Taba, Newibaa, Alexandria, Luxor, Hurghada, Safaga, Qena, Sohag, Asuite, Suez, Damietta, Mansoura and Zagazzed)
- 3- Rail ways link between Ismailia and other governorates.

Internal transportation:

- Taxi
- Microbus

Education:

Table (48): Education percentage in Ismailia governorate

Country	Literacy percentage 2004	Percentage of recorded students in all education stages	Education manual	Percentage of technical education to total high school education	Percentage of recorded students in the primary and secondary stages			Total school not suitable buildings
					Gov schools	Private schools	Azhar schools	
Ismailia	72.9	74.2	0.7	63.6	89.2	4.5	6.1	15.2
Egypt	65.7	74.9	0.7	59.1	84.7	7.1	8.4	21.4

(Source of information: Human development report 2005)

The above table shows the increase of reading and writing rate also the increase of technical secondary education comparing to the sum of education in the year 2004.

The registration records in primary and secondary schools (governmental schools) also increased in Ismailia compared with other governorates.

Also the table shows the decrease of percentage of registration in all education stages for private and Azhar schools also shows the decrease of the percentage of buildings not suitable

for learning in Ismailia compared with other governorates. Moreover it shows the equality of education manual percentage in Ismailia comparing with other governorates.

The **Education annex** shows the distribution of population on different education stages.

5-7 Main economical sectors:

Industrial activities vary in the governorate as following:

- 1- Food industry, 38 factories.
- 2- Clothes, 6 factories.
- 3- Chemicals, 14 factories.
- 4- Leather, 6 factories.
- 5- Plastic, 14 factories.
- 6- Electronics, 9 factories.
- 7- Cement and marble, 18 factories.
- 8- Wood and Furniture, 6 factories.
- 9- Metal, 18 factories.

Industry annex shows an analyzed statement for the projects working in the First and Second Industrial areas and also in the Industrial complex in Ismailia.

Valley of Technology Project:

It is considered one of the huge national projects in Egypt, it mainly depends on high technology industries to cope with the modern integrated development that includes (Electronics- programming – communication- Medical industries- Organic technology and Genetic engineering).

This project located in East Kantara city and Markaz, it is 35 Km away from the industrial area in East Kantara. Area of the Valley of Technology is 16500 acres.

Strategic goal of the project:

- Establish a new urban community in the area of East Canal, and to achieve the integrated development through this project and the capability to cope with modern technical progress.
- To change Egypt from an importing of technology country into a producing and exporting technology country through establishing a wide base of working in this field.

Components of Valley of Technology project:

- The main elements in this project include industrial activities, research and scientific activities, sports and entertainment activities, housing activities, in addition to services and commercial activities.

Table (49) Proposed general structure for the land use of the project

Usage	Area in acres	Percentage
World Trade Center and continues show area	25,0	0,2%
Labors housing	1394	8,6%
Special housing	1015,2	6,2%
High tech industries	1431,2	8,8%
Integrated industries	781,4	4,8%
Small industries	1392,2	8,6%
Open green areas	6674,4	41%
Entertainment areas	548,3	4,3%
Multi sports playgrounds	205,6	1,2%
Shinning and uploading area	127,9	0,8%
Administrative services	16,5	0,1%

Administrative and commercial services	569,7	3,5%
Technology university	78,5	0,5%
Water surfaces areas	142,1	0,9%
Road network	1877,5	11,4%
Total	16279	100%

Source of information: Valley of Technology project

Site executive: what has been accomplished:

Project stages:

The project as a whole divides into 5 stages; each one is about 3000- 3500 acres.

First stage:

Total area about 3021 acres, it was divided into 6 sectors, work already done in the first sector (urgent stage) total area 215 acres, infra structure have been linked to this sector (roads, water, electricity, sewage) and services (ambulance, fire station, show area, telephone services) through the government budget.

Table (50): Statement for the industrial and services companies specified in the Urgent stage

Company name	Area	Activity
El Ahly for telecommunications	60621 m3 (about 14 acres)	Smart cards applications and satellite communication
		Paid telephone machines (by currency)
		Manufacturer of satellite accessories like flat Pneumatics, satellite digital receiver components

Selicon Valley	193367 m3 (about 46 acres)	Manufacturer of Smart cards used in banks, hotels and security and telecommunications
Egypt Medical Dr. Amr Abdel Halim	28800m3 (about 7 acres)	Manufacturer of medical equipments (cardiology equipments, blood pressure with computer)
BIC company for electronics and power	12889m3 (about3 acres)	Manufacturer of electronic circuits and Photovoltaic cells

Source of information: Management of Valley of Technology project

Table (51): companies specified in the service area in the Urgent stage (under construction)

Company name	Area	Activity
National bank of Egypt in Cairo	1997 m2	Bank construction and administrative housing
Egypt- Ismailia bank	1000 m2	Bank construction and administrative housing
Alexandria- Ismailia bank	1000 m2	Bank construction and administrative housing`
Gamry Tours	1960 M2	Hotel construction and Mall

Source of information: Management of Valley of Technology project

5-8 Environmental problems related to Urban environment:

Environmental problems related to these sectors occurs as some industrial activities does not have industrial water treatment units, in addition to some platforms did not comply their conditions yet, as a result some emissions come out from them, these emissions do not fit

with the emission standards, in addition to noise problems which come out from some commercial activities.

5-9 Environmental Monitoring and control programs:

There are points for monitoring air, these points found in 3 locations (traffic point, industrial point, residential point).

As for measuring and monitoring water quality, it is done through measuring water quality of Ismailia Canal inside the governorate borders.

Authorities in charge:

- EEA RBO in Suez
- Health authority.

Measuring and monitoring of water and air:

It is done by the knowledge of EEAA RBO in Suez. Air quality in Ismailia is monitored in Summer and Spring, also temperature, humidity and wind speed all are measured. There are points established to measure SO₂- NO₂- TSP- PM₁₀- O₃ by microgram/ M3 from the three locations (traffic point, industrial point, residential point).

As for measuring and monitoring of water quality, it is done for water in Ismailia water canal inside the governorate borders to measure temperature, hydrogen, dissolved oxygen, sum of solid substances, sulfurs , alkaline, chemical consumed oxygen, Nitrates, ammonia, sum of Phosphorus, organic nitrogen, turbidity, sum of nitrogen. They are measured by milligram/ liter (drinking water annex shows the results of Ismailia canal water quality monitoring)

Standards and agreed limitations for water/ air:

- Law 4/ 1994 and its executive list.
- Law 48/ 1982 and its executive list.
- Law 93/ 1962 and its executive list.

6- Economical activities:

6-1 Agriculture

6-1-1 Introduction:

Planted area in Ismailia is 337626 acres, the governorate is specialized by the expanding in agriculture production as the reclaimed area is about 3634 acres, and there is another 44644 acres are being reclaimed.

Fruits and vegetables form 50% of the planted area in the governorate. Also Ismailia is expanding in modern irrigation methods in order to save irrigation water. The governorate is specialized by the presence of many companies working in the field of agriculture and food industry like juice, frozen vegetables, meat products, pasta and flower, in addition to the unique location of the governorate which qualifies it to be a main center for agriculture and food products and export them to the national and international markets. Map (7) shows the planted area in Ismailia governorate

Table (52) List for the planted areas and lands under reclamation in Ismailia

Locality	Actual planted area	Land under reclamation	Land expected to be reclaimed
Ismailia	51878	1294	25494
El Tal El Kabier	47018	9239	---
Fayed	13238	4825	---
West Kantara	33390	11147	17950
El Kasaseen	37901	14786	---
Abou Swier	18543	---	1200
East Kantara	135658	---	Note: there are 90 thousand acres Preliminary crops under farming
Total	337626	41291	44644

Source of information: Agriculture authority 2006

6-1-2 Main corps

The following tables show the fruit and vegetable production in Ismailia governorate

Table (53) list of the Summer and Winter crops in Ismailia for 2006/2007

Corps Area	Whole territory	Gardens	Wheat	Broad beans	Barley	Skating	Lupine	Alfalfa	Flax	Onion
Ismailia	51878	31597	4000	700	100	---	180	4301	---	---
Fayed	13238	5713	2000	700	100	---	50	1675	---	---
Weat Kantara	47018	24196	5000	600	1000	---	25	11126	---	50
EL Tal El Kabier	33390	8678	10000	600	2500	---	527	5085	---	---
El Kasaseen	37901	5954	10546	700	355	---	---	5532	2500	1042
Abo Sowier	18543	3843	5000	700	300	5	10	4660	---	25
East Kantara	135658	18216	5200	1000	1750	---	---	1249	---	225
Total of governorate	337626	98197	41746	5000	6105	5	792	33628	2500	1342

Corps Area	Green fodder	Fertilizer	Preliminary crops	Pork	Tomato	Strawberry	Potatoes	Cantaloupe	Miscellaneous vegetables	Sugar beets
Ismailia	---	---	---	---	1438	1710	27	400	7425	---
Fayed	---	---	---	---	300	275	---	---	2425	---
Weat Kantara	---	---	---	---	2362	112	127	330	2105	---
EL Tal El Kabier	---	21	---	---	2326	473	---	---	3165	---
El Kasaseen	---	---	---	86	2201	475	5525	---	2192	793
Abo Swieer	---	---	---	---	1305	575	120	40	1960	---
East Kantara	4730	---	90947	4820	1254	100	299	---	3518	2350
Total of governorate	4730	21	90947	4906	11186	3720	6098	770	22790	3143

Source of information: Agriculture authority

Table (54): List for Crop Structure in 2005

Area	Whole production	Gardens	Peanut	Sesame	Maze	Cotton	Rice	Sun flower	Green fodder	Por	Preliminary crops
Ismailia	51678	31023	700	800	10000	---	---	---	3155	---	---
Fayed	12263	5059	300	1000	300	---	---	---	704	---	---
EL Tal El Kabier	47018	23449	1050	1300	5500	15	1675	750	3488	288	---
West Kantara	33076	7174	300	1200	11000	1265	---	---	---	---	---
El Kasaseen	37901	63072	10000	700	10000	310	1555	---	2945	101	---
Abo Swieer	18543	3843	600	1000	6000	410	---	---	3990	1000	---
East Kantara	60000	13986	615	1000	4509	---	---	---	541	5020	28714
Total of governorate	260479	90906	13565	7000	50009	2000	3230	750	14833	6349	28714

Source of information: Agriculture authority

Continue of Table (54): List for Crop Structure in 2005

Area	Teel	Fertilizer	Strawberry	Tomato	Cantaloupe	Water melon	Potatoes	Muskmelon	Miscellaneous vegetables	Indigo	
										Maze	Veg
Ismailia	---	---	473	1388	50	336	---	410	3343	1000	300
Fayed	---	---	---	250	---	335	---	---	1615	800	700
EL Tal El Kabier	246	863	---	2243	---	153	1300	1450	1931	550	300
West Kantara	---	---	651	1644	---	5332	133	270	4107	1500	1250
El Kasaseen	453	313	471	840	---	900	---	140	2801	450	725
Abo Swieer	---	---	330	300	---	110	5	30	925	400	300
East Kantara	---	---	22	672	---	296	112	47	4466	328	573
Total of governorate	699	1176	1947	7337	50	8839	1550	2347	19188	5028	5148

Source of information: Agriculture authority

6-1-3 Main fruits:

Table (55): Main fruits/ main planted areas

Locality	Mango		Grapes		Citrus		Olive	
	Total	Fruitful	Total	Fruitful	Total	Fruitful	Total	Fruitful
Ismailia	22892	21847	10	10	435	435	8085	8065
Fayed	5613	4841	2	2	37	21	16	9
EL Tal El Kabier	8411	2566	982	716	11896	7969	1059	696
West Kantara	8156	6737	2	2	403	328	35	19
East Kantar	14221	5621	658	296	839	385	1339	1022
El Kasaseen	2827	2521	222	188	2516	668	278	257
Abo Swieer	3168	3068	75	78	372	344	142	142
Total of governorate	65288	47201	1951	1289	16498	10150	10954	10210

Source of information: Agriculture authority

6-1-4 Main vegetables:

Table (56): main vegetables/ main planted areas

Crop	Area	Wastes
Tomatoes	18340	8
Potatoes	7747	4
Pepper	8397	4

Egg plant	5138	8
Cucumber	5752	4
Green beans	5792	4
Strawberry	2121	4
Water melon	5818	4

Source of information: Agriculture authority

The **Agriculture annex** shows the fruit and vegetable crops as well as the agriculture wastes in Ismailia governorate.

6-1-5 Agriculture chemicals:

They include chemical and organic fertilizers (herbal, insect, fungal) pesticides used in Ismailia governorate as following:

Organic fertilizers:

Oriental fertilizers:

Katkoot, animal wastes, compost .

Chemical fertilizers:

Nitrates, potassium sulfate, ammonia, sulfate, Youria, super phosphate.

Agriculture pesticides:

In the form of herbal, fungal, insect insecticides, as well as pesticides alternatives like mineral oil (Summer, Winter), liquid soap and bacteria (fungal compounds, interlopers and Predators.

Pesticides:

Includes insecticides for cotton diseases (Somi gold, Atabron, Bostan 48%, Kaskid, Netrajat). Also pesticides alternatives 1250, as well as fly insecticides like (fethatel Ugetal, pasting substances, row Flathion substance, Lebaside, Agrenal, Fermonds Capsules, 12470, Tobic)

Herbal pesticides:

Such as Tobeel, Bomasoor, Greenstar, Synal,

Fungal Pesticides:

Like Micone sulfur, Banch, Victoria.

Table (57): Cotton pesticides used Cotton diseases in 2005/ 2006

Name of Pesticide	Quantity used in 2005	Quantity used in 2006
Sumi Gold	11400 liter	---
Atabroun	137 liter	500 liter
Bostan 48%	2079 liter	783 liter
Caskide	80 liter	---
Tetra Jent (pesticide alternative)	1250 liter	---

Table (58): Fly Pesticides (source of information: Agriculture authority)

Name of Pesticide	Quantity used in 2005	Quantity used in 2006
Fethanel Ugetal	213300 liter	1350 liter
Adhesive material	100250 Kilo	575 Kilo
Row Flathioun	25950 liter	210 liter
Lebaside	1400 liter	1400 liter
Agrenal	4628300 liter	505 liter
Capsules (Vermount)	12470 pcs	8000 pcs
Tobic	210 liter	280 liter
Uldouk	---	29 Liter

In addition to 200 liters of pesticides used to cure Palm weevil like injection therapy and spray pesticides.

6-1-6 Integrated management for pest control:

The attitude of Ministry of Agriculture either in the past or the future is aiming for limitation the use of chemical pesticides specially these who have a long time effect as well as very dangerous compounds (phosphoric) to keep citizen's health in a good level more over to increase exporting of our agriculture products abroad.

Method of using substances in fighting agriculture pests in Ismailia governorate:

It means to decrease the harm of pests or preventing deceases to reach the host or making circumstances not suitable for reproducing of pests.

Methods use in facing agriculture pests:

- Mechanical method.
- Agriculture method.
- Organic method.
- Legislation method.
- Chemical method.

Substances used for fighting agriculture pests:

- All kinds of traps like water, paper.
- Attracting killer substances.
- Biological enemies.
- Pests alternatives.
- Alienation preventer.
- Pesticides (at maximum limits)

Usage of pesticides is done with regard to the following:

- Using the suitable pesticide with the suitable concentration to fight pests.
- Tools used for pesticides have to be in good shape.
- User manual should be read and cautions must be followed.
- Users must be aware of the dangerous they can be facing while using pesticides also protective tools must be offered to them.
- To consider timing for using the pesticides and apply safe period before harvesting crops according to what is mentioned in the manual of the pesticides.

Methods used in integrated fighting and natural fighters for pests.

- Prepare earth for agriculture.
- Make suitable agriculture period.
- Chose the fighting species.
- Suitable time for planting.
- Plant capacity.
- Removing grass.
- Using pesticides alternatives.
- Use of predators and parasites.
- Use of traps.
- Use of Chemical pesticides if necessary.

6-7-1 Agriculture wastes:

Quantity of agriculture wastes in Ismailia is about 350,000 Ton/ year, it consists of wastes of Rice, peanut, maze, cotton, wheat, beans, barley and tomato.

6-1-8 Management of agriculture wastes:

Agriculture wastes are being disposed by recycling into organic fertilizers or used as animal feed.

6-1-9 Animal wealth:

The following table shows the animal and chicken wealth inside Ismailia.

Table (59): general survey for the livestock and chicken wealth in Ismailia:

Locality	Cows	Buffalo	Sheep	Goats	Camels
Ismailia	4302	3627	5352	5569	81
Fayed	3538	2829	3137	3585	153
El Tal El Kabier	3435	3314	2671	3072	43
West Kantara	7673	5215	13518	9614	213
East Kantara	3563	1233	4076	5230	284
Abou Sowier	7956	6640	19537	22683	183
El Kassaseen	4084	3499	5914	5676	10
Total	34551	26384	54205	55429	1067

Markaz	Horse platoon			Rabbits	Poultry	Other birds
	Horses	Mules	Donkeys			
Ismailia	76	6	1921	4320	1559570	94800
El Tal El Kabier	36	56	1302	---	1970664	---

Fayed	28	44	782	960	1009500	118520
West Kantara	35	9	1073	---	1483700	42000
East Kantara	---	29	679	---	78900	---
Abou Sowier	56	---	2358	---	331300	---
El Kassaseen	9	---	1726	---	613500	58500
Total	240	144	9841	5280	7087134	303820

Source of information: Agriculture authority 2006

6-1-10 Fish wealth and fish farms:

Although total area of lakes in Ismailia does not exceed 15% of the total area of lakes in Egypt, but it is considered the main source of fish. The catch of these lakes is about 21,4% from the total national production of fish in Egypt, about 171,810 ton/ year (2002).

God blessed Ismailia with Temsah and Bitter Lakes with their plenty of food. Fish industry has a high value on the national level in solving the unemployment problem, because Temsah and Bitter Lakes offer about 3000 job opportunity for the original citizens of Ismailia as well as immigrated employment from other governorates like Fayoum and Dakahliya.

Fishing capacity in the governorate:

According to table (19) the annual fish production in Ismailia is about 18910 tons as shown in the following table :

Fishing areas	Annual production by tons	Average daily production
Fish farms	12103	40,30 tons/ day
Temsah and Bitter Lakes and Suez Canal	5244	17,50 tons/ day

Internal water	1538	5,10 tons/ day
Rice farms	25	0,10 tons/ day
Total	18910	63 tons/ day

Source of information: General authority for developing fish wealth

Water surfaces for fish wealth in Ismailia:

1- Marine waters:

In the form of Suez canal which extends for 100 km starting from km number 33 in the north till km number 133 which is the last border of Ismailia governorate with Suez governorate with area of 9524 acres. Suez canal includes Temsah lake with area 2262 acres and Bitter Lakes with area 46190 acres, with total water surfaces 60,000 acres. Fishing areas in Ismailia are located as following:

Table (60): Water surfaces for Fishers in Ismailia

Serial	Area name	Area by acres
1	Sour and Temsah lakes and Suez Canal	60,000 acres
2	Internal waters and sewage and free fishers surfaces	10,000 acres
3	Fish farms in Ismailia	12,000 acres
4	Rice farms	25,000 acres

Source of information: General authority for developing fish wealth

On shore of these water surfaces there are **6 outlets for fish** as following:

Table (61): Fish outlets in Ismailia

Serial	Fishing Anchorage	Location on the surface	Number of boats
1	Fanara Anchorage	Major lakes	173
2	Fayed Anchorage	Major lakes	97

3	El Defreswar Anchorage	Major lakes	159
4	Ismailia circuit	Temsah lake	330
5	El Ferdan Anchorage	Suez Canal	35
6	El Kantara	Suez Canal	31

Source of information: General authority for developing fish wealth

Fish species produced from these water surfaces:

Mullet family, trout, Pink snaper, C-bass, Plaice Fish, crab, shrimps, Gilthead bream fish, different kinds of shells.

The average annual productivity of sea water is 5500 tons, the mullet family forms 40% of them and shells form 30% of this production.

2- Internal waters in Ismailia : include:

Canals: Ismailia water canal, starts from Abassa at the West with Sharkiya borders and ends with a lock waterway and Ershad bridge in Ismailia, its length is 56 km. From Ismailia water canal we find Suez water canal is divided from it starting from Nafisa village with length of 54 Km, also Port Saied water canal starting from E l Galaa bridge with length of 45 Km, and El Manayief main canal with length of 20 Km, Sheikh Zayed Canal starting from the East of Ismailia, also El Salam water canal starts from the North till the South East of Ismailia.

Drains : El Hasama starts with Ismailia border with Sharkiya governorate and ends at Abo Gamous pool which is linked with Temsah lake, also Sarabiuom Sewage and El Manayief and El Ferdan, North of Ismailia, El Ballah, Toson and Nawarra.

Ponds:

Table (62): Fishing ponds

Serial	Name of Ponds	Area of Pond
1	Abo Gamous pool (Fishers Pool)	250 acres
2	El Manayeif pool	10 acres
3	Boury pool	75 acres

4	Abou Zekry	50 acres
5	Mariam mountain pool	75 acres
6	Abou Balah pool	10 acres
7	Afou pool	30 acres
8	Pharos pool	50 acres
9	El Mabrouk pool	25 acres
10	El Salam hill pool (salty water- East of the lakes)	500 acres
11	El Ballah pool	50 acres
Total		1125 acres

Source of information: General authority for developing fish wealth

These pools suffer from landfill as agriculture surrounding them from all directions, in addition to the decrease of water level in some of them because of the increase of the depth of surrounding swamps like Mullet swamp.

*** Fish farming in Ismailia:**

The estimated fish productivity in Ismailia is about 21734 tons which is 6,3% of the total fish productivity in Egypt in the year 2001. This productivity increased to reach 29734 tons which is 5.1% in the year 2004.

Tulipi fish is considered the most common kind in the field of fish farming in the governorate with the percent of 45,6% from the total fish farming in Ismailia in the year 2004.

Rented fish farms from the authority are about 30 fish farms, total area is about 1917 acres. Fish farms list is explained in the agriculture annex. Map number (7) shows fish farms in Ismailia.

*** Problems facing fish farms:**

- High price of fish feeding, it forms 60-70% .
- Infringement on water surfaces (swamps, fish farms) by landfill or drying, these activities form an obstacle for production.

- Use of the Ministry of Health for pesticides to kill Bilharsia shells in canals and sewage with lead to killing all living creatures including small fish.

6-1-11 Environmental problems in agriculture sector:

*** Agriculture wastes:**

It causes a big problem if we don't deal with it. If these wastes accumulated it will become a point to spread rats and insects, if these wastes are burned it will affect negatively on air quality. At the end all these factors will affect on man health.

In Ismailia these wastes are taken care of by either recycling or using it as animal feed. Although the governorate's efforts to prevent burning of the agriculture wastes but still sometimes some farmers burn these wastes affecting on air quality and at the end affecting people's health negatively.

*** Agriculture pesticides:**

Environmental problems resulted from the use of agriculture pesticides due to the increase in using these pesticides causing poisoning of the plants which affects by return on animal and man health.

Agriculture authority decreased the use of pesticides by the integrated pests fighting project to protect the environmental from pollution and preserve man's health, it is done through:

- 1- Decrease or prevent the usage of pesticides by using the predators instead.
- 2- Apply biological fighting methods to keep natural enemies of insects.
- 3- Usage of modern equipments in spreading pesticides, these modern equipments use only 1/2 quantity of the normal dose of pesticides with regard not to spray on fruits.
- 4- usage of predators to cure the Red spider insect in strawberry, and use of parasites to cure Tunnel maker in Citrus.

*** Chemical fertilizers:**

Increasing the use of chemical fertilizers in plants affects on human health as well as quality of the soil. For example Youria fertilizer causes poisonous to plants, on the other hand we should use oriental fertilizers instead.

Although the efforts done by agriculture authority (in the form of agriculture awareness department to organize symposiums and lectures to aware farmers not to use some fertilizers in agriculture) but still farmers use sludge to plant their lands.

Table (63): Usage capacity for chemical fertilizers till 31/8/2006

Kind of fertilizer	Authority	Available at the beginning of season			Distributed since 1/8	Account till 31/8/2006
		Shifted from	Imported from	Total		
Azot 15,5%	Bank	20631	4551	25182	3210	21972
	NOGs	5838	1019	6857	1607	5250
	Private sector	---	---	---	---	---
Total		26469	5570	32039	4817	27222
Phosphate	Bank	1562,25	---	1562,25	185,9	1376,35
	NGOs	783,55	100	883,55	138,6	744,95
Total		2345,80	100	2445,80	324,5	2121,30
Botas	Bank	---	---	---	---	---
	NGOs	38,45	5	43,45	8.7	34,75
Total		38,45	5	43,45	8.7	34,75

Source of information: Agriculture authority

*** Main important pollution sources for waste water sewage in Ismailia governorate**

*** Governmental sources:**

* Final dumping of sewage waste water stations from Ismailia city at Km number 4,5 at the left shore of Mahsama sewage.

* Final dumping for sewage waste water station for El Tal El Kabier city at Km number 16 at the left shore of El Wadi sewage.

* Final dumping of sewage waste water station of West Kantara city, at Km number 3 at the left shore of First branch of the North Ismailia sewage.

* Final dumping of sewage waste water station of Abou Khalifa village at Km number 2,8 at the left shore of El Hasma sewage.

* El Abassa village sewage waste water (without treatment) in the Km 21 at the left shore of EL Wadi sewage.

* Final dumping of Mitland company (in addition to the Emergency hospital) at Km number 6 at the right shore of Mahsama sewage.

*** Local sources:**

* Residential complex sewage waste water at the new and old Mahsama and some villages of El Tal El Kabier through sewage that dumps finally at Mahsama and El Wadi sewage.

* Waste water sewage waste water of some villages of Ismailia Markaz: Abou Askar, Abou Rabia, 7 wells into the main Dabaa sewage as well as El Manayief and Mahsama sewage.

* Waste water sewage of some tourist villages and residential complexes along El Malariya sewage.

6-1-12 Environmental monitoring and control programs:

*** Authorities in Charge:**

Agriculture authority

*** Measurements and Monitoring:**

Agriculture authority makes the monitoring and control of illegal pesticides, and the following table shows the list of illegal pesticides not to be used inside Ismailia:

Table (64): List of the illegal pesticides forbidden inside Ismailia

Serial	Name of agriculture pesticide	Serial	Name of agriculture pesticide
1	Elimack 15% pesticide	16	Youndine 20% pesticide
2	Elmirt 15% pesticide	17	Michal group
3	Aldaconiel pesticide	18	Daimethoytien group (includes 19 pesticides)
4	Aldacomax pesticide	19	Domaeck pesticide
5	Alkabietan pesticide	20	Eminent pesticide
6	Al Fetaflex pesticide	21	Komiet pesticide
7	Enfiel pesticide	22	Hesta pesticide
8	Racksiel family pesticide	23	Tops M pesticide
9	Folichlor pesticide	24	Cazorone pesticide
10	Prosimidon pesticide	25	Deycofoul group (includes 7 pesticides)
11	Roveral 50% pesticide	26	Samazien pesticide
12	Mashiet 60% pesticide	27	Eromasyiel pesticide
13	Al esso 48% pesticide	28	Prominal pesticide
14	Sevien pesticide	29	Stemp pesticide
15	Scybe pesticide	---	---

Source of information: agriculture authority

Legal standards:

- Law of Environment number 4/ 1994 and its executive list.
- Law of agriculture and reclamation.
- Law of ownership.

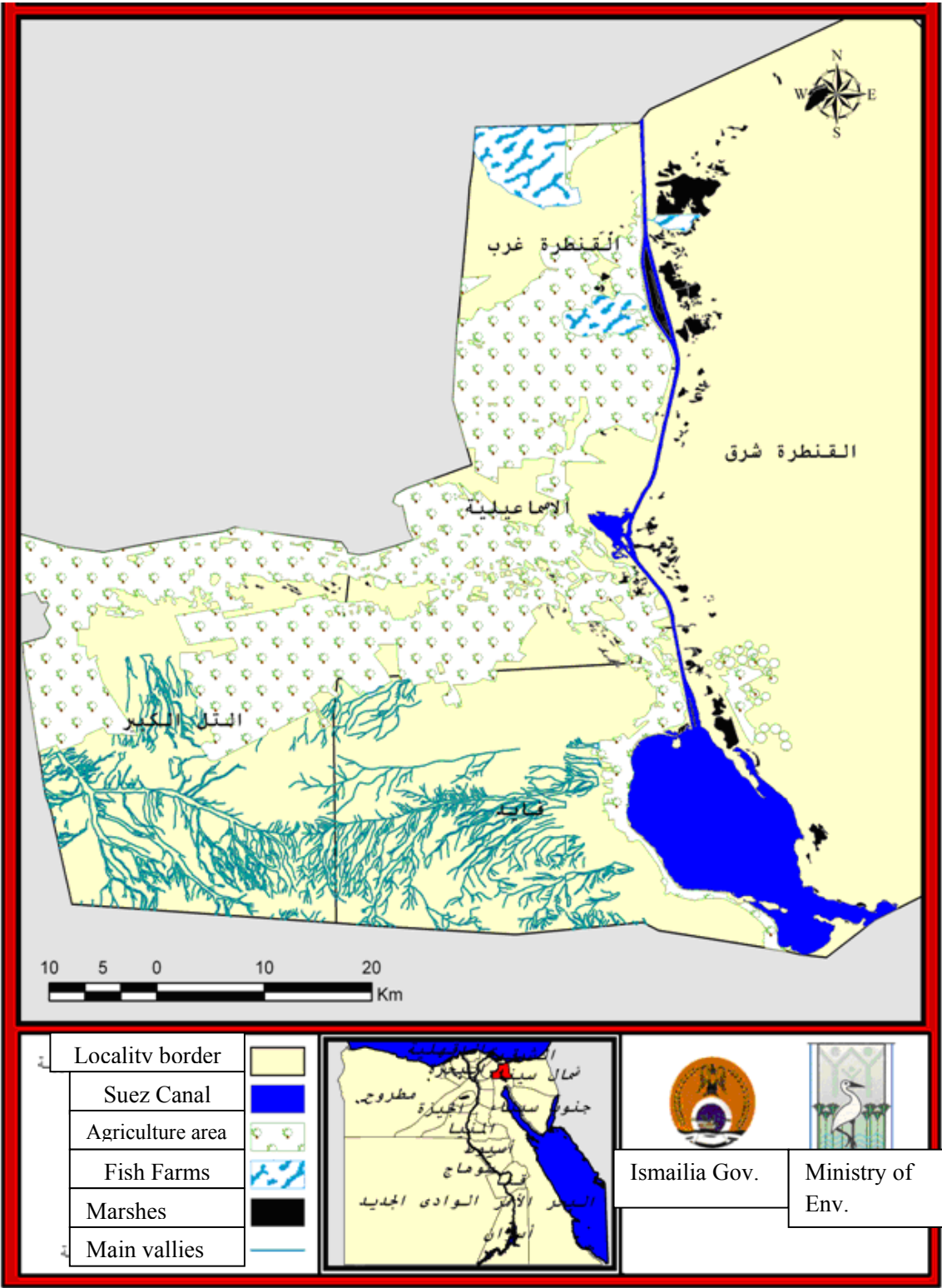
6-1-13 Environmental management policy in agriculture sector:

The Integrated Pests fighting project was applied in order to minimize (as much as possible) the use of pesticides and destroy insects and different pests that attach vegetables and fruit crops and also to get a good quality product can be exported abroad, as well as to preserve human health.

The project's recommendations had been distributed to all governorates of Egypt, which are:

- Minimization the usage of pesticides to protect the environment from pollution and to keep the health of man and animals.
- Apply biological fighting methods and protect natural enemies of the insects.
- Apply modern programs to train agriculture engineers and farmers.
- Usage of modern spray methods to use only 1/2 the pesticide dose and to avoid spraying on fruits.
- Usage of predators to cure the Red spider of strawberry, and usage of parasites to cure Tunnel maker in citrus.
- To raise and reproduce Fadiya beetle and release it as a cure for the Bug insect in Mango in order not to use pesticides.
- Creating 2 green houses in El Kasaseen to raise predators and spreading them in the governorate to use them in fighting pests.
- Decrease the usage of irrigation water, and approve land maintenance by good use of treated waste water from agriculture drains.
- Keep the horizontal expanding in agriculture by reclamation of new lands to cope with the over population.
- Getting rid of the agriculture wastes by recycling into organic fertilizers or animal feeding.
- Preventing the use of hormones.

Map (7) Agriculture areas and Fish farms in Ismailia governorate



6-2 Mines and Mining

6-2-1 Introduction:

Ismailia is specialized with different kinds of Quarry materials that can be used in different projects, such as:

Loam , lime stones, sands, stones. They are found by different quantities in different areas inside the governorate.

6-2-2 Mineral wealth in the governorate:

Since construction and reconstruction operations in Ismailia require enough raw materials for building substances, therefore several discovery researches had been done to check for locations of different quarry materials in Ismailia. These researches concluded that quarry materials are found inside Ismailia such as:

Loam , lime stones, sands, stones. They are found in different quantities and in different areas in Ismailia, also they belong to few sequenced ages till modern age. Details of these substances are as following:

A- Loam sediments:

They cover big areas of Ismailia; these sediments belong to the Miocene age and found in the form of layers vary in thickness, the lime stones separate these layers. They are specialized with their grey color that changes into the dark color in the loam layers. These sediments usually covered with sand layers or lime stones. The upper layers thickness does not exceed few meters. The loam sediments are found in the following areas:

*** Fayed area:**

Located in the eastern side of the Red Gaozaa mountain, and at the south east of Shabraweet mountain.

Thickness of the sediments in this area is about 40 meters. After taking 2 samples of these sediments and analyzing them chemically, we found out:

Table (65): Percentage of the elements found in the loam in Fayed area

Sample number	Sample thickness	Silica	Alumina	Titania	Iron oxide	Magnesium oxide	Calcium oxide	Burning loss
1	13,000	38,22	12,62	0,08	6,89	1,53	14,64	21,24
2	7,10	41,51	11,83	9	6,89	1,23	14,32	20,70

Source of information: Quarries department- Ismailia governorate

*** El Wasfiya area:**

This area located between Cairo- Ismailia desert road and Ismailia Salheya road. The loam sediments in this area cover an area about 2x1.5km. it is covered with sand layers. Thickness of the loam under the sand layers is about 10 meters in some locations.

A sample had been taken from these sediments at depth of 3.4 meters from a point located 350 meters far from Cairo - Ismailia desert road, and it was found that the geological layers sequence as following:

Surface sediments: formed mainly of yellow sands with thickness of 0.25 meters.

loam sediments: underneath the surface sediments with thickness 1.4-2.0 meters.

Sands: underneath the above layer.

Table (66) Percentage of the loam elements in El Wasfiya area

Sample number	Silica	Alumina	Titania	Iron oxide	Magnesium oxide	Calcium oxide	Burning loss
1	53,89	14,73	0.11	8.94	2,58	1,99	15,28

Source of information: Quarries department- Ismailia governorate

From the chemical analysis of the previous samples in Fayed area it is obvious that they do not fit with industry usage because of the percentage of Silica is low, as for loam in El Wasfiya area can be used in Industry purposes by adding some quantities of sands to increase Silica.

Also loam sediments can be used by concretions through using open mines method. The valley sediments do not form any problem to be used as they are found disassembled in addition to its small thickness comparing with the thickness of the loam sediments.

B- Lime stones:

Lime stone sediments are considered the most important quarry sediments in Ismailia area, they belong to the Cretaceous era, Eocene and Miocene ages.

Lime stones are considered (the follow of the cretaceous era) one of the oldest lime stone sediments. They are found in Shabraweet mountain, these sediments are formed mainly of lime stone cretaceous and Dlomt as well as layers of Marilyn.

As for lime stone sediments that belong to Miocene age, they are specialized with being very solid and white in color, found also in Shabraweet mountain with heights reach to 100 meters.

ers with Limestone of Mucin age found in the form of sequenced layloam sediments.

Locations of Limestone sediments Ismailia are as following:

*** Fanara area:**

This area is a part of the red Gemini mountain on the east side of the mountain facing Isamilia- Suez road between the kilometer 37 and 44 from Isamilia direction. Limestone in this area belongs to the Eocene era. Thickness of the layers is unknown as the bottom of these layers is not reached yet. Samples had been taken from the lime stone sediments in this area from 3 points about 1.5 km far from each other.

From the first location it was found that the geological layer sequence as following:

Surface sediments: it's thickness about 1-2 meters, these surface sediments are formed from cohesive lime stones.

Lime stone sediments: thickness is more than 8.5 meters specialized with being very solid and white in color. By laboratory analysis of this sample, the percentage of lime stone components was found as following:

Sample thickness	Silica	Aloumina	Magnesium oxide	Calcium oxide	Burning loss
8.5 meters	4,02	---	2,02	51,7	41,0

Second location:

Located 15 Km away from the first point, found at 1 Km at the West of the road. The geological layer sequence was found as following:

Surface sediments: thickness about 1,7 meters, formed mainly from cohesive limestone with minute cretaceous sediments.

Lime stone sediments: its thickness more than 2.1 meters, specialized with white color and very solid and very coherent. By analyzing this sample the percentage of the chemical elements were found as following:

Sample thickness	Silica	Aluomina	Magnesium oxide	Calcium oxide	Burning loss
2 meters	4,81	---	10,61	37,81	41,66

Third location:

1,5 Km at the West of the road. The geological sequence for the layers is as following:

Surface sediments: formed mainly from limestone sediments which faced erosion, so it became cohesive with thickness about 0, 3 meter.

Lime stone sediments: its height and thickness more than 6 meters. By analyzing the sample it was found that the percentage of its components as following:

Sample thickness	Silica	Aloumina	Magnesium oxide	Calcium oxide	Burning loss
6 meters	2,71	2,87	23,20	24,01	43,54

By studying the sample analysis from these 3 different locations, we found out the following:

- 1- Area of lime stone sediments is different from a place to another. The sediments in this area are considered pure, the magnesium oxide percentage increases towards the North. As towards the South these sediments change gradually to become limestone sediments then turn into pure Derlomite.

- 2- Since the inclination of the layers is towards the West, so the oldest layer (pure lime stone) is found in the North, and the most recent layer (Dolomit) is found towards the South.

The above is a brief of the locations of lime stone sediments in Isamilia, and the result of laboratory analysis for these sediments samples.

As for the possibility of the usage of lime stone in industry purposes, we find out that it is found uncovered, the upper layers became cohesive due to erosion factors, in this case there is no problem to extract and use it. Huge quantities can be obtained from every where. But in case the lime stone sediments were covered with (tafla) sediments then there will be a need to use earth equipments to use it in industry purposes in order to remove the Tafla sediments that covers the limestone layer. There fore we need to study the nature of the place to establish roads for carrying the lime stone. As for specifying the quantities of these sediments, a detailed study must be carried out to know the depth of lime stone sediments and therefore estimating the quantity.

C- Sands:

Sands cover a huge area of valleys and plain areas in Isamilia. Sand sediments spread in locations at North and West of Shabraweet mountain forming the main part of the surface sediments that cover these areas, ending with swamps that surround Manzala lake. These sand sediments different geological ages starting from the Alelijocn till the modern age.

Since sands are continental sediments therefore its thickness is changed according to its collecting area, due to the non equality of the rock surface which is older in formation. These rocks usually are lime stones from Eocene age or TAFLA sediments from Miocene age.

These continental sediments are mainly formed of Quartz particles, the size of sand particles is usually 0.25 meter and gradually reach till 2 meters.

Locations of the sand sediments are as following:

*** Abou Sultan area:**

Sand sediments are found at the West of Abou Sultan city, specialized with its soft yellow color, particle size graduates from soft till medium. Thickness of these sediments vary from 2-7 meters.

By analyzing a sample (chemically and mechanically) it was found out the following:

Chemical analysis (%)					Mechanical analysis (%)				
Sample number	Silica	Aloumina	Iron oxide	Burning loss	Yellow 0,25%	Mm+ 0,25%	+5mm+1mm		+2mm
1	92,25	2,48	2,48	1,91	1,11	58,15	25,38	3,12	2,24

From the above analysis, it is clear that these sand sediments are rich with Silica, more than 90%, so it can be used in Industry, also the size of particles is mostly 1-0.25 mm.

About Gammos area:

This area is located at the South West of Tamsah lake, at the West of Abou Gammos Ezbat, 1,17 Km far from it, and 4,2 Km away from Ismailia.

Sand sediments in this area are with soft medium size granules, also include some stone granules. Sediments' thickness in this area exceeds 2 meters.

Cairo Ismailia desert road:

Sand spreads at both sides of Cairo/ Ismailia road with huge quantities. They are specialized with being round and very soft, very rich in Silica.

By analyzing a sample, it was found that:

Chemical analysis (%)					Mechanical analysis (%)				
Sample number	Silica	Aloumina	Iron oxide	Burning loss	Yellow 0,25%	Mm+ 0,25%	+5mm+1mm		+2mm
1	94,09	1,13	1,73	0,47	2,19	46,85	47,70	3,26	0,00

Huge quantities of sands suitable for industry are found also in El Khashaina area, Abou Swier and Mahsama, Abou Rakiem, Salhieya, Ferdan road.

Quantity of sand sediments are huge (non limited) found in wide plain areas inside Isamilia borders. There is no difficulties in transportation and usage of these sand sediments in industry. The factors determining its validity include its chemical components as well as the size of granules.

From previous analysis we find that these sand sediments are one of the most proper and pure sand kinds, as they contain very high percentage of Silica, as for granules size it varies from the soft to medium, only very minor percentage with granules size more than 2mm.

3- Stones:

Stone sediments are considered the less quarry sediments in Isamilia. They belong to the Alelijocm age and some of it is considered from the old Miocene age, they are found over loam sediments and lime stones.

Thickness of stone sediments is different from few cm till few meters, and can reach 15 meters, they are formed mainly of sand Falanta granules. Size of these sediments is one of the factors affecting its validity, size usually about 28-85 mm.

These stone sediments are found in the red Gemini chain mountain that ends at Fayed. Stones in this area found in the form of black combines cover top of mountains, surface of these sediments is not at the same level and cover lime stone sediments. Usually contain overlapping stone layers. By analyzing a sample of these stone sediments in that area we found out:

Sample number	Thickness	Rocks	From	Till	Smaller than 3mm	More than 3mm	More than 20mm	More than 4mm	More than 85mm
1	13,0m	Lime stone rock	-.- 13,0m	13,0m	36,83	10,20	21,74	30,59	640mm

It is clear that stone size is more than 85mm is found with very small percentage and very small quantities in Ismailia, as for thickness it does not exceed few meters, we can conclude from this study the following:

1- All row materials for building substances like loam and lime stones, sand, stones are found in different quantities in Ismailia, and they can be used in industry.

2- Stone sediments are found with limited quantities, as for sands are found in huge quantities inside Ismailia.

3- Lime stones sediments are considered one of the most pure kinds, it can be used in industry but after over coming the obstacles in extracting it, such as transportation and required equipments to break it, because it is from the pure solid kind.

4- Small amounts of Dolomite found at South of Ismailia, but not pure.

5- loam sediments found in Ismailia can be used in making Loam breaks, and it is better to use the loam found in El Wasfa area as it contains a higher percentage of Silica than that found in Fayed area.

6- Projects of Sand breaks can be established, as sand is found in big quantities, and also considered one of the best kinds according to its chemical components and granules size.

Table (67): List of the licensed quarries inside Ismailia governorate

Serial	Name of company/ contractor	Quarry number	Location	Kind of material	Period of license	Longitude	Latitude	Start of license	Address
1	Egypt company for cement activities	1002	Fayed	Stones	One year	32" 18 48"	30" 14 55"	15/10/2005	21 , 26 th of July street, Cairo
2	Upper Egypt for general contracting company	1001	Fayed	Stones	One year	32" 20" -"	30" 15 5"	30/11/2005	5, 26 th July street, Cairo
3	Hassan Mohamed Abdel Aziz	1123	Fayed	Sand	One year	32" 18 26"	30" 15 40"	11/3/2006	Fanara Quarry, Fayed, Ismailia
4	Nafez Azzat Ragab Mousa	1119	Fayed	Stones	One year	32" 19 29"	30" 15 20"	27/4/2006	6 th the new factory street, Mohandseen Giza
5	Ahmed Hussien Ali	1117	Fayed	Stones	One year	32" 18 54"	30" 14 13"	27/4/2006	Treaty street , Fayed, Ismailia
6	Sayed Ahmed Galal	1118	Fayed	Stones	One year	32" 19 1"	30" 14 9"	27/4/2006	El Salam, El Mostashfa street, 202. Ismailia
7	Saad Ahmed Yousef Moshtahy	1127	Fayed	Stones	One year	32" 18 29"	30" 14 59"	27/4/2006	10 Mahmoud badr street, Meet Oqba, Giza

8	Kareem Mohamed Abdel Gahney	1129	Fayed	Stones	One year	32" 19 8"	30" 15 6"	27/4/2006	27 Shebeen El Koum, beside agrecultuer authority, Ismailia
9	Fedaweya Company (Mohamed Sami Abdel Mo'tey)	1147	Fayed	Stones	One year	32" 19 34"	30" 14 56"	27/4/2006	23 El Reda mosque st. Ein Shams, Cairo
10	Abdel Fatah Khalil El Hadi Ismaiel	1144	Fayed	Rubble	One year	32" 19 30"	30" 15 37"	27/4/2006	Block number 34, Mecka, Suez
11	Khalil El Hadi Ismaiel	1143	Fayed	Sand	One year	32" 18 36"	30" 15 26"	27/4/2006	Block 23 Mecka, Suez
12	Mohamed Mohamed Ibrahim Othman	1114	Fayed	Stones	One year	32" 18 32"	30" 14 40"	27/4/2006	Shell st. Ismailia
13	Mohamed Gobashy Mohamed	1115	Fayed	Stones	One year	32" 18 33"	30" 14 40"	27/4/2006	Fayed, national insurance compound, block12, Ismailia
14	Hamadan Moahmoud Abdullah	1126	Fayed	Stones	One year	32" 19 48"	30" 14 18"	2/5/2006	El Salam, 201 Reda st. Ismailia
15	Egypt company for cement activities	1149	Fayed	Sand	One year	32" 18 51"	30" 15 40"	5/7/2006	21 26th July st, Cairo

16	Ismaiel El sayed Nasr Allah	1154	Fayed	Stones	One year	32" 19 48"	30" 14 13"	5/7/2006	Abou Khalifa, Ismailia
17	Mohamed El sayed Mahmoud Khalil	1153	Fayed	Stones	One year	32" 20 02"	30" 13 56"	5/7/2006	Port Siaied complex st, number5 , Ismailia
18	Mohamed Moahmoud Hasan Ali	1152	Fayed	Stones	One year	32" 20 07"	30" 14 –"	5/7/2006	Sheikh Zaiied, number 29B, Ismailia
19	Egypt company for cement activities	1151	Fayed	Stones	One year	32" 18 41"	30" 14 17"	5/7/2006	21, 26th July st Cairo
20	Mahmoud Mohamed Abdel Rehim	1156	Fayed	Stones	One year	32" 19 25"	30" 15" 24	20/7/2006	Fanara Quarry, Treaty St, Ismailia Fayed
21	Mostafa Mohamed Ibrahim Osman	1159	Fayed	Stones	One year	32" 19 48"	30" 14 24"	15/8/2006	Shell St Ismailia
22	Ezat Ragab Mousa (Sinai company)	1157	Fayed	Stones	One year	32" 19 19"	30" 15 26"	26/8/2006	57 El Rasheed st, Giza
23	Khalid Mohamed Ibrahim	1160	Fayed	Stones	One year	32" 19 53"	30" 14 31"	26/8/2006	Shell St, Ismailia
24	Sabry Mahdy Ali Abou Taleb	1062	Fayed	Stones	One year	32" 20 02"	30" 14 21"	4/9/2006	Fanara Quarry, Treaty St, Ismailia

									Fayed
25	Mostafa Mahmoud Ali	1063	Fayed	Stones	One year	32" 19 56"	30" 14 31"	4/9/2006	Fanara Quarry, Treaty St, Ismailia Fayed
26	Mansour Eid Ouda	1064	Fayed	Stones	One year	32" 18 39"	30" 15 02"	6/9/2006	Abou Sayal el Ganayen, Suez
27	Auad Souliman Selem	1065	Fayed	Stones	One year	32" 19 41"	30" 14 02"	6/9/2006	Fayed, El Sa'diea, Ismailia
28	Wahba Mohamed Abdelrehim	1155	Fayed	Stones	One year	32" 19 04"	30" 15 33"	19/9/2006	Fanara Quarry, Ismailia Fayed

Source of information: Quarry inspections

Table (68): List for the Quarry extracts during the year 2004 in Ismailia

Stones	Sand	Lime stone	Gypsum	Total
2824000	798904	19418,8	160000	3802322,8

Source of information: Quarry inspections

6-2-3 Environmental problems:

There is no use of metals and mining in the governorate, so there is no related problems in this sector, all activities are in the form of quarry usage only.

6-2-4 Monitoring and control programs:

- Measurements and Monitoring
- loam sediments are chemically analyzed in Fayed area and El Wasfa area.
- Ration percentages are analyzed chemically for lime stone components in Fanara area.
- Mechanical and chemical analysis had been done for the thickness of sand sediments in different areas in the governorate.
- Legal measurement limits: Law number86/ 1956 for mines and quarries and its executive list.
- Responsible authorities: Ministry of Industry and mineral wealth, Egyptian General agent for Geology and metal projects.

6-3 Industry:

6-3-1 Introduction:

The industrial development strategy in the governorate depends on several points, as following:

- Developing agriculture industry focusing on fruit& vegetables which is the main productive base that Ismailia is very specialized with. Also developing small projects, focusing on big employment projects that is safe for the environment.
- There are number of industrial areas in the governorate in addition to a free zone that have the following characteristics:
- Supply an International communication network.

- Connecting with all rail ways and international ways joining all Egyptian ports & Cairo & Giza strip as well as Nuweiba Port.
- Being near from the main sources of raw materials required for production.
- Easy marketing due to being close to distributing and exporting points.

6-3-2 Industrial areas (present and future area)

There are number of current industrial areas in Ismailia as well as industrial areas planned to be established, as following:

- First industrial area.
- Second industrial area.
- Valley of Technology.
- Free zone.
- Industrial area in East Kantara.
- Industrial area in Abou Khalifa village.
- Industrial area in West Kantara (Under construction)

According to table (42) the area of the industrial zones can be
illustrated as following:

Area of Industrial zones (by M2)

Name of area	Location	Area
First industrial area	At the West of Ismailia city on Cairo/ Port Saied high way, in the area from Km2 and 3 at the intersection of the Middel shore way, with length of 12 Km and depth of 6 Km, about 14 Km away from Ismailia city, and about 35 Km away from the Industrial area in East Kantara	365 acres
Second industrial are		170 acres
Valley of Technology		16500 acres
Industrial area in West Kantara	Located in East Kantara city, at the west there is Nueibaa costal road, also Kantara/ Bour Fouad road from the East	910 acres
Free Zone	West of Ismailia city on Cairo/ Port Saied high way	775 Acres
Industrial area in Abou Khalifa village	Abou Khalifa village	19 acres
Industrial area in West Kantara (under contruction0	West Kantara	22 acres

Source of information: Industrial area service comity in the governorate.

*** Number of industrial area and employment:**

Table (69): Number of employment in the industrial area

Serial	Area name	Number of employment
1	First and Second industrial area (91 factories)	5894
2	The whole industrial complex (64 industrial units)	969
3	Valley of Technology	---
4	Free zone	3035
5	Industrial area in East Kantara	7946
6	Industrial area in West Kantara (under construction)	---

Source of information: Industrial area service comity in the governorate

Table (70) number of main industries and number of employment in the Free zone

Main industries	Number of projects	Employment	
		Egyptian	Foreigner
Already started activity			
Garment and textile	10	9666	349
Leather products and shoes	1	801	29
Chemical materials and carton	1	24	---
Solar cells and modules	1	62	---
Assembly of water Motors for desalination	1	5	---
Cracking plastic	1	21	---
Total	15	10579	378

Continued table (70) number of main industries and number of employment in the Free zone

Main industries	Number of projects	Employment	
		Egyptian	Foreigner
Under construction			
Food industry	2	35	2
Chemicals	1	50	---
Polishing substances	1	90	---
Carton for production requirements	1	130	---
Garment	2	330	35
Socks	1	19	1
Electronics	2	5150	---
Packing substances	1	15	---
Medical supplies and medicines	2	140	---
Total	13	5960	38
Recent approval			
Garment	3	2700	125
Cracking plastic	1	50	---
Leather tanning	1	49	1
Metals (cupper wires)	1	100	---
Compilation rice mills	1	10	---
Total	7	2909	126

Source of information: Industrial area service comity in the governorate

6-3-3 Main industrial installations:

- * Food, 38 factories.
- * Garment, 6 factories.
- * Chemical, 14 factories.
- * Leather, 6 factories.
- * Plastic, 14 Factories.
- * Electronics, 9 factories.
- * Cement and marble, 18 factories.
- * Wood and furniture, 6 factories.
- * Metal, 18 factories.

Industry annex shows the industrial factories list in different industrial areas in Ismailia.

6-3-4 Industrial pollution:

- Air pollution:

Environmental pollutants percentage are measured according to air quality monitoring program in EEAA RBO in Suez that monitors the environmental pollutants in different seasons of the year by using mobile laboratories, which indicate whether pollutants are computable with legal standards or not.

As for measuring the pollutants percentage in factories, it is done according to the monthly environmental inspection plan for the RBO in Suez.

- Industrial waste water:

Industrial waste water quantity is about 2500 m³/ day, and sewage it is 135m³/ day.

Industrial waste water and the pollution created by it:

Getting rid of industrial drainage is done through treatment units occurred in some installations, like industrial waste water units in the Arab Aluminum company, the output of the treatment process is distracted into open areas belong to the company. Garment factories in the industrial areas use some chemical substances in whiting and dyeing textiles, these factories make treatment for the waste water using treatment units, then distract the waste water into the public sewage (in the Free industrial zone).

In addition there are treatment units in Mohandes National company (comby), Korally factory for sweetness (sweet star), Jouton paintings, El Aman Dyes factory, Watany factory for marble, Vertical jeans factory.

Some factories so not have treatment units, therefore the treatment is done by sediments basins, such as:

Hasaneen factory for marble, Sonbola sweets, East Delta bus, East Delta mills, Hanza food, Esmailia foam, Ghanem El Aseel mills, and other factories do not have treatment units so the distraction is done into the earth.

Solid and hazardous wastes:

Industrial non hazardous wastes are getting rid of by selling them to be recycled, and some are thrown in the public landfills. As for hazardous industrial waste they are stored in the same plant, in case they increased they are buried in the hazardous waste landfill.

6-3-5 Limitation of industrial wastes policy:

There is an inspection plan inside the EMU in Ismailia to check the industrial plant periodically, in addition to obligating different industrial plants with the law of environment number 4 for the year 1994 and its executive list.

Also the EMU force some factories to comply their environmental conditions, moreover making records for the plants breaking the law 4/ 1994 and its executive list.

The EMU in the governorate cooperates with EEAA RBO is Suez to make measurements for environmental monitoring of the industrials plants to check how they fit or not with the environmental conditions.

Authorities in charge:

- EMU in Ismailia governorate.
- EMU in Markaz and cities.
- Industrial areas comities.
- Health affairs authority.
- EEAA RBO in Suez.

6-3-6 Monitoring and control programs:**Measurements and monitoring:**

Done by EEAA RBO in Suez.

Authorized legal limits:

- Found in the law of environmental number 4/ 1994.
- Found in the law number 93/ 1962

6-3-7 Environmental management in Industrial areas:

There is an environmental officer in charge in each area to follow up the environmental problems in the area, as well as working on solving the problems; also there is an environmental officer in each factory responsible for the environmental management of the factory.

6-4 Tourism:**6-4-1 Introduction:**

Ismailia governorate enjoys a perfect tourism location on both shores of Suez Canal and Tamsah lake and Bitter Lakes .

Since its moderate climate all days of the year, Ismailia is a place for Summer and Winter holidays at the same time. The governorate is specialized with many gardens and parks and area for fishing hobby along Tamsah and Bitter Lakes shores, Fayed area, Saraboum, Abou Sultan, Fanara area and Suez canal.

Ismailia is also specialized by beautiful shores and quite clear water which encourages people in Summer to make different water sports.

Tourism in Ismailia forms an important and main source of income, Ismailia and Fayed cities are the main cities in the governorate that hold the biggest number of hotels and tourists.

6-4-2 Tourism activities:

Tourism activities in Ismailia are different including hotels, sports and social clubs that organize different activities.

Kinds of Tourism in Ismailia include: Entertainment tourism, one day tourism, historical tourism and festival tourism.

6-4-3 Tourism areas and its location:

Table (71) Classification of Tourism areas

Serial	Tourism area	Classification
1	Entertainment are	Hotels- Shores- Clubs- Tourist village
2	Historical and ancient areas	Museums- Hills- Graves- Churches

Table (72): Tourism installations and hotels

Serial	Name	Geographic location
1	Sport village	Mariam mountain – Suez road
2	Mercuer, Knights island	Salah Salem road
3	Temsah hotel	179 Saad Zagloul St.
4	El Salam hotel	Faried Nada street
5	Nefertary hotel	41 Soultan Husien St
6	Palma	Abou Sultan
7	Mourgan	Fayed

8	Isis	Oraby Square
9	Nefertity	Shehta st
10	Palas	Oraby Square
11	Youth motel	Sheik Zayed Neighborhood
12	International Youth housing	Emara tourism road
13	Kersh Youth camping	Receiving area
14	Olympic village	Mariam mountain

Source of information: Information center and decision making support

Table (73): Shores of Tamsah lake in Ismailia City

Shore name	Location
Fayrouz	Tamsah lake- Ismailia
El Mallaha	
The Shore (Denfa)	
Moslem Youth	
Police (25th January)	
Co- operation	
Family oasis	
El Nourus village	
El Gendol village	
The family (French)	
Fayrouz	

Source of information: Information center and decision making support

Table (74): Shores of Bitter Lakes in Fayed City

Shore name	Location
New Fayed	Bitter Lakes - Fayed city
El Zehour	
Loutus	
Fanar	
Nouzha	
Reham	
El Safa	
Shamoussa	
El Fardous	

Source of information: Information center and decision making support

6-4-4 Tourism development strategy:

The proposed Tourism development strategy for the governorate depends on 2 main coordinates:

* First coordinate:

Make usage of the suitable areas for tourism development like East and West Suez canal and lakes, with regard that the proposed projects in these areas to be in general to avoid non suitable way of distributing the areas at West of the lakes which lead to decrease number of tourists and weak job opportunities. The governorate started to take executive steps towards developing the locations at East and East shore of Suez canal, also the environmental protection of Bitter Lakes by applying the experiment of Tamsah lake to protect it from pollution.

* Second coordinate

The ability to use Abou Sowear airport and change part of it to be a civil airport to serve tourism groups, also studding the ability to use Defreswar airport and Fayed for international tourism. In addition to establishment of a tourism sport village on Tamsah lake. Moreover to focus on holding different festivals, as Ismailia succeeded in establishing the International festival for Common art for several years. In addition to the spring festival, Shopping and Tourism festival,

Ismailia international festival for Documentary and short films. Also Camel festival (El Hagen) and the International peace Marathon.

Ismailia is specialized with many high standard sports منشآت that qualifies the governorate to hold international championships that leads to an obvious economical and tourism promotion puts Ismailia at the lead of Sports agenda.

- Also studding the ability to make the governorate as a city for conferences.
- Studding the ability to establish a tourism bank to finance tourism projects in Ismailia governorate.
- Expanding the Ismailia local Museum and supplying it with Photonic monuments (أثار) , as well as developing Abou Atwa Military museum.

6-4-5 Environmental Management:

For tourism establishments, they get rid of solid wastes through local units, or through private companies, finals disposal is in the main or sub branch landfill.

For sewage, they get rid of it through sewage network, but some tourism installations are not linked with it so they have their own locked tankers.

6-4-6 Main environmental problems:

They are in the form of waste water sewage from some tourism installations that is not linked with sewage network.

6-4-7 Number of Tourists:

Tourists are differing among Egyptian, Arab and foreign tourists, total number about 986500 personnel in 2005.

Number of hotels in Ismailia city only reaches 14 hotels approximately, total guests according to last statistic in 2005 are 56536 persons, and spending nights reached 136828 nights.

Hotel rank starts from 4 stars hotels and descending. In Fayed city number of hotels is about 7 hotels starting from 4 stars hotels and descending. There are 397 cabinets distributed in the tourism villages inside the city, spending nights reached 50550 nights.

Table (75) Number of Hotels in Ismailia:

Serial	Location	Hotels					Others				No of room	No of beds
		5 star s	4 star s	3 star s	2 star s	Under classification	Village s	Cabine ts	Camp s	Youth motel		
1	Ismailia city and Markaz	-	2	-	3	-	-	67	1	2	810	2102
2	Fayed city and markaz	-	3	1	3	-	5	397	-	-	1385	2720
*	Total	-	5	1	6	-	5	464	1	2	2195	4822

Source of information: Tourism department in the governorate

Table (76) number of Tourism villages

Serial	Name of Village	Location
1	El Gendol village	On shore of Tamsah lake
2	E l Noras village	On shore of Tamsah lake
3	25 January village	On shore of Tamsah lake
4	Sport Saport village	Mariam mountain
5	Olympic village	Mariam mountain

Source of information: Information center and decision making support

Table (77): List for the number and kind of tourists in Fayed city in 2005

Month	Foreigners		Arab		Egyptians		Total	
	No. of tourists	No. of nights	No. of tourists	No. of nights	No. of tourists	No. of nights	No. of tourists	No. of nights
January	0	0	0	0	5300	530	5300	530
February	250	15	150	10	92161	2935	92561	2960
March	100	300	150	560	4650	2340	4900	3200
April	100	890	550	620	155309	4090	155959	5600
May	450	90	600	200	67770	2690	68820	2980
June	470	900	750	1000	153100	5080	154320	6980
July	550	1300	1700	1500	233070	8100	235320	10900
August	750	1900	150	1800	148420	6212	149320	9912
September	500	200	100	60	29400	4638	30000	4898
October	200	50	50	100	89750	2440	90000	2590
Total	3370	-	4200	265	978930	39055	986500	50550

Source of information: Tourism department in the governorate

Table (78): List of gusts number and hotel nights spent in Ismailia hotels in 2005

Hotel name	Gusts			Total gusts	Total nights	Notes
	Egyptians	Arab	Foreigners			
Mercuer	11399	414	4449	16262	35673	4 stars
Sport Saport	735	---	694	1429	6810	4 stars
Temsah	1180	214	173	1567	2408	2 stars

El Salam	Closed in 21/12/2004 upon the decree number 8059					
Nifertary	1112	94	81	1287	2055	2 stars
Olympic village	5281	695	143	6119	17707	Under classification
Governorate motels	9107	12	1121	10240	31977	Under classification
New Palace	3445	--	--	3445	3445	Under classification
Egyptian Youth motels organization	12979	114	95	13188	30189	Under classification
Travelers	1065	35	29	1129	2383	Under classification
Port Saied	1077	--	--	1077	1077	Under classification
El Gomheria	1493	--	--	1493	1493	Under classification
Isis	1705	80	85	1870	4181	Under classification
Total	48008	1658	6865	56536	136828	

Source of information: Tourism department in the governorate

6-4-8 Solid waste quantity that results from tourism sector:

It can be calculated from number of guests with regard that 1 person generates 2.5 Kg of wastes/ day.

For Ismailia city, the total number of tourists is 56536 persons, they generate about 141,340 tons of solid wastes.

In Fayed city, the solid wastes generated from 1 person is also about 2.5 Kg/ day.

Table (79): Quantity of solid wastes generated from tourists

Markaz/ city	Number of tourists	Quantity of solid wastes generated annually
Ismailia markaz and city	56536	141,340 tons approx.
Fayed markaz and city	986500	2466,250 tons approx.

Getting rid of these solid wastes done through the local units or private companies , final disposal done in the main or sub-branch landfills.

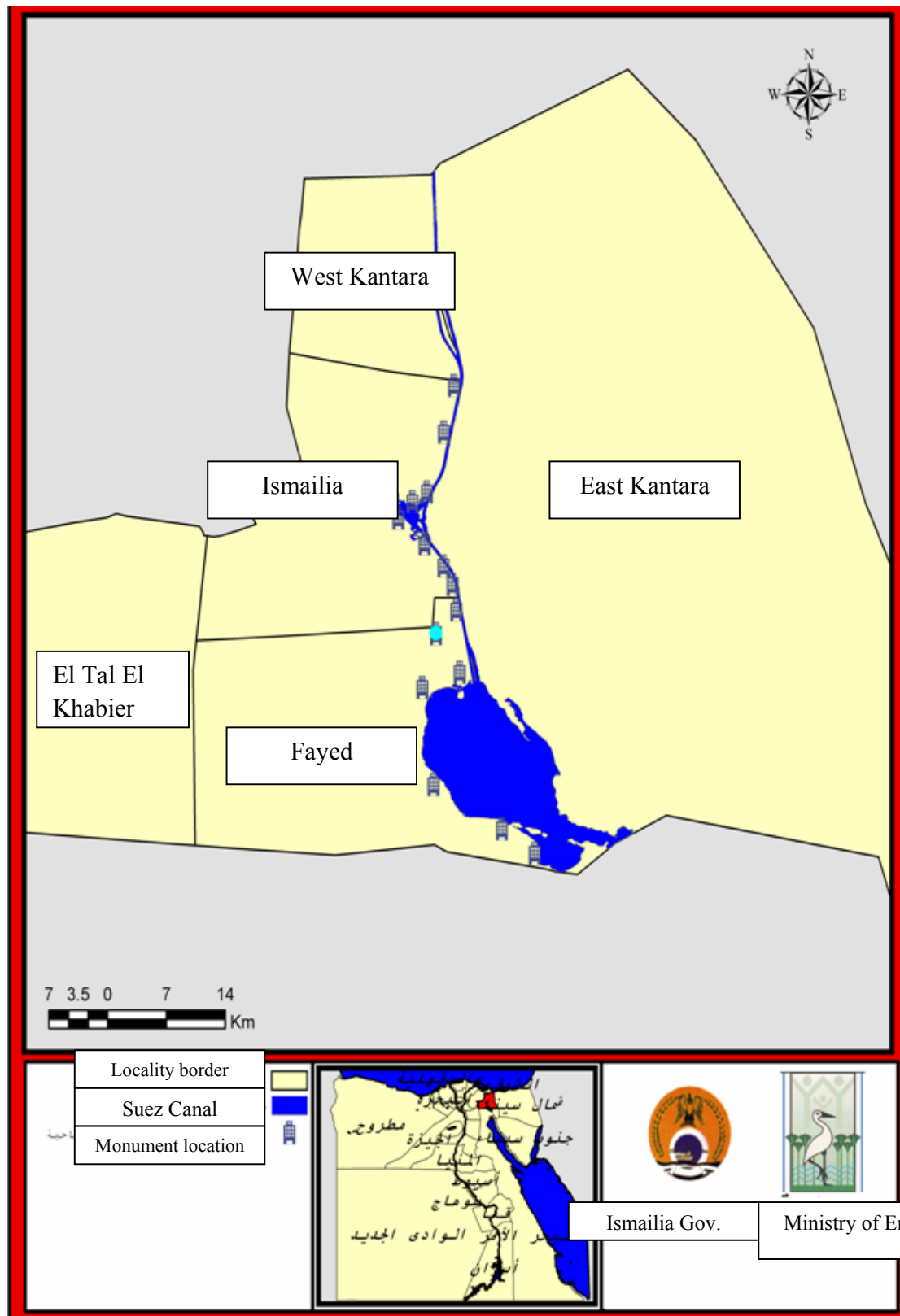
6-4-9 Water consumption in Tourism sector:

- Water consumption in tourism activities can be calculated from number of hosts and spent nights with regard that 1 person consumes about 40 liters of water/ day.
- Number of tourists in Fayed is 986500, this means that the water consumption is 39460 m3/ year.
- Number of tourists in Ismailia is about 56536 means that water consumption is about 2271,440 m3/ year.

6-4-10 Total sewage in Tourism Sector:

- Sewage waste water for all hotels is dumped into the common sewage network. Some tourism villages make its waste water into septic tanks, after that the local city units remove these sewage water inside the septic tanks, this method is very common in Fayed city.
- Industrial waste water, is in the form of waste water boilers found in 4 star hotels only , about 11 boilers in Ismailia only, they are small boilers less than ½ hours in power, used only for heating water in toilets and other utilities. They dump directly into the common sewage network.

**Map (8) Cultural and civil inheritance and important sites in
Ismailia Governorate**



Env

7- Environmental degradation:

7-1 Introduction:

The environment in Ismailia is vary, there are marine, desert and agriculture environment. We can find out that some degradation happened to the agriculture environment in the governorate due to the use of pesticides and old irrigation method. The governorate spent a lot of efforts (through agriculture authority) to reduce the consumption of pesticides, in addition to usage of modern irrigation methods.

For desert environment, there is an attitude to reclaim some desert areas for agriculture purposes.

As for marine environment (map number 9 water pollution areas) which includes water cannels, lakes , drainages , we find that Tamsah lake represents an economical and tourism income for the governorate, in addition to what it includes of living creatures faced a big degradation due to being polluted with numerous pollutants such as domestic waste water, agriculture and industrial waste water. The governorate spent big efforts to protect this lake, but still it requires more projects for purification and preserve its wealth. In addition, Tamsah lake represents an excellent source for tourism.

As for agriculture waste water canals, they suffer from degradation because of violation in the form of domestic waste water as sewage service did not enter many villages and cities in Ismailia. Though there are efforts to enter this service to some villages.

As for air, Ismailia enjoys clean air because of existing of many green areas (map 10: air pollution areas).

7-2 Table the areas in Ismailia suffer from pollution

Table (80): Areas suffer from pollution in Ismailia

Area classified according to pollution	Kind of pollution	Source of pollution	Notes
Lakes	Domestic and agriculture waste water	Agriculture waste water canals, Fishers swamp, waste water station in Saraboum in case treatment was not good	Wood forest does not accommodate all water quantities resulted from the treatment station

		quality	
	Industrial waste water	Some marine workshops	Some oil leakage may happen from some marine units
Waste water canals run through residential areas	Dumping dirt into uncovered canals, in addition to dumping agriculture and domestic waste water	Some citizens dump wastes into water canals, as well as some violations due to some septic tanks belong to the citizens	Water in these canals include chemical pesticides and domestic water all this affects the quality of water of these canals.
Suez canal (from Ismailia city till borders with Port Saied gov.)	Sewage	Ballah division organization	Domestic waste water resulting from houses in the Ballah division area was dumped directly into Suez canal, now it is stopped and sewage service is prepared from them.
Industrial areas in Ismailia	Liquid wastes Solid wastes	Some industries like textile industry	In case of non commitment liquid wastes are dumped into the comment network. Some industries generate solid hazard wastes stored in the same installation where there is no safe hazardous landfill exists
Inside Ismailia city: - Accumulation of some wastes - Clubs	Solid wastes Noise generated from sound speakers	Solid wastes and construction wastes Clubs	Spread of flies and mouse Holding parties till late at

- Coffees	Noise from TV sets	Coffees	night
- Workshops	Liquid wastes	Discards of vehicles oil	Improper trading
- changing vehicles			
oil activities			

7-3 Noise pollution:

- Sources of noise pollution

For residential areas noise pollution comes from different workshops located inside these areas, in addition to vehicles and traffic movement as well as coffees and street vendors.

As for tourism areas, source of noise comes from sound speakers and traffic movement.

- Legal limits allowed:

Law of environment 4/ 1994

Polices to control noise pollution:

The governorate is now specializing a certain piece of land far from residential areas to remove workshops that make noise inside the residential areas.

- Monitoring and control programs:

Monitoring is done through 3 areas:

Traffic area, industrial area and residential areas. In addition to what is measured during inspection and checking complains procedures.

- Health affects:

Noise causes hearing effects to human beings, in addition to causing tension situation that may affect production ability.

- Noise Pollution control policy:

1- Obligating installations to repair their situations through periodical inspection.

2- Remove workshops causing noise to far areas from residential areas.

3- Obligate noisy installations to repair their situation to reduce the noise coming from them.

4- Obligate installations to supply protecting and safe equipments among workers.

The following tables illustrate the results of noise measurements in Ismailia governorate in 2006

Table (81): Noise measurement in traffic areas

Area name	Noise inte	Identical	Not identical	Limit allowed for noise by Decibel
Foreign neighborhood	60 decibel	Identical	---	55-65 day time
Stadium area	71 decibel	---	Not identical	55-65 day time
El Salam neighborhood	72 decibel	---	Not identical	55-65 day time
5 th stage	70 decibel	---	Not identical	55-65 day time
Sheikh Zayed	64 decibel	Identical	---	55-65 day time
Egypt arisha	67 decibel	---	Not identical	55-65 day time
Garment area	60 decibel	Identical	---	55-65 day time

Source of information: EMU in the governorate

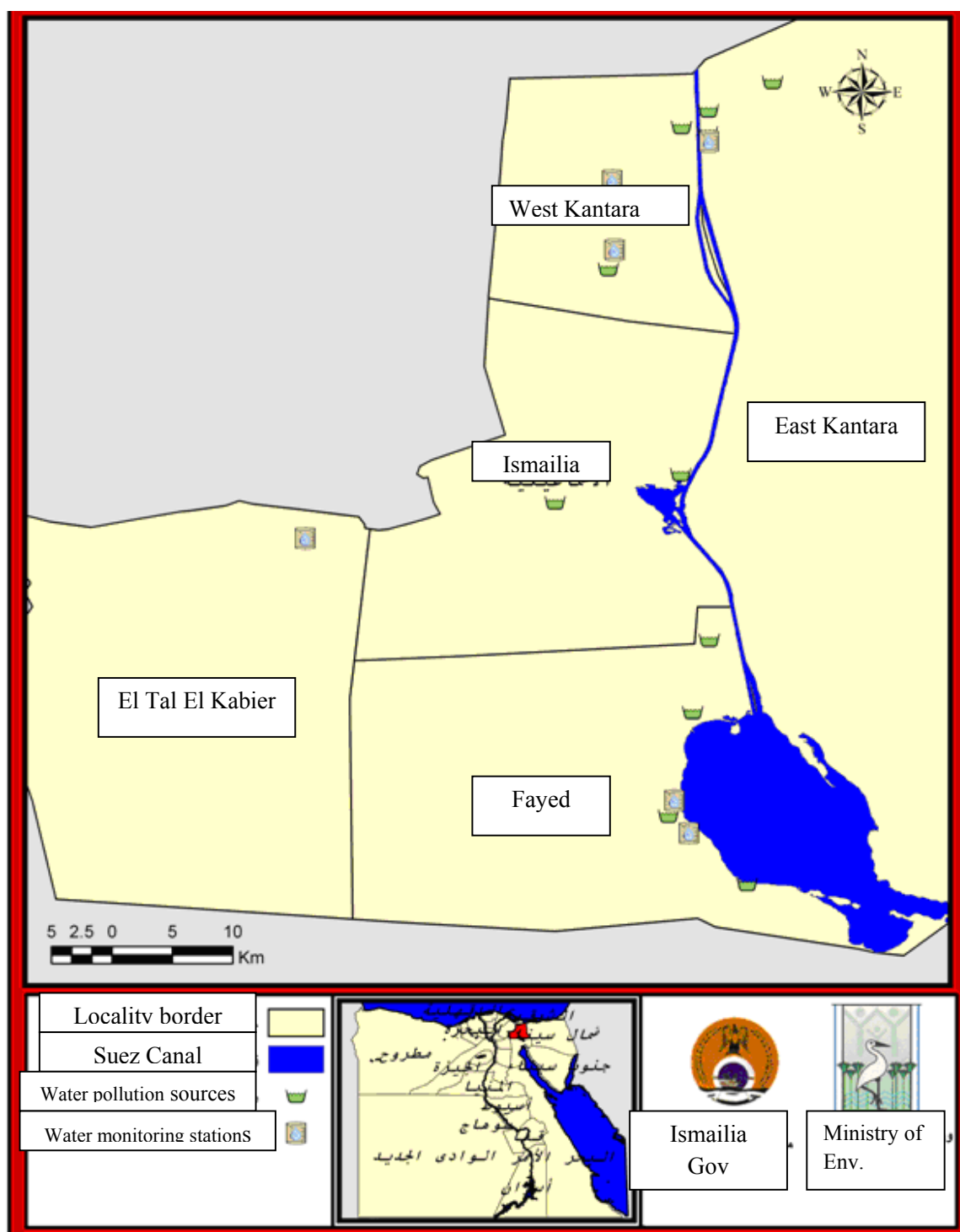
Table (82): Noise measurement in residential areas

Area name	Noise intensity	Identical	Limit allowed for noise by Decibel
Behind old governorate building	52 decibel	Identical	50-60 day time
Beside Om El Mo'menin school	59 decibel	Identical	50-60 day time
Intersection of Reda st	53decibel	Identical	50-60 day time

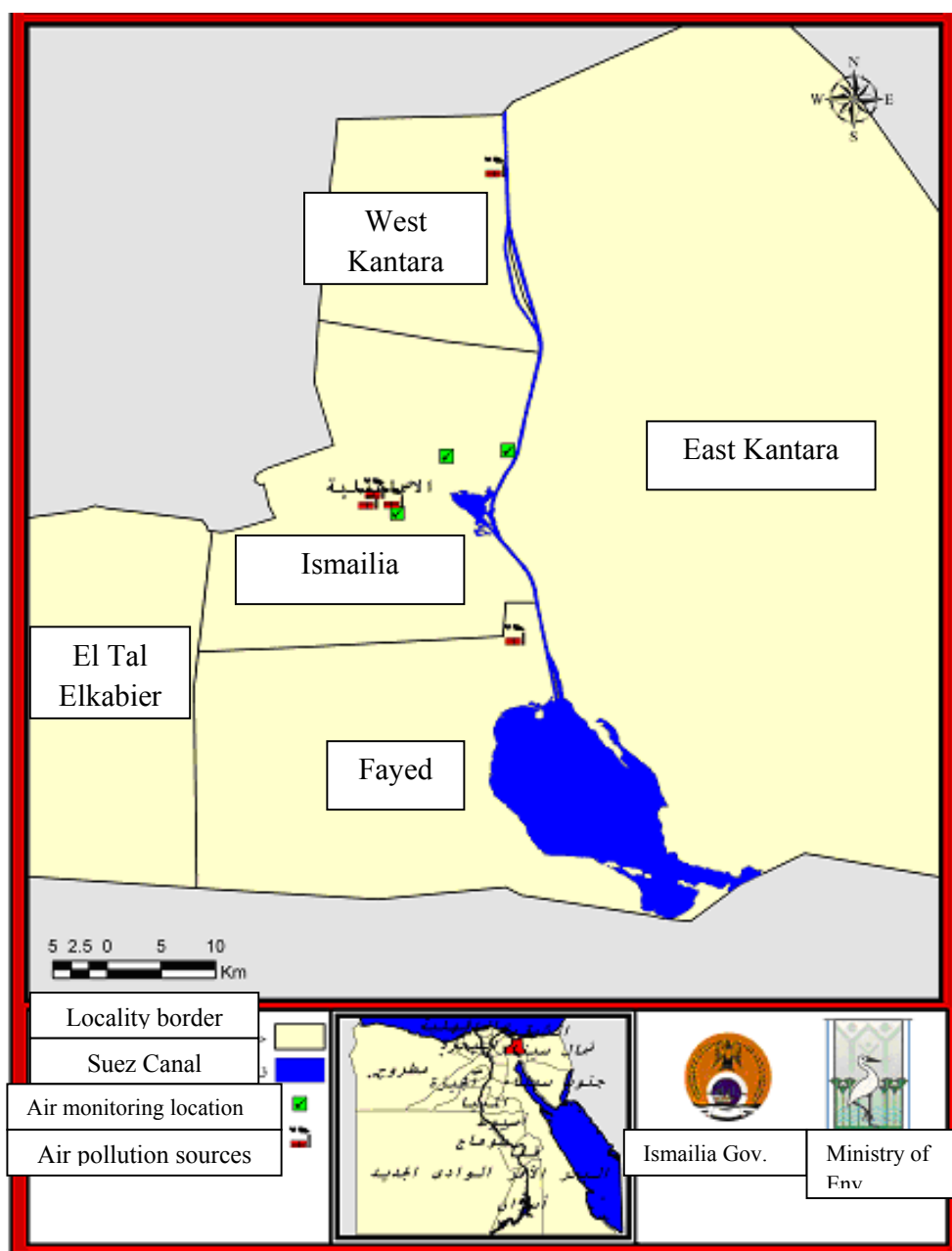
and Forest st			
Ownership residential	55 decibel	Identical	50-60 day time
3 rd kesem housing	53 decibel	Identical	50-60 day time
Intersection of Halfa valley and Monofiya	53 decibel	Identical	50-60 day time
Garment residential	52 decibel	Identical	50-60 day time

Source of information: EMU in the governorate

Map (9) Water pollution sources and water treatment station



Map (10) Air pollution sources and air monitoring stations



8- Institutional framework and environmental polices:

8-1 Authorities in charge for protecting the environment

The governorate responsibility:

The Governor is the head of the governorate, he is in charge of the main management of local development in his governorate.

There is a General Secretary in each governorate who has powers and specializations of the Undersecretary of the Ministry in the administrative and financial issues stated in the laws and executive lists regarding the General Diwan of the governorate.

Also there is a Co- General Secretary in each governorate to help and support the General secretary and replace him during his absence.

Governorate responsibilities related to protection of the environment done through EMU inside the governorate, as it is responsible of the following:

- Coordinate the on going environmental activities inside the governorate.
- Inspection all industrial installations (small- medium- big projects) as well as medical and tourism installations.
- Review EIA procedures for different projects.
- Check environmental complains of citizens.
- Raising the environmental awareness in cooperation with communication department.
- Participate in environmental campaigns with different comities.
- Increase green areas in each city and Markaz.
- Supply required workers and equipments to manage solid wastes in each town and Markaz.

8-2 Environmental legislations

Protecting the environment means "Preserve and develop its components, prevents degradation and pollutions or minimize pollution"

These components include: air, soil, natural protected areas, seas, internal water which includes River Nile, lakes, underground water, and other natural resources.

Based on the above, anything may threaten the environment elements and dangers can be in the form of:

1- Pollution

2- Degradation or depletion of some natural resources.

3- Deliberate damage for the environment or one of its components.

In this regard protection of the environment means to face the above 3 dangers.

Environmental legislations play a main role to face different images of pollution and environmental degradation, and to achieve sustainable development based on accurate balance between applying development plans with regard to the environmental considerations.

The Egyptian legislator was interested from the end of the 19th century to include provisions with environmental dimensions within the punitive legislation. This was found in the subject 33 in the Egyptian law issued in the year 1883, also the current Egyptian penal law number 58/ 1937 which was modified with the law 169 for the year 1981. Also the Egyptian legislator issued other sub legislations to fit with some certain environmental issues, such as hygiene, the last one was law 38 for the year 1967, also law 48/ 1982 regarding protection of the Nile river and water canals from pollution, law 93/ 1962 regarding liquid wastes, law 102/ 1983 regarding natural protected areas, law 52/ 1981 regarding smoking, law 57/ 1980 regarding disposal ponds, Presidential decree number 824/ 1979 to establish Higher committee to protect air from pollution.

But we notice that these legislations did not offer enough integrated protection for the environment as a multi elements body, each element affects and effects to each other.

In addition to the above, some legislations partially treated with some environmental issues, such as laws organizing for public stores and nightclubs, closed stores, industrial and commercial shops, also legislations to arrange demolition and construction activities, ..etc.

Upon these partial solutions (inside legislations and not issued mainly to protect the environment) we find out that the environmental violations was not put in the suitable frame that treats with the dangerous effects from the environmental point of view.

So, the environmental legislation policy trended to issue an integrated law, this was in the form of law 4/ 1994. The main characteristics of law 4/ 1994 (from the researcher point of view) are:

- 1- The law puts an integrated organization for environmental management, so the Cabinet of Ministers established the Egyptian Environmental Affairs Agency (EEAA) to protect and develop the environment; EEAA follows the Minister of Environmental Affairs. The law also agreed to establish regional branch offices (RBOs) in different governorates according to a decree from the Ministry of Environment with regard that the priority is to Industrial areas.
- 2- EEAA (by the law) is in charge of drawing the General policy and prepare the required plans to preserve and develop the environment, and to follow up its implementation in cooperation with the specialized administrative authorities. Also the law allows EEAA to discharge implementation of some legislation projects, puts follow up environmental standards and conditions, puts EIS procedures, prepares the Environmental Emergency Plan, manages and supervises the natural protected areas, participate in preparing and applying the National Program for Environmental Monitoring, ..etc.
- 3- EEAA management board is the higher authority of EEAA and is in charge of all its affairs and puts the general policy working in EEAA.
- 4- The law established the EPF (Environmental Protection Fund) to specialize its sources to finance any activities achieving its goals, such as offer financial resources to support environmental disasters, apply experimental projects in the field of protecting natural resources, protecting the environment from pollution, establish and operate environmental monitoring networks, also establish and manage natural protected areas, ..etc.
- 5- The law gave EEAA in cooperation with Ministry of Finance the authority to put the incentive system to individuals or organizations and activities or projects that aim for protecting the environment.
- 6- Law 4/ 1994 specialized the first chapter for Land environment. It obligates the authority who gives license to be in charge of EIA study for any installation according to certain procedures which must be identified clearly. Also any expending for the present installation must be subject to the regulations of EIA with regard to the same procedures.
- 7- The law obligates also specifying an area not less than 1000 m³ from governmental land to establish a plants nursery to offer its production to the public with production cost as well as to clarify for the public how to plant and take care of these plants.
- 8- The law forbidden hunting or killing or capture wild animals or birds according to the species listed in the executive list of the law.

- 9- The legislator put recently a whole chapter for hazardous wastes and substances, its points are:
- a. Forbidding the circulation of these substances without license of the administrative authority in charge.
 - b. To put a system to manage and circulate these hazardous wastes.
- 10- The law specified the second chapter for protecting the air environment from pollution through conditions that provides protection to air environment from pollution inside industrial establishments as well as other activities.
- 11- The third chapter of the law to protect marine environment from pollution. Its conditions concern about protection of sea marine environment as well as the shores of ARE (Arab Republic of Egypt) and its ports from all kinds of pollution. As for protection of the Nile river and water canals they are among the responsibilities of law 48/ 1982.

Law48 / 1982 is regarding the protection of the Nile river and its 2 branches as well as water canals from pollution:

This law prevented the draining of solid, liquid or gas wastes from houses, shops, commercial or industrial or tourism establishments or from sewage wastes or anything else either into the watercourse unless have the license from Ministry of Irrigation according to the standards and conditions by a decree from the Minister of Irrigation upon a suggestion from Ministry of Health. The license issued must include the standards and specifications from each case separately.

The subject number 89 of the law 4/ 1994 stressed the punishment regarding the encroachment on the Nile river and the fine is not less than 200 L.E and does not exceed 20,000 L.E. in case the same action is repeated then the penalty is imprisonment and a fine together.

In all cases the offender is obligated to fix his conditions in the time set by the Ministry of Public Works and water resources. If conditions not fixed then the Ministry has the right to take removing procedures on the account of the offender and the Ministry also has the right to cancel the license.

Ministry of health has the right to make a periodical or random analysis in its laboratories for samples of treated liquid wastes from licensed factories, in case of any violation the Ministry has the right to take the required procedures. Also the law gave Ministry of Irrigation the authority to establish mobile and fixed floating as well as units used to fight water grass, and

also gave the authority to Environment and water surface police to make continuous inspection patrols.

Also the law obligated Ministry of Agriculture to put into consideration not to pollute the watercourses during the usage of any kinds of chemical substances to fight agriculture deceases. The law established in the subject number 14 a special Fund to collect all the fees and fines resulted from this law.

Law number 102/ 1983 regarding natural protected areas:

It defines the natural protected area in the first subject as "any area of land, costal or local water specialized with what it includes of living creatures like plants, animals, fish or any natural phenomena according to a suggestion from EEAA at the Cabinet of Ministers".

Law 102/ 1983 established a Fund for protected areas and also punishments for anyone who violate its subjects and its executive decisions with a fines not less than 500 L.E and not more than 5000 L.E. as well as imprisonment for a period not more than 1 year or one of the previous punishments.

Law 93/ 1962 regarding drainage of liquid wastes:

Law number 93/ 1962 regarding liquid wastes is considered the first legislation that organize the drainage of liquid wastes into water cancels from 2 points:

- Organize drainage of liquid wastes into the common sewage network.
- Organize drainage of liquid wastes from houses, shops, commercial and industrial establishments into watercourse.

This law made a condition to have the approval of Ministries of Health and Water resources (according to each Ministry's respective) with regard to have these approvals sent to Ministry of Housing and Utilities in order to have the license for draining.

The executive list of this law was issued by a decree from Minister of Housing number 649 for the year 1962 identifying the standards for draining health and industrial wastes, as well as the method of taking and analyzing samples dividing watercourses into groups: Nile river and its branches, waste canals, sea , lakes and drainages.

Authorities in charge of prosecution:

Water surfaces police, Directorate of Housing, Directorate of Irrigation and Water resources, EMU in the governorates as well as Local units in cities and localities (Markaz) and neighborhood.

8-3 Higher committee of Environment:**- Formation:**

The Higher Committee of Environment was formed upon a decree of his Excellency the Minister/ Governor of Ismailia number 369 for the year 2005.

The decree included:

First subject:

The higher committee for environment is formed with the Chairmanship of the Governor and the membership of each of the following:

- 1- Head of Local council at the governorate.
- 2- General Secretary.
- 3 – Assistant General Secretary.
- 4- University vice president for environmental affairs and community service.
- 5- Director of EMU in the governorate.
- 6- General Manager of Education directorate.
- 7- General Manager of Agriculture.
- 8- General Manager of Health and Housing directorate.
- 9- General Manager of Communication support.
- 10- General Manager of Agriculture reclamation.
- 11- General Manager of supply and internal commerce directorate.
- 12- General Manager of roads and bridges.

- 13- General Manager of Irrigation directorate.
- 14- General Manager of Manpower.
- 15- General Manager of Social affairs.
- 16- General Manager of domestic sewage.
- 17- General Manager of Youth and sports.
- 18- General Manager of Vet medicine.
- 19- General Manager of Housing and Utilities.
- 20- General Manager of EEAA RBO in Suez.
- 21- General Manager of urban planning in the governorate.
- 22- A representative for the investors and factories owners.
- 23- A representative for NGO's working in the field of Environment.
- 24- Leader of Water surfaces and environment police.

*** Responsibilities:**

The committee is in charge of:

- Participating in implementing the National Plan for Environmental protection, and putting a plan to protect the environment of Ismailia. Also participates in preparing and identifying the environmental situation report of the governorate, collecting environmental data, monitoring pollution sources, prepare environmental maps as well as methods of protection.
- To work on applying law 4/ 1994 and other working legislations to protect the environment in cooperation with specialized authorities and support of EEAA RBO to implement the environmental inspection actions.
- Cooperates in preparing and applying the emergency plan for facing the environmental disasters on the governorate level, also to study its training needs to be coordinated with concerned parts.

- Monitor the implementation of the insurance procedures for circulation of hazardous wastes and substances inside the governorate and its treatment in cooperation and coordination with different implementation authorities.
- Contribute in planning, preparing, implementing and follow up the environmental projects according to the governorate needs.
- Prepare and implement the training and education program in cooperation and coordination with EEAA RBO in Suez.
- Supervise the environmental activities on the locality, city and village levels.
- Activate the role of NGO's and public sector as well as business sector and support their efforts in the field of protection and development of the environment.
- Periodical meetings: meeting is being prepared.

8-4 Role of NGO and cooperative counterparts:

- Preserve the natural resources and prevent its degradation.
- Preserve the air and water from pollution by inspection activities and periodical follow up on the establishments that emit pollution, moreover obligates them to fix their conditions.
- Environmental awareness for citizens.
- NGO's working in the field of environment that establishes some projects serving the environment in addition to environmental awareness.
- Merging the environmental dimension with in development.
- Preventing the establishment of any projects without EIA studies.

8-5 Environmental awareness and education:

This is implemented through:

- Nile centers for Communication hold training courses in different environmental fields for environmental awareness and education.
- Prepare some symposiums in schools in cooperation with EMU in the governorate.

- Prepare some symposiums to raise the public awareness through mass Media in the governorate.
- Establish continuous development projects through preparing some training courses to raise the environmental awareness of the Youth.

8-6 NGO's activities:

There are many NGO's and social development associations in Ismailia are interested in the field of environment; they have many environmental activities such as:

- Activities related to solid wastes management and disposal of garbage.
- Activities related to recycling of agriculture wastes and increase the public awareness to preserve the environment.
- Activities related to awareness for quitting smoking.

Table (83): NGO's and Social devolvement associations

No	NGO name	Address	Head of NGO
1	Society and Environment	Continuous development project	Habeba Abdou Eid
2	Renewable energy and protection of the environment	Ismailia Governorate Office building	Gen. Efat Elsadat
3	Preserving the environment and development	166 Tahrir St.	Gen. Hasan Abou Hasan
4	Egyptian organization for Algae	Faculty of Science , Suez Canal University	Mohamed Mostafa El Fouly
5	Sanabel for Development and environmental services	12 Akalema St. El Salam	Hamdy Soliman
6	Water farming organization	Faculty of Science , Suez Canal University	Dr. Samier Ghomiem
7	Community development in el Tal El Khabier	el Tal El Khabier	Mohamed Saleh Ismaiel

8	Shore owners association in Fayed	Reham Shore, Fayed	Adel Khamis
9	University granulates association	Beside Houses and bridges compound	Sayeda Mohamed Baher
10	Egyptian association for protecting the shores	72 Shebien El Koum St.	---
11	El Salam association for development in Abou Sowier	Manshiat El Salam	Abdel Moniem Mohamed Ali Radwan
12	Halwas for social development	Halwas ezbat, old cooperation road	Salah El Dien Elsayed Ali
13	Wafaa for developing the local communities	El Salam neighborhood, Ismailia	Harby Mohamed Bioumy
14	Youth for tourism activation	Shiek Zaied	Ismaiel Mahmoud Ibrahim
15	Social reform association	el Tal El Khabier	Mahmoud Mohamed Abdelhamid
16	Integrated development technology	El Salam neighborhood, Ismailia	Ahmed Ahmed Mohamed Ramadan
17	Social development in El Salam neighborhood	El Salam neighborhood, Ismailia	Dr. Mohamed Abdelghaffar Mahmoud
18	El Nour for developing the local society in Mahsama	Old Mahsama, the station	Mohamed Ibrahim Ali Saliem
19	Magabra sons for social development	Tahrir St, West Kantara	Edward Bakhiet
20	Social development in Albaalwa	Major Baalwa, old Kasaseen	Atef Souliman Saliem
21	Social development in Abou Ashour	Abou Ashour village , El Tal El Khabier	Mohamed Abdel Fatah
22	Local social development in Manshiat Oraby	El Tal El Khabier, Manshiat Oraby	Ahmed Elsayed Ahmed

23	Local social development in Abou Khalifa	El Tal El Khabier, Abou Khalifa village	Dr. Ahmed Ibrahim Mohamed
24	Social development in Kasaseen	New Kasaseen, inform of the old market	Eng. Gharib Elsayed Azazy
25	Rahma for social development	Abou Souier	Ibrahim Mohamed Abass
26	Social development in Werwara	Abou Soier, Werwara	Ibrahim Hasan Ibrahim
27	Social development and environmental services	Ismailia	Saied Ahmed El Ba'ley
28	Social development in Zaheriya	El Tal El Khabier, El Zaheriya	Moahmoud Mohamed Abdallah
29	Development and environment	Sheik Zaied	Dr. Magdy Ghanem
30	Social development in Om Azzam	New Kasaseen, El Tal El Khabier	Elsayed Mohamed Abdraboh
31	Social development in Abou Khalifa + integrated development technology	El Tal El Khabier, Abou Khalifa	Aliya Fahmy
32	Mental education for metal disability + + integrated development technology+ the Egyptian association for protecting the shores	El Salam neighborhood+ Shiek Zaied, Montazah club	Mohab Yousef Zanoun

8-7 the environmental activates in the governorate:

- Decorating and plating trees in the streets and in the main squares in cities and localities.
- Developing some squares like El Fardous square.
- Raising the public environmental awareness through Mass Media especially towards Bird's flu disease.

- Holding competitions for the best city/ neighborhood or village.
- EMU also prepared the local plan to face the environmental disasters. (Annex of the local plan for environmental crises).

8-8 International initiatives and donors activities:

*** Policies:**

Preserve the environment from pollution, preserve citizen's health because health and environment are 2 faces of 1 coin. A clean cup of water- increasing green areas from all citizens.

*** Projects:**

International Bank project METAP (1):

This project supported the EMU in Ismailia with the following:

- 1- (1) PC set (black and white)
- 2- (1) photocopy machine.
- 3- Training for the EMU employees in the field of environment and computer skills as well.

International Bank project METAP (2):

This project supported the EMU with the following:

- 1- (3) computers (colored)
- 2- Environmental monitoring and measurement devices, included:
 - * 2 PH measurement devices.
 - * 2 Noise measurement devices.
 - * 2 Temperature measurement devices.
 - * 2 Salinity measuring device.
 - * 1 Electrical conductivity measuring device.
 - * 1 Turbidity measuring device.

3- Training for EMU staff and environmental inspectors in localities and village in the field of environment and computer skills.

DANIDA project for supporting and training EMUs:

This project supported the EMU in the governorate with the following:

- 1- (2) computers (with the screen)
- 2- (1) laser printer + (1) CANON printer.
- 3- (2) Canon photocopy machines + table.
- 4- (1) digital camera.
- 5- (1) scanner device.
- 6- (1) sampling box.
- 7- (1) GIS unit + colored printer.
- 8- Devices in the field of environmental monitoring:
 - * 1 noise calibration device.
 - * 2 noise measurement device.
 - * 1 water analysis device.
 - * 1 GPS device.
 - * Sulfur dioxide measurement device.
 - * Carbon monoxide measurement device.
- 9- Toyota double cabinet vehicle.

The Canadian Egyptian project for supporting small projects:

This project supported small projects in industry areas in order to protect the environment from pollution. This project gave a grant in the form of easy loans with simple profit, with regard that the Canadian side will make the environmental study for these projects. One national marble

factory won in the project as the successful factory to recycle the waste water from the factory in a closed circuit and limitation of pollution dumped into the public sewage network.

The Tirdezioum project for village sewage:

This project was done by a Switzerland organization interested in community service and gender and protecting the environment from pollution.

The organization made a survey for some villages which were not served with sewage in El Tal El Khabier city, also this organization established an integrated project to dispose waste water in the rural houses through closed septic tanks (one septic tank for each 10 houses) then the process of discharging these tanks was done by the local council in order to be transferred to the sewage station.

The Canadian project for supporting the environmental NGO's (Cinact):

A 5 Million Canadian dollars grant was offered from the Canadian side to support the environmental NGO's in Ismailia and Menia governorates, in addition to this grant there was 5 Million Egyptian pounds offered from EEAA.

8 NGOs had been chosen inside Ismailia governorate and were supported by 125,000 L.E each one.

9- Environmental issues and priorities:

Table (84): Summery of the environmental issues in the governorate

Environmental issue	Problem description
Maine environment	Agriculture waste water disposed in Temsah lake and Fishers swamp are polluted, in addition to the sewage disposal into Bitter Lakes , this issue requires purification for Temsah lake and other lakes.
Hazardous medical wastes	Although the presence of many incinerators inside the medical establishments in Ismailia governorate but there is a big problem in the process of safe collecting and transportation of these hazardous wastes, as there is no qualified vehicle for this purpose. Moreover there is no safe hazardous landfill to burry the ashes of the hazardous wastes.
Solid wastes	There is a problem in the form of low quality devices as well as low number of these devices, in addition to low number of qualified workers in this field. Also there is another problem as there are people who check wastes in the streets for some items. All these problems prevent the local units to transfer solid waste and recycle it in the proper way.
Sanitation	Although the sewage services was linked to many cities inside the governorate in addition to the presence of sewage waste water treatment stations.. but still there are many villages suffer from the absence of this service, also Abou Souier and New Kasaseen cities represent an environmental problem in this regard.
Industrial pollution	Gas emissions come out from some industrial factories and other factories cause industrial waste water problem. These problems require limitation of pollution in addition some factories do not dispose their hazardous because they store it in warehouses at the same establishment till they get rid of these hazardous wastes.
Environmental	Due to the decrease of the environmental awareness of many citizens especially regarding health and environment, and although the awareness activities done by the EMU in the governorate and Nile

awareness education	and	centers for Communication, and also although the presence of awareness department in the Governorate, and Suez Canal University, as well as the presence of awareness department in the EEAA RBO in Suez and also Radio and TV union in Ismailia.. but still there is a need to raise the environmental awareness and education at the Governorate level in cooperation with all stake holders.
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(Source of information: EMU in the governorate)

Environmental priorities:

- 1- Purification of Tamsah lake and Bitter Lakes , Fishers swamp and preventing the pollution of agriculture drainages linked to these lakes.
- 2- Integrated management for hazardous and medical wastes.
- 3- Integrated management for solid wastes.
- 4- Supply the deprived cities and villages with drinking water and sanitation services.
- 5- Limitation and control of industrial pollution.
- 6- Environmental awareness and education for citizens.

Annexes

Environmental profile for Ismailia governorate 2007

Health annex

List for Health infra structure (hospitals, urban centers, rural units) distributed among the health departments:

Health department	Unit name	Method of hazardous disposal
Ismailia	<u>First: Hospitals</u>	
	1- New public Ismailia hospital	Has an incinerator, will operate after experiment
	2- Ismailia Dietary hospital	For Ismailia Dietary hospital and Ismailia Chest hospital and all Ismailia health departments they get rid of hazardous wastes through Ismailia Dietary hospital incinerator
	3- Ismailia Chest hospital	
	4- Emergency hospital in Nefesha	
	<u>Second: Health offices</u>	
	1- South Ismailia health office	
	2- Araishia health office	
	<u>Third: Urban health centers</u>	
	1- Urban health center No (1)	
	2- Urban health center No (2)	
	3- Urban health center No (3)	
	4- Urban health center No (4)	
	5- Nafesha health center	
6- Future city health center		
<u>Fourth: Rural health units</u>		
1- Abou Balah unit		
2- Abou Atwa unit		

	3- Ein Gohsieen unit	
	4- El Dab'iea unit	
	5- Toson unit	
	6- Wesr seven wells unit	
	7- East seven wells unit	
	8- Manayief unit	
	9- Wasefiya unit	
	10- Kilometer 11 unit	
	<u>Fifth: Analysis laboratories and Blood banks</u>	
	1- Main blood bank	Incinerator operates under experimentation
	2- Joint laboratory	Incinerator operates under experimentation
	<u>Sixth: Independent Clinics</u>	
	1- Skin Disease clinics	Hazardous wastes are disposed in Ismailia Dietary hospital incinerator
	2- Psychology clinics	
El Tal El Khabier	<u>First: Hospitals</u>	There is an incinerator in El Tal El Khabier central hospital to dispose hazardous wastes from hospitals and health units in health department of El Tal El Khabier
	1- El Tal El Khabier central hospital	
	<u>Second: Health offices</u>	
	1- El Tal El Khabier health office	
	<u>Third: Urban centers:</u>	
	1- El Tal El Khabier Urban health center	

	<u>Fourth: Rural health units:</u>	
	1- Zaheriya unit	
	2- Baalwa unit	
	3- Green island unit	
	4- Malak valley unit	
	5- Shiek Atiya Kafr unit	
	6- Thamod hill unit	
	7- Oheda unit	
	8- Minor Baalwa unit	
	<u>Fifth: Maternal and Child Welfare centers</u>	
	El Tal El Kabier Child welfare	
El Kasaseen	<u>First: Hospitals</u>	Hazardous wastes in Kasaseen central hospital and Dietary hospital and other health departments through Ismailia Dietary hospital incinerator
	1- El Kasaseen Central hospital	
	2- El Kasaseen Dietary hospital	
	<u>Second: Health offices</u>	
	1- El Kasaseen health office	
	<u>Third: Rural units</u>	
	1- Old Mahsama unit	
	2- El Haash unit	
	3- El Sowaidat unit	
	4- El Khafeig unit	
	<u>Fourth: Maternal and Child Welfare centers</u>	

	1- El Kasaseen Child welfare	
Fayed	<u>First: Hospitals:</u>	Hazardous wastes of Fayed central hospital and Abou Sultan hospital and Sarabioum hospital and all units in the health department of Fayed through Ismailia Dietary hospital incinerator
	1- Fayed central hospital	
	2- Health integration hospital in Abou Sultan	
	3- Health integration hospital in Sarabioum	
	<u>Second: Urban centers</u>	
	1- Urban health center in Fayed	
	<u>Third: Rural units</u>	
	1- Saiedia unit	
	2- Fanara unit	
	3- Kosfereet unit	
West Kantara	<u>First: Hospitals</u>	Hazardous wastes of West Kantara all units in the health department of West Kantara through West Kantara central hospital incinerator
	1- West Kantara central hospital	
	<u>Second: Urban centers</u>	
	1- West Kantara urban health center	
	<u>Third: Rural units:</u>	
	1- Abou Khalifa unit	
	2- Kilo 17 unit	
	3- Rayaah unit	
	4- El Raouda unit	
	5- Beyadiea unit	

	6- Shahid Khairi unit	
	7- Kilo 14 unit	
	8- New Manshia unit	
East Kantara	<u>First: Hospitals</u>	Hazardous wastes of East Kantara all units in the health department of East Kantara through East Kantara central hospital incinerator
	1- Esat Kantara hospital	
	<u>Second: Health offices</u>	
	1- East Kantara health office	
	<u>Third: Rural units:</u>	
	1- El Abtal unit	
	2- El Salam unit	
	3- Progress unit	
	4- Gelbana unit	
	5- El Oubour unit	
Abou Soier	<u>First: Urban health centers</u>	Hazardous wastes of all health units in Abou Soier health department are disposed through Ismailia Dietary hospital incinerator
	1- Urban health center in Abou Souier	
	<u>Second: Rural units:</u>	
	1- New Mahsama unit	
	2- Abou Soier El Balad unit	
	3- Abou Gerish unit	

(Source of information: Directorate of Health and Population)

List of Kidney dialysis equipment in hospitals belong to Directorate of Health and Population

Hospital	Number of equipments	Number of patients
Public hospital	20	131
Hussein El Aswad center	20	63
Hala Abou Zied medical center	9	25
El Tal El Khabier hospital	16	71
Fayed hospital	6	17
West Kantara hospital	7	24
Total	78	331

(Source of information: Directorate of Health and Population)

List of Kidney dialysis equipment in other sectors

Hospital	Number of equipments	Number of patients
Suez canal university hospital	18	44
Suez canal authority hospital	14	20
Hedaia center	20	76
Total	52	140

(Source of information: Directorate of Health and Population)

List of Chest patients' number during the last 5 years from 2001- 2005

Year	Total patients visit the external clinic (ODP) and reception hospital	Total cases entered Chest hospital	Total Tuberculosis Cases
2001	43629	1335	169
2002	48572	1697	164
2003	51732	1854	182
2004	51269	1791	173
2005	52249	1586	154

(Source of information: Directorate of Health and Population)

List of Viral hepatitis patients' number during the past 3 years from 2003 till 2005

Year	Viral hepatitis (A)	Viral hepatitis (B)	Viral hepatitis (C)	TOTAL
2003	116	68	143	327
2004	124	49	115	306
2005	146	55	83	284

(Source of information: Directorate of Health and Population)

Therapeutic activity of endemic disease from 2001 till 2005

Year	Number Screened	Bilharzia positive			
	Feces				
2001	378273	5808	464	2	6274
2002	375089	5418	664	0	6082
2003	377122	5227	386	0	5613

2004	367785	3802	185	0	3987
2005	271075	2474	138	9	2621

List of Renal failure patients in Ismailia governorate

Year	Number
2003	382
2004	450
2005	490
2006	495

(Source of information: Directorate of Health and Population)

Water resources annex

(Surface water survey in the governorate): list of water canals length

No	Name of water canal	Length in kilometer
1	Ismailia canal	53,400
2	Valley canal (part1)	7,950
3	El Roudey canal (part2)	3,685
4	Bakaresha canal (psrt3)	7,450
5	Lameaa and Thamod canal (part4)	4,680
6	Western canal and its branches	1,615
		0,750
7	Sendouk (Box) canal	13,850
8	Meshala canal	4,830
9	Salheiya canal	Pipes
10	Youth canal	Pipes
11	Mery canal	2,700
12	Mehsama riyah canal	3,700
13	Vectory canal	1,730
14	Abou Soultan 104 canal	1,050
15	Abou Soiuer Canal	3,750
16	Main Manaief canal	23,800
17	Manaief tribal canal	1,550
18	Manaief cancal number (5)	2,750
19	Manaief marine canal	5,440

20	Mataieya canal	5,300
21	First Genabiya Right canal	3,500
22	Second Genabiya Right canal	3,00
23	First Genabiya Left canal	3,500
24	Second Genabiya Left canal	1,00
25	Suez water canal	50
26	El Gebaley canal	2,500
27	Abou Egela canal	1,690
28	First Genabiya canal	1,500
29	Third Genabiya canal	1,700
30	Fourth Genabiya canal	2,46
31	Fifth Genabiya canal	1,580
32	West Sinai canal	1,570
33	Khawatra canal	3,100
34	Kebreeta canal	6,00
35	Genabiya 1 canal	1,780
36	Genabiya 2 canal	0,475
37	Genabiya 3 canal	1,300
38	Genabiya 4 canal	0,630
39	Genabiya 5 canal	0,850
40	Genabiya 6 canal	1,075
41	Genabiya 7 canal	1,290
42	Genabiya 8 canal	1,250

43	Genabiya 9 canal	1,625
44	Genabiya 10 canal	0,725
45	East Sinai canal	1,750
46	Ta'mier canal	5,400
47	Meet Abou Koum canal	5,800
48	Akariya canal	4,600
49	High raise canal	6,700
50	Expansion canal	25,575
51	Shiek Zaied canal	72,00
52	Port Saied canal	42,00
53	Ferdan canal	6,100
54	Tree canal	5,400
55	Deresa canal	2,600
56	Abou Amood canal	8,200
57	West Riyah canal	4,400
58	The 3 gulfs canal	2,700

(Source of information: Directorate of Water resources and Irrigation)

Ponds survey

Markaz	Local unit	Pond name	Area in acres
Ismailia	Ein Ghosien village	Abou Soubieh	50
	Abou Soier city	El Ba'ley	5
		Mote'aa number 5	10,5
		Warawera ezbat	0,5
El Tal El Khabier	El Tal El Khabier city	El Tal El Saghier 1	500
		El Tal El Saghier 2	500
	Old Kasaseen village	New Kareen	3
	Mahsama village	Maghfoura	50
		Om Shaker	50
		El Matroka	50
		Om Yarwat	50
Fayed	Fayed city	El Sherief	2
		Jasmine	18
		Minor pond beside Fayed water station	2
		Sodieh	2
		Khashaina in Sa'dia	2
	Fanara village	Lux	4
	Sarabioum village	Pond beside Hamla school	4
		Maine pond for Model village	4

		Pond on Saraboum Road	4
		Abou Rabi'eh	7
		Noor El Sabah mosque pond	4
	Abou Soltan village	Abou Soltan pond	4
West Kantara locality	West Kantara city	Number 4	10
	Riyah power	West sewage station	200
		In front of sewage station	119
		Beside Tahrir school	23
		Beside Botagas and Sawarka	6
		Pond in Nawara area	1
	Abou Khaliefa village	Sa'aida area	10

(Source of information: Directorate of Water resources and Irrigation)

Main drainages in the governorate

No	Drainage name	Drainage location	Sewage dumping point
1	El Wady drainage	El Tal El Khabier	Final treated output from El Tal El Khabier sewage station, at kilometer 16, left shore of Wady drainage
2	Mahsama drainage	Mahsama	Final treated output for Ismailia sewage station, kilometer 4,5 at left shore
3	Drainage branch (1)	On branch at North of Ismailia	Final treated output for West Kantara sewage station, kilometer 3 left shore

(Source of information: Directorate of Water resources and Irrigation)

Drainage covered partially

No	Drainage name	Drainage location	Executive situation for filling situation
1	Malaria drainage (2)	Fayed city and Markaz	2300 meter from the drainage were covered, starting time was scheduled 1-10-2004, ending time is scheduled 31-3-2004
2	Malaria drainage (3)	Fayed city and Markaz	It was covered with length 650 meters and word already finished

(Source of information: Directorate of Water resources and Irrigation)

Ponds and drainage survey in Ismailia Markaz and cities

City/ village	Pond/ drainage name	Area
Ismailia city	Fersan island drainage	3 Km
	Cooperation blague pond	4 acres
	Belajat tanks	---
	Bahteny ezbat	3 acres
	Behind water station and Abou Ali drainage in Bahteny	5 acres
	Balah division pond	5 acres
	Abou Sheta and Abou Adam pond and drainages	8 acres
	Abou Mansy and Abou Adam ponds	10
	End of Thalathiny	2 acres
	Kilometer 2 pond at Port Saied road	5 acres

	Mahsama drainage from Wasfieya till Temsah lake	17 acres
Nafesha village	Boury pond	60 acres
	Abdoun resident	3 acres
	Pond behind the rail way	5 acres
	Nafesha ponds	10 acres
	Abou Dahshan	3 acres
	Abou Dahshan and Abou Shahin drainages	3 Km
Wasfiya village	Pond 25 on the upper Cairo/ Port Saied road	10 acres
	Pond 28 on Ismailia/ Zagazzig road	5 acres
	Warsha and Abou Zekri drainages	4 Km
	Mahsama drainage from Wasfiya till Nafesha	10 Km
	Abaza, Mansy ponds on Project road	25 acres
	A drainage from Abaza till Warsha	10 Km
	Shou'ieb pond	5 acres
Dab'iya village	Ezat drainages and ponds	30 acres
	Pond in Shafie ezbat	7 acres
	Pond beside Almsbouk	10 acrer

	Ahaly drainages	15 acres
	Pond beside Almsbouk Ezbat	5 acres
	Location beside Zamalout houses	3 acres
Ein Ghousien village	Dabi'ya modern project from the station till El Menyawy	10 Km
	Shieka Salma pond	15 acres
	Shiek Henedak drainage	10 Km
	Henedak pond	5 acres
	New Temsah drainage	10 Km
	Shiek A'ref drainage	---
	Toson drainages after the touristic village	10 Km
	Mariam mountain pond	20 acres
Manayief	Pond bridge 7 on Ismailia road	30 acres
	Pond of bridge 4	15 acres
	Pond of canal 5	10 acres
	El Hasmiya pond	10 acres
	Ahaly drainages	10 acres
	Pond on canal number 4	---
	Salama pond	20 acres
	Zamalta pond	15 acres

Sarabioum	Abdelwahab Hakim pond	20 acres
	Awaida pond	10 acres
	Arab pond	20 acres
	Abdel Fatah El Shamy pond	5 acres
	Tayee Abou Beshai pond	25 acres
Sarabioum the barrage	Dao'ya pond	33 acres
	Balabsa pond	5 acres
	Abou Radi pond	2 acres
	Abou Metwali pond	5 acres
	Abou Heba pond	15 acres
	Abou Rabee pond	10 acres
	10 th of Ramadan pond	1 acres
Abou Soltan	Abaza pond	3 acres
	Abou Afifi pond	2 acres
	Abou Enbaby pond	5 acres
	Malariya pond	3 acres
West Kantara city	Maabar ezbat pond	10 acres
	Sawarka ezbat pond	5 acres
	Pond behind the Public hospital	5 acres
	Pond beside bridge at Kantara entrance	4 acres
	Sa'aida ezbat pond	5 acres

	Pond beside the armed forces from Port Saied direction	5 acres
	Abou Rashid ezbat pont, Abou Saoud land	10 acres
	Abaida ezbat drainage	1 Km
	Drainage beside Sweety factory, at the West of Treaty area	1 Km
	Number 4 pond in Kantara	20 acres
	Number 5 pond in Kantara	50 acres
	Tawab pond	50 acres
Riyah village	Drainage in Riyah village	2 Km
	Pond in Riyah from inside	1/2 acres
Abou Khalifa village	Abou Khalifa ring pond	20 acres
	Baquobiya	100 acres
	Victory village, kilometer17 and 14	20 acres
East Kantara city	Behind cemeteries	5 acres
	Behind Police houses	2 acres
	Entrance of the Industrial area	3 acres
	Seven buildings	3 aces
	In front of gas station of Arish street	5 acres
	Ghatoos ezbat	3 acres
	Progress village beside the	5 acres

Progress village, Abtal village, Gelbana village	road	
	Abtal village beside the main road	2 acres
	Gelbana village beside Salam canal	3 acres
Abou Gresh ezbat	Pond between the rail way and Ismailia/ Zagazzig Treaty road	1,5 acres
	Pond inside Abou Gresh ezbat	1 acres
	Abou Gresh drainage closed from both sides	2x1 acres
	Pond behind Agriculture village bank	1 acres
Eastern 7 wells	Water station pond	20x20 meter
	Pond	3 acres
Abou Soiuer El Balad	Pond behind Social village bank	1/4 acres
	Pond	2 acres
	Ba'ley Omda pond	2 acres
Mahsama village	Mahsama pond (changed into fish farm)	400 acres
	Om Shaker pond (in Sowaidat)	20 acres
	Mahgoura pond	10 acres
	Abou Nasrallah pond	12 acres
	Nemra pond	20 acres
	Matrouk pond (in Sowaidat)	35 acres

Om Azzam village	Sabry pond	500 acres
	Pond of fish farm	50 acres
Kasaseen city	West of Kasaseen	2000 meters
	Drainage beside the rail way west of Kasaseen	300 meters
Ba'er hill	Drainage along Abassa way	6 Km
	Drainage starts from Barrary canal till Tal Abou Hamid	2 Km
Tal Abou Hamid	Drainage starts from Zaheria till Tal Abou Hamid	1000 meters
	Drainage starts from Tal Abou Hamid canal till Bahnasawy	5000 meters
Tal El Balad	Drainage from beginning of Kafr Shiek Atia till the Big drainage	5000 meters
	Drainage from Hamamda ends in Tal El Balad	3 Km
	Drainage starts from Milk ezbat ends in Tal El Balad	1 Km
	2 drainages start from Tal El Balad end at Small Tal	2 Km
	5 drainages start from Mozare'a canal till Taboot Nasr drainage	3500 meters
	Taboot Nasr drainage	5 Km
	Tribal el Balad	15 acres
	Marine el Balad	15 acres

El Tal El Sogier	Drainage starts from Kafr Hasan till the big drainage	4 Km
	Drainage in El Balad from Maine direction	1000 meters
	Eastern Balad drainage	5000 meters
Abou Khalifa	Middel of Town	1500 meters
	Drainage at Eastern direction	500 meters
	Behind the school	200 meters
Abou Ashour	Drainage surrounding the town	2 Km
Green Island	Drainage from the health unit till the big drainage	700 meters
	Drainage surrounding the town	6 Km
	A piece of land	20 acres
Abou Eiada	Drainage starts from the mosque till the big drainage	1200 meters
Minor Ba'alwa	Drainage surrounding the town	1200 meters
Treaty	Drainage starts in front of the school	1500 meters
Tal El Hatab	Drainage along the town	1200 meters
Om Moushak	Drainage starts from beginning of the town till the big drainage	2 Km

(Source of information: Directorate of Health and population- Endemic Disease Control Department)

Underground water survey in Ismailia

No	Well owner's name	Well location	Withdrawal rate/ day in m3	Average operation hours
1	Mohamed Ahmed Hasan Taiaa	Ismailia	150 m3	3
2	Hasan Atallah Safwat Hussien	Ismailia	450 m3	9
3	Amin Ismaiel Faried	Ismailia	750 m3	8
4	Mona Saied Othman and her cooperator	Ismailia	450 m3	6
5	Saied Mohamed Mohamed and his cooperator	Ismailia	675 m3	9
6	Alsaied Mohamed Ismaiel	El Tal El Khabier	55 m3	3,5
7	Tawifiek Ali Awad	Ismailia	475 m3	4
8	Tawifiek Ali Awad	Ismailia	475 m3	4
9	Ismailia company for fish farms and ducks	El Tal El Khabier	2000 m3	8
10	Ahmed Elsaied Ismaiel	Ismailia	300 m3	10
11	Abdel Hadi Abdallah El Kosary	El Tal El Khabier	150 m3	3
12	Wafaa Mohamed Zaki Saber and others	Ismailia	600 m3	6
13	Hasan Maher El Akhras	Ismailia	300 m3	3
14	Reda Ibrahim Abdallah	Ismailia	600 m3	9
15	Fatma Mousa Mohamed	Ismailia	310 m3	3
16	Arab agriculture company	Ismailia	1500 m3	10

17	Arab agriculture company	Ismailia	1500 m3	10
18	Abdel Mohsen Tantawy	Ismailia	525 m3	5
19	Mostafa Kamel Ali	Ismailia	525 m3	5
20	Ehab Faiek Meckaiel	Ismailia	525 m3	7
21	Ehab Faiek Meckaiel	Ismailia	525 m3	7
22	Ahmed Mahmoud Mostafa	Ismailia	160 m3	2
23	Abdel Hamid Ahmed Ali	Ismailia	375 m3	3,45
24	Saied Abdelsamad Abdel Ghani	Ismailia	225 m3	4,3
25	Ahmed Salama Hussien	Ismailia	150 m3	1,3
26	Ahmed Taher Aouda	Ismailia	525 m3	7
27	Ahmed Taher Aouda	Ismailia	525 m3	7
28	Hatem Ali Ali Mansour	Ismailia	525 m3	7
29	Hatem Ali Ali Mansour	Ismailia	525 m3	7
30	Mohamed Mahmoud Ahmed Shetewy	Ismailia	570 m3	5
31	Mohamed Mahmoud Ahmed Shetewy	Ismailia	570 m3	5
32	Hussien Mohamed Hasan Saleh	Ismailia	135 m3	10
33	Ali Maher Abdelwahhab Zidan	Ismailia	225 m3	3
34	Abdelaziz Emam Basuni	Port Saied	390 m3	6
35	Baomy Husney Abou Hadra	Ismailia	900 m3	9
36	Mahmoud Mohamed Negm	El Tal El Khabier	300 m3	3
37	Medhat Loius Almagizy	Ismailia	300 m3	3

38	Mohamed Moahmoud Hamadan	Ismailia	1800 m3	13
39	Mahoud Hamadan El Shaier	Ismailia	100 m3	9
40	Ali Ahmed Mohamed Ali	Suez	1200 m3	16
41	Mohamed Gamal Eldien Abdelaliem	Ismailia	585 m3	10
42	Amir Rezkallah Ibrahim	Ismailia	570 m3	3,5
43	Zainab Ahmed Sadawy	Ismailia	1000 m3	7
44	Mourad Mousa Khalil	Ismailia	750 m3	10
45	Ali Dokniesh Ibrahim Matroud	Ismailia	210 m3	3
46	Mamdouh Wasfy Nagieb	Ismailia	1230 m3	10
47	Ibrahim Danial Abou Makhzoun	Ismailia	900 m3	9
48	Souliman Ismaiel Souliman	Ismailia	525 m3	6
49	Mahasen Abdelaziz Elmoursy	Ismailia	675 m3	8
50	Hamdy Ali Abdelaziz	Ismailia	150 m3	3
51	Mahmoud Faiez Ahmed	Ismailia	375 m3	1,5
52	Hala Ismaiel Refa'at	Ismailia	135 m3	5
53	Awad Mohamed El Bahrawy	Ismailia	90 m3	2
54	Mamdoh Mohamed Awad	Ismailia	150 m3	2
55	Saied Abdelmoniem Ali El Sherief	Ismailia	150 m3	1,5
56	Faried Tawfiek Yousef	Ismailia	45 m3	1,5
57	Mohamed Fathey Mohamed Abdallah	Ismailia	32 m3	0,5
58	Ibrahim Salem Mahmoud	Ismailia	75 m3	0,1
59	Dia'iey Mohamed Elshahat	Ismailia	525 m3	0,5

60	Tal'at Abdemalak Polis	Ismailia	1050 m3	0,5
61	Farouk Mohamed Othman	Ismailia	40 m3	0,5
62	Ahmed Abdelghani Ahmed Salem	Ismailia	45 m3	1,5
63	Mourad Mousa Khalil	Ismailia	150 m3	1,5
64	Mohamed Kamal Labib	Ismailia	750 m3	10
65	Mohamed Ahmed Ali	Ismailia	810 m3	4,5
66	Khaled Ahmed Ahmed Farrag	Ismailia	150 m3	4,5
67	Ibrahim Fransis Nagieb	Ismailia	375 m3	3
68	Magdy Nagieb Mekhaïel	Ismailia	855 m3	10
69	Mohamed Mahmoud Ahmed Ata	Ismailia	180 m3	0,2
70	Kamal Mohamed Mohamed Arafa	Ismailia	150 m3	0,2
71	Amgad Kamal Zaki Mohamed	Ismailia	225 m3	4,5
72	Mahfouz Naïef Kamel Elaga	Ismailia	600 m3	0,6
73	Ahmed Hussien Yousef	Ismailia	300 m3	0,3
74	Kamal Hussien Yousef Elaga	Ismailia	750 m3	7,5
75	Aiesha Ahmed Huseny	Ismailia	375 m3	0,6
76	Mostafa Khamis Mahmoud	Ismailia	450 m3	0,6
77	Mostafa Elsaïed Bahaa Eldien	Ismailia	300 m3	0,3
78	Mohamed Rafat Ali Mohamed	El Tal El Kabier	392	4,5
79	Mounira Ibrahim Mohamed	Ismailia	445	0,5
80	Ali Mansour Ali Helal	Ismailia	165	0,6
81	Mohmed Essam Ibrahim Mohamed	Ismailia	600	0,6
82	Mohamed Osama Ibrahim	Suez	67	2,5

83	Esmail Shoukry Mohamed Shoukry	Suez	95	3,5
84	Fouzy Wahba Habashy and partners	Suez	141	1,5
85	Ahmed Elsaied Abdela'al	Ismailia	675	0,8
86	Hani Abdelmalek Nagieb	Ismailia	900	0,9
87	Sa'fan Abdelgawad Sa'fan	Ismailia	900	0,9
88	Sabry Elsayed Mohamed Soukar	Ismailia	150	3
89	Yousry Saied Mohamed Abou Elnaga	Ismailia	1500	12,5
90	Ali Hamadan Abdelhafez	Ismailia	187	12,5
91	Fahema Ali Abdelhaliem	Ismailia	833	8
92	Tarek Mohamed Ibrahim	Ismailia	975	9,5
93	Zakariya Esmail Awad	Ismailia	10	0,5
94	Yousry Rezk Johny	Ismailia	300	1,54
95	Fatma Mousa Mohamed and partners	Ismailia	750	7,50
96	Abdelhabi Abdelhadi Yassien	Ismailia	1350	9
97	Abdelhabi Abdelhadi Yassien	Ismailia	255	45
98	Abdelhabi Abdelhadi Yassien	Ismailia	750	7
99	Abdelhabi Abdelhadi Yassien	Ismailia	750	7
100	Abdelhabi Abdelhadi Yassien	Ismailia	1275	9
101	Khadiga Orabi Mohamed Ali	Ismailia	1125	9
102	Khadiga Orabi Mohamed Ali	Ismailia	1125	9
103	Ali Elsaied Ahmed Eibied	Ismailia	195	5

104	Hussien Hamadan Elhasha	Ismailia	450	5
105	Mohamed Nagieb Ahmed	Ismailia	363	3,5
106	Ahmed Fouad Abdelhamid	Ismailia	2250	15
107	Hasballah Khieder Hasaballah	Ismailia	3717	300
108	Mahfouz Mohamed Mostafa	Ismailia	150	1,30
109	Mostafa Mouhamed Mostafa	Ismailia	1000	10
110	Nermien Shamel Mounier	Ismailia	210	2
111	Mohamed Saied Shendy	Ismailia	225	2,30
112	Abdelmohsen Mohamed Tantawy	Ismailia	230	2,30
113	Ahmed Abdesamie' Elsafoury	Ismailia	222	2,20
114	Mahmoud Saied Ali	Port Saied	130	1,30
115	Adel Fayez Georgy	Ismailia	150	2
116	Hamdy Abdelkader Shamlool	Ismailia	225	3
117	Mohamed Elsaied Ahmed Eibied	Ismailia	225	3
118	Mohamed Badawy Mohamed Abdelhady	Ismailia	600	5
119	Ali Mosatafa Ahmed	Ismailia	450	6
120	Abdelaziz Emam Basiouny	Ismailia	120	3
121	Saied Souliman Mohamed	Suez	810	9
122	Hasan Abdelmouniem Elghazlawy	Ismailia	310	4
123	Hasan Abdelmouniem Elghazlawy	Ismailia	390	4
124	Hasan Abdelmouniem Elghazlawy	Ismailia	390	4
125	Sara Mohamed Khafaga	Ismailia	310	2

126	Abdel Hamid Ali Sharaf	Ismailia	675	9
127	Elbadrawy Elmatwaly Eldesouky	Ismailia	60	8
128	Eid Ahmed Mansour Elshemy	El Tal El Khabier	230	12
129	Samiya Abdallah Hatem	Ismailia	240	4
130	Nafesa Souliman Khalil	Port Saied	77	1,5
131	Abdelbaset Ramadan Saied Abdelfatah	Ismailia	1350	9
132	Abdelbaset Ramadan Saied Abdelfatah	Ismailia	1350	9
133	Egyptian East company for agriculture development	Ismailia	375	9,45
134	Egyptian East company for agriculture development	---	150	1,50
135	Ismail Mohamed Ali Salem	Ismailia	70	1
136	Hasan Ibrahim Hasan Saied	Ismailia	30	3
137	International company for land reclamation was authorized for 50 wells from no 137 till 187	Ismailia	150	7 hours
188	El Saied Mohamed Mohamed Shedeed	Ismailia	1000	10
189	Husien Hamed Mohamed Basuney	Ismailia	550	5
190	Soubeha Sareeh Mahmoud	Ismailia	300	3
191	Badrous Estefan Fousker Batshan	Ismailia	1000	10
192	Mohamed Khaled Abdelwahab	Ismailia	150	1,5
193	Osama Esmail Abdallah	Ismailia	100	10

194	Mahmoud Saad Mohamed Baioumy	Ismailia	500	5
195	Enayat Abdelmoniem Ahmed	Ismailia	200	810
196	Mohsen Ahmed Hasan Ismaiel	Ismailia	300	10
197	Kamel vMahmoud Hanafy	Ismailia	300	10
198	Hoda Elsaied Ahmed Mohamed	Ismailia	720	10
199	Abdelrahman Mohamed Elsaied	Ismailia	300	10
200	Nabiel Saked Elmougy	Ismailia	300	10
201	Sabry Husien Refa'iey	Ismailia	400	2
202	Mohamed Ezeldien Mohamed Tawfiek	Ismailia	300	10
203	Fouad Mostafa Kamel Elhabashy	Ismailia	500	10
204	Elsaied Mosleh Hanafy Yousef	Ismailia	240	10
205	Mostafa Abdelhamid Fahmy	Ismailia	300	10
206	Elsayed Ibrahim Elramlawy	Ismailia	300	10
207	Abdelmouni'em Nour Elsayed	Ismailia	300	10
208	Elsaied Elnagar Gad Elkareem	Ismailia	300	10
209	Elsaied Elsaied Mohamed Nasr	Ismailia	300	10
210	Ibrahim Mohamed Ateiya	Ismailia	140	2,5
211	Rana Nabiel Elmougy	Ismailia	60	3
212	Mahmoud Ali Souliman Elrefaiey	Ismailia	1680	20
213	Ahmed Elbadawy Gomaa	Ismailia	140	2,5
214	Gamiel Hamid Hasanien Eid	Ismailia	420	7
215	Mohamed Elsayed Abdel'aal	Ismailia	600	8

216	Mohamed Saber Khalil Eltanany	Ismailia	160	2
217	Mohamed Ahmed Mani'eh	Ismailia	50	1
218	Ehab Makrab Habel	El Tal El Khabier	96	3
219	Asmaa Ahmed Mahmoud Aziz	Ismailia	150	3
220	Shehata Mohamed Ibrahim	Ismailia	150	3
221	Mohamed Abdelmoniem Eldardery	Ismailia	345	8
222	Amhed Esmail Shahim	Ismailia	150	3
223	Souliman Nasrallah Ibrahim	Ismailia	120	3
224	Safwat Salah Eldien	Ismailia	150	3
225	Elsaied Abdelhamid Fouda	Ismailia	225	5
226	Mohamed Omar Mohamadien	El Tal El Khabier	75	2,5
227	Abdelsalam Ahmed Qorqor	Ismailia	150	3
228	Aouda Salama Louiefy	Ismailia	225	5
229	Seham Mahmoud Hamadan	Ismailia	225	5
230	Salema Khalil Salama	Ismailia	225	5
231	Elhamy Eid Mahmoud	Ismailia	215	5
232	Ahmed Mohamed Elhasha	Ismailia	45	3
233	Afaf Hasan Helmy	Ismailia	225	5
234	Mohamed Mohamed Ibrahim Sobhey	Ismailia	225	5
235	Hasan Abbas Ahmed Abdelkhalik	Ismailia	225	5
236	Esmail Ahmed Ahmed	Ismailia	105	3

237	Ahmed Maher Mostafa	Ismailia	150	5
238	The hiers of the late Mohamed Ali Naghiesh	Ismailia	225	5
239	Mohamed Ali Mahmoud Mohamed Elsaied	Ismailia	15	6
240	Mohamed Kamel Mohamed Abdelfatah	Ismailia	225	5
241	Housny Elsaied Hasaneen	Ismailia	295	5
242	Bakinam Ali Toubala	Ismailia	225	5
243	Ahmed Abdelaal Wabatallah	Ismailia	30	2
244	Ra'fat Ahmed Ali Ahmed	Ismailia	495	9
245	Essam Osman Mohamed Gabr	Ismailia	127	5
246	Ashraf Sadat Mohamed	Ismailia	225	5
247	Ibrahim Ahmed Ibrahim Khaliel	El Tal El Khabier	232	5
248	Mahmoud Mostafa Elkady	Ismailia	442	5
249	Zaky Mohamed Elsayed Elgarabawy	Ismailia	82	5
250	Mohamed Mohamed Amer	El Tal El Khabier	430	5
251	Mohamed Badawy Goma'a	Ismailia	225	5
252	Naser Mohamed Salama	Ismailia	225	5
253	Sonia Mohamed Mahmoud Elsaied	Ismailia	225	5
254	Khadiga Mohamed Abdelfatah	El Tal El Khabier	45	3
255	Ashraf Mouhamed Hosney	Ismailia	195	3

256	Refkey Seif Younan	Ismailia	75	3
257	Emad Fakhry Gerges	Ismailia	285	5
258	Abdelkhalik Hasan Ibrahim	Ismailia	52	6
259	Elsaied Mahmoud Zid Mahmoud	El Tal El Khabier	24	5
260	Magdy Zakariya Gad	Ismailia	120	4
261	Mohamed Shouky Ali Mostafa	Ismailia	90	3
262	Fouzy El Sayed Ali	Ismailia	225	5
263	Hanaa Khaliel Mahmoud	Ismailia	225	5
264	Mohamed Fouzy Elsaied Ahmed	Ismailia	225	5
265	Hamdien Ahmed Abdelhamid	Ismailia	225	5
266	Abdelmoniem Mohamed Khaliel	Ismailia	105	3
267	Essa Ismaiel Essa	Ismailia	45	3
268	Abaza Fekry Esmaiel	Ismailia	82	3
269	Husien Abdelhamid Mohamed Zalat	Ismailia	120	5
270	Mohamed Abdelsalam Takeyeldien	Ismailia	225	5
271	Mohamed Mahmoud Tantawy	Ismailia	15	1
272	Ahmed Hasan Mohamed Elshai'er	Ismailia	225	5
273	Yousef Ibrahim Souliman	El Tal El Khabier	510	5
274	Amine Noushey Abadier	El Tal El Khabier	225	5
275	Zakariya George Mousa	El Tal El Khabier	225	5

276	Samier Hana Mousa	El Tal El Khabier	225	5
277	Salem Elsaied Eid	El Tal El Khabier	90	3
278	Mansour Mohamed Mansour Elhefnawy	El Tal El Khabier	450	5
279	Ali Mohamed Elkordy	Ismailia	90	3
280	Eman Husien Nageda	Ismailia	90	3
281	Mohamed Abdelaziz Ibrahim	Ismailia	225	5
282	Esmail Ozman Mahmoud	Ismailia	225	5
283	Abdallah Abdelkader Awad	Ismailia	120	3
284	Souielam Souliman Ismaiel	Ismailia	60	2
285	Elsaied Ali Mousa Gabr	Ismailia	90	3
286	Mohamed Hasan Ali Elghafary	Ismailia	165	5
287	Omar Ramadan Ali	Ismailia	160	4
288	Fatma Abdallah Sadek	Ismailia	150	5
289	Mahdy Hamed Mahdy	Port Saied	120	3
290	Shahiera Hamed Elshebiney	Ismailia	165	3
291	Ali Mohamed Rashad	Ismailia	75	1
292	Mohamed Ali Ahmed Elgharidy	El Tal El Khabier	78	1
293	Husney Souliman Ali	Ismailia	45	0,75
294	Moahmed Saad Elkady	Ismailia	30	0,45
295	Esmail Mohamed Nour Eldien	Ismailia	45	0,45

296	Abdou Souliman Ahmed	Ismailia	222	2,30
297	Waleed Souliman Abdou	Ismailia	222	2,30
298	Abdelkader Rawash Refa'ee	El Tal El Khabier	735	7
299	Abdelkader Rawash Refa'ee	El Tal El Khabier	735	7
300	Mohamed Shafiek Elkholy	Ismailia	500	5
301	Mohamed Kamel Mohamed Abdela'al	Ismailia	225	2,3
302	Mahmoud Makhlouf Bahi	Ismailia	300	3
303	Aouda Gouman Hamid	Ismailia	41	0,30
304	Mahmoud Salah Eldien Abou Shady	Ismailia	225	2,3
305	Abdelhakiem Khatab Khiedr	Ismailia	795	8
306	Salama Seliem Yalem	Port Saied	51	5
307	Ahmed Mouhamed Nour Eldien	Ismailia	225	3,30
308	Mohamed Abdallah Mousa Elwerwary	Ismailia	640	6
309	Ayman Edward George	Ismailia	150	1,30
310	Hafez Elsayed Hafez	Ismailia	371	3
311	Saied Abdrabou Mohamed	Ismailia	126	1,3
312	Hanmak Elsayed Megahed	Ismailia	698	7
313	Mahmoud Abdellatif Mahmoud	Ismailia	150	1,3
314	Mahmoud Mahmoud Abdelhamid	Ismailia	56	30
315	Arab company for animal production	Ismailia	1950	19,3

316	Arab company for animal production	Ismailia	1950	19,3
317	Arab company for animal production	Ismailia	1950	19,3
318	Arab company for animal production	Ismailia	1950	19,3
319	Arab company for animal production	Ismailia	1950	19,3
320	Abdel Nabi Elsaied Yousef	Ismailia	210	2
321	Ahmed AbdelKereem Khalil	Ismailia	66	0,45
322	Mohamed Abdelwahed Abdallah	Ismailia	37	0,30
323	Arab company for animal production	Ismailia	1950	19
324	Heirs of late Abdelshafiea Elsaied Yousef	Ismailia	33	0,30
325	Ahmed Abdelzaher Ahmed Marey	Ismailia	170	1,7
326	Moahmoud Mahmoud Mohamed	Ismailia	300	3
327	Mohamed Elshenawy Abdelhamid	Ismailia	222,5	2,2
328	Atiya Eid Kasem Abou Helow	Ismailia	120	1,20
329	Ali Atiya Ali Metwaly	Ismailia	75	1
330	Salem Souliman Ghanem	Ismailia	30	0,30
331	Walaa Hasan Ismaiel Ahmed	Ismailia	30	0,30
332	Fatma Mansour Elsaied Ahmed	Ismailia	180	1,8
333	Farouk Fouad Yousef Mousa	Ismailia	416	4
334	Sayed Abdelkhalil Ibrahim	Ismailia	585	6

335	Eltayieb Abdelaziz Eltayieb	Ismailia	80	1
336	Wafaiee Hasan Mohamed Elsaied	Ismailia	184	1,40
337	Ezaat Mohamed Saied	Ismailia	225	2,30
338	Abdelazim Abdelfatah Elsaied Ali	Ismailia	170	1,7

**List of the underground water wells in the territory of the General department of
Irrigation in Ismailia**

Source of information (Irrigation and Water resources directorate)

List for fresh water lifting stations

No	Station name	Location	Notes
1	Salheia station	92,500	Ismailia canal
2	Youth station	96,500	Ismailia canal
3	Low lifting stations	0,500	Sinai- East
4	Sheik Zaied stations	19,00	Shiek Zaied Canal
5	Sheik Zaied stations	27,00	Shiek Zaied Canal
6	El Shalouna canal	1,100	El Shalouna canal
7	El Shalouna canal	2,400	El Shalouna canal
8	El Shalouna canal	3,400	El Shalouna canal
9	El Shalouna canal	4,100	El Shalouna canal

(Source of information: Irrigation and Water resources directorate)

Main water filtration stations related with distribution networks

Station name	Station address	Station power	Actual power	household uses	Other use
Water station of Km no 2	Km no 2	2400	2000	1800	200
Abou Souier water station (compact unit)	Urban of Abou Souier the Station	2400	200	1900	100
Industrial area drinking water station	Industrial area	8000	6000	1000	5000
Ein Ghousien	Western Ein Ghousien-Saini canal	2400	2000	1800	200
Eldabi'eya drinking water station	Eldabi'eya village	2400	2000	1800	200
Western 7 wells station- New Mahsama	Western 7 wells, 1 Km away from the local unit	100	1000	1000	---
Abou Souier Elbalad water station	Abou Souier village, Km no 11 beside the bridge	2400	2000	1800	200
Drinking water station and networks in New Kasaseen city	New Kasaseen city, Treaty st.	10000	9200	9000	200
Old Mahsama water station	Old Mahsama village	3400	3000	2600	400

(compact united)					
El Dawaweess water station	El Dawaweess, Om Azzam village	2400	1000	900	100
West Kantara major water station	West Kantara, Treaty St.	34000	30000	25000	5000
Abou Khalifa drinking water station	Abou Khalifa village beside the local unit	3400	3500	3000	500
Fayed Water facility	Fayed	4500	4030	3530	500
Abou Soultan water station	Abou Soultan	6000	5000	4500	500
Sarabium water station 1	Sarabium the station	4320	4050	4000	50
Sarabium main station	Sarabium	4320	270	250	20
Compact station 2	Sarabium	3500	29200	2800	120
Fayed major water station	Fanara	45000	41300	38800	2500
North Sinai station for filtered water in East Kantara	New East Kantara	51840	51840	---	---
West Kantara water station	West Kantara	34000	30000	5500	500
Abtal village- 2 water filters	Abtal village- El Salam	3000	2400	2000	400

Oubour drinking water station	Oubour village	2400	1200	1100	100
Youth water station 750 acres	Youth 750 acres	2400	1200	1000	200
Water station of East of Suez Canal	East of Suez Canal	21960	2000	1800	200
Youth water station 500 acres	Youth 500 acres	2400	1200	1000	200
Filtered water station	Elsalam village	2400	1000	950	50
Miet Abou Koum station	Miet abou Koum village	2400	1200	1100	150
Takadoum water filtration station	Takadoum village	3000	2400	2100	300
Gelbana water station	Gelbana village	3000	2400	2000	400
Total		76960	45000	18550	---

(Source of information: Housing and Utilities directorate)

Drinking water annex

Legal standards for water quality

The standards and Criteria that must be available in the drinking water and household usage which were approved by the Higher committee for water in 26/2/1995 as following:

First: Natural properties

Property	Allowable maximum limit
Color	20-30 as a maximum limit with Platinum cobalt measurement
Taste	Acceptable
Odor	Odorless
Turbidity	5 Jackson units or equality for filtered water
Hydrogen number	6,5- 9,2

Second: organic substances affecting the taste and household uses

Property	Allowable maximum limit
Dissolved salts at 120m	1200 milligram/ liter
Ferrous (iron) Fe	0,3 milligram/ liter in filtered water 1,0 milligram/ liter in underground and mixed water
Manganese (Mn)	0,1 milligram/ liter in filtered water 0,50 milligram/ liter in underground and mixed water
Cupper (cu)	1,0 milligram / liter
Zinc (zn)	5,0 milligram / liter

As, Ca, Co (total hardness)	500 milligram / liter
Calcium (Ca)	200 milligram / liter
Magnesium (Mg)	150 milligram / liter
Sulfurs (So4)	400 milligram / liter
Chlorides (Cl)	500 milligram / liter
Sodium (Na)	200 milligram / liter
Aluminum (Al)	0,20 milligram / liter
Total balance	10+

Third: Chemical substances affecting the public health

(A) Non organic substances

Property	Allowable maximum limit
Lead (Pb)	0,05 milligram / liter
Arsenic (As)	0,05 milligram/ liter
Cyanide (Cn)	0,05 milligram/ liter
Cadmium (Cd)	0,005 milligram/ liter
Selenium (Se)	0,01 milligram/ liter
Mercury (Hg)	0,001 milligram/ liter
Chromium (Cr)	0,05 milligram/ liter
Nitrates As (N)	10 milligram/ liter
Nitrites As(N)	milligram/ liter
Fluoridates	0,8 milligram/ liter

(B) Organic substances:

1- Pesticides:

Property	Allowable maximum limit
Alchlor	20
Aldicarb	10
Aldrin/ dialdrin	0,03
Atrazine	2
Bentazon	30

Fourth: Microbiology standards:

Total number of Bacteria :

By the Poured plate method:

1- Do not exceed 50 cells/ 1cm³ at temperature 37 C° for 24 hours.

2- Do not exceed 50 cells/ 1cm³ at temperature 22 C° for 48 hours.

(a) Pollution profess:

1- 95% from the examined samples during the year empty completely from the coli form bacteria with regard the sample is 100 cm³.

2- All samples must not include more than 3 cells / 100 cm³, with regards that this is not found in 2 sequenced samples from the same source.

3- Coli feces bacteria. All samples must be from the ideal coli basil bacteria.

4- Feces Bacteria

(c) Biological checking:

When water is examined through the microscope it must be free totally from protozoa and all types of warms causing diseases as well as blue green algae.

Fifth: Radiation Substances:

Kinds of Alfa (α), 0,1 biker curry/ liter.

Kinds of Beta rays (β), 1,0 bicker curry / liter.

Results of laboratory measurements for water quality in Ismailia canal inside Ismailia governorate borders

Date of visit	Temperature in C°	pH	DO	Total solid substances	Sulfurs	Total alkaline	COD	Nitrates	Ammonia	Total phosphorus	Organic nitrogen	Coli groups
			Milligram/ liter									
Fanara Omda bridge												
18-7-2004	29,5	7,68	5,7	245	18	131	9	0,6	0	0,55	---	---
14-8-2004	30,8	8,02	6,75	275	36	130	11	0,04	0,25	0,3	0,3	---
19-9-2005	28,5	7,68	5	260	---	112	8	---	---	---	---	---
13-11-2005	20,5	8,23	5,4	382	---	112	9	0,09	0,042	---	3,6	200
Kosfreet bridge												
15-5-2004	26,3	7,9	8	225	---	134	8	3	0,05	0,3	---	---
13-6-2004	27,7	7,7	7	365	---	---	9	3	0,6	0	---	---
18-7-2004	29,7	7,48	5,58	235	17	131	9	2	0,6	0	0,45	---

14-8-2004	31,1	8,03	6,01	269	37	130	8	---	0,001	0,2	0,3	0,5
6-11-2004	25,4	8	9,6	145	60	149	9	3	1	0,2	0,08	---
19-9-2005	28,5	7,68	4	292	---	111	8	---	---	---	---	---
13-11-2005	20,4	8,23	5,3	374	---	110	6,5	---	0,11	0,026	---	2,6
Limits of the law 48 / 1982, subject 60	Not more than 5C° above the usual	From 7 to 8,5	Not less than 5	Not less than 500	Not more than 200	Not more than 150 and not less than 20	Not more than 10	Not more than 6	Not more than 45	Not more than 0,5	---	---

Results of laboratory measurements for water quality in Ismailia canal inside Ismailia governorate borders

Date of visit	Temp. C °	pH	Phosphate	Total Nitrogen	DO	Turbidity	Total solid subs.	Sulfurs	Total alkaline	COD	Nitrates	Ammonia	Total Phosphorus	Organic nitrogen	Coli groups
In front of beginning of Port Saied Canal															
25-1-2006	16,4	7,8	0,1	0,38	3,97	15	241	37	139	10	0,013	0,2	0,15	0,16	80
In front of Abou Khalifa bridge															
25-1-2006	15,9	7,56	0,11	0,49	3,65	9	371	38	140	12	0,029	0,006	0,14	0,45	340
In front of Raiyah village bridge															
25-1-2006	16	7,35	0,1	0,39	4,92	16	308	45	139	10	0,016	0,03	0,92	0,34	48
In front of Abou Souier bridge															
18-1-2006	16,7	7,72	0,1	0,34	5,1	5	312	37	132	19	0,017	0,14	0,14	0,18	52

In front of Kasaseen bridge															
18-1-2006	17	7,21	0,1	0,42	5,24	4	299	42	132	21	0,017	0,23	0,14	0,18	130
In front of El Tal El Khabier bridge															
18-1-2006	16,9	7,24	0,1	0,5	5,87	8	252	41	131	21	0,149	0,1	0,16	0,25	160
In front of Fanara bridge															
13-11-2006	15,6	7,97	0,08	0,42	4,33	9	225	57	142	4	0,011	0,2	0,11	0,2	480
Limits of the law 48 / 1982, subject 60	Not more than 5C° above the usual	From 7 to 8,5	---	---	Not less than 5	---	Not less than 500	Not more than 200	Not more than 150 and not less than 20	Not more than 10	Not more than 6	Not more than 45	Not more than 0,5	---	---

(Source of information: EEAA RBO in Suez governorate)

Table (1): Number of water samples taken from the outlets of the stations inside the governorate from 1/1 till 31/1/ 2006

Water process	Chemically			Bacteriology			Microscopic		
	No of samples	Identical	Not Identical	No of samples	Identical	Not Identical	No of samples	Identical	Not Identical
Ismailia station	4	3	1	4	4	---	4	4	---
Station of Km2	4	---	4	4	4	---	4	4	---
Station of Km11	5	---	5	5	4	1	5	5	---
Wasfeia station	5	---	5	5	5	---	5	5	---
Manayef station	---	---	---	---	---	---	---	---	---
Dabi'ya station	7	7	---	7	7	---	7	7	---
Ein Gohseen El Karnak station	3	3	---	3	3	---	3	3	---
New Ein Gohseen station	3	3	---	3	3	---	3	3	---
Western 7 wells station	1	1	---	1	1	---	1	1	---
Abou Souier	3	1	2	3	3	---	3	3	---

Kasaseen	2	---	2	2	2	---	2	2	---
Tal Elkabier	4	4	---	4	4	---	4	4	---
Elmalak	1	---	1	1	1	---	1	1	---
Om Azzam	1	1	---	1	1	---	1	1	---
Old Abou Soultan	2	2	---	2	2	---	2	2	---
New Abou Soultan	3	3	---	3	3	---	3	3	---
Power station	1	1	---	1	1	---	1	1	---
Lessan Wouzaraa station	2	2	---	2	2	---	2	2	---
Major fayed	5	5	---	5	5	---	5	5	---
Colony station	1	1	---	1	1	---	1	1	---
West Kantara	4	4	---	4	4	---	4	4	---
Abou Khalifa	5	4	1	5	5	---	5	5	---

East Kantara	7	6	1	7	7	---	7	7	---
Gelbana	4	3	1	4	4	---	4	4	---
Abtal 1, 2	7	7	---	7	7	---	7	7	---
Takadoun 1,2	2	2	---	2	2	---	2	2	---
Transponder station	3	3	---	3	3	---	3	3	---
Salam station	2	2	---	2	2	---	2	2	---
Total	91	68	23	91	90	1	91	91	---

From Table (1) it is illustrated that:

- 1- The percentage of bacteriological non identical samples came (1,1%), this because the quantity of chlorine added to the water is not controlled.
- 2- The percentage of the microscopic non identical samples came 0%
- 3- The percentage of non identical samples to the natural properties (increase of turbidity) which are taken from the outlets of the stations is 25% for the following reasons:

- Irrigation directorate is making purification and dredging of water canals which increase the percentage of turbidity.
- The does of alum which is added to the turbidity water is not controlled, or adding it with low doses.
- No purification takes place for the final outlet tanks according to the instructions.

**Table (2): Number of water samples taken from water networks in the governorate from
1/1 till 31/1/ 2006**

Water process	Chemically			Bacteriology			Microscopic		
	No of samples	Identical	Not Identical	No of samples	Identical	Not Identical	No of samples	Identical	Not Identical
Ismailia	143	130	13	143	139	4	143	143	---
Abou Souier	22	8	14	22	16	6	22	22	---
Kasaseen	30	18	12	30	26	4	30	30	---
El Tal El Khabier	79	75	4	79	79	---	79	79	---
Fayed	41	35	6	41	41	---	41	41	---
West Kantara	52	52	---	52	52	---	52	52	---
East Kantara	18	16	2	18	18	---	18	18	---
Total	385	334	51	385	371	14	385	385	---

From Table (2) it is illustrated that:

The percentage of the microscopic identical samples came 100%

The percentage of the bacteriology identical samples came 96,3%

The percentage of the chemical identical samples came 86,8%

Table (3): Number of water samples taken from the outlets of the stations inside the governorate from 1/2 till 28/2/ 2006

Water process	Chemically			Bacteriology			Microscopic		
	No of samples	Identical	Not Identical	No of samples	Identical	Not Identical	No of samples	Identical	Not Identical
Ismailia station	6	6	---	6	6	---	6	6	---
Station of Km2	9	4	4	11	11	---	9	9	---
Station of Km11	4	1	3	5	5	---	4	4	---
Wasfeia station	4	4	---	5	5	---	4	4	---
Manayef station	4	1	3	4	4	---	4	4	---
Dabi'ya station	3	1	2	3	3	---	3	3	---
Ein Gohseen El Karnak station	2	1	1	2	2	---	2	2	---
New Ein Gohseen station	3	2	1	3	3	---	3	3	---
Western 7 wells station	5	3	2	5	5	---	5	5	---
Abou Souier	7	5	2	8	8	---	7	7	---

Kasaseen	9	7	2	9	9	---	9	9	---
Tal Elkabier	5	5	---	5	5	---	5	5	---
Ba'alwa	1	1	---	1	1	---	1	1	---
Sarabiuom compact	1	1	---	1	1	---	1	1	---
Old Mahsama	2	2	---	2	2	---	2	2	---
Old Abou Soultan	3	3	---	3	3	---	3	3	---
New Abou Soultan	2	2	---	2	2	---	2	2	---
Power station	2	2	---	2	2	---	2	2	---
Major Fayed	10	10	---	10	10	---	10	10	---
Colony station	2	2	---	2	2	---	2	2	---

**Continue of Table (3): Number of water samples taken from the outlets of the stations
inside the governorate from 1/2 till 28/2/ 2006**

Water process	Chemically			Bacteriology			Microscopic		
	No of samples	Identical	Not Identical	No of samples	Identical	Not Identical	No of samples	Identical	Not Identical
West Kantara	6	6	---	7	7	---	6	6	---
Abou Khalifa	4	3	1	6	6	---	4	4	---
East Kantara	6	6	---	6	6	---	6	6	---
Gelbana	5	5	---	5	5	---	5	5	---
Abtal 1, 2	7	7	---	7	7	---	7	7	---
Takadoun 1,2	5	5	---	5	5	---	5	5	---
Transponder station	3	3	---	3	3	---	3	3	---
Obour station	2	2	---	2	2	---	2	2	---
Elsalam station	3	2	1	3	3	---	3	3	---
Lesan Wozaraa	8	6	2	8	8	---	8	8	---

500 acres station	2	2	---	2	2	---	2	2	---
Total	135	111	24	143	143	---	135	135	---

From Table (3) it is illustrated that:

- 1- The percentage of the bacteriology non identical samples came 0%, this is because there is no control on the quantity of chlorine added to water.
- 2- The percentage of the microscopic non identical samples came 0%
- 3- The percentage of non identical samples to the natural properties (increase of turbidity) which are taken from the outlets of the stations is 17,7% for the following reasons:

* Irrigation directorate is making purification and dredging of water canals which increase the percentage of turbidity.

* The does of alum which is added to the turbidity water is not controlled, or adding it with low doses.

* No purification takes place for the final outlet tanks according to the instructions.

**Table (4): Number of water samples taken from water networks in the governorate from
1/2 till 28/2/ 2006**

Water process	Chemically			Bacteriology			Microscopic		
	No of samples	Identical	Not Identical	No of samples	Identical	Not Identical	No of samples	Identical	Not Identical
Ismailia	181	155	26	182	180	2	181	181	---
Abou Souier	25	15	10	27	24	3	25	25	---
Kasaseen	37	31	6	37	34	3	37	37	---
El Tal El Khabier	76	73	3	76	76	---	76	76	---
Fayed	55	55	---	55	55	---	55	55	---
West Kantara	62	56	6	68	68	---	62	63	---
East Kantara	70	58	12	71	67	4	70	70	---
Total	506	443	63	516	504	12	506	506	---

From Table (4) it is illustrated that:

The percentage of the microscopic identical samples came 100%

The percentage of the bacteriology identical samples came 97,7%

The percentage of the chemical identical samples came 87,5%

Table (5): Number of water samples taken from the outlets of the stations inside the governorate from 1/3 till 31/3/ 2006

Water process	Chemically			Bacteriology			Microscopic		
	No of samples	Identical	Not Identical	No of samples	Identical	Not Identical	No of samples	Identical	Not Identical
Ismailia station	3	3	---	3	3	---	3	3	---
Station of Km2	11	8	3	11	11	---	11	11	---
Station of Km11	4	1	3	4	4	---	4	4	---
Wasfeia station	6	3	3	6	6	---	6	6	---
Manayef station	4	4	3	7	7	---	7	7	---
Dabi'ya station	4	1	3	4	4	---	4	4	---
Ein Gohseen El Karnak station	4	4	---	4	4	---	4	4	---
New Ein Gohseen station	4	3	1	4	4	---	4	4	---
Western 7 wells station	1	1	---	1	1	---	1	1	---
Abou Souier	4	4	---	4	4	---	4	4	---

Old Mahsama	3	2	1	3	3	---	3	3	---
El Tal El Khabier	5	5	---	5	5	---	5	5	---
El Malak	2	2	---	2	2	---	2	2	---
Sarabiuom	2	1	1	2	2	---	2	2	---
Srabiuom compact	1	---	1	1	1	---	1	1	---
Old Abou Sultan	2	2	---	2	2	---	2	2	---
New Abou Soultan	2	1	1	2	2	---	2	2	---
Power station	1	---	1	1	1	---	1	1	---
Major Fayed	7	6	1	7	7	---	7	7	---
Colony station	3	1	1	2	2	---	2	2	---
West Kantara	9	9	---	9	9	---	9	9	---
Abou Khalifa	7	4	3	7	7	---	7	7	---

East Kantara	8	8	---	8	8	---	8	8	---
Gelbana	9	8	1	9	9	---	9	9	---
Abtal 1, 2	7	7	---	7	7	---	7	7	---
Takadoun 1,2	3	3	---	3	3	---	3	3	---
Transponder station	3	3	---	4	4	---	3	3	---
Elsalam station	2	2	---	2	2	---	2	2	---
Lesan Wozaraa	3	2	1	3	3	---	3	3	---
Total	126	98	28	127	127	---	126	126	---

From Table (5) it is illustrated that:

- 1- The percentage of the bacteriology non identical samples came 0%,
- 2- The percentage of the microscopic non identical samples came 0%
- 3- The percentage of non identical samples to the natural properties (increase of turbidity) which are taken from the outlets of the stations is 22,2% for the following reasons:

- * Weak technical supervision because there is no chemist working there.
- * The dose of alum which is added to the turbidity water is not controlled, or adding it with low doses.
- * No purification takes place for the final outlet tanks according to the instructions.

**Table (6): Number of water samples taken from water networks in the governorate from
1/3 till 31/3/ 2006**

Water process	Chemically			Bacteriology			Microscopic		
	No of samples	Identical	Not Identical	No of samples	Identical	Not Identical	No of samples	Identical	Not Identical
Ismailia	173	149	24	173	172	1	173	173	---
Abou Souier	32	25	7	32	26	6	32	32	---
Kasaseen	27	21	6	27	25	2	27	27	---
El Tal El Khabier	65	65	---	65	65	---	65	65	---
Fayed	48	37	11	48	48	---	48	48	---
West Kantara	74	58	16	74	74	---	74	74	---
East Kantara	43	34	9	46	43	3	43	43	---
Total	462	389	73	465	453	12	462	462	---

From Table (6) it is illustrated that:

The percentage of the microscopic identical samples came 100%

The percentage of the bacteriology identical samples came 97,4%

The percentage of the chemical identical samples came 94,2%

Table (7): Number of water samples taken from the outlets of the stations inside the governorate from 1/4 till 30/4/ 2006

Water process	Chemically			Bacteriology			Microscopic		
	No of samples	Identical	Not Identical	No of samples	Identical	Not Identical	No of samples	Identical	Not Identical
Ismailia station	6	6	---	6	6	---	6	6	---
Station of Km2	5	5	---	5	5	---	5	5	---
Station of Km11	3	---	3	3	3	---	3	3	---
Wasfeia station	5	4	1	5	5	---	5	5	---
Manayef station	3	3	---	3	3	---	3	3	---
Dabi'ya station	5	3	2	5	5	---	5	5	---
Ein Gohseen El Karnak station	2	1	1	2	2	---	2	2	---
New Ein Gohseen station	3	3	---	3	3	---	3	3	---
Western 7 wells station	3	---	3	3	3	---	3	3	---
Abou Souier	16	7	9	16	16	---	16	16	---

El Tal El Khabier	3	3	---	3	3	---	3	3	---
El Malak	1	1	---	1	1	---	1	1	---
Sarabiuom	2	---	2	2	2	---	2	2	---
Srabiuom compact	4	---	4	4	4	---	4	4	---
Old Abou Sultan	3	3	---	3	3	---	3	3	---
New Abou Soutan	2	2	---	2	2	---	2	2	---
Power station	1	1	---	1	1	---	1	1	---
Major Fayed	8	8	---	8	8	---	8	8	---
Colony station	1	1	---	1	1	---	1	1	---
West Kantara	3	3	---	3	3	---	3	3	---
Abou Khalifa	2	2	---	2	2	---	2	2	---
East Kantara	5	5	---	5	5	---	5	5	---

Gelbana	4	3	1	4	4	---	4	4	---
Abtal 1, 2	5	5	---	5	5	---	5	5	---
Takadoun 1,2	5	5	---	5	5	---	5	5	---
Transponder station	1	1	---	1	1	---	1	1	---
Lesan Wozaraa	1	1	---	1	1	---	1	1	---
Total	99	73	26	99	99	---	99	99	---

From Table (7) it is illustrated that:

- 1- The percentage of the bacteriology non identical samples came 0%,
- 2- The percentage of the microscopic non identical samples came 0%
- 3- The percentage of non identical samples to the natural properties (increase of turbidity) which are taken from the outlets of the stations is 26% for the following reasons:

- * Weak technical supervision because there is no chemist working there.
- * The does of alum which is added to the turbidity water is not controlled, or adding it with low doses.
- * No purification takes place for the final outlet tanks according to the instructions.

**Table (8): Number of water samples taken from water networks in the governorate from
1/4 till 30/4/ 2006**

Water process	Chemically			Bacteriology			Microscopic		
	No of samples	Identical	Not Identical	No of samples	Identical	Not Identical	No of samples	Identical	Not Identical
Ismailia	151	137	14	151	151	---	151	151	---
Abou Souier	31	23	8	31	25	6	31	31	---
Kasaseen	30	28	2	30	30	---	30	30	---
El Tal El Khabier	58	58	---	58	56	2	58	58	---
Fayed	32	32	---	32	32	---	32	32	---
West Kantara	69	62	7	69	69	---	69	69	---
East Kantara	26	26	---	26	23	3	26	26	---
Total	397	366	31	397	386	11	397	397	---

From Table (8) it is illustrated that:

The percentage of the microscopic identical samples came 100%

The percentage of the bacteriology identical samples came 97,2%

The percentage of the chemical identical samples came 92,2%

Table (9): Number of water samples taken from the outlets of the stations inside the governorate from 1/5 till 31/5/ 2006

Water process	Chemically			Bacteriology			Microscopic		
	No of samples	Identical	Not Identical	No of samples	Identical	Not Identical	No of samples	Identical	Not Identical
Ismailia station	2	2	---	2	2	---	2	2	---
Station of Km2	4	3	1	4	4	---	4	4	---
Station of Km11	3	---	3	3	2	1	3	3	---
Wasfeia station	5	4	1	5	5	---	5	5	---
Manayef station	4	3	1	4	3	1	4	4	---
Dabi'ya station	5	3	2	5	5	---	5	5	---
Ein Gohseen El Karnak station	1	1	---	1	1	---	1	1	---
New Ein Gohseen station	3	1	2	3	2	1	3	3	---
Western 7 wells station	1	---	1	1	1	---	1	1	---
Abou Souier	3	2	1	3	3	---	3	3	---

Kasaseen	6	6	---	6	6	---	6	6	---
El Tal El Khabier	6	6	---	6	6	---	6	6	---
El Malak	2	2	---	2	2	---	2	2	---
Old Mahsama	1	1	---	1	1	---	1	1	---
Sarabiuom	2	---	2	2	2	---	2	2	---
Srabiuom compact	3	3	---	3	3	---	3	3	---
Old Abou Sultan	5	5	---	5	5	---	5	5	---
New Abou Soultan	1	1	---	1	1	---	1	1	---
Power station	2	2	---	2	2	---	2	2	---
Lesan Wouzaraa	4	3	1	4	4	---	4	4	---
Major Fayed	10	10	---	10	10	---	10	10	---
Colony station	1	1	---	1	1	---	1	1	---

West Kantara	5	4	1	5	5	---	5	5	---
Abou Khalifa	4	2	2	4	4	---	4	4	---
East Kantara	5	3	2	5	5	---	5	5	---
Gelbana	5	4	1	5	5	---	5	5	---
Abtal 1, 2	7	7	---	7	7	---	7	7	---
Takadoum 1,2	3	3	---	3	3	---	3	3	---
Transponder station	3	3	---	3	3	---	3	3	---
500 acres station	1	1	---	1	1	---	1	1	---
Oubour	1	1	---	1	1	---	1	1	---
750 acres station	1	1	---	1	1	---	1	1	---
Elsalam station	1	1	---	1	1	---	1	1	---
Technology	1	1	---	1	1	---	1	1	---

valley station									
Total	111	99	22	111	108	3	111	111	---

From Table (9) it is illustrated that:

1- The percentage of the bacteriology non identical samples came 2,7%, because of:

- No control on the chlorine dose in the station.
- No presence for a technician inside the station.
- Mal function in the chlorine equipment in the station.

2- The percentage of the microscopic non identical samples came 0%

3- The percentage of non identical samples to the natural properties (increase of turbidity) which are taken from the outlets of the stations is 19,8% for the following reasons:

- * Disposal of the water of cleaning the station at the input location of the station.
- * The does of alum which is added to the turbidity water is not controlled, or adding it with low doses.
- * No purification takes place for the final outlet tanks according to the instructions.

**Table (10): Number of water samples taken from water networks in the governorate from
1/5 till 31/5/ 2006**

Water process	Chemically			Bacteriology			Microscopic		
	No of samples	Identical	Not Identical	No of samples	Identical	Not Identical	No of samples	Identical	Not Identical
Ismailia	165	143	22	165	154	11	165	165	---
Abou Souier	18	14	4	18	12	6	18	18	---
Kasaseen	25	23	2	25	25	---	25	25	---
El Tal El Khabier	51	51	---	51	51	---	51	51	---
Fayed	39	39	---	39	39	---	39	39	---
West Kantara	71	64	7	71	71	---	71	71	---
East Kantara	31	28	3	31	31	---	31	31	---
Total	400	362	38	400	383	17	400	400	---

From Table (10) it is illustrated that:

The percentage of the microscopic identical samples came 100%

The percentage of the bacteriology identical samples came 95,8%

The percentage of the chemical identical samples came 90,5%

Table (11): Number of water samples taken from the outlets of the stations inside the governorate from 1/6 till 30/6/ 2006

Water process	Chemically			Bacteriology			Microscopic		
	No of samples	Identical	Not Identical	No of samples	Identical	Not Identical	No of samples	Identical	Not Identical
Ismailia station	3	3	---	3	3	---	3	3	---
Station of Km2	4	4	---	4	4	---	4	4	---
Station of Km11	4	---	4	4	4	---	4	4	---
Wasfeia station	5	5	---	5	4	1	5	5	---
Manayef station	4	3	1	4	3	1	4	4	---
Dabi'ya station	4	4	---	4	4	---	4	4	---
Ein Gohseen El Karnak station	3	2	1	3	3	---	3	3	---
New Ein Gohseen station	2	2	---	2	2	---	2	2	---
Western 7 wells station	1	---	1	1	1	---	1	1	---
Abou Souier	1	---	1	1	1	---	1	1	---

El Tal El Khabier	3	3	---	3	3	---	3	3	---
Kasaseen	5	3	2	5	5	---	5	5	---
Old Abou Sultan	5	5	---	5	5	---	5	5	---
New Abou Soutan	2	2	---	2	2	---	2	2	---
Power station	3	3	---	3	3	---	3	3	---
Major Fayed	7	7	---	7	7	---	7	7	---
Colony station	2	2	---	2	2	---	2	2	---
West Kantara	2	2	---	2	2	---	2	2	---
Abou Khalifa	4	4	---	4	4	---	4	4	---
East Kantara	3	3	---	3	3	---	3	3	---
Gelbana	2	2	---	2	2	---	2	2	---
Abtal 1, 2	3	2	1	3	3	---	3	3	---

Takadoun 1,2	5	5	---	5	5	---	5	5	---
Oubour	1	1	---	1	1	---	1	1	---
Lesan Wozaraa	6	6	---	6	6	---	6	6	---
Total	84	73	11	84	82	2	84	84	---

From Table (11) it is illustrated that:

- 1- The percentage of the bacteriology non identical samples came 2,38%,
- 2- The percentage of the microscopic non identical samples came 0%
- 3- The percentage of non identical samples to the natural properties (increase of turbidity) which are taken from the outlets of the stations is 13% for the following reasons:
 - * Weak technical supervision because there is no chemist working there.
 - * The does of alum which is added to the turbidity water is not controlled, or adding it with low doses.
 - * No purification takes place for the final outlet tanks according to the instructions.

**Table (12): Number of water samples taken from water networks in the governorate from
1/6 till 30/6/ 2006**

Water process	Chemically			Bacteriology			Microscopic		
	No of samples	Identical	Not Identical	No of samples	Identical	Not Identical	No of samples	Identical	Not Identical
Ismailia	137	133	4	130	128	2	137	137	---
Abou Souier	14	14	---	12	10	2	14	14	---
Kasaseen	33	24	9	33	33	---	33	33	---
El Tal El Khabier	59	59	---	55	55	---	59	59	---
Fayed	37	37	---	37	36	1	37	37	---
West Kantara	45	41	4	45	43	2	45	45	---
East Kantara	20	19	1	20	20	---	20	20	---
Total	345	327	18	332	325	7	345	345	---

From Table (12) it is illustrated that:

The percentage of the microscopic identical samples came 100%

The percentage of the bacteriology identical samples came 97,9%

The percentage of the chemical identical samples came 94,8%

Table (13): Number of water samples taken from the outlets of the stations inside the governorate from 1/7 till 31/7/ 2006

Water process	Chemically			Bacteriology			Microscopic		
	No of samples	Identical	Not Identical	No of samples	Identical	Not Identical	No of samples	Identical	Not Identical
Ismailia station	4	4	---	4	4	---	4	4	---
Station of Km2	6	6	---	6	6	---	6	6	---
Station of Km11	1	---	1	1	1	---	1	1	---
Wasfeia station	4	3	1	4	4	---	4	4	---
Manayef station	3	2	1	3	3	---	3	3	---
Dabi'ya station	2	1	1	2	2	---	2	2	---
Ein Gohseen El Karnak station	2	2	---	2	2	---	2	2	---
New Ein Gohseen station	2	2	---	2	2	---	2	2	---
Abou Souier	5	5	---	5	5	---	5	5	---
Kasaseen	1	---	1	1	1	---	1	1	---

El Tal El Khabier	4	4	---	4	4	---	4	4	---
Sarabioum	1	1	---	1	1	---	1	1	---
Sarabioum compact	1	1	---	1	1	---	1	1	---
Old Abou Sultan	7	6	1	7	7	---	7	7	---
Power station	5	5	---	5	5	---	5	5	---
Lesan Wazaraa	7	6	1	7	7	---	7	7	---
Major Fayed	6	6	---	6	6	---	6	6	---
Colony station	2	2	---	2	2	---	2	2	---
West Kantara	4	3	1	4	4	---	4	4	---
Abou Khalifa	3	2	1	3	3	---	3	3	---
East Kantara	5	4	1	5	5	---	5	5	---
Gelbana	4	3	1	4	4	---	4	4	---

Abtal 1, 2	4	4	---	4	4	---	4	4	---
Takadoum 1,2	3	3	---	3	3	---	3	3	---
Total	86	75	11	86	86	---	86	86	---

From Table (13) it is illustrated that:

- 1- The percentage of the bacteriology non identical samples came 0%
- 2- The percentage of the microscopic non identical samples came 0%
- 3- The percentage of non identical samples to the natural properties (increase of turbidity) which are taken from the outlets of the stations is 12,8% for the following reasons:

* Irrigation directorate is making purification and dredging of water canals which increase the percentage of turbidity.

* The does of alum which is added to the turbidity water is not controlled, or adding it with low doses.

* No purification takes place for the final outlet tanks according to the instructions.

**Table (14): Number of water samples taken from water networks in the governorate from
1/7 till 31/7/ 2006**

Water process	Chemically			Bacteriology			Microscopic		
	No of samples	Identical	Not Identical	No of samples	Identical	Not Identical	No of samples	Identical	Not Identical
Ismailia	152	146	6	152	150	2	152	152	---
Abou Souier	18	15	3	18	14	4	18	18	---
Kasaseen	36	27	9	36	29	7	36	36	---
El Tal El Khabier	69	69	---	69	69	---	69	69	---
Fayed	41	41	---	41	41	---	41	41	---
West Kantara	64	59	5	64	64	---	64	64	---
East Kantara	39	35	4	39	38	1	39	39	---
Total	419	392	27	419	405	14	419	419	---

From Table (14) it is illustrated that:

The percentage of the microscopic identical samples came 100%

The percentage of the bacteriology identical samples came 96,6%

The percentage of the chemical identical samples came 93,5%

Table (15): Number of water samples taken from the outlets of the stations inside the governorate from 1/8 till 31/8/ 2006

Water process	Chemically			Bacteriology			Microscopic		
	No of samples	Identical	Not Identical	No of samples	Identical	Not Identical	No of samples	Identical	Not Identical
Ismailia station	4	4	---	4	4	---	4	4	---
Station of Km2	4	2	2	4	4	---	4	4	---
Station of Km11	1	---	1	1	1	---	1	1	---
Wasfeia station	5	3	2	5	5	---	5	5	---
Manayef station	3	3	---	3	3	---	3	3	---
Dabi'ya station	5	3	2	5	5	---	5	5	---
Ein Gohseen El Karnak station	3	3	---	3	3	---	3	3	---
New Ein Gohseen station	2	2	---	2	2	---	2	2	---
Western 7 wells station	3	2	1	3	2	---	3	3	---
Abou Souier	2	1	1	2	2	---	2	2	---

Kasaseen	2	2	---	2	2	---	2	2	---
El Tal El Khabier	3	3	---	3	3	---	3	3	---
Old Abou Sultan	6	5	1	5	5	---	5	5	---
New Abou Soutan	1	14	---	1	1	---	1	1	---
Power station	2	1	1	2	2	---	2	2	---
Lesan Wozaraa	5	4	1	5	5	---	5	5	---
Major Fayed	8	8	---	8	8	---	8	8	---
Colony station	2	2	---	2	2	---	2	2	---
West Kantara	3	3	---	3	3	---	3	3	---
Abou Khalifa	2	1	1	2	2	---	2	2	---
East Kantara	5	5	---	5	5	---	5	5	---
Gelbana	4	4	---	4	4	---	4	4	---

Abtal 1, 2	6	4	2	6	6	---	6	6	---
Takadoun 1,2	3	3	---	3	3	---	3	3	---
El Salam	1	---	---	1	1	---	1	1	---
Total	85	69	16	85	85	---	85	85	---

From Table (15) it is illustrated that:

- 1- The percentage of the bacteriology non identical samples came 0%
- 2- The percentage of the microscopic non identical samples came 0%
- 3- The percentage of non identical samples to the natural properties (increase of turbidity) which are taken from the outlets of the stations is 18,8% for the following reasons:

* Irrigation directorate is making purification and dredging of water canals which increase the percentage of turbidity.

* The does of alum which is added to the turbidity water is not controlled, or adding it with low doses.

* No purification takes place for the final outlet tanks according to the instructions.

* Some canals are being dredged.

* Water is begin stable for a less time than that suitable for precipitating the outstanding substances.

**Table (16): Number of water samples taken from water networks in the governorate from
1/8 till 31/8/ 2006**

Water process	Chemically			Bacteriology			Microscopic		
	No of samples	Identical	Not Identical	No of samples	Identical	Not Identical	No of samples	Identical	Not Identical
Ismailia	158	133	25	158	156	2	158	158	---
Abou Souier	20	14	6	20	20	---	20	20	---
Kasaseen	39	34	5	39	31	8	39	39	---
El Tal El Khabier	74	68	6	74	73	1	74	74	---
Fayed	34	33	1	35	35	---	34	34	---
West Kantara	60	56	4	60	60	---	60	60	---
East Kantara	42	41	1	42	40	2	42	42	---
Total	427	379	48	428	415	13	427	427	---

From Table (16) it is illustrated that:

The percentage of the microscopic identical samples came 100%

The percentage of the bacteriology identical samples came 97%

The percentage of the chemical identical samples came 88%

Table (17): Number of water samples taken from the outlets of the stations inside the governorate from 1/9 till 30/9/ 2006

Water process	Chemically			Bacteriology			Microscopic		
	No of samples	Identical	Not Identical	No of samples	Identical	Not Identical	No of samples	Identical	Not Identical
Ismailia station	4	3	1	4	4	---	4	4	---
Station of Km2	4	3	1	4	4	---	4	4	---
Station of Km11	2	---	2	2	2	---	2	2	---
Wasfeia station	3	2	1	3	3	---	3	3	---
Manayef station	4	4	---	4	4	---	4	4	---
Dabi'ya station	6	6	---	6	6	---	6	6	---
Ein Gohseen El Karnak station	3	3	---	3	3	---	3	3	---
New Ein Gohseen station	4	4	---	4	4	---	4	4	---
Western 7 wells station	1	1	---	1	1	---	1	1	---
Abou Souier	1	1	---	1	1	---	1	1	---

Kasaseen	1	---	1	1	1	---	1	1	---
El Tal El Khabier	3	3	---	3	3	---	3	3	---
El Malak	1	1	---	1	1	---	1	1	---
Old Abou Sultan	5	4	1	5	5	---	5	5	---
New Abou Soutan	2	1	1	2	2	---	2	2	---
Power station	2	1	1	2	2	---	2	2	---
Lesan Wouzaraa	3	3	---	3	3	---	3	3	---
Major Fayed	10	10	---	10	10	---	10	10	---
Colony station	3	3	---	3	3	---	3	3	---
West Kantara	3	3	---	3	3	---	3	3	---
Abou Khalifa	2	2	---	2	2	---	2	2	---
East Kantara	4	4	---	4	4	---	4	4	---

Gelbana	3	3	---	3	3	---	3	3	---
Abtal 1, 2	9	6	3	9	9	---	9	9	---
Takadoum 1,2	8	6	2	8	8	---	8	8	---
Transponder station	1	1	---	1	1	---	1	1	---
Oubour	1	1	---	1	1	---	1	1	---
Total	92	78	14	92	92	---	92	92	---

From Table (17) it is illustrated that:

- 1- The percentage of the bacteriology non identical samples came 0%.
- 2- The percentage of the microscopic non identical samples came 0%
- 3- The percentage of non identical samples to the natural properties (increase of turbidity) which are taken from the outlets of the stations is 15% for the following reasons:
 - * Some canals are being dredged, this increase in the turbidity percentage.
 - * The does of alum which is added to the turbidity water is not controlled, or adding it with low doses.
 - * No purification takes place for the final outlet tanks according to the instructions.

**Table (18): Number of water samples taken from water networks in the governorate from
1/9 till 30/9/ 2006**

Water process	Chemically			Bacteriology			Microscopic		
	No of samples	Identical	Not Identical	No of samples	Identical	Not Identical	No of samples	Identical	Not Identical
Ismailia	158	151	7	158	157	1	158	158	---
Abou Souier	22	22	---	22	22	---	22	22	---
Kasaseen	34	26	8	34	34	---	34	34	---
El Tal El Khabier	74	74	---	74	74	---	74	74	---
Fayed	39	37	2	39	38	1	39	39	---
West Kantara	64	64	---	64	64	---	64	64	---
East Kantara	48	39	9	48	46	2	48	48	---
Total	439	413	26	439	435	4	439	439	---

From Table (18) it is illustrated that:

The percentage of the microscopic identical samples came 100%

The percentage of the bacteriology identical samples came 99%

The percentage of the chemical identical samples came 94%

Sewage annex

Results of analyses of the sewage stations

Name of the station	Subject 66 in the law 48/ 1982		Ministerial decree no 44/ 2000	
	Identical	Not identical	Identical	Not identical
Purification station (sewage treatment) in El Tal El Khabier	2	---	---	---
Purification station (sewage treatment) in El Tal El Khabier	---	1	1	---
Purification station (sewage treatment) in El Tal El Khabier	---	1	---	---
Purification station (sewage treatment) in El Tal El Khabier	---	---	1	---
Total	2	2	2	---

(Source of information: Ministry of Health and Population)

Continue Results of analyses of the sewage stations

Name of the station	Date of receiving the sample	pH	Turbidity	COD	H ₂ S	Oil and grease	Cyanide	DO	Identical to decision 44/ 2000	Not identical
East Kantara treatment station and sewage	20/4/2006	7,9	110	90	0,44	0,9	---	---	Identical	
Saraboum treatment station and sewage	25/6/2006	7,8	80	75	0,16	0,7	---	---	---	Not identical to the law 48/1982 because increase of turbidity and COD and decrease of DO according to the authorized limits
Saraboum treatment station and sewage	26/6/2006	7,7	110	80	0,32	0,7	---	---	Identical	

Waste water treatment station in West Kantara	14/6/2006	7,6	75	45	0,28	0,8	---	5,5	---	Not identical to the law 48/1982 because increase of turbidity and COD according to the authorized limits
Waste water treatment station in El Tal El Khabier	15/6/2006	7,8	20	12,5	0,12	0,5	---	5,9	Identical to law 48/1982	

Energy annex

Measured emissions

No	Monitoring location	Monitor time	SO ₂ 24 Hours	NO ₂ 24 Hours	TSP 24 Hours	PM10 24 Hours	O ₃ 8 hours	CO 8 hours
			Microgram/ m3					Milligram / m3
1	Governorate old Office (traffic site)	Winter	42,855	86,18	200	167,66	34,29	5
		Spring	5,99	0	---	---	145,7	3,75
		Summer	0	0	---	---	64,29	3,75
		Autumn	---	---	---	---	---	---
		Average year results	24,42	86,18	200	167,66	81,42	4,16
	Limits of the law 4/1994		150	150	230	70	120	10

No	Monitoring location	Monitor time	SO ₂ 24 Hours	NO ₂ 24 Hours	TSP 24 Hours	PM10 24 Hours	O ₃ 8 hours	CO 8 hours
			Microgram/ m3					Milligram / m3
1	Juton company (industrial area)	Winter	68,568	24,62	211,911	186,606	36,43	1
		Spring	11,428	0	88,44	88,44	137,2	1
		Summer	0	0	88,44	88,44	180	1
		Autumn	---	---	---	---	---	---
		Average year results	39,99	24,62	129,59	121,6	117,87	1
	Limits of the law 4/1994		150	150	230	70	120	10

No	Monitoring location	Monitor time	SO ₂ 24 Hours	NO ₂ 24 Hours	TSP 24 Hours	PM10 24 Hours	O ₃ 8 hours	CO 8 hours
			Microgram/ m3					Milligram / m3
1	Arashia section (residential site)	Winter	28,75	24,62	---	---	---	---
		Spring	---	---	---	---	---	---
		Summer	---	---	---	---	---	---
		Autumn	---	---	---	---	---	---
		Average year results	28,75	24,62	---	---	---	---
	Limits of the law 4/1994		150	150	230	70	120	10

(Source of information: EEAA RBO in Suez)

Education annex

Literacy

Ismailia city and locality			
Target groups	Urban areas	Country side	Total
Literacy target groups	1616	2425	4041
Literacy classes	122	179	293
Number of participants in classes	2149	3222	5371
No. of applying people for examination	2149	3222	5371
Leakage percentage	0	0	0
Rejection percentage	-32,98	-32,87	-32,91

El Tal El Khabier city and locality			
Target groups	Urban areas	Country side	Total
Literacy target group	914	1370	2284
Literacy classes	103	259	362
Number of participants in classes	2116	3174	5290
No. of applying people for examination	14527	3174	17701
Leakage percentage	-586,53	0	-234,61
Rejection percentage	-131,51	-131,68	-131,61

Fayed city and locality			
Target groups	Urban areas	Country side	Total
Literacy target groups	422	632	1054
Literacy classes	18	50	68
Number of participants in classes	270	523	793
No. of applying people for examination	270	523	793
Leakage percentage	---	---	---
Rejection percentage	36,02	17,25	24,76

West Kantara city and locality			
Target groups	Urban areas	Country side	Total
Literacy target groups	954	1432	2386
Literacy classes	25	81	106
Number of participants in classes	375	1159	1534
No. of applying people for examination	375	1159	1534
Leakage percentage	---	---	---
Rejection percentage	60,69	19,06	35,71

East Kantara city and locality			
Target groups	Urban areas	Country side	Total
Literacy target groups	296	444	740
Literacy classes	26	39	65
Number of participants in classes	390	488	878
No. of applying people for examination	390	488	878
Leakage percentage	---	---	---
Rejection percentage	-31,76	-9,91	-18,65

(Source of information: Information Center and support Decision)

Pre-university education

Ismailia locality and city						
Number	Public primary education			Public Junior Secondary		
	Urban	Rural	Total	Urban	Rural	Total
Number of schools and sections	6	40	46	2	14	16
Number of classes	94	321	415	25	94	119
Number of students	3801	10599	14400	950	3350	4300
Number of teachers	118	258	403	48	151	199
Students capacity (student/ class)	40	33	35	38	40	39
Class share in the teacher (teacher/ class)	1	1	1	2	2	2

Ismailia locality and city						
Number	Azhari primary education			Azhari Junior Secondary education		
	Urban	Rural	Total	Urban	Rural	Total
Number of institutes	9	3	12	5	2	7
Number of classes	80	23	103	21	7	28
Number of students	2841	725	3566	536	114	650
Number of teacher	72	28	100	88	22	110
Students capacity (student/ class)	---	---	---	---	---	---

El Tal El Khabier locality and city						
Number	Public primary education			Public Junior Secondary education		
	Urban	Rural	Total	Urban	Rural	Total
Number of schools	3	23	36	2	10	12
Number of classes	16	129	145	15	53	68
Number of students	425	2843	3268	159	425	584
Number of teacher	36	168	204	39	92	131
Students capacity (student/ class)	237	22	23	11	8	9

El Tal El Khabier locality and city						
Number	Azhari primary education			Azhari Junior Secondary education		
	Urban	Rural	Total	Urban	Rural	Total
Number of institutes	6	32	38	5	15	20
Number of classes	36	191	227	16	45	61
Number of students	1094	4578	5672	327	741	1068
Number of teacher	65	213	278	55	122	177

Fayed markaz and city						
Number	Public primary education			Public Junior Secondary education		
	Urban	Rural	Total	Urban	Rural	Total
Number of schools	8	39	47	4	23	27
Number of classes	89	306	395	26	101	127

Number of students	2780	9792	12572	719	3517	4236
Number of teacher	99	366	559	54	223	277
Fayed locality and city						
Number	Azhari primary education			Azhari Junior Secondary education		
	Urban	Rural	Total	Urban	Rural	Total
Number of institutes	1	12	13	2	6	8
Number of classes	8	75	83	6	16	22
Number of students	299	2153	2452	95	214	309
Number of teachers	9	56	65	18	40	58

West Kantara locality and city						
Number	Public primary education			Public Junior Secondary		
	Urban	Rural	Total	Urban	Rural	Total
Number of schools and sections	6	40	46	2	14	16
Number of classes	94	321	415	25	94	119
Number of students	3801	10599	14400	950	3350	4300
Number of teachers	118	258	403	48	151	199
Students capacity (student/ class)	40	33	35	38	40	39
Class share in the teacher (teacher/ class)	1	1	1	2	2	2

West Kantara locality and city						
Number	Azhari primary education			Azhari Junior Secondary education		
	Urban	Rural	Total	Urban	Rural	Total
Number of institutes	1	10	11	2	2	4
Number of classes	14	52	66	7	6	13
Number of students	542	1486	2028	194	156	350
Number of teachers	12	59	71	18	15	33

East Kantara locality and city						
Number	Public primary education			Public Junior Secondary		
	Urban	Rural	Total	Urban	Rural	Total
Number of schools and sections	8	7	15	5	5	10
Number of classes	76	56	132	31	20	51
Number of students	2919	1886	4805	876	610	1486
Number of teachers	164	60	224	69	43	112
Students capacity (student/ class)	38	33	36	27	30	28
Class share in the teacher (teacher/ class)	2	2	2	4	3	3

East Kantara markaz and city						
Number	Azhari primary education			Azhari Junior Secondary education		
	Urban	Rural	Total	Urban	Rural	Total
Number of institutes	1	1	2	1	---	1
Number of classes	8	4	12	2	---	2
Number of students	302	98	400	40	---	40
Number of teachers	8	3	11	9	---	9

(Source of information: Information Center and support Decision)

Secondary education

Ismailia locality and city						
Number	Public education			Technical education		
	Urban	Rural	Total	Urban	Rural	Total
Number of schools and sections	25	4	29	17	4	21
Number of classes	430	50	390	371	63	343
Number of students	9990	1258	11248	11955	2169	26079
Number of teachers	999	110	1109	1027	195	1222
Students capacity (student/ class)	31	25	30	32	34	34
Class share in the teacher (teacher/ class)	3	3	3	3	3	3

El Tal El Khabier locality and city						
Number	Public education			Technical education		
	Urban	Rural	Total	Urban	Rural	Total
Number of schools and sections	4	2	6	6	---	6
Number of classes	48	17	65	167	---	167
Number of students	1380	506	1886	5238	---	5238
Number of teachers	132	51	183	426	---	426
Students capacity (student/ class)	28	30	29	31	---	31
Class share in the teacher (teacher/ class)	3	4	3	3	---	3

Fayed locality and city						
Number	Public education			Technical education		
	Urban	Rural	Total	Urban	Rural	Total
Number of schools and sections	2	1	3	5	3	8
Number of classes	33	14	47	54	82	136
Number of students	970	361	1331	1743	2954	46
Number of teachers	78	37	115	158	81	239
Students capacity (student/ class)	29	26	27	32	35	34
Class share in the teacher (teacher/ class)	2	2	2	2	2	1

West Kantara locality and city						
Number	Public education			Technical education		
	Urban	Rural	Total	Urban	Rural	Total
Number of schools and sections	1	3	4	4	2	6
Number of classes	13	27	43	46	44	90
Number of students	457	737	1194	1541	1895	343
Number of teachers	27	60	87	172	44	216
Students capacity (student/ class)	35	27	30	33	33	33
Class share in the teacher (teacher/ class)	3	5	4	3	1	2

East Kantara locality and city						
Number	Public education			Technical education		
	Urban	Rural	Total	Urban	Rural	Total
Number of schools and sections	2	---	2	4	---	4
Number of classes	14	---	14	21	---	21
Number of students	385	---	385	642	---	642
Number of teachers	42	---	42	50	---	50
Students capacity (student/ class)	26	---	26	30	---	30
Class share in the teacher (teacher/ class)	3	---	3	3	---	3

(Source of information: Information Center and Decision making)

Azhari Education

Ismailia locality and city						
Number	Azhari primary education			Azhari Junior Secondary education		
	Urban	Rural	Total	Urban	Rural	Total
Number of institutes	9	3	12	5	2	7
Number of classes	80	23	103	21	7	28
Number of students	2841	725	3566	536	114	650
Number of teachers	72	28	100	88	22	110

El Tal El Khabier locality and city						
Number	Azhari primary education			Azhari Junior Secondary education		
	Urban	Rural	Total	Urban	Rural	Total
Number of institutes	6	32	38	5	15	20
Number of classes	36	191	227	16	45	61
Number of students	1094	4578	5672	327	741	1068
Number of teachers	65	213	278	55	122	177

Fayed locality and city						
Number	Azhari primary education			Azhari Junior Secondary education		
	Urban	Rural	Total	Urban	Rural	Total
Number of institutes	1	12	13	2	6	8
Number of classes	8	75	83	6	16	22
Number of students	299	2153	2452	95	214	309
Number of teachers	9	56	65	18	40	58

West Kantara locality and city						
Number	Azhari primary education			Azhari Junior Secondary education		
	Urban	Rural	Total	Urban	Rural	Total
Number of institutes	1	10	11	2	2	4
Number of classes	14	52	66	7	6	13
Number of students	542	1486	2028	194	156	350
Number of teachers	12	59	71	18	15	33

East Kantara markaz and city						
Number	Azhari primary education			Azhari Junior Secondary education		
	Urban	Rural	Total	Urban	Rural	Total
Number of institutes	1	1	2	1	0	1
Number of classes	8	4	12	2	0	2
Number of students	302	98	400	40	0	40
Number of teachers	8	3	11	9	0	9

Secondary Azhari education

Ismailia locality and city			
Number	Secondary Azhari education		Total
	Urban	Rural	
Number of institutes	2	1	3
Number of classes	20	3	23
Number of students	509	40	549
Number of teachers	89	12	101

El Tal El Khabier locality and city			
Number	Secondary Azhari education		Total
	Urban	Rural	
Number of institutes	5	7	12
Number of classes	27	29	56
Number of students	516	536	1052
Number of teachers	86	70	156

Fayed locality and city			
Number	Secondary Azhari education		Total
	Urban	Rural	
Number of institutes	2	3	5
Number of classes	12	11	23
Number of	156	179	335

students			
Number of teachers	28	29	57

West Kantara locality and city			
Number	Secondary Azhari education		Total
	Urban	Rural	
Number of institutes	2	2	4
Number of classes	13	6	19
Number of students	284	120	404
Number of teachers	31	16	47

East Kantara locality and city			
Number	Secondary Azhari education		Total
	Urban	Rural	
Number of institutes	1	0	1
Number of classes	3	0	3
Number of students	30	0	30
Number of teachers	11	0	11

Agriculture annex

Field crops for the year 2005/ 2006

Markaz	Pea nut		Maze		Cotton		Rice		Wheat	
	Area in acre	Waste	Area in acre	Waste	Area in acre	Waste	Area in acre	Waste	Area in acre	Waste
Ismailia	1070	5	7172	5	---	---	80	5	3567	5
Fayed	835	4	3500	10	---	---	303	6	2410	7
El Tal El Khabier	2312	5,5	4141	4	2	6	1733	4	5372	7
West Kantara	1935	5	7296	10	576	8	548	7	8939	8
East Kantara	1251	4	4190	3	29	3	401	3	6377	7
Kasaseen	9281	6	9048	6	85	8	2091	8	11069	6
Abou Souier	1019	7	5921	7	91	8	448	4	6682	6
Total	17703	---	41268	---	783	---	5604	---	444416	---

Markaz	Sesame		Broad Beans		Barley		Lupine		Dry Broad beans	
	Area in acre	Waste	Area in acre	Waste	Area in acre	Waste	Area in acre	Waste	Area in acre	Waste
Ismailia	657	5	268	Consumed	104	5	157	5	---	---
Fayed	795	4	170	Consumed	85	5	62	5	53	5
El Tal El Khabier	952	3	539	Consumed	263	4	83	4	---	---
West Kantara	1290	3	249	Consumed	2242	7	232	4	181	6
East Kantara	1642	3	357	Consumed	543	6	36	5	---	---
Kasaseen	604	5	178	Consumed	323	6	69	4	---	---
Abou Souier	1005	5	730	Consumed	156	4	89	5	---	---
Total	6945	---	1834	---	3716	---	728	---	234	11

Markaz	Oriental Beans		Fenugreek		Lupine		Barley		Wheat	
	Area in acre	Average	Area in acre	Average	Area in acre	Average	Area in acre	Average	Area in acre	Average
Ismailia	313	Consumed	0	0	277	5	170	5	3500	6
Fayed	45	7	0	0	0	0	160	7	3200	8
El Tal El Khabier	380	Consumed	0	0	375	6	1200	8	6585	8
West Kantara	237	7	0	0	0	0	2428	7	8312	8
East Kantara	142	Consumed	55	3	40	3	708	6	3334	7
Kasaseen	264	Consumed	0	0	47	5	571	6	5656	6
Abou Souier	122	Consumed	0	0	82	4	122	5	6035	7
Total	1503	7	55	3	821	4,6	5359	6,3	36622	7

(Source of information: Agriculture directorate)

List of estimated Summer wood of the year 2003/2004

Markaz	Maze		Pea nut		Sesame		Rice	
	Area in acre	Average	Area in acre	Average	Area in acre	Average	Area in acre	Average
Ismailia	8615	5	1740	5	934	5	121	5
Fayed	2000	10	1010	4	1170	4	477	6
El Tal El Khabier	3907	4	2568	5,5	1676	3	1790	4
West Kantara	7978	10	2180	5	1470	3	476	7
East Kantara	2385	3	1385	4	1351	3	489	3
Kasaseen	7211	6	10706	6	665	5	1889	8
Abou Souier	5000	10	1000	10	1500	5	301	4
Total	37096	6,8	20589	5,6	8766	4	5543	5,2

Main crops/ main areas for planting and waste volume

Locality	Pea nut		Maze		Cotton		Rice		Wheat	
	Area in acre	Waste	Area in acre	Waste	Area in acre	Waste	Area in acre	Waste	Area in acre	Waste
Ismailia	859	5	1000	5	---	---	221	5	3600	5
Fayed	789	4	3000	10	---	---	210	6	3000	8
El Tal El Khabier	2172	5	3839	4	6	8	1734	4	5200	7
West Kantara	1636	5	8247	10	905	8	623	7	9343	8
East Kantara	1740	4	4003	3	30	8	312	3	5400	7
Kasaseen	10765	6	8604	6	95	8	2707	8	9653	6
Abou Souier	1045	7	6000	10	90	8	195	5	6327	7
Total	19006	36	43693	48	1126	40	6002	38	42523	48

Locality	Sesame		Broad beans		Barely		Lupine		Fenugreek	
	Area in acre	Waste	Area in acre	Waste	Area in acre	Waste	Area in acre	Waste	Area in acre	Waste
Ismailia	679	5	147	147	---	5	189	5	---	---
Fayed	820	4	64	64	7	8	35	3	---	---
El Tal El Khabier	1126	3	654	654	---	4	71	3	---	---
West Kantara	1245	3	102	102	7	7	348	3	---	---
East Kantara	1442	3	200	200	-	6	24	3	66	3
Kasaseen	503	5	395	395	-	6	50	3	---	---
Abou Souier	1010	5	240	240	-	6	98	3	10	3
Total	6825	28	1803	1803	14	42	815	23	76	6

(Source of information: Agriculture directorate)

Main vegetable/ main areas for planting and waste volume

Tomato		Green crookneck Cucurbita Spp (zucchini)		Cucumber		Muskmelon	
Area	Waste	Area	Waste	Area	Waste	Area	Waste
19240	8	4412	4	6224	4	2596	4

Green beans		Potatoes		Green pepper	
Area	Waste	Area	Waste	Area	Waste
6219	4	10981	4	8270	4

(Source of information: Agriculture directorate)

**Annual report for the Slaughtered meats for the official slaughterhouse
from January till December 2005**

Month	Bulls	Cows	Buffaloes	Calf	Small buffaloes	Camels	Bettello	Sheep	Goat	Total
January	---	36	45	1126	319	5	358	562	34	2485
February	1	29	29	716	142	2	100	60	15	1080
March	---	10	44	988	250	13	104	100	26	1535
April	1	15	32	1020	273	20	119	86	19	1585
May	1	7	46	1069	355	20	89	74	13	1674
June	---	234	19	1152	276	10	117	95	23	1926
July	---	78	13	1314	267	3	128	73	27	1903
August	---	21	22	1466	370	3	157	94	43	2176
September	---	18	17	1427	371	11	172	77	32	2125
October	---	68	86	2012	347	9	280	135	55	2992
November	---	54	68	1425	198	1	268	130	18	2162
December	---	16	6	1505	319	3	328	170	11	2358
Total	3	586	413	15220	3487	100	2220	1656	316	24001

Total survey for the working warehouse in the governorate

Markaz	Association	Number of working Chicken warehouse	Number of working Duck warehouse	Number of working Turkey warehouse
West Kantara	El Nasr	8	--	--
	Elraiyah	11	1	--
	Elbalah	2	2	--
	Elrouda	4	--	--
	Elraiyah	12	--	--
	West Kantara	8	--	--
	Elbiadiya	14	--	--
	Elbehira	12	--	--
	Elkefah	21	5	--
	Scientific association	3	1	--
Ismailia	Ferdan	--	--	--
	Abou Shehta	--	--	--
	Nefesha	--	--	--
	Dabi'eiya	--	--	--
	Ein Ghoseen	3	--	--
	West Manayief	10	--	--
	East Manayief	3	--	--
	Eastern 7 wells	7	--	--
East Kantara	East of lakes	1	--	--
	East Kantara	8	--	--
	Gelbana	6	--	--

Markaz	Association	Number of working Chicken warehouse	Number of working Duck warehouse	Number of working Turkey warehouse
Fayed	Saraboum the station	223	--	--
	Abou soultan	1	--	--
	Fayed	5	--	--
Abou Souier	Abou Souier balad	19	--	--
	Abou souier the station	24	--	--
	New Mahsama	5	--	--
New Kasaseen	Old Mahsama	6	9	1
	New Kasaseen	19	1	--
	Old Kasaseen	13	1	--
El Tal El Khabier	El Tal El Khabier	37	3	--
	Elmalak	25	5	9
Total		654	42	10

(Source of information: Agriculture directorate)

**List of the fish farms rented from the authority in 2005
(in West Kantara directorate)**

No	Name	Location	Area		
			Sahm	Kirate	Feddan
1	Ibrahim Mohamed Elkarkary	Elraiyyah/ West Kantara	19	17	28
2	Alaa Ahmed Souilman Elsayed	Elraiyyah/ West Kantara	12,2	1	182
3	Gamal Ahmed Mostafa	Balah	13	23	19
4	Elsaiyed Sadat Ezaby	Balah	21	17	112
5	Ahmed Abdou Abou Hasan and partners	Balah	16	23	150
6	Mahmoud Elsayied Hansan (Youths of the graduates)	Balah	27	8	47
7	Ahmed Abdeowahab (Youths of the graduates)	Balah	18,4	20	30
8	Elsaied Abdelaziz and partner (Youths of the graduates)	Balah	6,3	17	11
9	Emad Eldien Sadick and partner (Youths of the graduates)	Balah	15,3	6	35
10	Galal Saleh Ahmed and partner (Youths of the graduates)	Balah	21,7	7	11
11	Fawzy Mahmoud Eladham and partner	Balah/ West Kantara	--	--	105
12	Mohamed Elsaied Haraz	Km 26- Elraiyyah-Kantara	6	9	9
13	Sa'ad Sanad Eltaify	Elraiyyah/ West Kantara	13	2	122
14	Rabha Hamid Kouita	Elraiyyah/ West Kantara	21	19	67
15	Sea Woelr company (Abdelmn'iem Elashry)	Km 26/ Elraiyyah, West Kantara	4	1	339
16	Atia Ali Ali Atia	Km 14/ Abou Khalifa, West Kantara	6,8	10	21
17	Raiyyah village council	Elraiyyah/ West Kantara	--	9	35
18	Awadallah Mohamed Elsharkawy	Abou Khalifa/ West Kantara	23	10	10
Total			22,7	16	1341

(Source of information: General Authority for Developing fish Wealth)

**List of the fish farms rented from the authority in 2005
(in Ismailia directorate)**

No	Name	Location	Area		
			Sahm	Kirate	Feddan
1	Ahmed Mohamed Moursy	Halwas Ezbat, Ismailia	2	5	6
2	Salem Ahmed Mansy and partner	Hamadat, Ismailia	--	10	15
3	Mohamed Mosaad Mosaad Hagag	Ein Gohseen/ Ismailia	14	21	24
4	Ali Mahmoud Aouliman and partner	Toson, Ismailia	5	20	4
5	Ismail Ahmed Husines and partner	Ein Gohseen/ Ismailia	1,5	18	12
6	Maher Nafel Mokbiel	Mnaief/ Ismailia	8	16	15
7	Hegazy Mohamed Mahmoud Hegazy	Ferdan/ Ismailia	10	20	103
8	Fish research Center (Suez Canal University)	Km 11, Ferdan, Ismailia	20,6	23	9
9	Mahmoud Elsaied Farahat	Ferdan, Ismailia	7	5	16
Total			20,1	20	209

(Source of information: General Authority for Developing fish Wealth)

**List of the fish farms rented from the authority in 2005
(in El Tal El Khabier directorate)**

No	Name	Location	Area		
			Sahm	Kirate	Feddan
	Samiya Fakhery Acladious	Masama/ El Tal El Khabier	4	4	291

(Source of information: General Authority for Developing fish Wealth)

**List of the fish farms rented from the authority in 2005
(in Fayed directorate)**

No	Name	Location	Area		
			Sahm	Kirate	Feddan
	Abdelnaser Ahmed Elbaiony	Sarabiuom Fayed	21	10	56

(Source of information: General Authority for Developing fish Wealth)

**List of the fish farms rented from the authority in 2005
(in East Kantara directorate)**

No	Name	Location	Area		
					acre
	Mosaad Mosaad Haggag	East of the Lakes	12	18	18

(Source of information: General Authority for Developing fish Wealth)

**List of the Civil fish farms in 2005
(in West Kantara directorate)**

No	Name	Location	Area		
					acre
1	Mohamed Hesham Mostafa Elsouly	Kefah association/ West Kantara	---	---	108
2	Gamal Ahmed Mostafa	Balah/ West Kantara	---	---	72
3	Wafaa farm	Balah/ West Kantara	---	---	115
4	Maher Abdallah Abdelmagied	Kefah association/ West Kantara	---	---	92
Total			---	---	387

(Source of information: General Authority for Developing fish Wealth)

**List of the Civil fish farms in 2005
(in East Kantara directorate)**

No	Name	Location	Area		
					acre
1	Hamadan Abdou Atia	East of Lakes/ East Kantara	---	---	298
2	Elsaied Ali Baraka	East of Lakes/ East Kantara	---	---	355
3	Mahmoud Ismaiel	East of Lakes/ East Kantara	---	---	3
Total			---	---	656

(Source of information: General Authority for Developing fish Wealth)

**List of the Civil fish farms in 2005
(in El Tal El Khabier directorate)**

No	Name	Location	Area		
					acre
1	Mazloun Mohamed Yousief	Wady el Malak/ El Tal El Khabier	---	---	5
2	Lotfy Khiniefer	New Kasaseen	---	3	1
3	Alaa Eldien Mohamed	Tal Abou Hamid/ El Tal El Khabier	7	17	25
4	Alaa Eldien Mohamed	Tal Abou Hamid/ El Tal El Khabier	23	9	58
5	Gomaa Saad Khalil	Basin 15, El Tal El Khabier	20	15	13
Total			2	7	103

(Source of information: General Authority for Developing fish Wealth)

Fish farms reports

Year	Name	Location	Quantity by TON
2004	Rabha Hamid Khorita	Rayiah	6,8
2004	Eltaiefy Saad Sanad Ibrahim	Rayiah	9,3
2004	Sea World company for development	Rayiah	38,5
2004	Mohamed Saliem Mousa Ibrahim	Abou Khalifa	6,9
2004	Galal Mahmoud Ibrahim Eltawiel	Tal Sela	54,6
2004	Tharwat Aliem Abdelmalek	Mahsama, El Tal El Khabier	44,5
2004	Mahmoud Elsaied Hasan	Balah, West Kantara	33,2
2004	Elsaied Abdeaziz Mohamed	Balah, West Kantara	5
2004	Ahmed Abdelwahab	Balah, West Kantara	22,5
2004	Emad Eldien Sadik	Balah, West Kantara	22,3
2004	Galal Saleh Ahmed	Balah, West Kantara	32

2004	Ahmed Abdou Abou Hasan and partners	Rayieah	44,6
2004	Ahmed Mousatafa Abdelaah Gamal	Balah West Kantara	23
2004	Hani Ma'moun Sharaf Eldien	Balah West Kantara	33
2004	Awadallah Mohamed Elsharkawy	Abou Khalifa, West Kantara	3
2004	Hasan Mahmoun Abdelkariem	Saraboum, Fayed	1
2004	Ali Mahmoud Souliman	Toson, Ismailia	1
2004	Mohamed Hashim Mostafa ElSouly	West Kanrtara	45,9
2004	Hamadan Abdou Atiya Gabr	East of lakes, East Kantara	44,4
2004	Asaad Mosaad Mosaad Hagag	East of lakes, East Kantara	5
2004	Reiyah village council	Rayieah	3,6
2004	Fish research center	Ferdan	0,9
2004	Ahmed Mouhamed Moursy	Halwas	0,5
2004	Salem Ahmed Mansy and partner	Hamadat	1,6
2004	Ibrahim Mohamed Ibrahim	Rayieah	2,2
2004	Ali Ali Eldeeb	East of lakes, East Kantara	66,9
2004	Moahmoud Ismaiel El Saiad	East of lakes, East Kantara	1
2004	Maher Abdallah Abdelhamid	West Kantara	32
2004	Fouzy Abdel Saieh'	Dabieya, Ismailia	1
2004	Abou El Waffa farm	Balah, West Kantara	33
Total fish quantity by ton		652,2	

(Source of information: General Authority for Developing fish Wealth)

Industry annex

Analysis list for productive projects in the First industrial area in Ismailia

No	Factory name	Owner's name	Activity type	Employees
1	Mohandes for Food Industry "Compy"	Nahed Kamal Souliman	Juice and concentrates	165
2	National Mohandes for Macaroni	Mahmoud Abdelhafiz Hegazy	Macaroni	244
3	Sweet Star	Mahmoud Hasan Elkorali	Halvah (sweets)	15
4	East Delta Mills	---	Milled rice	450
5	Hanza Food	Saied Abdelbaset	Juice and food substances	13
6	Train Line (shweps)	Karam Habib	Warehouse	37
7	Pepsi Cola	Mohamed Essam Eldien	Warehouse	87
8	Harzawy compound	Ali El Harzawy	Juice and fridge	300
9	Othmanoon compound for Chicken	Mahmoud Othman	Poultry	60
10	Frictal Jeans company	Abdelmagied Mohamed Hasan and partners	Apparel	720
11	Mine company	Elsaied Abelkariem Amer and partner	Apparel	70
12	Doubera Korean company	Dohan Shang and partners	Textile	790
13	Othmathoun compound for wood	Mahmoud Othman	Wood products	23
14	L.G company	---	TV components	226
15	Arabian company for Aluminum	Egyptian joint stock company	Aluminum	496
16	Mohandes Jouten for paintings	---	Paintings	211
17	Jouten expansions	Gomhouriya newspaper	---	---
18	Othmathoun compound for Adamantine	Mahmoud Othman	Concrete products	40

19	Egypt for Adamantine works	---	Concrete products	100
20	Public company for contractors	Late Mokhtar Ibrahim	Warehouse	80
21	Sporty international company	---	Leather products	192
22	Leather Giovanni company	Giovanni	Leather products	229
23	Zahraa company for plastic	---	Plastic pipes	76
24	Ismailia factory for plastic pipes	Ali El Herzawy	Plastic pipes	47
25	East Delta Bus	---	Transportation	167
26	Electricity area warehouses	Electricity area	Warehouse	68
27	Electricity area warehouses	Canal electricity company	Warehouse	57
28	Industrial gases company	Egyptian joint stock company	Gas filling	13
29	Transportation equipments and maintenance	Ghabour brothers	Maintenance	20
30	Bank of Alexandria	Bank	Bank	20
31	Ambulance	---	---	6

Analysis list for productive projects in the Second industrial area in Ismailia

No	Factory name	Owner's name	Activity type	Employees
1	Mille yield for producing flour	Ali Shaban Amin Aiub	Grain Milling	35
2	Sounbula factory for sweets (Halvah)	Salah Abdelazem and partners	Halvah (sweets)	19
3	Ismailia company for industrial investment	Shaker Abdelkariem Zaloum	Biscuit	350
4	Food products	Ministry of Supply	Packing	13
5	Arouse El Nile factory	Hedar Hasan Hasan	Biscuit	137
6	International company for salt	Kamel Saied Mohamed	Salt packing	20

		Gharabley		
7	Ekram company for salts	Nadr Khalil Fouad Shaban	Salt packing	---
8	Fish preserving fridge	Galal Moahmoud Ibrahim El Tawiel	Fridge	16
9	Squeezing and refining oil	Yousef Mohamed Mohamed Bendary	Squeezing oil	---
10	Packing vegetable and fruit station	Ministry of Agriculture	Vegetable packing	17
11	Rice marketing center	Ministry of Supply	Rice packing	80
12	Joker factory for Apparel	Zarif Fahime Michaiel	Apparel	13
13	International for Apparel	Heirs of Hussein Khalil	Apparel	---
14	Arcket company for Wooden furniture	Mostafa Abou Hadid	Wooden furniture	60
15	Doors and window workshop	Samier Shehata and partners	Doors and window	3
16	Wooden furniture workshop	Mohamed Abdelhamid Sheta	Wooden furniture	3
17	Elaman for commerce and industry	Fayez Shoman and partners	Dyeing	109
18	Crystal company for detergents	Hussien Elwan	Detergents	50
19	Manufacturing Brital workshop	Mostafa Ibrahim El Sahrawy	Iron and Brital	7
20	Manufacturing motorcycle spare parts	Mostafa fathallah Elsayy	Spare parts	7
21	Manufacturing and installation of metal establishments	Mohamed Mahmoud Elsaied	Metal establishments	12
22	Galvanized iron	Sedkey Saied Ahmed	Galvanized iron	12
23	Metal and brital workshop	Saied Abdelhamid Elhadary	Metal and brital	35
24	Galvanized iron	Abdou Elsaied Zydan	Galvanized iron	75
25	Suez Canal company for investment	Suez Canal authority	Cement blocks	10
26	Marble and granite factory	Fathey Hasaneen	Marble and granite	7
27	Marble and granite	Magdey Mohamed	Marble and	35

	factory	Mahmoud Watany	granite	
28	Marble and granite factory	Mohamed Abdelgawad and partners	Marble and granite	5
29	Marble and granite factory	Mahmoud Amin and partners	Marble and granite	16
30	Marble and granite factory	Helal Fouzy Khalil and partners	Marble and granite	5
31	Marble and granite factory	Karmy Fahim Atiya	Marble and granite	13
32	Marble and granite factory	Mostafa Abdelkader	Marble and granite	32
33	Bldorat factory	Kamal Ibrahim Souliman	Cement bldorat	10
34	Famco company for contracting	Mourad Habib Gerges	Tile	11
35	Tile factory	Makram Kamel Matta	Tile	13
36	Colored breaks factory	Nabiel Mohamed Amer	Colored breaks	15
37	Tile factory	Saleh Ammar	Marble and granite	30
38	Sina foam company	Mohamed Baheer Mohamed	Cement breaks	6
39	Milling quarries products	Mahmoud Mahmoud Sahmoud	Quarries products	15
40	Wood world factory	Elsaied Souliman Abdelrahman	Sports shoes	80
41	Jump Egypt company factory	Makram Beshara Mohareb	Sports shoes	10
42	Plastic shoes factory	Wakim Shafic Attallah and partners	Sports shoes	11
43	Cracking plastic factory	Ibrahim Nassar Hasan	Cracking plastic	5
44	Mahani plastic company	Yahya Abdelkariem Ragheb	Plastic products	16
45	Electric Egypt company	Ali Mostafa Abdelgawad	Lighting spots	10
46	Egyptian Turkish company for electric	Gaber Wadieh and partners	Electric tools	42

	industries			
47	Egyptian Turkish company for electric industries	Gaber Wadieh and partners	Electric tools	---
48	Egyptian European company for technology	Atif Othman Abdelhalim	Electric generators	49
49	Carton production factory	Eid Abdelfatah and others	Cardboard boxes	15
50	Carton production factory	Mamdouh Nassar, Sameh Mohamed and others	Cardboard boxes	13
51	Ideal company	Shareholding Company	Service center	4
52	Electric distribution company (workshops)	Electric distribution company	Workshops	8
53	Training center without separation of power	Canal Electricity company	Electricity	8
54	Electric board	Canal Electricity company	Electricity	6
55	Firefighters equipments	Mahmoud Darwish	Firefighters equipments	35
56	Alaraby center for renewing cars	Saiyed Adel Sha'ban	Renewing cars	15
57	Committee warehouses	Services	Committee warehouses	---
58	Cooperation association (compisal)	Cooperation association	Scale	6
59	Fire station	Ministry of Inferior	---	47
60	Training personnel center	Canal company for Electricity	Electricity authority	---

Analysis list for the producing projects in the Industrial compound in Ismailia

No	Factory name	Owner's name	Activity type	Employees
1	Elreda Halawa factory	Elsaied Mohamed Hasan Souliman	Halvah (sweets)	25
2	Food products	Osama Ibrahim	Food products	35
3	Snakes	Tamer Abdelghani	Snakes	15
4	Oil squeezing	Bakry Mohamed Ahmed Zaiton	Oil squeezing	5
5	Egyptian French company for investment	Ta'alat Refa't Ahmed Kandiel	Food products	15
6	Egyptian company for Macaroni	Adel Ibrahim	Macaroni	5
7	Mohandes for Juice	Mohamed Abdelallah Abdeltawab	Juice	15
8	Macaroni production	Khaled El Amawy	Macaroni	30
9	Leader Beef for meats	Mohamed Abdelrahman Ahmed	Beef	40
10	Egyptian food company	Mohamed Ragab	Oil	20
11	Salt packing	Mohamed Abdelrahman El Adawy	Salt	20
12	Monaliza for food industries	Mo'taz Faysal	Food products	70
13	Meat industry	Mo'taz Faysal	Food products	30
14	Halvah Factory	Mohamed Eisa Sarhan	Halvah (sweets)	15
15	Snakes factory	Milad Matta Nakhla	Snakes	20
16	Salt	Ahmed Abdou Mohamed Hasan	Salt	15
17	3N apparels	Mahmoud Mohamed El Nakhieb	Apparel	30
18	Wood furniture	Wael Osama Atito	Carpentry	4

19	Intermediate Chemicals	Montaser Abdallah Mohamed	Metal	4
20	Manufacturing Perfluorooctane Raw materials	Ali Abdelhalim Attia	Detergents	4
21	Mixing fertilizers	Wael Abdelfatah	Seeds	6
22	Detergents	Nabiel Fahmy Hasan Ahmed	Detergents	6
23	Marble manufacturing	Mahmoud Ashry Mohamed Ahmed	Marble and granite	8
24	Lathe workshop	Saied Abdelhamid Hussein	Lathe	2
25	Alumital products	Mohamed Abdelrazik Mohamed	Alumital	3
26	Door and window	Alaa Saied Mohamed	Carpentry	4
27	Manufacturing contact spare	Ibrahim	contact spare	2
28	Egyptian European	Ashraf Mohamed Fathy	Door locks	20
29	Metal formation	Hamada Abou Safa	Brital	5
30	Metal formation	Ashraf Shaban Abdelghani	Brital	4
31	Metal formation	Mohamed Mahmoud Saber Mohamed	Brital	3
32	Door and window formation	Ahmed Mohamed Mohamed Hasanien	Brital	4
33	Metal manufacturing	Rashad Abou Zied	Brital	10
34	Iron products	Medhat Khedr Abdelaziz	Iron	20
35	Electric spots	Samier Abdelwahab Hasan	Electricity	25
36	Electric spots	Ibrahim Abdelhamid Abdelhamid	Spots	20
37	Electric cables	Saied Farag	Cables	20

		Abdelmaksod		
38	Manufacturing sports shoes	Salah Taha Mohamed Ewies	Shoes	35
39	Shoes manufacturing	Mohamed Abdelmoniem Ahmed	Shoes	45
40	Plastic hoses	Manal Elshawadfy Khalil	Plastic	6
41	Bags	Ahmed Mohamed Reiad	Plastic	7
42	Manufacturing plastic products	Fatma Yasien Hasan	Plastic	7
43	Magic electric cans	Mohamed Mostafa Mohamed	Electric tools	9
44	Egyptian European company	Magda Ibrahim Yousef	Plastic	8
45	Egyptian European company	Magda Ibragim and Ezzat Elnagdy	Plastic	8
46	Plastic products	Abdelnaser Mohamed Abdelrazik	Plastic	4
47	Different slippers	Husam Abou Moslem Ahmed	Shoes	30
48	Recycle of plastics	Takek Rafic Hashim	Plastic	9
49	Plastic industries	Nader Sayed Abdelsalam	Plastic	10
50	Plastic industries	Tamerr Sayed Abdelsalam	Plastic	9
51	Car pedals	Hasan Souliman Hamadan	Plastic	15
52	Producing plastic packs	Maged Micheal Thomas	Plastic	15
53	Plastic packs paintings	Khaled Kamal Mohamed Amin	Plastic	7
54	Bags	Amir Hanafy Zaki Taiee	Bags	15
55	Plastic bags	Amir Hanafy Zaki Taiee	Plastic	10
56	Fish manufacturing	Mohamed Khamis	Fish	9
57	Wrapping threads	Emad Eldien Wagdy	Threads	10

58	Furniture paintings	Ibrahim Mohamed Barakat	Carpentry	1
59	Wood paintings	Desouky Hasan Mohamed Ibrahim	Carpentry	1
60	Household pesticides	Mohamed Mahmoud Amer	Pesticides	7
61	Irrigation supplies	Ali Elsaied Ahmed Ali	Plastic	20
62	United company	Mahmoud Darwish Abas	Firefighting equipments	10
63	Sterilized devices for doctors tools	Mohamed Sobhey Ali Abdellatif	Medical tools	10
64	Tuna fish	Moataz Faysal	Tuna	20

Industrial activities in the Free Trade Zone in Ismailia

No	Project name	Manufacturing activity	Assembling and re-industrialization
1	Egyptian Turkish Grice	Textiles and apparels and towels	Assembling and recycling
2	Sphinx for apparels	Apparels	Assembling and recycling
3	Filo City Jeans	Apparels	Assembling and recycling
4	Gulf for apparels	Apparels	Assembling and recycling
5	S&K for apparels	Apparels	Assembling and recycling
6	Sitadel for apparels	Apparels	Assembling and recycling
7	I G for metal industry	Zada copper industry	Assembling and recycling
8	Filo City apparels	Apparels	Assembling and recycling
9	International for packing materials industry	Carton paper and chemical substances	Assembling and recycling
10	Embee international	Apparels	Assembling and recycling
11	Petro Tech	Assembling of injection chemical materials units	Assembling and recycling
12	Cen Yuan plastics	Manufacturing of plastic granules	Assembling and recycling
13	EGY- PAK	Apparels	Assembling and recycling
14	Hurriya- Free Zone	Packing of eggs and Poultry materials	Assembling and recycling
15	Crystal for polishing products	Manufacturing of spray, polisher and detergents	Assembling and recycling
16	Golden Plast	Manufacturing of packing materials	Assembling and recycling
17	Ema Chemical	Manufacturing of chemical materials for treating apparels and textiles	Assembling and recycling
18	Stone for apparels	Apparels	Assembling and recycling
19	Sun Prism for power	Manufacturing of Solar	Assembling and

	technology	energy cells	recycling
20	Egypt for carbon and graphite	Formation of graphite polar and carbon products	Assembling and recycling
21	B.D textile	Apparel	Assembling and recycling
22	Uni comp	Producing electronic components like condensers and resistance	Assembling and recycling
23	Friends for carton	Manufacturing carton paper and apparels supplies	Assembling and recycling
24	Takey Ali for apparels	Apparels	Assembling and recycling
25	Plastica industrial company	Manufacturing of plastic hangers and plastic bullets	Assembling and recycling
26	American for silver accessories	Manufacturing of silver works	Assembling and recycling
27	PMP International	Manufacturing and assembling medial supplies	Assembling and recycling
28	International company for manufacturing chemicals	Manufacturing pesticides and agriculture fertilizers	Assembling and recycling
29	Egyptian Italian company for Leather tanning	Tanning and finishing all types of leather	Assembling and recycling
30	Green technology	Producing and manufacturing rice mills machines	Assembling and recycling
31	Egyptian Romanian	Manufacturing plastic granules from PET material	Assembling and recycling
32	Star apparel	Apparel	Assembling and recycling
33	Sweedy for metals	Producing rods and cupper wires	Assembling and recycling

(Source of information: Service committee in the Industrial area of Ismailia)

List of the factories and companies located outside the Industrial area

No	Factory name	Address	Environmental position
1	Pearl factory	Future city	Liquid wastes
2	Ismailia company for apparel	Ismailia city	Liquid wastes
3	Radio and Transistor company	Ismailia city	Solid waste
4	Cairo company for poultry production	Ismailia city	Solid waste
5	Nasr company for bottling	Ismailia city	Liquid wastes
6	Tantawy medical company	Cairo desert road	---
7	Temsah company for building ships	Ismailia city	Solid and liquid wastes and air pollution
8	Badran company for building ships	Ismailia city	Solid and liquid wastes and air pollution
9	Marine yard company and Arab contractors	Ismailia city	Solid and liquid wastes and air pollution
10	Dredging equipments workshops of Suez Canal authority	Ismailia city	Solid and liquid wastes and air pollution
11	Canal company for ports business	Ismailia city	Solid and liquid wastes and air pollution
12	Mohamed Mohamed Mostafa company	Fifth stage, number 6	Solid waste and noise
13	Foodico company	Port Saied Road, Km number 8	Liquid wastes
14	Boulboul official massacre	Port Saied Road, Km number 7	Liquid wastes
15	Investment group	Port Saied Road, Km number 6	Liquid wastes
16	Hafez company for Quail Birds	Port Saied Road, Km number 7	Solid wastes
17	Ismailia Egypt company for cooling	Nafisha village	---
18	Meatland company	Gamalien ezbat, Nafisha village	Liquid wastes
19	Tagro company	Manayief	Solid wastes

20	Louis Helmy Yousef apparel factory	Hejaz st.	Liquid wastes
21	Saied Radwan Mohamed Cotton factory	Seventh Megawra st.	---
22	Shoukrey Ibrahim Yousef factory	Mohamed Kareem St.	---
23	George Ibrahim Reiad factory	Mohamed Kareem St.	---
24	Eid Thomas Shehata factory	Hejaz st.	---
25	Husieny Mohamed Ahmed printing house	Army St	Liquid wastes
26	Sweety company	West Kantara	Liquid wastes
27	Edward Zaki Amine factory	Army St.	Liquid wastes
28	Hmid Ahmed Khalil factory	Asuit St.	Liquid wastes
29	Quarry company	Rayieah village	Air pollution
30	Abou Soultan company for medical foods	Abou Soultan	Solid and liquid wastes
31	Ismailia company for loam breaks	Fanara	Solid and liquid wastes
32	Abou Soultan for medical drugs	Abou Soultan	Liquid wastes
33	Abou Soultan company for Veterinary medicine	Abou Soultan	Liquid wastes
34	Abou Soultan Power station	Abou Soultan	Liquid wastes
35	Ismailia Egypt company for poultry	Sarabioum	Solid wastes

(Source of information: EMU department)

Small and medium projects in Ismailia governorate

No	Factory name	Owner name	Activity	employees
1	Reda Halvah factory	Elsaied Mohamed Hasan Souliman	Halvah	25
2	Food products	Osama Ibrahim	Food products	35
3	Snakes	Tamer Abdeklghani	Snakes	15
4	Oil squeezing	Bakry Mohamed Ahmed Zaiton	Oil squeeze	5
5	Egyptian French company for investment	Talaat Refaat Ahmed Kandiel	Food products	15
6	Egyptian company for Macaroni	Adel Ibrahim	Macaroni	5
7	Mohandes for juice	Mohamed Abdallah Abdeltawab	Juice	15
8	Macaroni production	Khaled Elamawy	Macaroni	30
9	Leader Beef meats	Mohamed Abdelrahman Ahmed	Beef	40
10	Egyptian food company	Mohamed Ayne Ragab	Oil	20
11	Packing of Salt	Mohamed Abdelrahman El Adawy	Salt	20
12	Moralize for food industry	Mo'taz Faysal	Food products	70
13	Meat production	Mo'taz Faysal	Food products	30
14	Halvah factory	Mohamed Esa Sarhan	Halvah	15
15	Snakes factory	Milad Matta Nakhla	Snakes	20
16	Salt	Ahmed Abdou Mohamed Hasan	Salt	15
17	3N apparels	Mahmoud Mohamed El Nakhieb	Apparel	30
18	Wood furniture	Wael Osama Atito	Carpentry	4

19	Intermediate Chemicals	Montaser Abdallah Mohamed	Metal	4
20	Manufacturing Perfluorooctane Raw materials	Ali Abdelhalim Attia	Detergents	4
21	Mixing fertilizers	Wael Abdelfatah	Seeds	6
22	Detergents	Nabiel Fahmy Hasan Ahmed	Detergents	6
23	Marble manufacturing	Mahmoud Ashry Mohamed Ahmed	Marble and granite	8
24	Lathe workshop	Saied Abdelhamid Hussein	Lathe	2
25	Alumital products	Mohamed Abdelrazik Mohamed	Alumital	3
26	Door and window	Alaa Saied Mohamed	Carpentry	4
27	Manufacturing contact spare	Ibrahim	contact spare	2
28	Egyptian European	Ashraf Mohamed Fathy	Door locks	20
29	Metal formation	Hamada Abou Safa	Brital	5
30	Metal formation	Ashraf Shaban Abdelghani	Brital	4
31	Metal formation	Mohamed Mahmoud Saber Mohamed	Brital	3
32	Door and window formation	Ahmed Mohamed Mohamed Hasanien	Brital	4
33	Metal manufacturing	Rashad Abou Zied	Brital	10
34	Iron products	Medhat Khedr Abdelaziz	Iron	20
35	Electric spots	Samier Abdelwahab Hasan	Electricity	25
36	Electric spots	Ibrahim Abdelhamid Abdelhamid	Spots	20
37	Electric cables	Saied Farag Abdelmaksod	Cables	20
38	Manufacturing sports shoes	Salah Taha Mohamed Ewies	Shoes	35
39	Shoes manufacturing	Mohamed	Shoes	45

		Abdelmoniem Ahmed		
40	Plastic hoses	Manal Elshawadfy Khalil	Plastic	6
41	Bags	Ahmed Mohamed	Plastic	7
42	Manufacturing plastic products	Fatma Yasien Hasan	Plastic	7
43	Magic electric cans	Mohamed Mostafa	Electric tools	9
44	Egyptian European company	Magda Ibrahim Yousef	Plastic	8
45	Egyptian European company	Magda Ibragim and Ezzat Elnagdy	Plastic	8
46	Plastic products	Abdelnaser Mohamed Abdelrazik	Plastic	4
47	Different slippers	Husam Abou Moslem Ahmed	Shoes	30
48	Recycle of plastics	Takek Rafic Hashim	Plastic	9
49	Plastic industries	Nader Sayed Abdelsalam	Plastic	10
50	Plastic industries	Tamerr Sayed Abdelsalam	Plastic	9
51	Car pedals	Hasan Souliman Hamadan	Plastic	15
52	Producing plastic packs	Maged Micheal Thomas	Plastic	15
53	Plastic packs paintings	Khaled Kamal Mohamed Amin	Plastic	7
54	Bags	Amir Hanafy Zaki Taiee	Bags	15
55	Plastic bags	Amir Hanafy Zaki Taiee	Plastic	10
56	Fish manufacturing	Mohamed Khamis	Fish	9
57	Wrapping threads	Emad Eldien Wagdy	Threads	10
58	Furniture paintings	Ibrahim Mohamed Barakat	Carpentry	1
59	Wood paintings	Desouky Hasan Mohamed Ibrahim	Carpentry	1
60	Household pesticides	Mohamed Mahmoud Amer	Pesticides	7
61	Irrigation supplies	Ali Elsaied Ahmed	Plastic	20

		Ali		
62	United company	Mahmoud Darwish Abas	Firefighting equipments	10
63	Sterilized devices for doctors tools	Mohamed Sobhey Ali Abdellatif	Medical tools	10
64	Tuna fish	Moataz Faysal	Tuna	20

(Source of information: service committee of Industrial Area in the governorate)

Annex of the Local plan for facing the environmental disasters in Ismailia

Introduction:

Environmental Risk:

It is the accident caused by the natural factors or caused by man actions resulting a sever damage on the environmental for a long time even after the disaster is over. It needs big possibilities exceeds than that of local abilities. The environmental risks cause many damages and negative effects on the environment and all its components as well as the safety and health of individuals and natural and economical resources. Such as petroleum leakage, earthquakes, radiation leakage, toxic gases, fires of hazardous wastes with big quantities, ..etc)

Environmental problem:

It is a group of events or short time effect phenomena (it can be caused by man or naturally), when these events collect together may cause negative sever effects leading the society to take exceptional procedures, such as fire of non hazardous waste factories, waste and garbage collections, disposal of industrial waste water into watercourses.

Environmental disaster management:

It is studied steps to face the disaster including:

- Survey of all sources and activities with hazardous type.
- Study the harmful impacts or study the assessment of its dangers.
- Specify the procedures preventing or minimizing the disaster.

Specifying the plan elements:

There is no standard for the plans to face environmental disasters, but there are certain common features must be applied in most these plans, which are:

- Clarity of target.
- Realism
- Flexibility
- Coordination
- Specify responsibilities
- Easy to use

Possible sources for environmental disasters inside Ismailia governorate:

1- Transportation activities for hazardous wastes and substances:

Contaminating Suez Canal and lakes inside the governorate's border is possible from the petroleum and hazardous substances leakage that is resulted from vessel accidents passing in Suez Canal.

Important note: What happens in Suez Canal path is treated directly through Suez Canal authority and EEAA in the Ministry of State for Environmental Affairs, as they are the qualified

authorities to deal with this kind of disasters, as they have the equipments, technical and financial possibilities, as well as specialized and trained human resources in this field.

Also this kind of disasters may take place when the trucks that transfer fuel and toxic gases between governorate make accidents on the high way inside the governorate.

2- Locations of the manufacturing activities that consume or produce hazardous substances with big quantities:

Some very few factories in Ismailia and East Kantara and the Free zone and some factories outside the industrial area (such as Abou Soultan Pharmaceutical factory), some of them may treat with hazardous substances. Also dies factories, Abou Soultan power station, and Aluminum factory.

Important note: there is continuous checking on the safety plans and industrial safety procedures and also fire fighting and disaster plans in these factories, as they are under the control of Industrial safety department in the Manpower directorate in Ismailia, which is the legal and qualified authority to apply inspection in this field inside the governorate according to the law 12/ 2003 which specifies the required procedures to face disasters inside the industrial factories in addition to the environmental inspection according to the law 4/ 1994 from the EMU in the governorate and EEAA and its RBO is Suez.

3- Drinking water stations and sewage treatment station:

They are factories which use some toxic substances or gases in the treatment process, the leakage of these substances may cause deadly effects, such as the leakage of chlorine gas which is toxic and may cause death and injure a lot of people, in addition to destroying properties and agriculture lands, also this gas is considered an environmental dangerous disaster if it is spilled, but strict procedures must be applied in this case, as well as continuous follow up of these activities.

4- Natural disasters:

Like the spread of Bird's flu disease in a wide and dangerous range which may affect on the environmental balance of the territory and cause death of some people.

Also natural fires in some forests like Sarabiuom forest or the forest at the entrance on Ismailia by the Ring road.

Role of concerned authorities to face the environmental disasters in the governorate:

The decision makers and coordinative authorities to face the disaster:

His Excellency the Governor, as he is the supervisor on the management process of the crisis, as well as his assistance:

- General Secretary of the governorate.
- Assistance General Secretary.
- The Governor's consultants.

- The cooperative authorities in the governorate, such as: operation unit in the governorate, crisis management room, EMU in the governorate, cooperative directorates, Industrial area services committee.

Implementation authorities for treating the disaster:

1- The implementation unites which is specified by the Governor according to the nature and time and location of the disaster, in this regard assistance can be requested from other authorities, such as:

Armed forces, which take charge of dealing with disasters that requires abilities and specifications that exceed the possibilities of the Governorate, also the Armed forces contribute effectively in facing big crisis like leakage of toxic gases and contributing in fir fighting of huge fire cases in cooperation with civil defense department, also Armed forces can support in limitation of birds flu through the chemical war teams.

2- Suez Canal authority:

Is in charge of treating environmental disasters take place inside the navigational course of the Suez Canal, and removing the impacts resulted in the Canal and the lakes linked to it in cooperation with EEAA in Ministry of Environment.

3- Civil defense and fire department in Security directorate:

In charge of facing the fires and crises in the right way and in cooperation with the needed authorities in this regard.

4- Industrial safety department in the Directorate of Manpower and immigration:

Responsible for checking the commitment of the establishments to make assessment and analysis for the estimated risks and industrial and natural crises, as well as supply the safe means and industrial safe procedures and firefighting, also check preparing of the Emergency plan to protect the establishment and employees when the crises takes place, also to check the effectiveness of this plan and make practical experiments to insure the plan effectiveness, and take the required technical procedures in case any crises happens in the establishment.

5- EEAA teams in Ministry of Environment:

Works in cooperation with Suez Canal authority to face crises with the equipments of the Ministry of Environment as well as trained specialists to deal with oil leakage crises, as well as dealing with crises in factories and dangerous leakages.

6- Public authority for developing fish wealth:

Takes charge of specify and count the damage happened to the fish wealth in the crises location, also participates with its equipments to decrease the damage of the crises.

7- Health and population directorate, hospitals, and its emergency centers:

Take charge of succor the injured people in the crises as fast as possible, as well as supplying the medical possibilities ASAP.

8- Housing and Utilities directorate:

Takes the task of supervision on drinking water station and sewage stations, supply equipments in case of houses demolition, and specify the immediate quartering areas for sheltering people in coordination with Social solidarity directorate.

■ Main and general stages for the Management Plan for any crises in the governorate:

1- Preventing the crises stage:

The activities in this stage aim for preventing the presence of the crises as much as possible, or decrease and limit the hard destructive impacts of this crises in case it was difficult to price it. In addition to put the appropriate procedures for each kind of crises.

Example: Industrial safety department in the Manpower directorate is making checking on the industrial establishments that they raise the levels to be ready for facing any crises, and also to make sure of the required emergency plan for the establishment, and to commit with safety and different industrial safety procedures.

2- Preparation stage:

The procedures of this stage aim to maximize the capabilities and capacity to face the crises and limit or decrease its destructive effects, this stage aims to put fighting plans, specify and offer required possibilities and needed capabilities to implement these plans, as well as train individuals and groups on how to deal with crises.

Example: Civil defense and fire department or Suez Canal authority raise the quality of their equipments, prepare and train human resources on how to deal with crises quickly and effectively.

3- Facing stage:

In this stage, the stated plans are implemented as well as the best usage of the present capabilities (human resources, equipments, tools), noting that the quality and efficient fighting of the crises depend on the ability of coordination and preparation to face the crises.

Example: The operation room in the Governorate office receives the crises news then informs the different concerned authorities to go to the crises scene and take the needed procedures according to each authority responsibilities.

4- Rebalancing stage:

This stage aims to repair the establishment or crises location which was affected by the disaster and return it to its normal condition as well as preventing the repetition of such crises.

Example: Suez Canal authority remove an oil pot leaked from the vessels to protect the marine life and to clean the water from the impacts of this spot as much as possible.

5- Recording the results stage and lessons learned:

Aims to record the learned lessons from treating with each crises and the suggestions put to avoid the shortage or leakage occurred during the facing stage.

Example: Specify the defaults and crises reasons and negatives presented during treatment and management of the crises.

■ Scenario of facing a pollution crises in Suez Canal and the lakes with crude oil (petroleum) leakage:

1- Preventing the crises stage:

Suez Canal authority uses all available means to guarantee the passage of the vessels through the Canal stream without any human or technical mistakes which may cause crises.

2- Preparation stage:

Specify the contributed authorities in the plan, which are: Ismailia Governorate's General office, Suez Canal authority, EMU in the governorate, EEAA IN Ministry of Environment, General Authority for Fish wealth development, Civil defense and fire department in case the oil leakage is on fire.

The Suez Canal authority raise the efficiency of the equipments used in the fighting operations as well as the human resources specialized in facing crises.

Suez Canal authority approval on the participation of the EMU in the governorate in follow up the fighting operations so that the EMU can present the on going progress inform of the High Command in the Governorate.

Also the Suez Canal makes practical training on the crises inside the Canal to train the participants on the plan and identify the problems and obstacles that may occur during the implementation of the plan.

3- Facing stage:

The Suez Canal authority implements the facing operation at once if any leakage accident happened inside the Canal's steam, and treat the leakage source as well as makes the immediate communication with the Director of the EMU in the Governorate who informs the Higher Command in the Governorate by return, then informs EEAA in Ministry of Environment, then go to the crises scene to follow the facing operations in cooperation with Suez Canal authority and EEAA.

Crises Department in the Governorate makes daily reports for the latest progress of the accident, and present these reports in front of the Higher Command in the Governorate.

4- Rebalancing stage:

- The special team of Suez Canal authority as well as its special equipments starts in removing the oil spot from the water by the appropriate method according to the location of the spot and its kind.

- EEAA special team with their special equipments supports Suez Canal team if required.

- EMU in the governorate follow up the removal process for the pollutants and record any obstacles or negatives prevent the effective implementation of the plan, more over the EMU reports the Crises department with it.

5- Recording the results stage and lessons learned:

The General authority for developing the Fish wealth makes required previews to specify the damage occurred in the fish wealth of Ismailia governorate due to the oil leakage, and also makes a report to be presented in front of the Higher command of the governorate.

The crises department in the Governorate prepares a detailed report for the implementation stages of the plan illustrates the positives and negatives and requirements that occurred during the plan implementation, as this report is presented in front of the Higher command in the governorate to make a performance evaluation.

■ Scenario of facing a fire crises or a chemical leakage in a factory deals with hazardous wastes:

1- Preventing the crises stage:

The industrial safety Department in the Manpower authority makes checking on the factories to guarantee their commitment to make evaluation and analyses for the expected industrial and natural crises and dangers, as well as offering means of the industrial safety and firefighting, as well as preparing emergency plan to protect the establishment and workers in case any crises takes place, also testing the effectiveness of this plan and make practical experiments to guarantee its efficiency, and train the workers and employees to fulfill the plan's requirements.

2- Preparation stage:

Specify the authorities to participate in the plan, which are: (Governorate General Office, Armed forces, Industrial safety department in Manpower directorate, Civil defense and fire department, EMU in the governorate, EEAA in Ministry of Environment, Health and Population authority)

Civil defense and fire department raise the efficiency of the used equipments in the fighting operations, as well as the specialized cadres to fight these crises.

Also make practical training on the crises inside a factory to train the participants on the plan and to identify the problems and obstacles that may face the plan implementation.

3- Facing stage:

Any communication comes to the operation room or to the Security directorate, the civil defense and fire department applies the facing operation immediately and deals to stop the expansion of the fire as well as making extinction of the fire and stop the chemical leakage, as well as immediate reporting to the Director of the EMU in the governorate who reports the Higher Command in the governorate by return, and also reporting to the industrial safety department in the Manpower directorate and EEAA in Ministry of Environment, then go to the crises location to follow up the fighting operations in cooperation with Industrial safety department and EEAA. Emergency devices and hospitals (following Health directorate) treat the injured and cure them. EMU makes daily reports for the latest progress for the accident and present it in front of the Higher Command in the Governorate.

4- Rebalancing stage:

The Hygiene devices in the governorate remove the wastes resulted from the crises as well as the fire fighting wastes.

EMU in the governorate follows up the operations of removing the wastes and records any obstacles or negative sides preventing the efficient implementation for the plan.

5- Recording the results stage and lessons learned:

The Industrial Safety department in the Manpower directorate makes required previews and prepares the reports about the causes on the accident and presents them in front of the Higher Command in the Governorate.

The EMU prepares a detailed report for the implementation stages of the plan illustrates the positives and negatives and requirements that occurred during the plan implementation for firefighting and treating chemical leakage, as this report is presented in front of the Higher command in the governorate to make a performance evaluation.

■ Scenario for facing spread of Bird's flue decease crises :

The current situation for monitoring the decease:

EMU is currently taking all the required preventive procedures to face the return of the Bird's Flu decease because of the presence of the first human case in 10- 10- 2006 since May 2007, this is the case number 15 infected with Bird's Flu decease since the start of the decease in Egypt in February 2006. A team work was formed inside the EMU as a quick respond to face the Bird's Flu decease, more over a state of emergency was declared.

In the announcement of Ministry of Health (on its internet website), the Minister pointed to the strategic stock that they have from the Tamvelo vaccine for Bird's flu decease, this stock will reach to 1 Million and 250 thousand pack by the end of the year 2007. also the Center which was established to monitor the decease in the Central Laboratories in the Ministry of Health in cooperation with the World Health Organization(WHO) was confirmed to be working with its max power, and the list of needed medicines and special requirements was reviewed to deal with the monitoring process. There are also 1250 artificial breathing apparatus for adults and children were supplied in the Ministry's hospitals, and currently there are another 2800 devices being prepared.

Protective procedures are being taken, also responding to the instructions of the Higher Committee for Fighting the decease in the Ministry of Health.

The infected people are followed up if any case occurred citizens should go for clinical checking in the nearest dietary or chest hospital if any symptoms occurred among them in order to take samples and analysis it.

1- Preventing the crises stage:

Prevent hunting the immigrated birds totally, and treat the phenomena of random breeding birds inside houses, and prevent slaughter and selling living birds except in the special official massacres under the control of Veterinary Medicine Directorate.

2- Preparation stage:

Authorities participate in this plan are: Governorate General Office, Armed Forces, EMU, Veterinary Medicine directorate, Health and Population directorate, Agriculture directorate, cities & localities& villages and neighborhoods) these authorities have to offer the special landfill as well as preventions tools in order to be ready in case any spread of the decease.

3- Facing stage:

When any report comes to the operation room or the Veterinary Medicine directorate is treated immediately by the Veterinary Medicine directorate. Required samples are taken to check whether it is positive or not. The Security authority makes evacuation to the area at range of 1 Km, immediate report is informed to the EMU in the Governorate which informs the High Command in the Governorate at the same time, then EMU also informs the city ort locality/ village/ neighborhood and Agriculture directorate, Health directorate, EEAA in Ministry of Environment. Then EMU's director goes to the crises scene to follow up the facing operations.

The EMU also check on the safe burning of the infected birds to grantee no spread of the decease takes place, and also makes sure of the purification process.

The Veterinary Medicine directorate and their assistance discover and analyze the infected birds to specify the quantity needs to be executed, also supervise the collecting of these infected birds and preparing them for burning.

The Ambulance devices and hospitals (belong to Health directorate) palm the infected persons.

EMU makes daily reports for the latest progress for the accident and present it in front of the Higher Command in the Governorate.

4- Rebalancing stage

Includes purification of the crises site by the participant authorities (EMU- Veterinary Medicine, Health directorate) to make sure of the complete disposal of the virus.

5- Recording the results stage and lessons learned:

The EMU in the governorate prepares detailed reports for the implementation stages of the plan illustrates the positives and negatives and requirements that occurred during the implementation of the plan , as this report is presented in front of the Higher command in the governorate to make a performance evaluation.

■ Scenario for facing the crises of toxic Chlorine gas leakage from a water treatment station:

1- Preventing the crises stage:

Station officers must make sure of the procedures and tests that prevent any leakage of the toxic chlorine gas from the used containers, and the industrial safety department must check the efficiency of these procedures.

2- Preparation stage:

Specify the participate authorities in the plan, which are: Governorates General office, Armed Forces, Industrial safety department in Manpower directorate, Civil defense and fire department, EMU in the governorate, EEAA in the Ministry of Health, Health and population directorate, Housing and Utilities directorate, Suez Canal authority in case the crises happened in one of its stations.

Civil defense and fire department raise the efficiency of the used equipments in the fighting operations, as well as the specialized cadres to fight these crises, as well as supply the prevention and protection devices to face such toxic gases.

Also make practical training on the crises inside a water treatment stations to train the participants on the plan and to identify the problems and obstacles that may face the plan implementation.

3- Facing stage:

When any report comes to the operation room or the Security directorate, the Civil defense and fire department makes the treatment process immediately and evacuate the area with a range its radius depends on the volume of the leakage and also the Chlorine cloud well as the geographical nature of the location and the population in the area of leakage. Immediate report is informed to the EMU in the Governorate which informs the High Command in the Governorate at the same time, then the Industrial safety department in the Manpower , and EEAA in the Ministry of environment,, then go to the crises location to follow up the facing operations in cooperation with the Industrial safety department and EEAA.

The Ambulance devices and hospitals (belong to Health directorate) palm the infected persons.

Crises department in the governorate reports daily in front of the High Command in the governorate about the latest development in the crises.

4- Rebalancing stage:

Continuous evacuation for the are of leakage center till it is guaranteed that the percentage of the toxic gas in the air fits with the authorized limits.

5- Recording the results stage and lessons learned:

Industrial safety department in the Manpower authority makes the requires previews and pre pare reports about the causes of the accident to be presented in front of the High Command in the governorate.

Security authority in Ismailia clears the reasons of the accident and its progress and present them to the Higher Command in the Governorate.

Crises department in the governorate prepares a detailed report for the implementation stages of the plan illustrates the positives and negatives and requirements that occurred during the implementation of the toxic gas fighting plan, as this report is presented in front of the Higher command in the governorate to make a performance evaluation

* Team work of the Environmental crises department in the EMU:

The EMU prepared a team work ready to accomplish its takes during the 24 hours, the tasks are as following:

- 1- Moving to the crises location as soon as they are informed in any time 24 hours / day and inform the Higher Command in the Governorate, as well as coordinating with other concerned authorities.
- 2- Take their specific role regarding the environmental part in cooperation with other concerned authorities (will be mentioned later).
- 3- Prepare the detailed report for the different stages of the plan implementation illustrating the positives and negatives and the requirments that showed during the implementation of the fighting plan to be presented in front of the Higher command of the Governorate.

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* EMU plan in the field of Inspection:

*** It depends on field visits and inspection on the following:**

- 1- Type of Industry.
- 2- Area of the establishment.
- 3- Kind of the row materials used.
- 4- Quantity of the used hazardous substances.

* Thus, the establishments are classified into 3 levels:

1- First level:

Includes establishments with low risk.

2- Second level:

Includes establishments with Medium risk.

3- Third level:

Includes establishments with High risk.

* There fore inspection and checking are done on the three levels with giving the priority to the establishments with high risk level.

■ Current situation, obstacles and requirements for the plan :

1- In the field of risk planning: EEAA is not finished yet from preparing the National Plan for facing crises:

Therefore the EMU in the governorate prepared a temporary local plan for facing crises in the governorate till the National plan is finished on the Republic level, which is now being prepared by Ministry of State for Environmental Affairs in cooperation with different Ministers and authorities , this Plan will be generalized and applied in all Governorates including the procedures and Scenarios and training plans.

2- In the field of follow up in the field: Formation of an integrated data base about the risk sources to be evaluated:

In order to take a quick procedure and supply enough information about the establishment and the substances used inside them, there must be an integrated data base about the risk sources in the Governorate and the current situation for the preparations of these sources to face the crises and also implementing the plan to acknowledge its suitability. So the EMU in the Governorate is now implementing the half annual plan to check and inspect the different industrial establishments inside the Industrial area, and big establishments outside the Industrial area which reach more than 300 industrial establishment in order to insure applying the required procedures for safety and industrial safety and treating emergency. Also the EMU is establishing an integrated data base for the establishments that could face crises to make a risk assessment for them including the type of activity, used substances, risks of these substances and how to deal with these substances if any rises takes place, and also the available possibilities in the establishment to face the emergency, these information will be used by the crises fighting teams in case any disaster happened in this establishment.

These activities is being done in parallel with the inspection and checking plans for the Industrial safety department in the Manpower directorate, and the technical part in the Industrial safety and safety Sector in the Governorate.

3- In the field of Training: implement practical and illusory training for the crises scenarios in the Governorate:

In order to guarantee the quick and efficient respond for the crises there must be practical illusory training done on the scenarios of the most common crises that the Governorate may face to guarantee the best performance and organize the roles to implement all plan sides, because not using this type of training may cause random performance or slow respond to the crises and treating its effects. There for the crises fighting plan needs to implement practical illusory trainings for the specific scenarios in the crises fighting stage in the plan, also to get use of the experiences of the Armed Force devices specialized in facing crises, noting that the EMU in the governorate and EEAA in the Ministry of Environment are implementing periodical training programs for the employees in the Environmental field regarding Planning for environmental crises, there were 4 workshops implements in the current year (2007).

4- The need to complete all parts of the local plan by the participant authorities:

All participated authorities must offer integrated and real information as following:

- Available abilities for each authority to fight each crises separately and specify the shortage and requirements.
- Present the crises fighting plan of each authority including the responsible team for the coordination and implementation in order to include them in the plan of illusory training.
- Obstacles and problems facing the authority and may effect on the reaction speed and organization of crises facing.
 - Present a time table to raise the qualification of the implementation team of each authority and team preparation for facing crises.
- Each authority presents a list for the important reasons may cause the crises (according to each authority specialization)

5- In the field of management of pollution crises:

In case of oil spill accidents and the passing of vessels carrying asbestos (which causes cancer) inside the navigator course of Suez Canal and the spread of Bird's flu diseases are the only environmental crises facing Ismailia governorate during the past years, as the EMU received the following reports:

- Reports of Oil pollution due to accidents in Suez Canal (2 reports)
- Reports of Vessels passing with hazardous cancer substances. (1 report)
- Reports of draining vessels which may cause oil leakage. (1 report)
- Reports of Birds Flu decease. (12 report)

6- The need for raising the qualification of coordination between the authorities when a crises takes place:

By forming a committee for facing crises in the governorate with the membership of the participated authorities, as the EMU is facing difficulties in following up the environmental crises in Suez Canal because of the top secret method from participants in the crises management from Suez Canal authority which makes the image not clear regarding the crises situation to be presented in front of the Higher Command in the Governorate.

7- Insufficient financing to cover the requirements of the fighting process:

Fighting accidents operations require raising the capabilities of the executive devices in the governorate to be able of facing the crises, as the normal local abilities many not fulfill the requirements of fighting crises.

8- Accumulation of hazardous wastes inside the factories in the governorate:

There is no safe landfill for hazardous wastes in the Canal territory, so all factories are obligated to store the hazardous wastes inside the borders of the factory avoiding the hard and strike fines in the Law of environment because transportation and un safe disposal of hazardous wastes. There is no safe landfill for hazard wastes in Egypt except in Giza and Alexandria , because it costs millions of US dollars, and it is not allowed for any establishment or authority to transfer or dispose or recycle for hazardous waste until after getting many licenses from the concerned authorities and EEAA, as well as offering the technical equipments and trained cadres to deal with hazardous wastes, because dealing with such wastes is different from dealing with solid wastes and garbage.

Participants in preparing the Environmental Profile

The Governorate GEAP was prepared in cooperation with:

- The EMU:

- 1- Dr. Faten Mohamed Ahmed Abdelfatah
- 2- Eng. Amal Abdelaziz Abdelrahman.
- 3- Chemist/ Salwa Saied Ahmed
- 4- Chemist/ Ahmed Mohamed Shouman
- 5- Tarek Farouk Mohamed

Under the supervision of Dr. Salah Saied Ibrahim, Director of the EMU.

- EEAA RBO in Suez also participated, in addition to all authorities and directorates and organizations and local units of cites and localities of Ismailia governorate, under the supervision of :

- General/ Salah Abdelhamid Khatab, the General Secretary

-ESP program:

- 1- Dr. Fatman Abou Shouk, Director of Environmental management sector, and Manager of the ESP program.
- 2- Mr. Anders Berenchave, Major DANIDA advisors.
- 3- Mr. Kurt Terpeg yansen , DANIDA advisor.
- 4- Dr. Ali Abou Sederah, Director of BROs Sector, EMU supervisor.
- 5- Dr. Manal Tantawy, Director of EMU component.
- 6- Mr. Sami Mazloom, Environmental Profile officer.
- 7- Dr. Tarek Genina, EMU consultant.

Under the General supervision of

Dr. Mawaheb Abou El Azim, EEAA CEO