

**Fayoum
Governorate
EMU**



State Ministry of Environment

EEAA



Environmental Action Plan Fayoum Governorate

2008

Acknowledgement

Danish International Development Assistance (DANIDA), its Environmental Sector Programme (ESP) and its Environmental Management Unit Component (EMU) who have funded the capacity building of EMUs including development of this Action plan implemented by EEAA extend its gratitude to all who contributed in developing the Environmental Action Plan of Fayoum Governorate.

We are keen to highlight the contributions of beneficiaries' working groups who participated in developing Fayoum Environmental Action Plan, based on our believe that the environmental action plan is only owned and managed by the sons of the governorate.

We also extend our gratitude and special thanks to Dr. Mustafa Galal Mustafa Said, Fayoum Governor, whose personal participation and kind support contributed a lot in developing the Environmental Action Plan of Fayoum Governorate.



Introduction

The Ministry of State for Environmental Affairs and its Implementing Agency has taken great steps towards deepening the concept of Environment, improving its conditions, and protecting the natural resources. Since the adoption of Environmental Action Plan 2002-2007 and starting implementing it with the first five-year plan 2007, and the second five-year plan 2008-2012, which we are in process now. These steps were demonstrated by the achievements of the Ministry and its Implementing Agency over the last three years, where a significant improvement on the environment was observed as well as balancing its systems.

In an integrated effort to the National Strategy developed by the Ministry and its Implementing Agency, the participation approach was adopted in developing environmental action plans, in addition to empowering the decentralization methodology, which the Government of Egypt and The Ministry of State for Environmental Affairs gave special attention as they believe in the necessity of collaboration among all ministries and governmental agencies with non-governmental organizations (NGOs) and community development associations (CDAs) to promote the environmental action. In this context, the Ministry of State for Environmental Affairs and its Implementing Agency supported the developing of Environmental Profile for each Governorate. Therefore, each governorate, with full support from the ministry, has developed its Environmental Action Plan, which it shall commit to implement within the jurisdiction of the governorate, taking into consideration handling the great challenges which it faces in light of the complexity of the sustainable development's triangle, with its three dimensions, socially, economically, and environmentally.

I'm pleased to praise the Environmental Action Plan of Fayoum Governorate which shall contribute significantly in solving the environmental problems and improving the different eco systems, in addition to protecting the natural resources and achieving the sustainable development.

In this context, I would like to thank DANIDA, ESP, SDEM and EMU components for the great efforts they exerted to support Giza governorate to develop its Environmental Action Plan.

Special thank you also goes to Dr. Mustafa Galal Mustafa Said, Fayoum Governor, and all gentlemen who participated in developing the plan, and for their dedication and

constructive efforts. I hope that the implementation of the proposed programs and projects in the plan shall enhance the environmental management systems, improve the environmental services, and preserve the natural resources to achieve the goals of the sustainable development.

Perhaps, what President Hossni Mubarak said that “Preserving the environment is not an entertainment or luxury any more, yet it became crucial to protect our resources for the coming generations”, and which the Egyptian Constitution confirmed in its article no. (59) that “Protecting the environment is a national duty and laws shall regulate the procedures of keeping good environment”, give us great support to our joint work to keep sound environment for us and for our coming generations.

I ask our Lord to guide us to the benefit of our country and our environment.

Minister of State for Environment

Engineer/ Maged George

Introduction

Fayoum Governorate gives great attention to environmental issues in line with the environmental resources which Allah granted to Fayoum governorate, as it has two natural protectorates, Karoun and Wadi Rayan. This attention is clear through the efforts exerted to declare Wadi el-Hetan (whales) area as a world natural heritage protectorate, in addition to developing the infrastructure in the governorate to cope with this event, as the governorate is witnessing extraordinary progress in water and wastewater projects and also establishing many new main roads to push the development wheel.

The governorate was keen to adopt good planning before developing the Environmental Action Plan (EAP), where Fayoum Environmental Profile was developed in participation of all concerned entities in the governorate and where the efforts of Fayoum governorate were consolidated by the efforts of State Ministry of Environment to develop detailed profile for the environmental status in Fayoum.

As an extension to the environmental development plan, EAP was developed using the same approach with the participation of all competent authorities in the governorate.

I take this opportunity to send my greetings and gratitude to all sincere efforts that contributed to make this EAP a reality, hoping it shall fulfill its desired goals to correct the environmental course within the context of the overall environmental system on the governorate land.

Fayoum Governor

Dr. Galal Mustafa Said

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1. Governorate in brief according to the environmental profile

Location:

Fayoum governorate is a green natural oasis situated in the Western Desert on the west southern part of Cairo Governorate, 90 kilometers away. It is one of north Upper Egypt governorates, surrounded by desert from all sides, except the east southern part, where it is connected with Beni Suef governorate. God has gifted it with the beauty of nature and moderate climate throughout the year, as it is a valley, delta and lake.

Population:

Fayoum governorate's population amounts to 2.48 million persons according to the census of January 2005, distributed to 6 markazs, under which 6 cities, 61 local village units and 163 villages are included.

Historical and tourism significance:

Fayoum is considered one of the most important tourist areas as it comprises tourism attraction elements, the most significant of which is the meeting between the three agricultural, coastal and desert environments. Pre-historic civilizations, the Pharonic, Greek, Roman, Coptic and Islamic civilizations emerged there. It contains many tourist areas such as Ein El Seleen, natural protectorates such as Qaroon Lake, El Rayan Valley and many monuments such as the unique of its kind Sonsert I Obelisk in Egypt, Om El Borigat City, Qaroon Palace, Madi monumental city, Coptic monuments such as Virgin Mary Church, El Naqloon Abbey, and Islamic monuments such as the suspended mosque and Qaitabai mosque. Fayoum region enjoys several and diversified resources. Such resources are not confined to natural protectorates. Rather, they include also the most significant fossils area in the world, El Hitan valley (which is now on the list of international natural heritage.). It also comprises the fossilized forest and the monumental basalt quarries in Qotrani Mountain. Currently, the UNESCO is considering the location of Qortani Mountain to include it within natural heritage areas. Fayoum region includes in addition to the above environmental heritage and its diversified elements al over the governorate, which may be the topic of scientific researches and academic studies in order to achieve the targeted growth through activation of environmental tourism, a promising tourism to assist the socio-economic growth of the local population.

Area and agricultural activity:

The total area of the governorate amounts to 6068 km², inhabited by 2.48 million persons. The farmed area in the governorate amounts to 423737 acres, and is famous for cultivating fruits such as grapes, figs and mango. Further, traditional crops are cultivated there, the most famous of which are wheat, cotton, rice, sweet corn, sugar beats and sunflower.

Climate:

The temperature ranges between 13.2 to 14.2 degrees in January, the coldest month of the year. Relative humidity ranges between 59% in the winter to 74% in the summer. Northerly and east, southern and western winds blow on the governorate, with the northerly wind as being the dominant. As for rainfall, it is very scarce, and amounts to approximately 3mm in the winter.

Administrative division and residential areas:

The governorate consists of 6 administrative markazs being (Fayoum- Sonors- Ebshwy- Etsa- Tamia- Yusuf El Sedeek), 61 local units, 163 main villages and 1879 small villages.

Industry:

Fayoum governorate comprises two industrial areas, El Fath industrial city in Kom Osheem over a 11.2 acres area, and the second is in Qota area over 2000 acres. Many projects were set up in Kom Osheem, comprising food industries- building materials- chemicals- minerals- glass- cardboard- plastic, in addition to the existence of other industries outside the industrial area, such as cotton weaving, fodder, pottery, sugar beat and carpets industries. In Qota area, no factories were built there, while the area is ready to accommodate industrial installations.

Education and culture:

Fayoum is witnessing an extensive educational progress whether in pre-university or university education. The number of schools amounts to 1176 school and the number of Azhar institutions is 139 institutes. The number of pre-university education classes in Fayoum governorate amounts to 9122 classes for general education, comprising 408226 students, in addition to 213 classes for special education comprising 8862 students.

Number of technical education classes is 1914 classes comprising 74712 students. The technical education includes specialized schools in tourism, trade, industry, nursing and hotels. Fayoum governorate comprises 12 university faculties of Fayoum University. These faculties are: sciences – agriculture- education – engineering- social service- quality education- Dar El Oloom- archaeology – tourism and hotels- medicine- literature – computer science.

Mineral resources:

Fayoum desert is rich in various natural resources such as: marble, pure lime stone of various kinds and shale. These desert areas have an environmental impact on the development of this region, especially the valleys areas which are abundant in natural resources such as underground water, mineral and stone resources

Administrative boarders for Fayoum Governorate



Fayoum Governorate



وزارة الدولة لشئون البيئة
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Ministry of State for Environmental Affairs
Environmental Affairs Department

Administrative borders for Fayoum Governorate



Fayoum Governorate



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2. Environmental Action Plan for the Governorate as a Strategic Framework

2.1 Introduction and definition of the environmental action plan

This document presents the profile of the environmental action plan for Fayoum Governorate, which lays down the basis for works and projects to enhance the quality of life for the residents of Fayoum Governorate, through outlining a number of environmental strategies and projects of local priority, which will result in real enhancements for the environment and general health. Further, the plan aims at protecting the environment against the negative environmental effects which may accompany current and future development works. Therefore, the plan acts to integrate social, economic and environmental dimensions for the purpose of achieving sustainable development.

The plan proposes a number of solutions which agree with the five year national plan for socio-economic development (2007-2012), especially in terms of providing sufficient sewage drainage utilities for all the urban markazs. Further, the environmental action plan also addresses priority issues set forth under the national plan for environmental work issued in 1992 for fields such as managing solid wastes, use of water and lands. The said procedures in the plan also contribute in fulfilling Egypt's obligations according to international protocols, especially the 21st century agenda passed by Rio conference and the millennium development plans.

During the preparation of the environmental action plan, the environmental profile of Fayoum Governorate was issued, which defines the environmental conditions and priority issues.

2.2 Why do we need an environmental action plan?

The environmental action plan of the governorate aims at supporting the environmental planning and management system through a scientific system in order to lay down an integrated vision to outline priority environmental issues and their management method. The success of the implementation of the environmental action plan guarantees the governorate for improved dealing with issues such as follows:

- Equivalent supply and effective management of infrastructure services and environmental services in the governorate (solid wastes, fresh water, sewage drainage, development of Qaroon lake)
- Planning the governorate resources, cultural heritage and managing them in a sustainable manner (lands, water, air and development of monumental and tourism attractions)
- Mitigating and controlling the effects of pollution which affect natural resources base in the governorate.
- Achieving the goals in the manner which ensures enhancement of the living conditions for the various categories, especially poor and marginalized categories in the governorate.

In addition to the support provided by the environmental planning and management system to the governorate in arranging the priorities and executing a number of goals, it supplies the governorate with follow up and assessment procedures which have been designed to assist in performance evaluation. The methods of participation used in preparing the governorate environmental action plans provides the governorate with the opportunity to amend projects and programs which do not fulfill their goals, upon updating the plan and agreeing on the following set of priority actions and projects. This in turn ensures sustainability of the environmental planning process and obtaining big benefits comprising:

Economic - financial benefits : this includes enhancement of planning and allocating resources, gratifying the efficiency of current utility services, avoiding high costs spent to treat water pollution and other resources, reducing the costs of medical treatment and productivity lost as a result of environmental pollution related diseases, gratifying the planning of using lands to achieve better returns and enhance the opportunities of determining the environmentally suitable technologies and investment in them.

Human and social benefits : these includes enhancement of health through providing environmental services, reducing pollution, training/ raising awareness, enhancing living and working environments (especially for those who live in extreme poverty), increasing the feeling of ownership of the projects and programs, increasing the scope of participation in designing and implementing them.

Natural environment benefits: this means enhancing the water used in irrigation and industry qualitatively and quantitatively, enhancing the drainage of lands, conserving soil and reducing pressure on natural resources.

2.3 How was the plan prepared?

Five taskforces were formed covering these priority issues which have been defined as follows:

- Solid, agricultural and medical wastes management taskforce
- Environmental development and Qaroon lake development taskforce
- Industrial pollution reduction taskforce
- Agricultural and fish resources development action plan
- Upgrading random areas and residential communities task force.

A coordinator was appointed for each taskforce from the governorate environmental office. The formation of each taskforce included the various categories of the society, such as government and executives in the various sectors- private societies- private sector. Annex No.1 illustrates the formation of the taskforces which contributed in preparing the plan. Further, annex No.2 illustrates the negotiation process program conducted during the preparation of the environmental action plan.

2.4 Who are the plan owners?

The people of Fayoum governorate are the owners of the environmental action plan, as it reflects their environmental problems and aspirations and provides the means which permits the various groups of beneficiaries in the governorate to enhance their environment according to the principle of sustainable development.

3. Environmental issues and priorities

3.1 Summary of environmental issues according to the environmental profile:

Ser. No.	Priority	Related issues
1	Management of solid and medical hazardous wastes	Lack of systems for collection and disposal of solid wastes at most villages, insufficiency of the number of collection vehicles, trash containers or collection workers at most cities and insufficiency of the numbers of dumpsites. Wastes are being disposed and burned randomly in some instances. Spread of diseases related to the problem of wastes, poor awareness of the rural residents of public health matters and hygiene
2	Development of Qaroon lake	There are a number of sources leading to the pollution of the lake water, the most significant of which are sewage drainage and agricultural drainage. Further, the lake is exposed to the loss of its absorption capacity, in addition to the problem of increasing salinity and low fish productivity
3	Controlling industrial pollution	The reasons for industrial pollution in the governorate are represented in the smoke resulting from burning trash and wastes whether at the dumpsites or streets, as well as emissions from the factories, crafts workshops, whether commercial workshops, smithery workshops, agricultural machines repair workshops, blacksmith workshops, brick plants (53 mud brick plants) and charcoal workshops (12). Further, there are no plants for the treatment of industrial sewage water in the industrial areas, as well as lacking management of industrial wastes
4	Development of agricultural and fish resources	There are still depending chemicals and agricultural fertilizers extensively, due to poor awareness of the farmers. As for fish resources, Fayoum produces approximately 9000 tons of fish annually from various sources, the most significant of which is Qaroon lake, El Rayan lakes and the Nile River (Yusuf Sea branch). The lake's production of fish declined strongly over the past years as a result of the increasing pollution in the lake, increasing salinity, violating fishing, and other factors.
5	Upgrading the random areas and residential communities	The lacking of essential services and utilities in these random areas, especially those related to health and education, lead to the residents' exposure to poverty diseases connected with the pollution of the

		environment. Further, deviant behaviors and crimes are spread. In addition, poor families do not encourage their children to educate themselves in view of the high cost of education for their incomes and their lack of awareness of the significance of education as the children drop out from schools or are encouraged to work to assist their families
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3.2 Environmental priorities and taskforces

Through intensive consultations of the beneficiaries during the preparation of the governorate environmental action plan, five main priority issues were determined in the government, stated below according to the order of significance as observed by the beneficiaries and need prompt interventions.

Priorities may be arranged as follows:

1. Safe disposal of solid and medical wastes
2. environmental development of Qaroon lake
3. controlling industrial pollution
4. development of agricultural and fish resources
5. upgrading random areas and residential communities

4. Future vision for 2012

The environmental action plan aims in general at enhancing the quality of the environment and living for the governorate residents. Therefore, major development issues affecting the residents and their environment should be addressed in such a way which ensures reaching environmental and living improvement for the residents. These two goals may seem contradictory on the short term. Therefore, one of the main goals for the environment action plan is to achieve balance in order to reach protection of the environment and economic development. The plan lays down the foundation for proper use of natural resources in the manner which ensures for the next generation harvesting the benefits of sound environmental management.

In order to achieve this goal, the environmental action plan of the governorate has considered the right of the people to secure their living, as they need education, income yielding jobs, in addition to receiving clean water, health services and supply with sewage drainage services, management of solid and medical wastes, supply with electricity and entertainment services.

According to the vision of the governorate action plan, the following will be achieved:

Healthy environment	Each citizen in Fayoum finds a clean healthy environment to live in, which includes a sufficient and permanent amount of clean fresh water and suitable sewage systems
Sustainable development	Natural resources should be managed and maintained in such a manner which is suitable with sustainable economic development, without affecting the future generation's needs
Integrated development	Interaction with the government divisions and bigger groups of beneficiaries concerned with environmental management and coordinating their efforts in an organized and efficient manner.
Institutional sustainability	Providing an institutional structure to implement the environmental requirements at the institutions in charge of environmental management in the governorate (government authorities, private societies, and private sector) for the effective implementation of the environmental tasks entrusted to them.
Community participation	The people of Fayoum governorate should have a role in the decision making process through efficient participation which will contribute in implementing the decentralization of environmental management.

5. Environmental priorities

5.1 solid and medical wastes management

5.1.1 General background

The volume of wastes generated in the Fayoum governorate amounts to approximately 450 tons/day. Approximately 60% of these wastes are gathered by the city councils through around 875 permanent workers and 589 temporary workers. The implementation of solid wastes management system started through the establishment of the solid wastes unit, the first task of which was to divide up the governorate areas into three divisions to facilitate dealing with them and distribute the suitable projects for each division. Each two adjacent administrative centers were merged into one division and the three divisions are as follows:

1. First division : includes Fayoum and Etsa markazs
2. second division : includes Sonors and Tamia markazs
3. third division : includes Ebshoy and Yusuf El Sedeek markazs

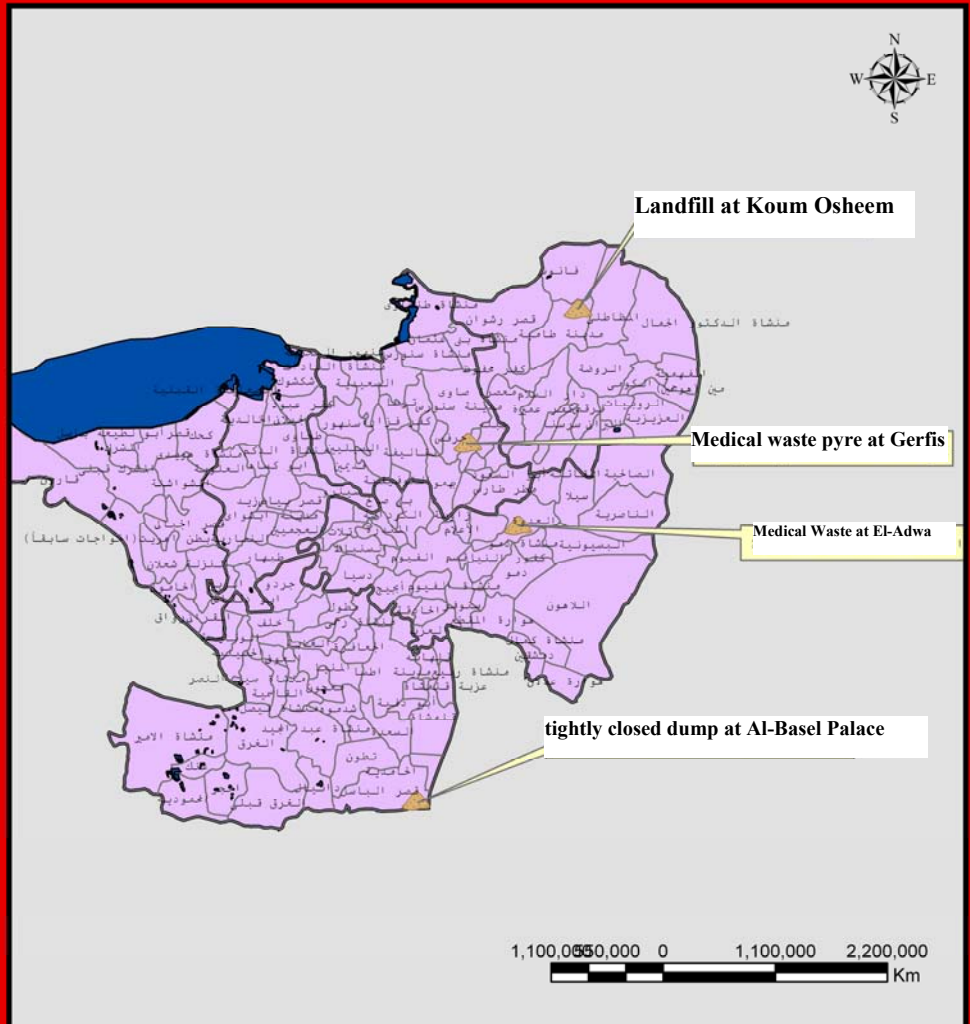
The governorate exerted great efforts to enhance solid wastes management in the governorate through the adoption of numerous measures, including the construction of the solid wastes recycling factory, considered one of the biggest means of safe disposal of solid wastes, building two plants for relocating solid wastes in Sonors and Tamia markazs, building a dumpsite in Kom Osheem area to serve Sonors and Tamia markazs, allocating a site for a dumpsite at Qaser El Basel area to serve Fayoum and Etsa markazs and allocate a dumpsite in Hanna Habib area to serve Ebshoy and Yusuf El Sedeek markazs.

As for hazardous medical wastes, they are addressed through the hazardous medical wastes management system, implemented through the supervisory authority of the health affairs directorate in Fayoum governorate. The quantity of hazardous medical wastes expected during the year is 200 tons, with the likelihood of the doubling up of this quantity in view of the expansion in opening private clinics and hospitals and the participation of medical labs in sending their medical wastes to the incinerators.

The quantity of hazardous medical wastes being burned down and resulting from government hospitals, medical units, dialysis centers and a few number of private hospitals is approximately 92.25 tons in 2007, amounting to 46% of the total generated quantities.

This chapter of the environmental action plan reviews the achievements over the past five years for solid and medical wastes, followed by analysis of the problems and difficulties which are still existing and a review of the negative effects and the most significant of these problems. According to the analysis of the reasons for the current problems, the vision and main goals which the governorate is ambitious to achieve through the outlining of the proposed procedures and projects were laid down. Finally, this chapter reviews a brief description of priority projects.

hazardous and solid waste dumpsites



- بحيرات وبرك ومستنقعات
- الحدود الادارية للقرى
- حدود المراكز الادارية
- مدافن المخلفات



Fayoum Governorate



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5.1.2 Achievements over the past five years

5.1.2.1 Decisions and procedures

- The decision for collecting fees against garbage collection and disposal service according to law No.10 of year 2005 was implemented in the governorate cities pursuant to the decree of the local popular council of the governorate. The collection is currently being carried out by the city councils and a number of private societies in the villages.

5.1.2.2 Technical and administrative support:

- A special unit for solid wastes management in Fayoum governorate was created, to carry out the task of supervising the solid waste management system.

5.1.2.3 Implemented projects and programs:

As the volume of daily product of solid wastes represents a big burden in view of the big danger for the community health, it was essential to lay down an integrated and comprehensive system for safe disposal of solid wastes as follows:

1. Creating solid wastes recycling plant in Al Adowa area to serve Fayoum city and its districts
2. Creating a special unit for solid wastes to manage the solid wastes system applied at Sonors and Tamia markazs.
3. Supplying the city councils with vehicles of all types for the service of disposal of solid wastes and trolleys to collect wastes from the houses, as well as trash collection boxes and trash transport vehicles (table 1) to dumpsites and open dumpsites outside the residential and desert communities.
4. Creating two plants for relocating solid wastes and Sonors and Tamia markazs.
5. Creating a dumpsite in Kom Osheem area to serve Sonors and Tamia markazs.
6. Allocating a site for a dumpsite in Qasr El Basel area to serve Fayoum and Etsa markazs.
7. Allocating a dumpsite in Hanna Habib area to serve Ebshoy and Yusuf El Sedeek markazs.

Table (1) Description of cleaning equipments

Ser. No.	Markaz and city	Tractor with trailer	Dumper
١	Fayoum markaz	١٥	-
٢	Fayoum city	٥	١٧
٣	Tamia markaz	١٣	-
٤	Tamia city	٧	٩
٥	Sonors markaz	٩	-
٦	Sonors City	٥	٧
٧	Etsa markaz	٩	-
٨	Etsa city	١٠	٤
٩	Ebshoy markaz	١٠	-
١٠	Ebshoy city	٦	٦
١١	Yusuf El Sedeek markaz	٩	-
١٢	Yusuf El Sedeek city	٣	٢
Total		١٠١	٤٥

5.1.2.4 Projects and programs underway

- The studies for creating two relocation plants to serve Fayoum and Ebshoy markazs to enhance the waste collection system in these two markazs.
- Completing the procedures of creating the dumpsite in Qasr El Basel area to serve Fayoum and Etsa markazs.
- Completing the procedures for creating the dumpsite in Hanna Habib area to serve Ebshoy and Yusuf El Sedeek area
- Creating a waste relocation plant in Al Adowa to serve Fayoum markaz and city

5.1.3 Current status: problems and reasons

Current status	Most significant problems	Reasons	Current plans or programs to address current status
Inability to collect all the solid wastes generated at the various areas of the governorate	Accumulation of wastes in front of the houses and dumping them in the streets and forming open dumpsites in the middle of urban areas	- Absence of the necessary financial resources for safe disposal of solid wastes. - No participation on part of the private sector in managing the collection of solid wastes	- Managing solid wastes through the local units and city councils. - Supplying the local councils and units with the necessary equipments to manage solid wastes
Shortage of necessary equipments to handle solid wastes	- accumulation of wastes in front of the houses and streets and transforming them into open dumpsites - non cooperation of the people as they do not feel the results of the process of collecting wastes	- Absence of constant support to collection processes. - Shortage of the required funding for the continued maintenance of equipments	- Continuing the financial support for the maintenance and renovation of equipments
Absence of plants to recycle solid wastes and stumbling of existing plants	- No full benefit from solid wastes. - Quick filling of dumpsites and trenches with wastes	- Absence of funding sources to establish recycling plants. - No participation of the private sector in the management and establishment of recycling plants	- Attempting participation of the private sector in managing recycling plants. - Increasing the presence of dumpsites - Attempting to re-operate stumbled plants.
Absence of integrated system to handle hazardous medical wastes	- mixing medical wastes with household wastes	- Absence of a system to handle medical wastes. - Insufficiency of medical incinerators - Absence of safe	- providing a number of incinerators - initiating actions to provide a cell for hazardous medical

		dumping background for hazardous medical wastes. - Absence of an institutional structure capable of handling the problem	wastes
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5.1.4 Vision and goals

Preparing and implementing an integrated system for solid wastes management on the level of the governorate to arrive at the optimum implementation for solid wastes management through the following goals:

- Existence of a comprehensive and integrated perception for managing solid wastes in the governorate through the establishment of a central department for solid wastes.
- The private and investment sector to carry out the basic and biggest role in managing the solid wastes system.
- Expanding the establishment of solid wastes recycling plants on the level of the governorate in order to have one or more plants for each markaz in the governorate.
- Expanding the building of dumpsites whereby there is one dumpsite or more for each markaz in the governorate.
- Developing all the equipments used in collecting, transporting, sorting and burying solid wastes on the level of the governorate markazs.
- Expanding the construction of relocation plants in each markaz in the governorate in order to become the civilized alternative to open dumpsites and save the transport distances to the relatively far dumpsites from the wastes generation areas.
- Establishing and activating a system for managing hazardous medical wastes in terms of the number of incinerators and vehicles for transporting hazardous medical wastes, as well as building a cell for safe burial of the remains of medical wastes.

5.1.5 Goals and required actions

Main goal	Target for the next five years to achieve the main goal	Decisions, procedures, institutional support and required programs and projects to achieve the goal
Presence of a comprehensive and integrated perception for managing solid wastes in the governorate through the establishment of a central department for solid wastes	Completing the procedures and law regulating the solid wastes department and creating the central department for managing solid wastes	- completing the decisions supporting collection of cleaning fees in the cities and markazs. - Issuing the decisions to develop solid waste management
The private and investment sector should play a basic and bigger role in managing the solid wastes system	- offering tenders at the city councils for managing solid wastes	- issuing recommendations to activate awarding the private and investment sector with management and investment of the solid waste management system
Expanding the construction of solid wastes recycling plants on the level of the governorate to have one or more plant for each markaz	- developing and upgrading the solid wastes recycling plant in Al Adowa village - establishing a plant for solid wastes management in each section of the government three sections	- contacting the concerned agencies, donors and concerned plants to consider the establishment of these plants and provide the required financial support
Expanding the construction of dumpsites whereby each of the governorate markazs has one or more dumpsite	- rehabilitating and expanding the dumpsite in Kom Osheem area. - Building dumpsites at the locations at which allocation procedures were completed, such as Qasr El Basel location and Hanna Habib location	- issuing decisions for allocating the sites. - contacting concerned and competent agencies to offer the financial and technical support for the development. - contacting the donors to support the construction and development of dumpsites
Developing all the equipments used in collecting, transporting, sorting and burying solid wastes on the level of the governorate	- contacting a number of the donors to supply cleaning equipments - Directing foreign grants to implementing equipments maintenance programs	- laying down programs for implementing the development of cleaning equipments as per the available contracts. - Executing the grants specialized for the maintenance of cleaning equipments

Main goal	Target for the next five years to achieve the main goal	Decisions, procedures, institutional support and required programs and projects to achieve the goal
Expanding the construction of relocation plants in the governorate markazs	- Constructing a relocation plant in each markaz in the governorate. - Preparing the lands where the plants are intended to be established and advancing in their licensing formalities	- issuing decisions for allocating the lands for the relocation plants
Finding and activating a system for managing hazardous medical wastes in terms of the number of incinerators and vehicles for transporting hazardous medical wastes	- providing adequate incinerators for medical wastes for safe disposal of the wastes of health care establishments and vehicles for transporting hazardous wastes from the generation centers to the incinerators	- Demanding government agencies such as the Ministry of Health, Social Fund and EAA to support hazardous medical wastes management

5.1.6 List of proposed projects

5.1.6.1 High priority projects

Proposed project	Responsible agency	Proposed implementing agencies	Estimated budget (million pounds)	Timeframe	Proposed funding agencies
Developing the solid wastes recycling plant of Fayoum markaz	Governorate	Solid wastes unit and Environment Affairs Dept.	3	18 months	Foreign donors EAA Local component
Developing the dumpsite at Kom Osheem area for Sonors and Tamia markazs and conducting expansions over 100 acres area	Governorate	Solid wastes unit	3	12 months	Foreign donors Social Fund
Creating a dumpsite for Qasr El Basel area to serve Fayoum and Etsa markazs	Governorate	Solid wastes unit and Environment Affairs Dept.	3	18 months	Foreign donors EAA Local component
Creating a plant for recycling solid wastes next to the dumpsite in Kom Osheem area to serve Sonors and Tamia markazs	Governorate	Solid wastes unit and Environment Affairs Dept.	5	24 months	Foreign donors EAA Social Fund
Creating a central department for managing solid wastes to supervise solid wastes unites at the governorate markazs	Governorate	Solid wastes unit Environmental Affairs Dept.	0.5	12 months	Foreign donors Local component
Training employees in the medical field to	Governorate	Environment Dept.	0.5	18 months	Ministry of Health

spread environmental awareness for safe disposal of hazardous medical wastes					
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5.1.7 Classification of high priority projects or programs

1. Establishing solid wastes recycling plant in Fayoum (Al Adowa)

Project location:

Fayoum Markaz- Al Adowa

Project goal:

To develop and operate the solid wastes recycling plant which is out of service due to mechanical equipments breakdowns and non regular maintenance in order to obtain organic fertilizers of good specifications.

Project description:

Segregating useful materials from the wastes such as papers, plastic, glass and iron and transforming organic materials into organic fertilizer. The project comprises supply of heavy transport vehicles- stirring and ventilation equipments of organic wastes- conveyor belts- sorting belts- transport equipments (loaders- different capacities).

Proposed implementation agencies:

Fayoum city council – Environment affairs dept. – solid wastes unit

Project cost:

3 million pounds

Proposed funding agencies:

Foreign donor agencies – Environment Affairs Agency- Social Fund – Ministry of Local Development

2. Expansion of the solid wastes dumpsite in Kom Osheem and the construction of solid wastes recycling plant in Kom Osheem.

Project location:

Next to the dumpsite located in Kom Osheem over an additional area of 100 acres.

Project goal:

Safe disposal of solid wastes to serve Sonors and Tamia markazs.

Project description:

Construction of a complete organic fertilizer plant in the area and a dumpsite for safe disposal of wastes.

Project components:

Organic fertilizer plants (sorting and cutting lines, conveyor belts- stirring equipments) loader – bulldozer and 2 heavy transport vehicles.

Proposed implementation agencies:

Governorate – military plants

Project cost:

8 million pounds

Proposed funding agencies:

Foreign donors- EAA- Social Fund- Ministry of Local Development

3. Construction of a new dumpsite for solid wastes at Qasr El Basel

Project goal:

Safe disposal of solid wastes at Etsa and Fayoum markazs through the construction of a dumpsite in Qasr El Basel

Project components:

Construction of infrastructure of the location, safe disposal cells with supply of disposal equipments (loader- bulldozer – tipper – ground scale – etc) with the creation of an administration for the dumpsite.

Proposed implementation agencies:

Governorate

Project cost:

3 million pounds

Proposed funding agencies:

Foreign donors – EAA- local component

4. Construction of a dumpsite at Yusuf El Sedeek area**Project goal:**

Safe disposal of solid wastes at Ebshoy Markaz, Yusuf El Sedeek and adjacent areas, through the construction of a dumpsite in the desert area of Hanna Habib- Yusuf El Sedeek

Project components:

Construction of infrastructure of the location, safe disposal cells with supply of disposal equipments (loader- bulldozer – tipper – ground scale – etc) with the creation of an administration for the dumpsite.

Proposed implementation agencies:

Governorate (solid wastes unit)

Project cost:

2 million pounds

Proposed funding agencies:

Foreign donors – EEAA

5. Construction of a central department for solid wastes management

Development of a system for managing solid wastes in the governorate requires the creation of an independent institutional body to undertake follow up of the wastes management system on the level of the governorate. Its tasks include the creation of a data base on solid wastes in the governorate- the creation of an independent financial department for solid wastes- implementing awareness programs for the citizen- following up the works of private societies and providing the required technical support to activate their

role in implementing community services concerned with solid wastes management. The creation of the department requires providing the necessary infrastructure (offices – computers- programs- vehicle – etc.), training employees, endeavoring to pass a decision for the creation of a department within the governorate organizational structure. The governorate comprises a unit for solid wastes. However, it lacks efficiency due to the lack of institutional independence and absence of training and follow up budgets.

Proposed implementation agencies:

Fayoum governorate

Project cost:

500 thousand pounds

Proposed funding agencies:

Foreign donors – EAA – local support

6. Hazardous medical wastes management

Project goal:

Project description:

The governorate lacks an institutional body to manage hazardous medical wastes generated by the health care installations. This body may be created within the environment health department in the health directorate, in order to collect, transport and safely dispose hazardous medical wastes, as well as collect the service fees from the health care installations to ensure continuity of the project. In addition to the creation of the institutional body, the project comprises the supply of wastes collection equipments, source segregation equipments, providing medical incinerators, creating a cell at the dumpsite, in addition to the requirements for creating the department (office furniture, office equipments).

Proposed project implementation agencies:

Health affairs directorate – environment affairs department

Project cost:

3 million pounds

Proposed implementation agencies:

Private sector – health directorate – donors

5.2 Environment and economic development of Qaroon lake

5.2.1 General Background

Qaroon Lake is situated in the north western part of Fayoum depression, and considered one of the oldest natural lakes in the world. It is the remainder of Morris old lake, with area amounting to 55 thousand acres and depth of 12.5 meter. Its water surface level is 43 meters below the sea surface and salinity ranging between 32 to 35 grams/ liter. The lake is fed by El Bats watercourse, El Wadi watercourse and 12 other secondary watercourses. These watercourses transport around 70% of the drainage water in Fayoum governorate to the lake. Qaroon Lake enjoys a major significance as it possesses natural resources, civilization and historical heritage, diversified and rare wildlife, as it is distinguished by the following:

- A significant source of fishing
- The international home of a number of migrant and local birds
- A significant tourism site

In addition, it is the only place close to Wadi El Rayan lakes used as a depot to absorb agricultural drainage water for Fayoum. There are 8 agencies which participate in managing Qaroon lake directly or indirectly: State Ministry for Environment Affairs (protectorates section)- Fayoum Governorate (environment affairs dept. – Tourism dept. – production dept. in the governorate) Ministry of Agriculture (represented by the Public Authority for Fish Resources Development), Ministry of Water Resources & Irrigation (Public Authority for Sanitary Drainage), Ministry of Interior (environment and water surfaces police), Ministry of Housing and New Urban Communities- Ministry of Health and Population – Ministry of Tourism (Public Authority for Tourism Development). Further, non government agencies contribute in managing the lake, such as local communities development societies in Fayoum governorate, environment concerned societies and fishermen societies in Fayoum.

This chapter of the environmental action plan reviews the achievements over the past five years, followed by analysis of the problems and difficulties which are still existing, presentation of the negative effects and most significant reasons for these problems. The following section illustrates the most significant problems related to Qaroon lake. According to the analysis of the reasons for the current problems, the vision and main goals were placed which the government strives to achieve through identification of the proposed procedures and projects. Finally, this chapter presents a brief description of priority projects aimed at solving the environmental problems related to Qaroon lake.

5.2.2 Achievements over the past five years

5.2.2.1 Technical and administrative support

- A conference for the development of Qaroon lake was held in April 2003, during which the existing problems in the lake were defined and solutions proposed to these problems
- There is a full team concerned with managing Qaroon protectorate, which was trained, its efficiency increased and supplied with transportation equipments including equipped vehicles and launches.
- The Public Authority for Fish Resources supervises the cultivation and fish breeding process in the lake, as well as controlling the seasons for opening and preventing fishing in the lake, conducting studies and tests related to the development of fish resources in the lake, assisted by the environment and water surfaces police.

5.2.2.2 Implemented projects and programs

- The second and third phase of the salts and minerals extraction company (AMISAL) was completed. A plant was established to extract sodium chloride salt, as well as a plant for extracting magnesium sulfides.
- The southern beach of Qaroon lake of 1.5 km length was landscaped to protect the southern beach, funded by EAA and Fayoum governorate.

5.2.2.3 Projects and programs underway :

- The studies related to the construction of another company to extract salts from Qaroon lake and process them (IMAC Company) are being finalized. It is expected that this will lead to reducing the percentage of salts in the lake.
- Currently, enhancing the quality of Qaroon lake water is under study by the USAID. Implementing a method for treatment of incoming water to the lake through El Bats watercourse is under study, as well as implementing the method of treatment inside the internal watercourses of the governorate which drain into the main watercourses leading to Qaroon Lake. The project will amend the method of treatment at the sanitary drainage plant in Kahk village, which drain directly into Qaroon Lake.
- The governorate is building many sanitary drainage projects which will lead to reduction of the direct drained quantities into the watercourses leading to Qaroon and El Rayan lakes.

5.2.3 current status : problems and reasons

Current status	Key problems and their negative effects on the current status	Key reasons of the problem	Current plans or programs to address the current status
The lake's pollution by sanitary and agricultural wastewater	The lake receives its water originally from El Bats and El Wadi watercourses, which is sanitary and agricultural wastewater, which affects the quality of water, and hence the biological environment in the lake.	-Absence of treatment plants, sufficient to absorb the sanitary drainage resulting in the government. -Using chemicals and pesticides in agriculture -Absence of locations where untreated wastewater may be drained	There are plans in the Fresh Water and Sanitary Drainage Company to cover most of the governorate cities and villages by the sanitary drainage service
The lake's exposure to loss of its absorption capacity	Low capacity of the lake causing the likelihood of the lake's non absorption of the quantities of drainage incoming into the lake and therefore drowning the surrounding lands	- Qaroon Lake is exposed to sand dunes invasion. - Encroachments by backfilling the lake	The encroachments are handled according to the natural protectorates law
Problem of increasing salinity in the lake	This is the result of the evaporation process and entry of agricultural drainage water carrying big amounts of salts, leading to increasing salinity in the lake, and therefore affecting the biological diversity in the lake	- increase of salinity rate entering the lake's water with the drainage water	Expanding the construction of other plants to extract salts from the lake

Current status	Key problems and their negative effects on the current status	Key reasons for the problem	Current plans or programs to address the current status
Reduction of the lake's productivity of fish	Reduction of the quantities of fish fished from the lake	- Violating and illegal fishing by the sweeping nets with small eyes, leading to the destruction of the fish reproduction area of Moosa and Bolti fish, as well as killing a big quantity of the Bori young fish due to the cheap price of this trade, hence distracting development plans - Fishing during the ban days, which negatively affect development factors in the lake, especially for the young fish transferred to the lake. - Lack of fish marketing services, to conform with the current conditions and ensure that fishermen will not turn to smuggling	- Tightening control over the monitoring operations through the environment and protectorate police, fishermen society and Public Authority for Fish Resources. - Supporting the lake with the required young fish -

5.2.4 Vision and goals

The vision to develop Qaroon Lake comprises its protection against pollutants and developing it environmentally, as being one of the significant natural resources and maintain biological diversity, through achievement of the following goals:

1. Maintaining the environmental and aesthetic characteristics of the lake area
2. Maintaining natural resources in the lake area through sustainable management
3. Enhancing the socio-economic aspects for individuals residing in the lake area
4. Upgrading environmental awareness of the significance of protecting the lake.

5. Solving the legal problem concerned with the ownership of the protectorate lands.
6. Increasing the protectorate area to include the entire Fayoum depression
7. Maintaining the waster balance in the lake
8. Maintaining the quality of water in the lake and developing fish resources

5.2.5 Goals and required actions

Main goal	Targets for the next five years to achieve the main goal	Decisions, procedures, institutional support and required projects and programs to achieve the target
Maintaining Qaroon lake and consider it as one of the living natural resources, maintaining the environment as well as biological diversity in the groups of living organisms, conducting researches and scientific studies, conducting environment surveillance, public participation, training, information, environmental awareness and tourism development in the areas surrounding Qaroon lake	- the water balance project of the lake - Extracting salts from the lake - Refining and sanitary drainage treatment plants - Project for the construction of the coastal road north of the lake	- forming a committee to manage Qaroon lake. - Completing the declaration of Qotani mountain area as part of the international heritage areas - Implementing the protectorate management plan of Qaroon lake

5.2.6 List of proposed projects

5.2.6.1 High priority projects

Proposed project	Agency in charge	Proposed project implementation agencies	Estimated budget	Timeframe	Proposed funding agencies
The water balance project of Fayoum lake	Ministry of Irrigation	Central Department for Water Resources & Irrigation	225 million pounds	2 years	Foreign donors Ministry of Water Resources & Irrigation
Extracting salts from the lake	Fayoum governorate	Private sector	1200 million pounds	3 years	Private sector
Building sanitary drainage plants and treatment plants in Fayoum	Ministry of Housing (Fresh Water & Sanitary Drainage Co.)	Fresh Water & Sanitary Drainage Co.	271 million pounds	5 years	Foreign donors Ministry of Housing Fayoum Governorate

Project for the construction of the coastal road north of the lake	Public Authority for Tourism Development	Public Authority for Tourism Development	7 million pounds	3 years	Public Authority for Tourism Development
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5.2.6.2 Medium Priority Projects

Proposed project	Agency in charge	Proposed project implementation agencies	Estimated budget (million pounds)	Timeframe	Proposed funding agencies
Project for disinfection of Qaroon lake bed in cooperation with Suez Canal Authority	Ministry of Irrigation	Suez Canal	35	3 years	Foreign agencies Ministry of Irrigation
Expanding the organic farming in the governorate	Ministry of Agriculture	Agriculture Directorate in Fayoum	20	3 years	Foreign agencies Ministry of Agriculture
Environmental surveillance and follow up	Ministry of Environment Ministry of Irrigation	Ministry of Environment Ministry of Irrigation	100	2 years	Foreign agencies Ministry of Environment Ministry of Irrigation
Enhancing the socio-economic conditions for residents around the lake	Fayoum governorate	Fayoum governorate	50	5 years	Foreign agencies Social Fund Private sector
Environmental awareness and participation project	Ministry of Environment	Environment Affairs Dept.	5	2 years	Foreign sources
Supply and development of human resources	Fayoum governorate	Ministry of Social Assurance	20	3 years	Social Fund
Expanding the implementation of spotting irrigation in the governorate	Ministry of Irrigation	Ministry of Agriculture (Agriculture Directorate in Fayoum)	20	5 years	Foreign sources Ministry of Irrigation

5.2.6.3 Low priority projects

Proposed project	Agency in charge	Proposed project implementation agencies	Estimated budget (million pounds)	Timeframe	Proposed funding agencies
Establishing a research plant for Qaroon lake, in participation with Fayoum sciences faculty	Ministry of Irrigation Scientific Research Academy EAA	Faculty of Sciences	1.5	5 years	Foreign agencies Ministry of Scientific Research
Supporting the protectorates management component of the lake	EAA (protectorates) International agencies	Natural protectorates department	2	5 years	Foreign agencies State Ministry for Environmental Affairs
Fixing the sand dunes and cleaning the lake	Ministry of agriculture	Ministry of Agriculture	45	5 years	Foreign agencies

5.2.7 classification of priority projects

1. Implementation of the water balance project of Fayoum lakes

Project description:

Qaroon Lake receives approximately two thirds of the quantities of agricultural drainage water of Fayoum through two main drainages: El Bats and El Wadi, in addition to a number of secondary watercourses, of which El Bats drainage transports around 60% of the quantity of water entering Qaroon Lake.

The idea of the project is established on the construction of drainage to collect the water entering Qaroon Lake from El Wadi drainage and other secondary drainages, starting with Bats Said drainage, up to reaching the first lake of Wadi El Rayan. The quantity of water which may be transferred is approximately 40% of the original quantity of water incoming to Qaroon lake (the quantity of 7m³/second is proposed). Through the proposed

drainage, a number of industrial works may be established through which the water may be controlled whereby the continuation of its entry into Qaroon lake is possible, as is the case currently or transferring part of this quantity in the new proposed drainage. This way, the levels of Qaroon and El Rayan valley lakes may be controlled through this new drainage and the industrial works proposed to be established there.

The proposed drainage will be approximately parallel to Qaroon lake beach for most of its length. A number of current drainages will be used to join them to the proposed drainage, whereby an expansion and deepening of these current drainages will take place to absorb the new drainages quantities of the new drainage. The length of the proposed drainage is approximately 65 kilometers, of which approximately 16 kilometers consist of current drainages which require amending their sector, while the matter requires the creation of a new drainage of approximately 49 kilometers length. The proposed drainage requires one pumping plant (s) to lift the water.

Project characteristics:

1. Controlling the quantities of water entering El Rayan and Qaroon lakes and transferring quantities from them, as needed, in view of the existence of pumping plants currently from the current path of the drainage to Qaroon lake, which may be operated any time the transfer of water to Qaroon Lake is required, in addition to the proposed industrial control works.
2. The quantity of water which may be absorbed in the new drainage may amount to more than 150 million cubic meter annually which would have been added to Qaroon Lake and therefore the rise in the water levels in Qaroon lake may be controlled.
3. Quality of water in the new drainage is almost equivalent to the quality of water in Wadi El Rayan tunnel, i.e. may be used in many activities through its passing by Wadi El Rayan valley, starting with irrigation of the currently reclaimed lands in the area, the addition of new areas on the State map, as well as establishing new projects for fish breeding.
4. Increasing the quantities of water entering the last lake of Wadi El Rayan, hence increasing its level and protecting the area from the current environmental risks endangering it, as a result of its decreasing area and expected disappearance with the lapse of time.

5. In view of the fact that Wadi El Rayan lakes derive their water currently from El Wadi drainage at Mokhtalta, where most of El Wadi drainage water is transformed into the open canal of El Rayan Valley, Mokhtalta power generation plant was stopped which used the big difference in the level of water in this area for generating clean power energy to feed the adjacent area. In the event of implementing this project, additional quantities of water may be transferred at Mokhtalata, as was the case previously, and a new power generation plant may be established in the area and tourism development for this area which is characterized by unique natural properties and need good study.
6. A power generation plant may be established through the exploitation of the difference of the level at the drainage mouth proposed in the first lake.
7. Wetland treatment area may be established at the mouth of the proposed drainage to ensure a higher quality of water for Wadi El Rayan lake with the lapse of time.

Proposed budget:

225 million pounds

Proposed implementation agencies:

Central Department for Water Resources & Irrigation.

Proposed funding agencies:

Ministry of Water Resources & Irrigation – foreign agencies

2. Establishing industries on the lake water to extract salts

Project description

This project aims at reducing the percentage of salinity in the lake through the creation of a plant for salt production from Qaroon Lake with high specifications by the private sector, as the lake receives around 800 thousand tons of salts annually through the feeding drainages with the incoming drainage water to the lake. The Egyptian Salts Company (AMISAL) extracts not more than 350 thousand tons of salts only and the remaining 450 thousand tons is added to the lake's balance of salts. The proposed project extracts salts using the evaporation pools system in which the salts level is concentrated to the maximum possible limit, and then industrial processes are carried out to segregate, precipitate and refine them.

Project components:

- Making several production units to extract salts of various types
- Making salts concentration pools
- An extension may be created to the plants outside the protected areas

Proposed budget:

1200 million pounds

Implementation agencies:

Private sector

Proposed funding agencies:

Private sector

3. Creating sanitary drainage refining and treatment plants in Fayoum

Project description:

Making sanitary drainage refining and treatment plants according to the plan of the Potable Water and Sanitary Drainage Company in Fayoum, in addition to small low cost refining units, similar to Abdulkarim Eissa village. Therefore, the number of small villages ranges between 1800 small villages which all drain into sub-drainages ending with general drainage and the lake. The project aims at purifying the lake water and avoiding the intoxication of its fish resources, as well as the cleanliness of the lake water for visitors and tourists which will promote tourism.

Project components

The project consists of establishing plants for the treatment of sanitary water on the level of the government main cities and villages, as well as establishing the ways of treating sanitary water in the small villages which can not be connected with the sanitary drainage grid.

Estimated cost:

271 million pounds

Proposed implementation agencies:

Ministry of Housing (Fresh Water & Sanitary Drainage Company in Fayoum)

Proposed funding agencies:

Ministry of Housing – foreign agencies

4. Project for construction of the coastal road north of the lake**Project description:**

The Public Authority for Tourism Development is building the road north of Qaroon lake for the purpose of tourism development in the Fayoum. The road connects between east and west of the lake and encourages tourism in the north coast of the lake.

Project components:

The Public Authority for Tourism Development is completing the construction of the road as planned and started from the western side of the lake (from Qoota village), provided it does not contradict with the monumental and environmental components, with compliance with the environmental conditions in connection with the construction of the road.

Estimated cost:

7 million pounds

Project implementation agencies:

Public Authority for Tourism Development

Project funding agencies:

Public Authority for Tourism Development – donor agencies

5. Project for cleaning Qaroon lake bed in cooperation with Suez Canal Authority

Maintaining the storage capacity and water balance of Qaroon lake, avoiding the occurrence of siltation in the lake (similar to El Tamsah lake project), in addition to trimming the beaches of Qaroon lake.

Project components:

The project consists of a study of the method of cleaning the lake bed, obtaining approval of the Environment Affairs Agency on the same, and then finding locations to transport the cleaning operations contents and carry out the cleaning process.

Estimated cost:

35 million pounds

Proposed implementation agencies:

Suez Canal Agency

Proposed funding agencies:

Ministry of Water Resources & Irrigation – donor agencies

6. Expanding organic agriculture in Fayoum governorate

Project description:

This project aims at controlling the use of agriculture pesticide on the current existing crops in Fayoum and reducing the percentage of pesticides drained with the agricultural drainage water, and hence reducing their drainage into the lake and relying on organic fertilizers.

Project components:

- Studying the type of existing diseases and the best method for essential control of these diseases, as well as controlling the type of pesticides entering the governorate through joint drainages with other governorates.
- Establishing a method for environmental awareness of farmers, as well as finding markets for exporting free pesticides products

Proposed budget:

20 million pounds

Proposed implementation agencies:

Fayoum agricultural directorate

Proposed funding agencies:

Ministry of Agriculture – donor agencies

7. Construction of environmental surveillance and follow up grid**Project description:**

The project aims at building an environmental surveillance grid for biological diversity. Its basic task is to feed the information bank with recent reports and studies on the status of the environmental components in the lake.

Project components:

- Determining a number of fixed points and plants inside the lake for collecting samples periodically from the lake water, analyzing them and identifying the biological components such as algae and living organisms of the bed plants and organisms and others.
- Establishing a surveillance program of the change in the biological diversity and its status, and using the same to determine the extent of the healthy and condition of the various environments in the lake to lay down a list which may be revised every three to five years on the types of various organisms in the lake including plants- algae and animals- birds- reptiles- amphibians- mammals- bed organisms- fish, in order to test samples of these living organisms to form a reference museum, as well as monitor the change in the levels of the lake water.

Proposed budget:

100 million pounds

Implementation agencies:

Ministry of Environment – Ministry of Irrigation

Proposed funding agencies:

Foreign agencies – Ministry of Environment – Ministry of Irrigation

8. Project for enhancing the socio-economic conditions of residents around the lake:**Project description:**

This project aims at finding additional income resources or developing the existing resources, for the purpose of reducing the increasing environmental pressures, represented in the prevailing fishing system, while giving priority to the participation of women.

Project components:

1. Handicrafts: includes the development and improvement of existing industries, developing the industries which prevailed, the necessity of using the required marketing and technical studies, preparing programs to promote the products. It is preferred to apply the revolving loans system in this field.
2. Eco tourism: includes tours organized during holidays, through which fishing boats may be used for these trips at specific locations inside the lake.
3. Building a number of entertainment and leisure facilities for the visitors, including the construction of hotels and restaurants to offer special meals. This requires efficient participation and support on part of the local community organizations (such as non government organizations, fishermen societies, etc.)

Proposed budget:

50 million pounds

Proposed implementation agencies:

Fayoum governorate

Proposed funding agencies:

Social Fund – Fayoum governorate – Ministry of Environment- donor agencies

9. Project for promoting environmental awareness and developing public participation in the development of the lake

Project description:

Promoting environmental awareness for all members of all ages, especially those residing around the lake and encouraging their participation in the process of managing the lake

Project components:

- Giving a number of lectures for environmental awareness and the significance of conserving the environment.
- Printing news letters and press articles on the significance of Qaroon lake
- Coordination with the television to increase environmental awareness and conservation of nature
- Making a documentary film on Qaroon lake protectorate to be displayed in the media, schools and universities

Proposed budget:

5 million pounds

Implementation agencies:

Ministry of Environment- Environment affairs dept.

Proposed funding agencies:

State Ministry for Environment Affairs – donor agencies

10. Expanding spotting irrigation projects instead of irrigation by submersion

Project description:

This project aims at rationalizing the water used in farming in Fayoum and discontinuing irrigation by submersion in order to control agricultural drainage into the lake, as well as preventing the increase of underground water.

Project components:

The project consists of providing spot irrigation methods and conducting training courses for farmers on the method of using spot irrigation and providing engineers and technicians trained on the method of using spot irrigation system.

Proposed budget:

20 million pounds

Implementation agencies:

Agricultural Directorate in Fayoum

Proposed funding agencies:

Foreign sources- Ministry of Agriculture – private sector

11. Project for supporting the protectorate management component in the lake

Project description:

The project consists of supporting the natural protectorates management in Fayoum technically and administratively, to increase the efficiency and control of the protectorate.

Project components:

Supporting the capacity building of personnel in Qaroon lake protectorate in carrying out control and follow up tasks and applying environmental laws, with the implementation of awareness programs for them on the following topics: environmental and biological diversity, desert, agricultural and rural environment, desert prairie activities to conserve natural and animal resources in Qaroon lake area.

Proposed budget:

2 million pounds

Implementation agencies:

Natural protectorate department

Proposed funding agencies:

EAA- donor agencies

12. Project for stabilizing sand dunes, cleaning the lake and green belt forestation**Project description:**

This project aims at conserving the lake water, fixing sand dunes and preventing their movement towards the lake, which will assist to clean the beaches, avoiding their pollution and building a green belt around the north western coast of the lake.

Project components:

- Considering sand dunes sources, their direction and speed
- Studying the north cost in terms of how to connect irrigation water there
- Studying the type of trees suitable for greenery of the area
- Studying the irrigation methods which will be used
- Laying down a budget for the project
- Considering the method of implementation

Proposed budget:

45 million pounds

Implementation agencies:

Ministry of Agriculture – Fayoum University

Funding agencies:

Foreign agencies- Ministry of Agriculture

5.3 controlling environmental pollution in the governorate

Currently, there are several types of industrial activity concentrated in the food industries, paper industries and building material industries, in addition to small workshops which amount to approximately 2588 workshops in which around 5780 workers are working. The industrial pollution in the area results from two basic sources: major industries and industrial areas and the second source are medium and small industries.

5.3.1 Environmental management of major industries and industrial areas

5.3.1.1 General background

Recently, the governorate witnessed an industrial boom which resulted in the existence of many industries and industrial areas, the most significant of which include:

1. The industrial area in Kom Osheem over an area of 1102 acres and comprising 216 plants currently operating in various activities such as the plastic industry, chemicals, woods, food industries, medical industries, textile industries, etc. There are 92 productive plants, another 57 plants under licensing and 57 plants under construction.
2. A number of tanneries in Fayoum, which comprises 13 tanneries working in a primitive way.
3. A number of plants such as the sugar plant in Qasr El Basel, Etsa Markaz, and flour mills such as Fayoum flour mill and Defno flour mill in Etsa markaz, and car service stations.
4. slaughterhouses
5. salts extraction plants from Qaroon lake of the Egyptian Salts & Minerals Company (Emisal)

All these industries produce environmental pollutions with big percentage of industrial wastes. Around 5 tons of solid industrial wastes are produced daily from the industrial area, the majority of which is produced from the group of the Pharaohs Ceramic plants (around 4 tons of industrial wastes represented in broken ceramic, mud and glaze wastes. These constitute a burden for disposing them. Despite the governorate's plan towards the wastes resulting from the plants, nevertheless till now these plans will not cover all the resulting pollutants from these plants. Further, the cost of disposing of these wastes is high and many plants escape from the liability for these costs.)

The following section addresses the most significant problems resulting from solid and liquid industrial wastes, as well as environmental issues, priorities, solutions, proposed projects and their description in order to control the problem of solid and liquid industrial wastes in the governorate.

5.3.1.2 achievements over the past five years

5.3.1.2.1 Decisions and procedures

- The environment law NO.4 of year 1994 to be applied on all installations and plants built in the Fayoum governorate, especially the necessity of the installation's submission of its environmental impact assessment study.
- Plants in the industrial area will not be permitted to start operation unless after fulfilling all the conditions. There is a check in committee in the industrial area which approves the installation of projects in the city. This committee considers the type of the plant, its location and other conditions which guarantees clean production.
- The governorate has obliged the plants which produce industrial sewage to treat this sewage. This has appeared through the number of plants which built industrial sanitary water treatment plants for the sewage they produce, such as the ceramic plants and the sugar beat plant.

5.3.1.2.2 Technical and administrative support

- An executive agency was established to manage the industrial area in Kom Osheem.
- The industrial installations in the area were subjected to direct supervision of the environment affairs department in Fayoum governorate
- The environment affairs department was supported with a number of surveillance and measuring systems for monitoring pollutants

5.3.1.2.3 implemented projects and programs

- 216 plants were built in the industrial city, as well as greenery of the roads inside the industrial city
- A sanitary drainage plant was built in the industrial city to purify the water after its treatment by the plants

- The governorate established a dumpsite for solid wastes over a 17 acres area. However, the dumpsite is in a persistent need for establishing a cell to dump hazardous wastes in the dumpsite over an area of one acre.
- A plant was built for producing magnesium sulfides at the Egyptian Minerals & Salts Company (EMSAL) in Qaroon lake to extract magnesium sulfides from the wastes resulting from the plants established in the company.

5.3.1.2.4 Projects and programs underway

Currently, there is planning for the plants located within the zone of the industrial area in Kom Osheem, in order to present them to the investors as expansions to the industrial area.

5.3.1.3 Current status: problems and reasons

Current status	Key problems and negative effects of the current status	Key reasons of the problem	Current plans or programs to address the current status
Absence of an integrated system and general plan to manage industrial and hazardous wastes	- Random disposal of industrial solid wastes. - Workshops and plants dump their solid wastes in the areas near them which may contain hazardous materials	- Absence of a unified department to manage industrial solid wastes. - Absence of a strategy to manage industrial wastes in the governorate. - Absence of adequate studies and absence of required expertise to lay down a general plan for this sector - There is no financial provision in the budget to prepare a general plan as a result of absence of expertise capable of preparing, implementing and following up the plan.	Currently, there is no program or project to prepare a general plan for managing industrial wastes in the governorate
There is no plant for the treatment of liquid industrial wastes in the industrial area in	Dumping industrial sanitary water by many of the industrial installations without	* Lack of adequate studies and absence of the required expertise to lay down a general plan	Currently, there is no plan or project to prepare a general plan to manage the industrial drainage

Kom Osheem or in the governorate	treatment in the watercourses.	for this sector. * There is no financial provision in the budget to prepare a general plan as a result of the absence of expertise capable of preparing, implementing and following up the plan	resulting from industrial installations
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Current status	Key problems and negative effects of the current status	Key reasons of the problem	Current plans or programs to address the current status
Pollution of the air by ceramic plants	Existence of a number of the Pharaohs ceramic plants in the industrial area of Kom Osheem	Raising of quantities of dust due to absence of filters to settle dust	Periodical inspection by the environment affairs department in the governorate and EAA in Cairo
Lack of awareness of those dealing with industrial and hazardous wastes	Dumping these wastes in a random manner	- Absence of budget to conduct integrated awareness programs for those working in the plants - Absence of integrated management of industrial and hazardous wastes	There is a plan for inspection of the plants existing in the industrial area by the environment affairs department in the governorate and the EAA

5.3.1.4 Vision and goals

Preparing and implementing an integrated system for managing industrial wastes and reducing industrial wastes resulting from the industrial areas and major industries in the governorate in order to control environmental and health damages, through achievement of the following objectives:

- Preparing a comprehensive perception on the current status of managing industrial wastes and laying down an integrated program for their management.
- Enhancing the current systems for collecting industrial wastes and transporting them, and canceling the random areas where wastes are dumped.
- Recycling the biggest possible amount of industrial wastes and disposing of the remaining wastes safely
- Training and increasing the awareness of employees in the industrial wastes and supplying them with protection equipments and means and adequate professional safety
- Increasing the general awareness towards the handling of industrial wastes.
- Transferring the activities resulting in similar industrial wastes to a remote area away from the residential bloc and building a plant for the treatment of industrial sewage resulting from them (especially the tanneries area)
- Establishing systems for simple treatment of industrial drainage resulting from a number of plants and obliging these plants to apply the same.

5.3.1.5 Goals and required actions

Main goal	Targets for the next five years to achieve the main goal	Decisions, actions, institutional support, project and programs required to achieve the goal
Preparing a comprehensive perception on the current status of managing industrial wastes and establishing an integrated system for managing industrial and hazardous wastes in the governorate.	- preparing a plan for implementing a system for collecting wastes in the industrial areas, then follow up - Applying the standard criteria existing in the environment law No.4 of year 1994 in connection with the standards for drainage and methods of disposing hazardous wastes - Identifying the method of participation by the various government agencies and institutions and determining the role of each agency inside the governorate. - Establishing a central department for managing industrial and hazardous wastes in a strategic manner and encouraging investment. - Evaluating the possibility of the private sector's participation in managing industrial and hazardous wastes in the governorate, and preparing projects and programs for the private sector	- preparing a perception for the project and presenting it to the funding agencies. - preparing a plan for managing industrial and hazardous wastes in the industrial area. - implementing the plan and assessment of the results. - determining the general framework for managing industrial and hazardous wastes in the governorate
Recycling the biggest possible amount of industrial and hazardous wastes and disposing the remaining wastes in a safe manner	Establishing a unit for recycling wastes near the industrial area	Allocating a site for recycling industrial wastes near the industrial area
Training and increasing the	Raising environmental	Establishing a branch of

awareness of the industrial and hazardous wastes field and supplying them with adequate protection equipments and methods	awareness of workers in the plants located within the industrial zone of Kom Osheem	EAA in the industrial zone in Kom Osheem
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Main goal	Targets for the next five years to achieve the main goal	Decisions, actions, institutional support, project and programs required to achieve the goal
Establishment a system for industrial drainage treatment plants and grouping of similar activities in one area	Establishing a unit for the treatment of liquid industrial wastes in Kom Osheem industrial areas	Allocating a site in the industrial area for the purpose of establishing a plant for the treatment of industrial drainage treatment
Establishing a system for controlling pollutants in the industrial area of Kom Osheem	Establishing a plant for environmental surveillance in the industrial area	A branch is under construction of the EAA in Fayoum which comprises a plant for environmental measurements serving the industrial area

5.3.1.6 List of proposed projects

5.3.1.6.1 High priority projects

Proposed project	Responsible Agency	Proposed implementing agencies	Estimated budget	Timeframe	Proposed funding agencies
Integrated management of industrial and hazardous wastes in the governorate	Governorate	Industrial and hazardous wastes department at the Ministry of Environment	7 million pounds	18 months	Foreign donors Social fund
Establishing a tightly controlled dumpsite for safe disposal of industrial and hazardous wastes, which comprises a unit for recycling hazardous wastes	Governorate	Environment affairs department in cooperation with the hazardous wastes department at the State Ministry for Environment Affairs	15 million pounds	24 months	Foreign donors Private sector
Establishing a plan for the treatment of industrial liquid wastes	Governorate	Fresh Water & Sanitary Drainage Co.	8 million pounds	36 months	Foreign donors Local agencies Private sector

5.3.1.6.2 Medium priority projects

Proposed project	Responsible Agency	Proposed implementing agencies	Estimated budget	Timeframe	Proposed funding agencies
Project for transporting the tanneries from Fayoum city	Governorate	Environment affairs department in cooperation with Fayoum city council	7.5 million pounds	24 months	Foreign donors Local agencies Private sector
Project for establishing plants for the treatment of sanitary drainage water resulting from the slaughterhouses	Governorate	Fresh Water & Sanitary Drainage Co.	8 million pounds	24 months	Foreign donors Local agencies
Project for controlling the quality of water and quality of industrial drainage entering the lake water	Governorate	Ministry of Water Resources & Irrigation	5 million pounds	12 months	Foreign donors Local agencies

5.3.1.6.3 Low priority projects

Proposed project	Responsible Agency	Proposed implementing agencies	Estimated budget	Timeframe	Proposed funding agencies
Project for raising the environmental awareness of workers in the plants in the industrial area	Environment affairs department in the governorate	State Ministry for Environment Affairs (information and awareness department)	2 million pounds	12 months	State Ministry for Environment Affairs Donor agencies
Project for measuring the ratios of heavy metals in the soil and water in the governorate	Ministry of Environment	Ministry of Higher Education and Scientific Research	6 million pounds	24 months	Donor agencies Local agencies

5.3.1.7 Classification of priority projects or programs

1. Integrated management project of industrial wastes in the governorate

Problem description:

- No independent department for managing industrial solid wastes
- No strategy for managing industrial wastes in the government
- Absence of sufficient studies and absence of the required expertise to lay down a general plan for this sector.
- No financial provision in the budget to prepare a general plan as a result of absence of expertise capable of preparing, implementing and following up the plans
- This has results in the random disposal of industrial solid wastes and mixing them up with ordinary solid wastes.

Project description and components:

The project comprises the establishment of an independent administrative structure to manage industrial solid wastes, which includes the required expertise to manage industrial wastes with laying down the financial regulation of the administrative structure. This department implements the following activities:

- Assessment of all sources and types of industrial and hazardous wastes in the governorate and preparing an integrated data base on the same.
- Laying down a general plan for the method of handling industrial and hazardous wastes as well as liquid industrial wastes.
- Training employees on the integrated management of industrial wastes.
- Initiating the implementation of integrated management projects of industrial and hazardous wastes (such as the establishment of a dumpsite for hazardous wastes – establishing treatment plants of industrial drainage- controlling methods of handling, etc.)
- Developing control plans for the plants and installations resulting in hazardous wastes and preparing the handling registers for these installations.

Project implementation agencies:

Government sector (environment affairs department in cooperation with the State Ministry for Environment Affairs)

Project estimated cost:

7million pounds

Proposed funding agencies:

Governorate – EEAA- donor agencies

2. Project for the construction of industrial and hazardous wastes management system in the industrial zone**Problem description:**

Currently, there is no system for managing industrial and hazardous wastes in the industrial area. This has resulted in the lack of exact identification of the types and quantities of the industrial and hazardous wastes resulting from the industrial area. Further, areas have emerged which contain industrial wastes in the desert area parallel to the industrial area.

Project description and components:

- Identification of the quantities and types of wastes resulting from each plant in the industrial area.
- Establishing a method for collecting industrial and hazardous wastes from the plants against a fee, with providing the necessary equipments for the collection process.
- Establishing a unit for wastes classification and recycling

Project implementation agencies:

Government sector, private sector, private societies or youth projects

Project estimated cost:

3 million pounds

Proposed funding agencies:

Governorate – EEAA- donor agencies

3. Project for the construction of a tightly controlled dumpsite for safe disposal of industrial and hazardous wastes:

Problem description

Currently, there is no dumpsite ready to receive industrial and hazardous wastes. Industrial wastes are randomly disposed in the desert area surrounding the industrial area.

Project description and components:

Constructing a tightly controlled dumpsite to bury industrial wastes and an organizational structure and management for the dumpsite. It starts with the allocation of land for the dumpsite by the governorate, the industrial wastes department, required to be established, shall lay down the required perception for the dumpsite, as well as provide the required studies and obtain the required approvals, then provide the required provisions to start implementation.

Project implementation agencies:

Government sector (environment affairs department in cooperation with the State Ministry for Environment Affairs) – foreign grants – private sector.

Project estimated cost:

15 million pounds

Proposed funding agencies:

EEAA- donor agencies- private sector.

4. Project for the construction of a treatment plant of liquid hazardous wastes in the governorate

Problem description:

There is no plant to receive hazardous liquid wastes in the governorate or the industrial area. The hazardous liquid wastes are being discharged into the watercourses in many plants in the governorate without treatment.

Project description and components:

- Construction of a specialized plant for the treatment of hazardous liquid wastes, comprising a number of units to receive types of industrial drainage, which contain or hazardous biological materials
- It is proposed that the plant is next to the hazardous wastes dumpsite
- The plant's goal is to segregate and reuse chemical materials

Project implementation agencies:

Potable Water & Sanitary Drainage Company, in cooperation with the State Ministry for Environment Affairs.

Project estimated cost:

8 million pounds

Proposed funding agencies:

EEAA – donor agencies – governorate

5. Project for transferring the tanneries area from Fayoum city:**Problem description:**

Fayoum city has 13 tanneries producing solid and liquid industrial wastes representing the core of the pollution in the slaughterhouse area where these tanneries exist. The liquid industrial wastes are drained into the El Shahat drainage causing pollution of the drainage with the drainage results.

Project description and components:

The project comprises the allocation of an area away from the residential bloc, preferred to be in the desert area in order to transfer the tanneries there. The required utilities will be connected and a plant for the treatment of drainage water resulting from the tanneries will be established. Further, owners of the tanneries will be obliged to transfer their activity to the allocated land and develop the method of work at the tanneries, as well as develop the industry.

Project implementation agencies:

Government sector (environment affairs department in cooperation with Fayoum city council) – EEAA – foreign grant- private sector

Project estimated cost:

7.5 million pounds

Proposed funding agencies:

EEAA- donor agencies- governorate – private sector

6. Project for establishment of the treatment plant of sanitary water resulting from the slaughterhouses**Problem description:**

There are no plants for the treatment of sanitary water resulting from the slaughterhouses in the governorate, except El Ezab slaughterhouse which contains its own treatment plant. The resulting water is drained into the watercourses without treatment, thus causing big pollution.

Project description and components:

Construction of a plant for the treatment of sanitary water resulting from the slaughterhouses (8 slaughterhouses on the level of the governorate.)

Project implementation agencies:

Potable Water & Sanitary Drainage Company in Fayoum.

Project estimated cost:

8 million pounds

Proposed funding agencies:

EEAA- donor agencies- National Corporation for Fresh Water & Sanitary Drainage – private sector

7. Project for the establishment of a unit to control the quality of water and quality of industrial drainage entering the lakes water**Problem description:**

There are no periodical analyses of the types of chemical materials and heavy metals entering Qaroon and El Rayan lakes, causing difficulty of standing on the exact type of pollution which may be caused to the water.

Project description and components:

Establishment of a unit to be in charge of conducting analyses and control of the water in El Rayan and Qaroon lakes and determine the sources of pollution entering with the water.

Project implementation agencies:

Water Resources & Irrigation Directorate in Fayoum.

Project estimated cost:

5million pounds

Proposed funding agencies:

EEAA- donor agencies- NOPWASD – private sector

5.3.2 Environmental management for small and medium industries**5.3.2.1 General background**

The reasons for air pollution in the governorate are represented in the smoke resulting from the burning of trash and wastes, whether at the dumpsites or the streets, as well as the emissions from the factories and workshops, whether carpentry workshops, blacksmith workshops, agricultural machines repair workshops, mud brick factories (53), coal plants (12) and pottery plants (25). We will review here the most significant problems of the pollution of air caused by the small and medium industries, as well as environmental issues, solutions and projects proposed to control the pollution of air in the governorate.

5.3.2.2 Achievements over the past five years**5.3.2.2.1 Decisions and actions:**

- The decision for avoiding the use of diesel as a fuel for all bakeries in the governorate and the use of gasoline or natural gas only.

5.3.2.2.2 Technical and administrative support

- Several workshops were held with owners of mud brick factories to illustrate the return of transforming brick factories to operate by natural gas instead of diesel.
- The Traffic department in Fayoum was supported with car exhaust measuring system which is currently in use. Further, a station for fueling cars operated by natural gas was built in Fayoum city, as well as transforming a big number of service vehicles in Fayoum city to operate by natural gas as a result of the constant inspection.
- The governorate was supported with 5 compressors of rice straw EAA which were delivered to the Agriculture Directorate in Fayoum, in addition to the compressors in the private sector, which will help in controlling the burning of rice straw wastes.

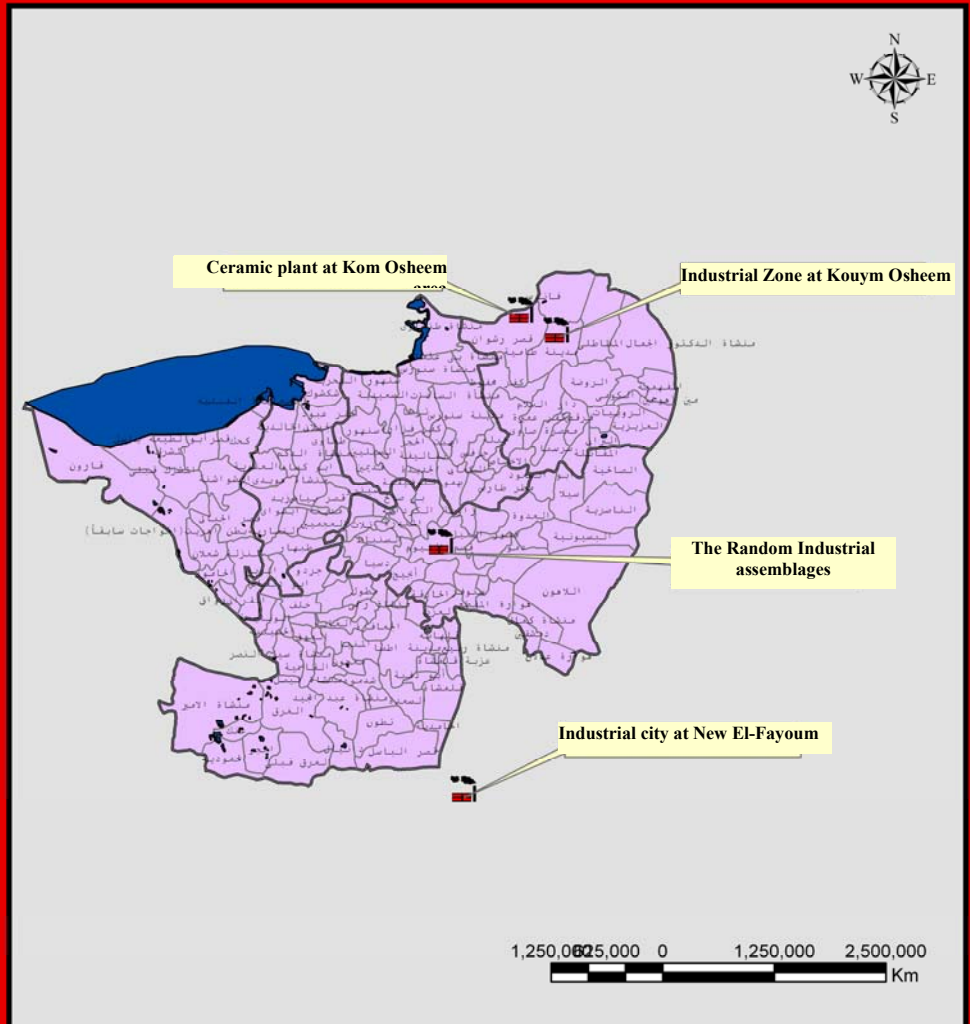
5.3.2.2.3 implemented projects and programs:

- Natural gas was provided as fuel in the industrial area of Kom Osheem
- The governorate assisted the private sector to develop one of the mud brick factories to operate by natural gas with support from the State Ministry of Environment Affairs (bona fide loan) to act as a model for the remaining factories.
- Car fuel station by natural gas was built in Fayoum city
- A project for the production of composite from agricultural wastes, especially rice straw, was established. The project is managed by a private society (Farmers & Their Families Development Society in Qasr El Basel village, Etsa markaz)
- A mud brick plant was transformed to operate by natural gas

5.3.2.2.4 Projects and programs underway

- Supplying the remaining areas in Fayoum city with natural gas is being completed
- Most of the mud brick factories were developed to operate by the diesel burning system using sprinklers.

Air pollution sources at El-Fayoum Governorate



بحيرات وبرك ومستنقعات
 الحدود الادارية للقرى
 حدود المراكز الادارية
 مصادر تلوث الهواء



Fayoum Governorate
 وزارة الدولة لشئون البيئة
 جهاز شئون البيئة
 Ministry of State for Environmental Affairs
 Environmental Affairs Department

5.3.2.3 Current status: problems and reasons

Current status	Key problems and negative effects of the current status	Key reasons of the problem	Current plans or programs to address current status
Air pollution caused by mud brick plants	Existence of Nos.52 mud brick plants using diesel as burning fuel	Emission of harmful and environment polluting gases as a result of using diesel	A study was carried out by the governorate to develop Nos.22 mud brick plants to operate by natural gas
Coal plants	Existence of a number of coal plants spread in Tamia, Fayoum and Yusuf El Sedeek markazs	Emission of carbon gases as a result of the open and incomplete burning of woods	A location was selected in the desert area of Etsa markaz to relocate coal plants and pottery furnaces
Pottery burning furnaces	The existence of a number of pottery furnaces spread in Tamia and Yusuf El Sedeek markazs	The emission of air polluting gases as a result of the use of undeveloped furnaces	Nil
Spread of craft workshops in the residential areas	All the crafts workshops in the residential areas cause air pollution and noise to the residents	Absence of areas for crafts industries outside the residential bloc in the governorate	A location in the desert area is being selected in order to build a city for craftsmen

5.3.2.4 Vision and goals

Reducing air pollution in the governorate through the implementation of the following goals:

1. Developing Nos.30 mud brick plants to operate by natural gas.
2. Developing pottery furnaces and coal plants to operate by natural gas in Kom Osheem area.
3. Installing filters at the ceramic plants.
4. Transforming cars and vehicles to operate by natural gas.
5. Constructing areas for crafts industries outside the residential blocs of the markazs

5.3.2.5 Goals and required actions

Main goal	Targets for the next five years to achieve the goal	Decisions, institutional support, required programs and projects to achieve the goal
Developing mud brick plants to operate by natural gas	• Preparing a development plan and identifying several alternatives for the plan • Agreement on the standard criteria to develop brick plants • Determine the proposed design for implementation to develop mud brick plants • Determine the method of participation by the various government agencies and institutions and specify the role of each institution in the governorate. • Creating an administrative structure to supervise the development of mud brick plants. • Completing the development of 75% of mud brick plants in Fayoum governorate	• Prepare a perception on the project and submitting the same to the funding agencies • Prepare a plan to control air pollution in Fayoum governorate • prepare the plan to control air pollution in the governorate • Implement the plan and evaluate the results • Implement the plan for environmental control of the quality of air in the governorate
Controlling the pollution resulting from pottery furnaces and coal plants	• Develop pottery furnaces and coal plants to operate by natural gas in the area	* gather pottery furnaces and coal plants in the desert area and develop them to operate by natural gas
Creating an area for relocating crafts industries there	* creating Nos.2 cities for crafts industries	* allocate the sites

5.3.2.6 List of proposes projects

5.3.2.6.1 High priority projects

Project name	Agency in charge	Proposed implementation agency	Estimated cost	Timeframe	Proposed funding agency
Connecting and operating Nos.22 mud brick plants by natural gas in Tersa area	Fayoum governorate EEAA	Fayoum Gas Co.	17.85 million Pounds in case of connection from the Egyptian Salts Co. 21.2 million pounds in case of connection from Tamia city	24 months	Foreign grants Environment Protection Fund Private sector
Connecting and operating 25 pottery plants by natural gas in Kom Osheem area	Fayoum governorate EEAA	Fayoum Gas Co.	2.2 million pounds with benefiting from the current experiments with the Arab British Co. to determine the best burning method	18 months	Foreign grants Environment protection fund Private sector
Connecting and operating 8 mud brick plants by natural gas in Hawara area	Fayoum governorate	Fayoum governorate	50 million pounds	36 months	Governorate Social fund Donor agencies

5.3.2.6.2 Medium priority projects

Project name	Agency in charge	Proposed implementation agency	Estimated cost	Timeframe	Proposed funding agency
Connecting and operating 5 brick plants by natural gas in El Dawar village area	Fayoum governorate EAA	Fayoum Gas Company	4.9 million pounds	18 months	Foreign grants Environment protection fund Private sector

5.3.2.7 Description of priority projects or programs

1. Project for connecting and operating Nos.22 brick factories by natural gas in Tersa area

Project description:

The project consists of connecting natural gas through a main line of 8 kilometers length approximately and 250 mm diameter to “Tersa” area, then building a natural gas grid for Nos.22 plants

Project components:

Main line – gas grid- Nos.22 filtering stations- gas internal grid for Nos.22 plants – civil and electric works for Nos.22 plants and training plant owners

Proposed budget:

17.85 million Pounds in case of connection from the line of the Egyptian Salts Company EMISAL

21.2 million Pounds in case of connection from Tamia city.

Implementation agencies:

Fayoum Gas Co.

Proposed funding agencies:

Foreign grants – Environment Protection Fund – Private sector

2. Project for connection and operation of 25 pottery plants by natural gas in Kom Osheem area

Project description:

The project consists of connecting natural gas through the main line to Kom Osheem area, and then build the natural gas grid for Nos.25 pottery plants.

Project components:

Main line – gas grid- Nos.25 filtration stations- internal gas grid for Nos.25 pottery plants- civil and electric works for Nos.25 pottery plants

Proposed budget:

2.2 million pounds

Implementation agencies:

Fayoum Gas Company

Proposed funding agencies:

Foreign grants – Environment Protection Fund- Private Sector

3. Project for connection and operation of Nos.8 mud brick plants by natural gas in Hawara – El Makt'a

Project description:

The project consists of connecting natural gas through the main line to Hawara area- El Makt'a then building the natural gas grid for Nos.8 plants

Project components:

Main line – gas grid – Nos.8 filtration stations – internal gas grid for Nos.8 plants- civil and electric works for Nos.8 plants

Proposed budget:

8.5 million pounds

Implementation agencies:

Fayoum Gas Company

Proposed funding agencies:

Foreign grants – Environment Protection Fund – private sector

4. Creating the industrial zone for the crafts workshops in Fayoum**Project description:**

The residential bloc in Fayoum city comprises the biggest number of various workshops such as car mechanic and electricity workshops – smithery- carpentry- metal molding – wood industries, etc. These activities cause numerous environmental problems, among the most significant of which are noise and air pollution inside the residential bloc. This requires the construction of an area for craft industries outside the residential bloc.

Project components:

An area was selected outside the residential bloc of Fayoum city. This requires initiating planning the area and connecting it with utilities, as well as constructing an integrated management for the area, then start relocating the workshops there. No new workshops should be permitted to be established inside the residential bloc.

Project cost:

50 million pounds

Implementation agencies:

Governorate

Proposed funding agencies:

SFD – governorate – donor agencies

5.4 Development of the agricultural and fish resources

5.4.1 General background

Fayoum governorate is one of the governorates famous for agriculture nationwide. It relies on the Nile River water incoming through Yusuf Sea Watercourse. According to the statement of distribution of farmed areas in 2007 governorate-wise, the total area of farmed lands in the governorate amounts to 454928 acres. Only 10% of Fayoum farmed lands is owned by the governorate, while the remaining 90% of 410 thousand acres is owned by farmers. The landlords cultivate 70% only of the farmed lands by themselves. As for the remaining 30% of the area, it is leased or farmed by the partnership system. Half the families which work in farming own less than one acre and 10% of them own 5 acres. The family plants a mixture of annual and seasonal crops to ensure the highest income within the three main seasons: winter, summer and Nile.

Fishing is considered as a significant source of animal protein and employment opportunities in the governorate. Fayoum produces around 9000 tons of fish annually of various sources, especially Qaroon Lake, El Rayan Lake, the Nile River (Yusuf Sea branch) and the fish farms spreads along the banks of Qaroon and El Rayan lakes.

14 species of fish live in Qaroon Lake (salty water fishes). The lake produces 800-1000 tons annually, mostly are Botli, Bori and Mousa fish. 500 fishing boats work in the lake, with the average of 2000 persons. The lake's production of fish has steeply declined over the past years as a result of the increase of pollution in the lake, increase of its salinity, violating fishing and other factors.

In this plan, we will present the most significant environmental problems facing agricultural and fish development, as well as the proposed solutions and projects to control them.

5.4.2 Achievements over the past five years

5.4.2.1 Decisions and actions

- Ministerial decree No.719 of year 2005 in connection with agricultural pesticides (prohibition of experimentation – or dealing with, importing or preparing pesticides, whether raw, commercial formulas or in any manner for 47 common names, 162 trade names and 42 raw materials)
- Ministerial decree No.1445 of year 2003 in connection with determining the list of hazardous wastes resulting from the use of pesticides.
- Ministerial decree No.245 of year 2004 banning the transfer of all types of palm trees between the governorates and markazs of the country unless according to permission issued by the infections control department at the concerned agricultural directorate affirming their safety and being free of infection.

5.4.2.2. Technical and administrative support:

Agriculture sector:

- Youths in the agriculture sectors were trained, whereby 5356 youths were trained according to an annual cost of 3.2 million pounds.
- A number of environmental awareness programs are being carried by the agriculture directorate in Fayoum, whereby awareness requirements including stickers, display tools and trainers are provided.

Fish resources sector:

- A research lab was built on Qaroon Lake and supplied with the latest equipments and materials needed to conduct the various analyses on the water in order to serve water surfaces and fish farms spread around it.
- The general administration for researches at the Public Authority for Fish Resources Development was mandated to conduct periodical researches on Fayoum surfaces to study the fish reserve and inspect fish samples in order to confirm their freedom of any causes of diseases, as well as stand on the percentage of salinity.
- Directions of the Scientific Research Academy in connection with supply with small fish are being implemented
- Conducting guidance seminars to raise the awareness of fishermen and guide them to the correct fishing methods and damages of violating fishing.

5.4.2.3 Implemented programs and projects

- Building a project for the sugar beat plant at an investment cost of 750 million pounds. The plant production capacity amounts to 45000 acres of sugar beat. The plant produces around 135000 tons of sugar/ annually.
- Implementing the integrated management project for controlling infections, a project funded by the Dutch government and aims at raising the living standard of farmers through the production of high quantity and quality and healthy crops through training farmers on the methods if integrated management of infections and crop management using the method of discussion sessions in participation with groups of farmers known as field schools.
- The project for intensifying agricultural production in north Upper Egypt governorates. The project is funded by the World Bank. The project was completed on 30/6/2005. The project components include (development and transfer of technology – agricultural research and guidance- agriculture credit – organizing the project management.). Currently, the project is operating with the support of the local component of the Ministry of Agriculture. It aims at :
 - Enhancing the socio-economic conditions of small holders (less than 3 acres) and non holders, as well as the rural woman and holders of new lands.
 - Developing and spreading agricultural systems to raise the income of small farmers from the limited land area
 - Maximum agricultural exploitation of the land by farming consecutive crops with each other in order to give the highest return.
 - Raising the production efficiency of milking animals in 6 villages of the governorate markazs.
 - Lending carried out by the Agriculture Development & Credit Bank, funded by the project.
- Unit for production of seedlings in Fayoum, as a natural extension of the project for developing plants, relying on its self funding, as it was handed over to the Egyptian side on 1999, provided it operates as one of the activities of the integrated control project and under its umbrella.

5.4.2.4 Projects and programs underway

- Central lab for breeding and increasing tricograma parasite, established in 2003/2004 in Damou district of Fayoum markaz in order to breed and increase tricograma parasite to combat winged insects, especially on main crops such as cotton, and infections such as worms.
- In the fish resources field, Mousa fish from El Bardwail lake is being supported under supervision of the Nile Valley area and the general administration for researches.

Drainage and surfaced watercourse at El-Fayoum Governorate



- حدود المراكز الادارية
- الحدود الادارية للمحافظة
- المناطق السكنية
- المصارف الرئيسية
- الترع والقنوات



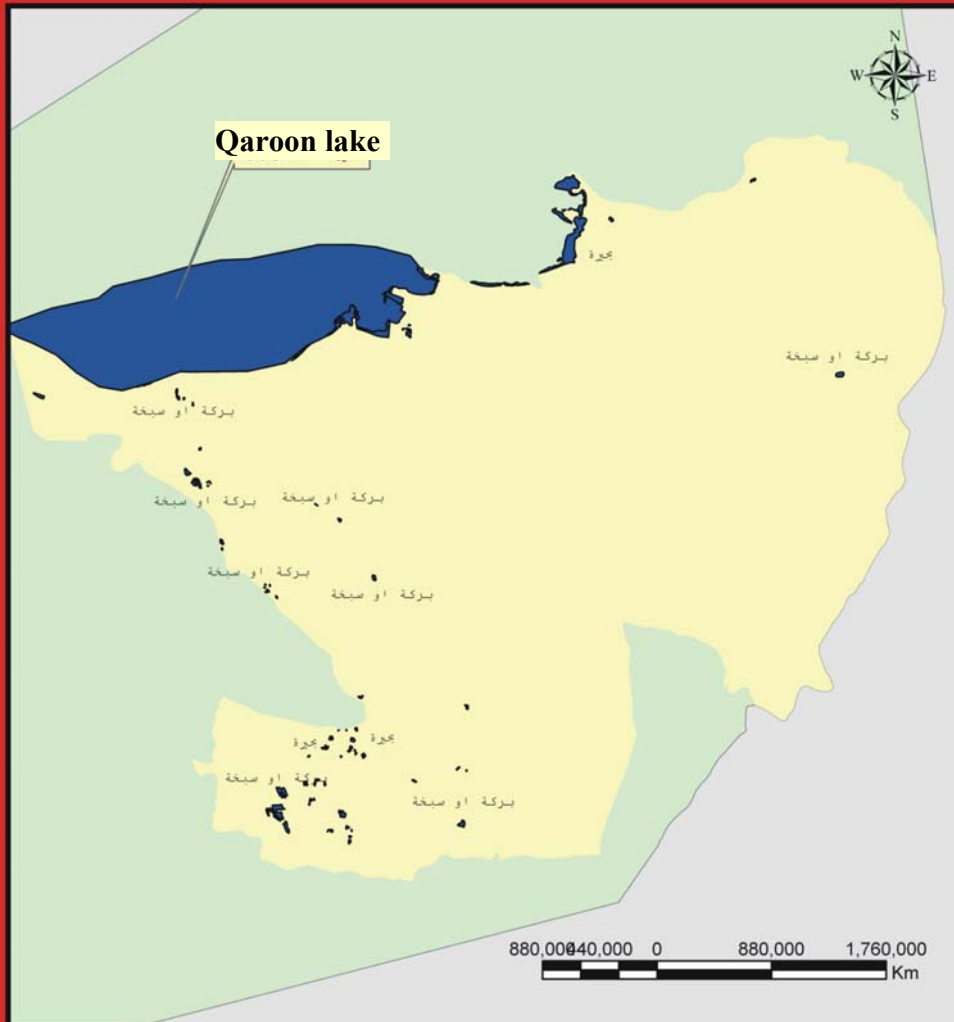
Fayoum Governorate



وزارة الدولة لشئون البيئة

Ministry of State for Environmental Affairs
Environmental Affairs Department

Lakes and fish farms at El-Fayoum Governorate



حدود المراكز الادارية
الحدود الادارية للمحافظة
بحيرات وبرك ومستنقعات



Fayoum Governorate



وزارة الدولة لشئون البيئة
جهاز شئون البيئة

Ministry of State for Environmental Affairs
Environmental Affairs Department

5.4.3 Current status: problems and reasons

Current status	Key problems and negative effects of current status	Key reasons of the problem	Current plans or programs to address the current status
Chemical pesticides are used intensively currently on part of farmers, especially field crops, fruits and vegetables farmers, as the available alternatives of pesticides are insufficient in addition to the unwillingness of pesticide dealers to deal with the pesticide alternatives and trade in them	• Intensive use of pesticides randomly by producers. • Negative effects on general health of the citizens as a result of using pesticides. • Environmental effects as a result of using pesticides. • Empty pesticide containers represent a serious danger for citizens • Using children in the spraying process	• spread of insect, fungal and viral infections in the governorate • overlap of crops • imprecise identification of infections	* the agricultural guidance section is expanding the guidance process of the citizens in connection with the damages of chemical fertilizers at all markazs of the governorate
Low environmental awareness of the citizens leading to the emergence of rice straw burning process	• suitable environment for insects and pests • process of burning wastes and the resultant environmental damages, especially that this is one of the causes behind the black cloud	• Shortage of the number of compressors • Absence of necessary tractors for these compressors • Absence of sufficient projects to recycle agricultural wastes	• building projects for recycling agricultural wastes. • Providing compressors and tractors for rice straw
Spread of the palm tree bugs disease as	- Spread of infection in	- Inability of early	- applying the control through the

the infection with the palm bug is spread in the governorate, in addition to the inability to discover the infections early	the governorate, endangering the destruction of the palm trees resources. Further, the infected palm tree becomes a source of infection. - The present combating methods are insufficient. - Non discovery of the infections before their development. - The followed treatment methods are simple and unfeasible	discovery of infection. - Quick transfer of infection across palm trees. - Difficulty of supervision over the implementation of the laws preventing the transfer of palm trees across the governorate s	agriculture department agencies, represented by the agriculture directorate
Reusing untreated agricultural drainage water	• Long term effects for using agricultural drainage water on the soil and its deterioration • Accumulation of salts in the soil • Low productivity and deterioration of the economic condition of crops • Affecting the	• poor environmental awareness • absence of treatment units of agricultural drainage and the need of lands for quantities of water	• The necessity of building plants to treat agricultural drainage before mixing with the irrigation water

	export of agricultural crops • Affecting health and the environment		
• Pollution of drainage water with sanitary drainage wastes	* Pollution of the lake water with the sanitary drainage water, which affects fish resources in the lake	* direct drainage of the agricultural drainage water into the watercourses leading to the lake	* Fayoum governorate is currently building Nos. 8 new plants to purify agricultural drainage water drained into Qaroon lake

Problems related to agricultural pesticides and their impact on fish resources	* agricultural pesticides have a negative effect on Qaroon lake and the environmental impact assessment study of Qaroon lake carried out by Mubarak Scientific Research City has explained this	• Lack of awareness of farmers of the dangerousness of using pesticides	• Implementing integrated management programs to combat infections. • Using alternatives to pesticides and vital control • Implementing programs for increasing environmental awareness
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5.4.4 Vision and goals

Developing the agriculture sector in Fayoum to obtain healthy and safe agricultural product, free of pollution and infections, with high export value. Controlling the use of pesticides to ensure increasing fish production in the lakes through:

1. Controlling the spread of pesticides.
2. Spreading organic cultivations and controlling the use of pesticides.
3. Finding suitable means for disposal of agricultural wastes.
4. Raising the quality of agricultural product in terms of value and production.
5. Treatment of agricultural drainage water
6. Developing the natural sources of fish resources and supervising fishing laws
7. Conducting researches and studies for increasing fish production and reducing costs.

5.4.5 Targets and required actions

Main goal	Targets for the next five years to achieve the goal	Decisions, institutional support, required projects and programs to achieve the goal
Controlling the use of agricultural pesticides and turning to spreading organic crops	• Building a dumpsite for hazardous wastes to absorb empty pesticide vessels. • Establishing projects for the production of composite from agricultural wastes	• Facilitating procedures of licensing installations operating in the agricultural wastes recycling field • Laying down a program for raising environmental awareness of farmers
Reducing the percentage of salinity in the water mixed with drainage water	* Building a number of plants for treatment of agricultural drainage	* identifying the locations of treatment plants which should be built to eliminate the problem
Controlling the spread of palm tree bug in Fayoum governorate	Building a unit for controlling palm tree bugs	Ministerial decrees to establish the palm tree bug
Conservation of the agriculture environment as a result of eliminating the phenomenon of burning agricultural wastes	Establishing projects which rely on agricultural wastes and spreading environmental awareness in connection with the dangerousness of burning agricultural wastes	Urging private societies to enter in agricultural wastes recycling projects
Developing natural sources of fish resources and raising the fish production level in Fayoum governorate	Enhancing the quality of lake water – establishing projects for increasing the quantities of fish production in the governorate and expanding fish farms	- approving to build projects for enhancing lake water - approving the implementation of projects for enhancing the quality of water in the drainages

5.4.6 List of proposed projects

5.4.6.1 High priority projects

Project	Agency in charge	Proposed implementation agency	Estimated budget (million pounds)	Timeframe	Proposed funding agency
Controlling the use of pesticides, gratifying the use of organic control and pesticides alternatives	Ministry of Agriculture	Ministry of Agriculture	6	2 years	Ministry of Agriculture – external grants
Creating a unit to control the red palm tree bug	Agriculture directorate	Agriculture directorate- scientific research academy	1	6 months	Ministry of Agriculture – Ministry of Scientific Research – external grants
Project for management of agricultural wastes	Agriculture directorate	Ministry of Environment – Ministry of Agriculture	5	1 year	Ministry of Environment- Ministry of Agriculture – external grants
Enhancing the quality and productivity of fish resources in Fayoum governorate	Fish Resources Agency	Fish Resources Agency- Sea & Fisheries Sciences Institute – University	10	2 years	External grants- Ministry of Environment – Ministry of Scientific Research
Hazardous wastes management project for empty pesticides containers	Ministry of Agriculture	Ministry of Environment- Fayoum governorate	7	1 year	Ministry of Environment = Fayoum governorate – external grants

5.4.6.2 Medium priority projects

Project	Agency in charge	Proposed implementation agency	Estimated budget (million pounds)	Timeframe	Proposed funding agency
Natural history museum in Fayoum	Ministry of Scientific Research – Seas & Fisheries Sciences Institute – natural protectorates	Ministry of Environment – Ministry of Scientific Research	10	3 years	Ministry of Scientific Research – Ministry of Environment – external grants

5.4.7 Description of priority projects or programs

1. Red palm tree bug control units' project

Description of the problem:

There are 1.1 million palm trees in the governorate. The palm tree bug infection is spread in the governorate as a result of the inability of discovering the infections early. The number of palm trees inspected till the end of 2007 is 78158 palm trees of which the infected trees are 1736, the number of cut and buried palm trees is 615, and the number of palm trees treated by injection is 1121 palm trees.

Project description:

- Preparing studies to determine the unit components, systems and equipments required to equip the unit with and the required specializations.
- Carrying out the required actions to obtain administrative approvals, then initiate implementation of the project
- Training the work team appointed in the unit on sound management for control
- Raising the awareness of the society and focusing on activating the community role to make the project successful and sustainable.

Project implementation agencies:

Government sector (Ministry of Agriculture), with the possible participation of the Ministry of Scientific Research and the university.

Project estimated cost:

One million pounds

2. Project for managing agricultural wastes

Problem description

Poor awareness of the citizens, leading to the emergence of straw burning process. The agricultural wastes form a suitable environment for pests and insects. Further, the process of burning wastes and the resultant environmental damages is one of the causes for the appearance of the black cloud.

Project description:

- Identifying the resultant quantities of agricultural wastes and the problems caused by them.
- Encouraging private societies and the private sector to establish projects for recycling agricultural wastes under the supervision of the Ministry of Environment, Ministry of Agriculture and the Governorate, as well as provide technical and financial support to these projects.
- Providing straw compressors and recycling equipments
- Holding training courses for the companies which will operate in this field (private sector – private societies) in the technologies used in recycling agricultural wastes.
- Spreading environment awareness among the farmers sector in the governorate to identify the danger of throwing or burning agricultural wastes.

Project implementation agencies:

Government sector, private sector or private societies

Project estimated cost:

5 million pounds

3. Project for the enhancement of the quality and productivity of fish resources in Fayoum governorate**Problem description:**

- Pollution of the lake water with sanitary drainage water, hence affecting the fish resources in the lake and causing decrease of the productivity of the lake fish.
- Non compliance of fishermen with the applicable fishing laws
- The need of the present young fish to enhance their species and add species of fish of high productivity

Project description and components:

- Setting up a protocol of cooperation between the Seas & Fisheries Sciences Institute and the Fish Resources Development Agency to find a mechanism for implementing the project and the staff who will manage and work in the project
- Identifying the resultant quantities of fish from the lakes and the problems which distract fish productivity.
- Outlining solutions and the plan to be followed for enhancing fish productivity
- Offering these solutions in the form of a time plan in order to initiate its implementation
- Controlling the implementation of the plan and the results which will be delivered on timely basis

Project implementation agencies:

Seas & Fisheries Sciences Institute and the Fish Resources Development Agency

Project estimated cost:

10 million pounds

Note: Number of the proposed projects for developing fish resources was mentioned in the part concerned with the development of Qaroon Lake.

5.5 Upgrading the standards of the residential communities and random areas

5.5.1 General background

Random areas comprise everything constructed by self efforts, whether one or more storey buildings or straw small houses in the absence of law, which have not been planned architecturally. The buildings may be in a good condition. However, they may be unsafe environmentally and socially and lack infrastructure and essential services.

According to the field assessment of random areas in Fayoum governorate, we find that they are in the following manner:

1. In Fayoum city (Dar Ramad- Al Saifia – Al Hakoura- Al Sahel – Al Alawi- Jabili village- Al Hadeka Al Gadida – Qahafa Al Gadida- Al Kayaleen – Al Sheikh Shafa)
2. In Sonors City (Abu Shaaba – Sidi Abdulkarim- 6 October – Al Zayni)
3. Ibshoy city (east the railways- Al Ginidi village- Al Manshia- Abu Eissa- north of the Court – Abu Siam- Sheikh Sakhr)
4. Etsa city (Al Gibili – Kafr Salam- Al Abed- Faisal Al Sharaqawa)

It is noteworthy that there were previous efforts to solve the problem of random areas by several government and non government organizations and the donor agencies which constitute the nucleus of work in this project.

These areas are lacking of the essential services and utilities, especially those concerned with health and education, lead to the exposure of their residents to the diseases related to the pollution of the environment. Further, deviant behaviors and crimes are spread, as well as frustration and hopelessness. In addition, poor families do not encourage their children to enroll in education due to its high cost in comparison with their income or as they are not aware of its importance as the children fail and drop out of schools or being used to help their families. In this plan, we will review the most significant problems of random areas as well as the solutions and projects proposed to control and eliminate them.

5.5.2 Achievements over the past five years

5.5.2.1 Decisions and actions

- The governor's direction to re-plan random areas. The urban planning law No.3 for year 1982 gave the local units the right to lay down the plans for cities and villages for which no urban planning was carried out.
- Decisions have been adopted to remove a number of buildings which distract the construction of some roads such as Dar Ramad area, and build a road connecting Dar Ramad random area with Al Mashtal and the university

5.5.2.2 Technical and administrative support

- Through the urban planning department, the governorate is contributing with the General Corporation for Urban Planning to lay down strategic and detailed plans for all cities of the governorate.
- Implementing the principle of prior planning avoids the emergence of random areas.
- New staff is being trained in the urban planning field to support the work system technically and administratively.
- It has been approved to introduce infrastructure utilities (fresh water – sanitary drainage) to the random areas, for the value of 209 million pounds, of which 60% has been implemented.

5.5.2.3 Implemented projects and programs

- For Dar Ramad random area, a main road was built to connect it with the Masala square up to the university and Al Mashtal area, with width of approximately 16 meters.
- Damou and new Fayoum cities have been built according to the presidential decree No.193 of year 2000.

5.5.2.4 Projects and programs underway:

- Urban areas are being built for the governorate villages, for which detailed plans will be laid down

Currently, random areas are being planned on the level of all the governorate cities.

Population areas and main roads at El-Fayoum Governorate



- حدود المراكز الادارية
- الحدود الادارية للمحافظة
- الطرق الرئيسية
- المناطق السكنية
- خطوط كهرباء الضغط العالي



Fayoum Governorate
محافظة الفيوم



وزارة الدولة لشئون البيئة
جهاز شئون البيئة
Ministry of State for Environmental Affairs
Environmental Affairs Department

5.5.3 Current status: problems and reasons

Current status	Key problems and negative effects of current status	Key reasons of the problem	Current plans or programs to address the current status
Spread of random areas in all the governorate cities, especially: - Fayoum city with approximately 10 random areas. - Sonors city with approximately 4 random areas - Etsa city with approximately 5 random areas - Ebshowy city with approximately 6 random areas	- Environment and health problems as a result of the high residential density and the spread of workshops, with the resulting pollution causing environmental problems for residents of these areas - Problems in roads and essential utilities - Social and health problems	• Absence of environmental awareness • Poor education and culture • Poverty leads to exploiting residence as workshops (trading, polishing, mechanical works), leading to pollution of the environment • Non activation of the laws and regulations • Absence of the alternative to transport random areas	* There is currently a taskforce which is preparing a general plan for developing Fayoum city and re-planning it.

Vision and goals

Re-planning random areas in the governorate and provide the essential services for these areas through the following goals:

1. Detailed study of random areas and their needs on the level of the governorate
2. Provide the essential services to random areas including fresh water, sanitary drainage, and electricity.
3. Raising environmental awareness among the residents in these areas.

Goals and required actions

Main goal	Targets for the next five years to achieve the goal	Decisions, institutional support, required programs and projects to achieve the goal
Detailed study of random areas in the governorate, laying down mechanisms to ensure non appearance of more of these areas and control their expansion	Conducting a study on random areas by a percentage not less than 50% of the target Including all random areas in the detailed maps	Completing the detailed plans of the governorate cities Activating the urban planning law Taking decisions to facilitate the modernization of random areas Supporting the planning departments with technical staff and training them
Supply with utilities (fresh water – sanitary drainage – electricity- gas- roads) and enhancing the current status according to the plan	Governorate	Electricity sectors, Fresh Water & Sanitary Drainage Company, Gas Co., roads

List of proposed projects

5.5.6.1 High priority proposed projects

Project	Agency in charge	Proposed implementation agency	Estimated budget (million pounds)	Timeframe	Proposed funding agency
Conducting a survey for random areas	Governorate	Public Authority for Urban Planning & Survey Directorate	2	1 year	Local funding – foreign grants
Laying down detailed plans to develop random areas	Governorate	Consultancy firms	5	2 years	Local funding – foreign grants

5.5.6.3 Medium priority projects

Project	Agency in charge	Proposed implementation agency	Estimated budget (million pounds)	Timeframe	Proposed funding agency
Establishing private societies in random areas in parallel form with the development process with the task of conserving the development of random areas and raising the awareness of the population	Governorate	Social assurance	2	2 years	Local funding-foreign grants

5.5.7 Description of high priority projects or programs

1. Conducting a survey of random areas on the level of the governorate

Problem description:

Random areas lack detailed maps illustrating the nature of the area in term of their existence roads and services, which represent a hurdle for the development of these areas.

Project description:

- Laying down a protocol of cooperation between the Public Authority for Urban Planning, Survey Directorate and Fayoum governorate to initiate implementation of the project.
- Setting up committees to supervise implementation
- Starting survey of the random areas on the level of the governorate cities on maps of suitable drawing scale

Project implementation agencies:

Public Authority for Urban Planning and the Survey Directorate

Project estimated cost:
2 million pounds

2. Developing detailed plans for developing random areas

Problem description:

Random areas are characterized by absence of organizational plan. Therefore, they feature problems in roads and utilities, as well as comprising high population density with numerous craft industries causing environmental and health problems.

Project description:

- Contracting consultancy agencies which may conduct re-planning process of random areas
- Preparing the urban plan for each area according to its nature
- Approving the plan from the Public Authority for Urban Planning and Fayoum governorate.

Project implementation agencies:

Consultancy firms with experience in the urban planning field.

Project estimated cost:

5 million pounds

3. Supply with utilities and enhancing the current status as per the plan

Problem description:

Random areas lack essential services such as fresh water, sanitary drainage, electricity, gas and roads. This leads to poor services in these areas which form a hurdle for the development of these areas.

Project description:

- Connecting essential utility services to random areas

Project implementation agencies:

Public Authority for Urban Planning – Ministry of Housing – governorate

Project estimated cost:

300 million pounds

6. Required actions to promote general environmental awareness in the governorate

Perhaps encouraging the initiatives and supporting the feeling of ownership are among the most significant goals of the environmental action plan in the governorate. This was carried out through the formation of taskforces by the stakeholders in the environment department of the governorate. This aims raising the awareness of a wide scope of stakeholders of the significance of their participation in preparing the environment action plan for developing their environment by identifying the activities and proposed projects expressing their opinions. Accordingly, it is hoped that participants in preparing the environment action plan will feel the responsibility towards implementation. This is considered necessary for many environmental issues which may not be solved without direct participation of individuals and communities to enhance the environmental conditions for themselves and others.

It is not necessary that the opinions of stakeholders reflect the main environmental issues observed by the government. However, such opinions have been integrated and included in the environment action plan through objective preparation and taking into consideration the priorities. The process of determining the priorities helped in recognizing the need for quick response to severe and urgent problems, which act to encourage the increasing support for projects with longer term and more cost to address environmental issues in order to create sustainable development in Fayoum governorate.

Through the environment action plan, the priorities and requirements concerned with all the groups of beneficiaries in the governorate have been integrated. This appeared through the numerous opportunities through which the partnership between the various groups may be developed in order to achieve sustainable development in Fayoum. Although these projects can not solve the main issues alone, nevertheless they certainly contribute in achieving the final goal. Encouraging such small works acts as a take off point to assist all the concerned groups to recognize what the action plan may achieve, which in turn increases the support to the government environment action plan. Further, these projects are considered the initial method for encouraging more participation among the various groups of beneficiaries.

7. Institutional support and building the capacities of the environmental department in the governorate

7.1 Institutional support and capacity building

The successful implementation of the works included in the environment action plan of Fayoum governorate will lead to the more efficient use of available resources. This requires new investments, especially for the proposed infrastructure installations. In both cases, the matter will require developing the institutional structure and the incentive systems which support implementation.

This part of the report addresses some of the works required to reinforce the existing institutions and increase efficient coordination among them. Recently, the governorate formed a higher committee for environment, chaired by the governor, which undertakes the responsibility of implementing the environment action plan in the governorate. Further, the governorate also has a department for environment affairs on the level of the governorate, as well as environmental units on the level of the markazs. As for the concerned ministries such as the Ministry of Housing, Ministry of Irrigation and Ministry of Health, they have environmental liabilities according to the various laws and significant roles which should be carried out. Therefore, their abilities will need support to enable them to fulfill these responsibilities. Further, their institutional structures also require support to facilitate the effective participation actions by the private sector, private societies, community development societies and all the sectors of the society for implementing the environment action plan requirements.

7.2 Environmental planning and management system

The preparation of an efficiency decentralized environmental planning and management system is considered one of the significant requirements for the implementation and sustainability of the environmental action plan works in the governorate through a planned and organized system for environmental management, under the supervision of the environment higher committee. The environment planning and management system shall assume the following tasks:

- Strategic planning to ensure sustainable environmental friendly development
- Implementing planning the uses of lands, which considers environmental laws through the implementation of environmental impact assessment conditions and compliance with the same.
- Coordination between the activities of taskforces for the purpose of enhancing environmental services, conserving, protecting and treating resources.
- Increasing the general awareness and consulting the society in connection with environmental issues
- Capacity building through training, appointment and operation of effective guidance services.

- Arranging the necessary financial and human resources to carry out the environmental action plan programs and projects in the governorate
- Efficient follow up and implementation of the environment laws and laying down standards and incentives for environmental performance
- Supporting the governorate environmental action and ensuring its sustainability and updating the same.

The significance of institutional support is attributed to the following:

- Developing a system for environmental planning and management for efficient treatment of priority issues on the levels of the government, private sector and private society
- Ensuring compliance with the implementation and execution of the governorate environmental action plan and its approval by the senior management in the governorate.
- Encouraging and facilitating the participation of all the taskforces concerned with enhancing environmental services and conserving natural resources.
- Setting up a mechanism for communication and coordination between each taskforce to ensure sustainability of the environmental action plan.

The management and planning environmental system does not impose any new bureaucratic burdens, as it relies on the decentralized system for environmental managing, consisting of the following:

- The Environment higher committee formed recently assumes the responsibility of coordinating and including the management and planning activities on the level of the governorate. Its role comprises the following :
 - Preparing mechanisms aimed at integrating strategic priorities of the governorate environment action plan in the general plan, prepare programs and budgets and allocate resources
- Supporting more coordination and exchange of information between the ministries and their bodies on the governorate level.
- Increasing coordination and cooperation between the sector bodies on the governorate level
- Conveying opinions to the central agencies, such as EAA and Ministry of Local Development, and gratifying local inputs in the national environmental plans (e.g. national environment action plan)

- Following up the implementation and updating of the governorate environmental action plan priorities and ensuring the inclusion of environmental issues in the development plans.
- Undertaking the role of the governor advisor in connection with strategic environmental issues

The initiatives which have been started on the central level to support decentralization of the environmental management include the following:

- Issuing a decree to transform the environment affairs departments at all the governorates into general departments for environment affairs. In fact, this was carried out in a number of governorates such as the Red Sea and New Valley. The implementation of this decree will give more significance to environmental issues, as well as support the decentralization of the environmental management.
- Comprehensive coordination of environmental activities at all the departments/markazs and directorates in the governorate as part of the main tasks of the general administration for environment affairs. This includes the preparation of environment plans and strategic programs. It is possible as well that the general administrant acts as an information and complaints office for environment issues, which will assist environmental follow up, offering environmental training and raising the environmental awareness of the community.

7.3 Main environmental directorates

A system for environmental planning and management should be established based on the current system of decentralized environmental management in the governorate (table 2). The environmental planning and management system should also assist in coordinating and boosting the efficiency of the other main departments in Fayoum Governorate in order to assume their environmental responsibility, as indicated by the following table:

Table (2): main environmental directorates (responsibilities and coordination)

Departments	Environmental responsibilities fields	Coordination with other authorities
Ministry of Water Resources and Irrigation (concerned basically with the distribution of water and cleaning watercourses of wastes)	- Implementing law 12/1984 in connection with the village, drainage and relevant decrees. - Preparing estimates for irrigation water to the central Ministry. - Managing infrastructure facilities to supply with drainage services, irrigation water, operate and distribute them according to the Ministry provisions. - Ensuring adequate irrigation and drainage of agricultural lands to increase the expected crops. - Increase efficiency of transport of water to the irrigated lands - Replacing and renewing old drainage grids. - applying law 48 through joint inspection of water surfaces with the police	- Health directorates take samples to measure the quality of water in order to protect public health. - Submitting any problems related to the quality of irrigation water to the Ministry of Water Resources and Irrigation. - Submitting violations of laws, other than law 48, to the EAA in the governorate or any other concerned authority. - Submitting problems of the quality of irrigation water to the Ministry of Water Resources & Irrigation
Ministry of Housing Public Authority for Sewage Drainage	- Implementing law 93/1962 in connection with the disposal of sewage drainage and relevant decrees to ensure conformity of sewage drainage collection and treatment services with the Egyptian laws. - Encouraging the reuse of treated sewage water and sludge. - Providing sufficient collection and treatment utilities for the small villages and rural areas. - Ensuring the availability of sufficient treatment utilities of industrial wastes. - Ensuring conformity of household and industrial sewage water disposed in the public sewage grids with the Egyptian criteria. - Preparing small sewage drainage projects (pipelines, systems, pumps), and big projects and implementing them by the central ministries, and managing	- The health directorate has a routine follow up program of the industrial drainage liquids drained into the public sewage grid. - The health directorate tests the drainage liquids on behalf of EAA or the sewage drainage department, according to the request. - Submitting water pollution violations to the water surface police

	them by the governorate. - Supervising staff of the centers and their follow up of the projects being implemented by the private sector contractors. - The centers staff assume the responsibility of inspecting leakage cases or damaged pipes, odors emitted from treatment units, pollution resulting from untreated sewage	
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Departments	Environmental responsibilities fields	Coordination with other authorities
Ministry of Agriculture and Land Reclamation – Agriculture Department	- Applying law 53/1966 and relevant decrees - Presenting marketing and financial services and agriculture seedlings through the agricultural cooperative societies - Assisting the agricultural sector to combat diseases and epidemics. - Assisting in maintaining the quality of soil (for example by conducting researches in connection with the salinity of soil) - Encouraging reclamation and land leveling projects. - Managing and cleaning water and drainage courses (the Ministry of Water Resources and Irrigation undertakes the management of main watercourses. The Ministry of Agriculture manages secondary watercourses) - Providing information, training and agricultural guidance services for agricultural practices (such as combating infections, the use of fertilizers and breeding animals)	- Ministry of Health and Exports Development Authority monitor the quality of agricultural production. - The department informs environmental units in each markaz of environmental violations.
Ministry of Health and Housing , Health Department	- Takes samples from the fresh water sources, water treatment plants and drainage liquids resulting from the sewage drainage treatment plants and sewage water in the local sewage grids as well as the watercourses water. - Analyzing these samples (or sending them to the central Ministry of Health for analysis). - Taking and analyzing samples from industrial pollution sources and other pollution sources, according to the request of other authorities.	- In the event of a problem related to the quality of fresh water, a committee is formed from the environmental affairs department and water company to verify and inspect the problem. - Samples taken from the suspected locations in the Nile River are sent to the central

	- Implementing vaccination programs to prevent and manage infectious diseases	ministry, after which it notifies the governorate in the event of a problem
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7.4 Institutional support to other authorities

The institutional structure should not be confined to government authorities alone. It should also include directing big efforts to building the capacities of private societies, educational installations and the private sector in order to boost their abilities in environmental planning projects and programs, as well as managing them. Further, the initiatives should include the appointment of environmental liaison officers at the professional associations in order to boost self follow up of their member companies and informing them of the benefits they will enjoy as a result of enhancing environmental performance.

8. Roles and responsibilities

Each environmental goal mentioned in the environmental action plan shall have the main agencies in charge of its implementation, as set forth under table (3). The environment department should undertake the responsibility of coordinating the preparation of the policy, monitoring results and presenting reports on the achievements in this respect, as well as offer the recommendations concerned with the development of performance.

Table (3) responsibilities for implementing the environmental action plan in the governorate

Main goals	Main implementing authorities	Supporting authorities
First : sanitary drainage		
Supplying sanitary drainage services to all the rural and urban areas	Fresh Water & Sanitary Drainage Holding Co.	Ministry of Housing & Utilities
Supporting and building the institutional capacities of the sectors on the level of the governorate	City councils, village councils, Fresh Water & Sanitary Drainage Holding Co.	Fayoum governorate, Environment affairs dept.
Gratifying the reuse of treated sanitary water and sludge	Agriculture directorate, Fresh Water & Sanitary Drainage Holding Co.	Environment affairs dept., agricultural cooperative societies, agricultural guidance workers
Solid wastes management		
Laying down a suitable strategy for integrated waste management in Fayoum governorate	Solid wastes dept.	Environment affairs dept, city councils, village councils,

		community development societies
Enhancing the operation and maintenance of wastes services and utilities	City councils, village councils	Environment affairs dept.
Enhancing the existing systems for wastes collection and transport	City councils, village councils	Environment affairs dept.
Adopting suitable systems of high quality for treatment and disposal of wastes	City councils, village councils, hospitals, factories, etc.	Environment affairs dept, health directorate
Ensuring the safe and sustainable recycling of wastes	City councils, village councils, hospitals, factories, etc.	Environment affairs dept, health directorate
Introducing suitable systems for hazardous/medical wastes	City councils, village councils, hospitals, factories, etc.	Environment affairs dept, health directorate
Enhancing institutional organization and capacity building of personnel	City councils, village councils	Fayoum governorate

Supply with water and quality of water		
Achieving service coverage by 100%, increasing production to fulfill expected demand	Potable Water & Sanitary Drainage Holding Co.	Potable Water & Sanitary Drainage Holding Co., Fayoum governorate
Enhancing the quality of water service to conform with Egyptian standards	Potable Water & Sanitary Drainage Holding Co.	Potable Water & Sanitary Drainage Holding Co., health directorate
Raising the level of collecting consumption fees from 65% to 85% and reducing losses in the grids from 25% to 20%	City councils, village councils, factories, societies, community development societies, private organizations	Potable Water & Sanitary Drainage Holding Company, community development societies, private societies
Institutional capacity building to enhance management of water supply and service grid	Local popular council in the governorate, city councils, village councils	Potable Water & Sanitary Drainage Holding company
Water resources:		
Enhancing the management of surface and underground water resources	Ministry of Irrigation and Water Resources	Environmental Affairs Dept.
Enhancing the efficiency of surface and underground water resources	Ministry of irrigation and Water Resources, health directorate	Environmental Affairs Dept.
Reducing the pollution of surface and underground water resources	Factories, EEAA, agriculture directorate, public works and water resources directorate, health directorate	EEAA, water surfaces police

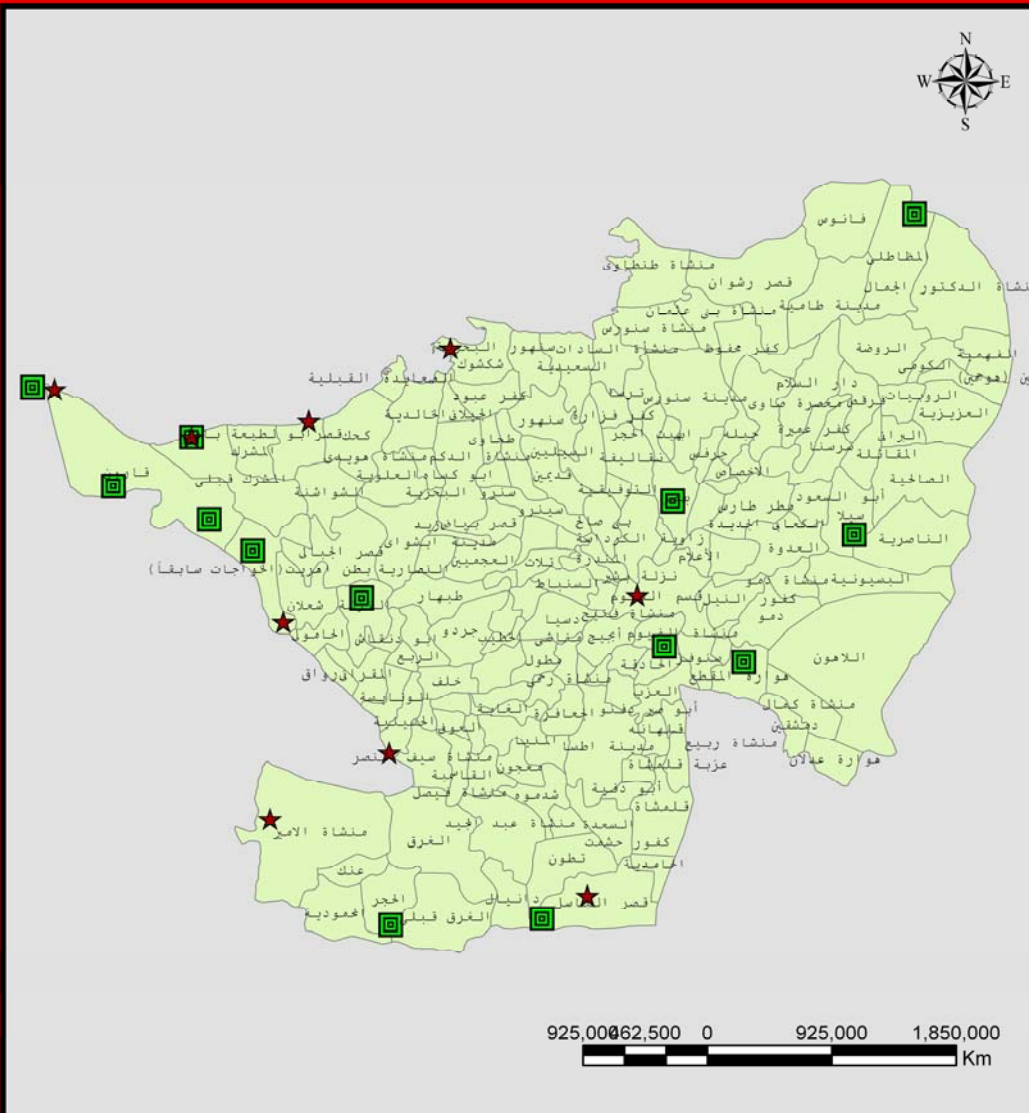
Agriculture		
Enhancing the efficiency of soil and irrigation	Agriculture directorate	Ministry of Irrigation and Water Resources
Gratifying the use of fertilizers and pesticides	Agriculture directorate	Ministry of Agriculture and Land Reclamation
Reinforcing fish production	Agriculture directorate	Public Authority for the Development of Fish Resources
Reducing the waste of crops and addressing this issue	Agriculture directorate	Ministry of Agriculture and Land Reclamation
Developing institutional management	Agriculture directorate	Fayoum governorate
Industrial pollution		
Ensuring safe storage of hazardous materials and safe disposal of hazardous wastes	Factories, environment affairs department	EEAA, health directorate, manpower directorate
Reducing gas and micro emissions from big factories, coal plants and brick plants by 50%	Factories	Environmental affairs dept., public works and water resources directorate
Increasing the government's ability to manage industrial activities	Industrial Development Agency, city councils, village councils	Environmental affairs dept.
Lack of environmental awareness		
Raising environmental awareness among employees in the government sector and residents of Fayoum governorate	Fayoum governorate, public awareness dept., EEAA, education directorate	City councils, village councils, health directorate
Enhancing the supply with services to enable the residents to follow sound healthy practices	Potable Water & Sanitary	NOPWASD, Health

	Drainage Holding Co.	directorate
Natural resources		
Supporting planning and operation processes and organization at the mines and quarries	Mines and quarries dept.	Fayoum governorate
Supporting the capacity of mines and quarries dept.	Mines and quarries dept., environment affairs dept.	EEAA

Enhancing environmental impact assessment studies	Environment affairs dept., environment units	EEAA
Reducing the effects resulting from the works of mines and quarries	Mines and quarries dept., environment affairs dept., village environment units	EEAA
Cultural heritage		
Supporting the cultural sites dept. and areas of environmental significance	Archaeology dept.	Fayoum governorate, Higher Archaeology dept.
Supporting capacity building	Archaeology dept.	Fayoum governorate, Higher Archaeology dept.
Protection of cultural heritage	Fayoum governorate	Higher Archaeology dept.
Protection of the area located around Ain El Seleen and natural protectorates such as Qaroon lake, El Rayan valley and many monuments such as Sonosret I obelisk	Archaeology dept.	Fayoum governorate
Protection of biological diversity and Qaroon lake		
Laying down a program for conservation of the biological diversity and the environment	Fayoum governorate, agriculture directorate, EEAA, education directorate	Environment management directorate, city markaz, village units
Natural protectorates areas dept.	Fayoum governorate, agriculture directorate, EEAA	Environment affairs dept.
Controlling environmental hazards (threats)	Fayoum	Environment

	governorate, agriculture directorate, EEAA	affairs dept.
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Cultural heritage and civilization and the most tourist shrines



9. Funding and implementing the plan

9.1 Implementation priorities

Proposed works for the environment action plan has considered the offering of practicable solutions. However, the limitation of financial resources is considered a barrier in the face of achieving the required improvements, while the five priority issues which have been defined require fast interventions:

1. Enhancing solid and medical hazardous wastes management
2. Developing Qaroon lake
3. Developing agricultural and fish resources.
4. Controlling air pollution
5. Upgrading random areas

For the said environmental liabilities, the biggest responsibility for handling them falls on the governorate in the form of supplying environmental utility services (although it is necessary at the same time to ensure the opportunities of the private sector participation.) Further, the university has a significant role in implementing the third and fifth priority in particular.

To address the foregoing, the matter requires directing priority in the first three years to the following:

a. Establishing and reinforcing environment planning and management system

The achievement of sustainable achievements requires the construction of strong institutional structures and providing the necessary resources to accomplish the achievements. Therefore, the environment affairs office in the governorate should be restructured during the first year of initiating the environment action plan in the government. In order to achieve this efficiently, the matter requires the governorate to establish a general environment office to have a central role in implementing the plan inside the governorate under the supervision and direction of the higher environment committee. Sources should be provided to offer the required training to all the employees in the general environment office and the higher environment committee during the first two years.

Awareness should be increased for the role played by the environment planning and management system in achieving the governorate environmental action plan. Further, environmental awareness campaigns strategy should be developed to ensure the spread of successful environmental projects all over the governorate, supported with messages to spread the goals of the governorate environment action plan. The strategy should comprise the administrative units of the governorate, EAA, private societies, community development societies, schools, universities, mosques, commercial association, businessmen groups and media.

b. Laying down a budget and five year plan for implementation

After completing the preparation of the plan, the governorate should contact the directorates and agencies in charge of handling the aforementioned priority issues. These agencies should be assisted to integrate the relevant parts to the governorate environment action plan in their practical plans and determine the costs of the execution. The detailed execution plans will gratify the proper use of the currently available budgets and will determine the priorities which require additional resources in order to achieve the goals of the governorate environmental action plan

Under the framework of the implementation plan, the priority of the activities in each component should be outlined. For instance, it may be necessary to determine giving priority to providing essential governmental services to the more impoverished areas or boost actions to attract environmental friendly investments, such as the creation of an industrial city.

c. Boosting control capacities

Since the beginning, the governorate should determine a number of measurable indicators to identify the progress of the governorate environment action plan activities. Further, the directorates and companies should be encouraged to lay down administrative and individual goals as mentioned under table (2). This will assist in achieving more efficiency and constructive exploitation of the limited resources in order to give more benefit and advanced environmental performance.

d. Dissemination of the governorate environmental action plan to attract additional resources

The implementation of the governorate environment action plan priorities will mobilize the income resources of Fayoum governorate, on all levels starting with the governorate, to the communities, community development societies and private societies. The environment action plan provides a clear framework through which funds are directed to the priority issues. The governorate environment action plan should be submitted to the main concerned ministries, donor organizations and national organizations in order to obtain their support to the environmental management efforts in the governorate. Further,

winning constant support on the highest level may assist in opening the field for additional funding to the governorate environment action plan.

e. Attracting the private sector to offer utility services

The governorate should lay down a legal and economic framework to reinforce the participation of the private sector and investment in supplying and connecting the environment utility services. This will reduce the financial and administrative burden on the governorate and enhance the quality, coverage and connection of environmental services.

9.2 Finance institutions and foreign donor authorities

The governorate and donor agencies fund a number of significant projects in the governorate, such as the project for solid waste management being implemented in cooperation with the Dutch embassy, as well as the agricultural development project in cooperation with CARE, as well as wastes collection projects and village sanitary drainage projects with the Egyptian Swiss Fund. There is a possibility for the repetition of these initiatives in other locations in Fayoum governorate.

9.3 Finance institutions local donor authorities

The effective participation of the government in the process of preparing the governorate environment action plan is considered a basic factor for reaffirming its ownership. For this purpose, government representatives participated extensively in the taskforces to prepare the environment profile of Fayoum Governorate and determine priorities of the governorate action plan. To support the governorate action plan on the strategic level, the governorate formed the higher environmental committee which assumes the responsibility of implementing the governorate environment action plan and periodical revision of the liabilities of the current plan.

9.4 Private sector

The private sector plays a significant role in assisting the implementation of the environment action plan in Fayoum Governorate. Development of this role is essential and connected with other concerned stakeholders especially the governorate. The governorate should determine the various methods through which the private sector may participate and how to encourage such participation. This may include for example : increasing the private sector's role in offering environmental services (such as the development of waste collection and disposal, water supply or sewage treatment), building more constructive partnerships between the governorate environment affairs department, industrial sectors and investors to handle the compliance issues with the implementation of the environmental impact assessment and inspecting factories and promoting and supporting the private sector companies' liability to implement sound environmental systems or practices.

9.5 Private societies

Fayoum Governorate has a number of private societies for community development operating in the environment field. Through their programs, they aim at enhancing the environmental situation in the governorate. Over the past years, private societies were able to attract a number of external finance through the support of donor authorities and local donations in order to conduct a number of significant environmental initiatives. These include community development societies which were able to obtain funding to collect solid wastes from the villages, as well as the Arab woman association in Abu Kasah village, Ebshowy markaz, which manages a project for classification of wastes. Further, there are societies which undertake the collection and transport of sanitary drainage from the houses and villages. They contribute here with the local units for disposal of the sanitary drainage problem. Further, the governorate society has conserved the environment in Fayoum by the establishment of hazardous medical wastes incinerator to contribute in solving the environmental problem.

10. Contribution in affecting national and international issues

Undoubtedly, the implementation of the environmental priorities which were included in the governorate environmental action plan and mentioned previously. Most of the said problems come as part of the work priorities on the national level. The environmental action plan comprises as well the priority issues set forth under the national plan for environmental work, issued in 1992. The expected environmental improvement will conform to the international agenda and lead to enhancement of the quality of life for the citizens, especially industrial pollution reduction issues. The said procedures in the plan will also contribute in fulfilling Egypt's liabilities according to the international protocols, especially the 21st century agenda issued by Rio conference and the millennium development goals.

11. Follow up and assessment of plan implementation

The environmental action plan was designed in such a manner which permits regular measuring and follows up of the development in the priority environmental activities agreed upon.

The activities related to priority issues were defined, as well as the goals through which the success of these activities will be measured. Therefore, it is necessary to design a simple and efficient system to assist in measuring the development related to the activities. For instance, if we want to measure the development in:

- Solid wastes management system. It is noteworthy at the beginning to agree on simple and measurable indicators, such as the volume of wastes which each worker collects daily, the number of burned wastes dumpsites
- In the event of water supply (lengths of the pipes maintained daily, total collected fees)

It is expected that the environmental affairs department will undertake a main role in following up the achievements of the activities and submission of results to the higher environmental committee, in addition to the role played by the main agencies in assisting and following up the achievements with the leadership organizations. However, the higher environmental committee is the one responsible for follow up and updating of the environmental action plan issues for any changes which happen in the priorities with the lapse of time.

11.1 Annual assessment

The "environmental status" report should be prepared and referred to the higher environmental committee annually, provided it comprises a summary on the following:

- Achievements related to the activities agreed upon.
- Environmental improvement as a direct result of achieving the environmental action plan activities
- Areas which require a bigger attention as a result of poor performance or hurdles.
- The recommended required changes as a result of change of priorities or environmental conditions.

The environment affairs department in the governorate should coordinate to prepare this report. However, the environment units and environment liaison representatives in the governorate as part of the environment system management and planning should have contributions in preparing this report. Further, the private societies, private sector and public leaderships should contribute effectively in the evaluation process.

11.2 Environmental action plan as a continuous process

The environment action plan should be characterized by efficiency and flexibility to ensure its sustainability. Further, the policies, goals and activities merged with the environmental action plan consultations should be updated to reflect the changes in the local conditions. In addition, the learned lessons should be recorded in the follow up reports of the environment action plan to benefit from them in executing environmental plans elsewhere.

For updating the environment action plan activities and goals, this should be carried out periodically. The follow up reports should be prepared annually and the environment action plan updated every two or three years. In the environment action plan cycle, the following should be considered:

- Preparing and updating detailed implementation plans (3-5 years) and the required budget for priority activities annually.
- Follow up and assessment of achievements and executive performance
- Continuation of consultations with the primary and secondary stakeholders and crystallize their opinions and support to the next environment plans.
- Revision and placement of new suitable goals and activities
- Attracting investment in certain areas as a result of external changes (such as changes in the national policy)
- Constant attempts to attract external investments, whether governmental or from the private sector or donor agencies
- Conformity with the technological development which may contribute in offering feasible and efficient solutions to environmental problems
- Responding to the changing requirements, especially concerned with institutional support and capacity building

12. Conclusion

All the main stakeholders contributed in preparing the environment action plan to agree on the following:

- Priority issues
- Main activities and procedures which should be taken on the level of the governorate and markazs on part of the government sector, industrial and private sector, in addition to a number of local societies operating in community development.
- Basic requirements for institutional support for each main stakeholder
- General awareness and required training programs.
- Tasks of leadership organizations and main stakeholders
- The need to lay down precise budgets for the developments agreed upon.
- The required continuous follow up and environmental planning

It is expected that the stakeholders will contribute in implementing the environment action plan activities. The following box illustrates the desired benefits from implementing the environment action plan. Further, it illustrates the quality benefits which primary and secondary stakeholders strive to achieve.

Desired benefits from implementing the environment action plan:

Benefits	
	- Enhancing health/ reduction of mortality rate. - Better level of training and expertise for the environment affairs department employees - Deepening the people's feeling of ownership / cleanliness of streets - Controlling the hazards resulting from environmental dangers - Receiving training on environmental issues in a better manner - Expanding the scope of the people's participation - Providing opportunities for increasing profits - Providing better employment opportunities - Increasing funding opportunities from donor agencies - Increasing the opportunities of recovering the cost of infrastructure and environment services. - Supply of enhanced and safe irrigation water - Enhancing the drainage of agricultural lands and maintaining the soil

13. Annexes

13.1 Annex (1) list of participants in plan preparation

Solid and medical wastes management taskforce

Name	Job
Geologist / Osama Abdulghani Al Madani	Director, solid wastes management unit
Chemist / Mushira Refaai Ali	Inspector – environment affairs dept.
Mr. Mamdooh Abdulhazfeez	Research, environment health dept., health affairs directorate
Chemist/ Hana'a Awad Khalifa	Director, dumpsite – director, environment dept., Tamia Markaz
Mr. Ahmad Yusuf Mohammed	Researcher, solid wastes management unit

Qaroon lake development taskforce

Name	Job
Engineer / Younes El Sayed Abdulsalam	Undersecretary, Ministry of Water Resources & Irrigation
Engineer / Ouweis Said Abdulla	Director, environment affairs dept., Fayoum governorate
Engineer / Mohsen Eid Morsi	Fresh Water & Sanitary Drainage Co.
Biologist researcher / Hassan Shaban Mohammed	Environment affairs dept.
Engineer/ Ahmad Mohammed Abdulhamid	Irrigation engineer
Mr. Gebely Abdulmaksood	Qaroon protectorate

Industrial pollution reduction taskforce

Name	Job
Engineer / Ouweis Said Abdulla	Director, environment affairs dept. in the governorate
Engineer/ Afaf Mohammed Ali	Director, industrial area, Kom Osheem
Chemist / Ragab Ahmad Moftah	Environment Affairs Dept., Governorate
Engineer Mohammed Abdulmonim Mahmud	Fayoum Gas Co.
Mr. Salah Ahmad Khalifa	Brick Plants Owners Association
Legal researcher/ Mohammed Abdulsatar Abdulwahab	Environment Affairs Dept., Fayoum Governorate
Environmental researcher / Hussam Shaban Mohammed Qutb	Environment affairs dept., Fayoum governorate

Agricultural and fish resources development taskforce

Name	Job
Engineer/ Hosni Habib	Undersecretary of the Ministry of Agriculture in Fayoum
Engineer Ouweis Said Abdulla	Director, environment affairs dept., Fayoum Governorate
Dr. Salah Nadi Abdulrahman	Director general, Nile Valley Area for Fish Resources Development
Mr. Ezzat Abdulfatah	Undersecretary of the fish resources dept.
Engineer Mohammed Abdulati Ali	Environment affairs dept.
Mr. Gerges William Rizk	Environment affairs dept.

Random areas development taskforce

Name	Job
Engineer Ahmad Abdulla Hassan	Undersecretary of the Ministry of Housing
Engineer / Ouweis Said Abdulla	Director, environment affairs dept.
Engineer / Ata'a Ahmad Abdulaleem	Housing engineer
Engineer / Marwa Abdulla Mohammed	Urban planning researcher
Engineer Magi Mohammed Kamal	Engineer, environment affairs dept.
Mr. Anan Sayed Al Kadi	Environment affairs dept.

12.2 annex (2) list of executed workshops**First: solid and medical wastes**

Workshops and seminars	Agency in charge of preparation	Date
Presenting the basic concept	Environment affairs dept.	18/11/2007
Distribution of tasks to the taskforce	Solid wastes unit	20/11/2007
Gathering tasks and laying down the perception	Solid wastes unit	10/12/2007
Laying down the final formula	Solid wastes unit	10/1/2008
Discussion of proposed amendments	Environment affairs dept.	11/2/2008
Laying down the new perception	Solid wastes unit	12/2/2008

Second: development of Qaroon Lake

Workshops and seminars	Agency in charge of preparation	Date
Workshop dated 25/11/2007	Environment affairs dept.	25/11/2007
Workshop dated 14/12/2007	Environment affairs dept.	14/12/2007
Meeting dated 3/2/2008	Environment affairs dept.	3/2/2008

Third: air pollution

Workshops and seminars	Agency in charge of preparation	Date
Taskforce meeting	Environment affairs dept.	20/12/2007
Taskforce meeting	Environment affairs dept.	23/1/2008
Taskforce meeting	Environment affairs dept.	18/3/2008

Fourth: agriculture and fish resources

Workshops and seminars	Agency in charge of preparation	Date
Taskforce meeting	Environment affairs dept.	4/12/2007
Taskforce meeting	Environment affairs dept.	10/1/2008
Taskforce meeting	Environment affairs dept.	11/3/2008

Fifth: housing and random areas

Workshops and seminars	Agency in charge of preparation	Date
Taskforce meeting on 15/12/2007	Environment affairs dept.	15/12/2007
Taskforce meeting on 20/1/2007	Environment affairs dept.	20/1/2007
Task force meeting on 10/3/2007	Environment affairs dept.	10/3/2007

12.3 annex (3) reports used to prepare the plan

Report	Issuing agency	Date of issue
Fayoum governorate environmental profile	Environment affairs dept.	March 2007
Urban planning department reports on random areas	Urban planning department in the governorate	
Estimated study for developing mud brick plants	Fayoum Gas Co.	2007
General plan for solid wastes management at Sonoros and Tamia markazs	Environment affairs dept.	2004
Classification of hazardous medical wastes	Environment health dept. – health affairs directorate	2005
Qaroon lake development plan	Qaroon lake development conference	2003
(environmental impact assessment study for human activities on the southern coast of Qaroon lake)	Hussam Shabaan Zayed – Masters degree- Faculty of Science – Al Azhar University	2007

Participants of developing the Environmental Action Plan

Governorate EMU has participated in developing the governorate Environmental action Plan, and was represented by the following names:

- 1- Mr. Gameel Soliman Mekha'eel
- 2- Mr. Hossam Shaba'an Mohamed Kotp
- 3- Mrs. Elham Aly Hassan
- 4- Engineer/ Magi Mohamed Kamal
- 5- Engineer/ Ghada Ibrahim Abdulghani
- 6- Chemist/ Moshira Refai Aly
- 7- Chemist/ Ragab Ahmed Moftah
- 8- Engineer/ Mohamed Abdul Atti Aly

Under the supervision of Engineer/ Ewais Said Abdullah EMU Manager

RBO - EEAA has also participated in addition to all directorates, agencies, institutions, and local units of the governorate cities and markazs.

Solid and medical wastes management taskforce

Name	Job
Geologist / Usama Abdulghani Al Madani	Director, solid wastes management unit
Chemist / Mushira Refaa Ali	Inspector – environment affairs dept.
Mr. Mamdooh Abdulhazfeez	Research, environment health dept., health affairs directorate
Chemist/ Hana'a Awad Khalifa	Director, dumpsite – director, environment dept., Tamia Markaz
Mr. Ahmad Youssef Mohammed	Researcher, solid wastes management unit

Qaroon lake development taskforce

Name	Job
Engineer / Younes El Sayed Abdulsalam	Undersecretary, Ministry of Water Resources & Irrigation
Engineer / Owais Saaid Abdulla	Director, environment affairs dept., Fayoum governorate
Engineer / Mohsen Eid Morsi	Fresh Water & Sanitary Drainage Co.
Biologist researcher / Hussan Shaban Mohammed	Environment affairs dept.
Engineer/ Ahmad Mohammed Abdulhamid	Irrigation engineer
Mr. Gebely Abdulmaksood	Qaroon protectorate

Air pollution taskforce

Name	Job
Engineer Ouwais Saaïd Abdulla	Director, EMU, Fayoum Governorate
Chemist/ Ragab Ahmed Moftah	EMU, Fayoum Governorate
Mohamed Abdulmoniem Mahmud	Fayoum Gas Company
Mr. Salah Khalifa	Brick factories union

Agricultural and fish resources development taskforce

Name	Job
Engineer/ Hosni Habib	Undersecretary of the Ministry of Agriculture in Fayoum
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Mr. Ezzat Abdulfatah	Undersecretary of the fish resources dept.
Engineer Mohammed Abdulati Ali	Environment affairs dept.
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Engineer Ahmad Abdulla Hassan	Undersecretary of the Ministry of Housing
Engineer / Ouwais Saaïd Abdulla	Director, environment affairs dept.
Engineer / Ata'a Ahmad Abdulaleem	Housing engineer
Engineer / Marwa Abdulla Mohammed	Urban planning researcher
Engineer Magi Mohammed Kamal	Engineer, environment affairs dept.
Mr. Anan Sayed Al Kadi	Environment affairs dept.

Under the supervision of

1- General/ Othman Mohamed Othman

2- General/ Saad Abdulhameed Mohamed Abu el-Ella

**Secretary General
Assistant Secretary
General**

From ESP, DANIDA:

- 1- Mr. Anders Bjoernshave**
- 2- Mr. Kurt Terpgaard Jensen**
- 3- Dr. Aly Abu Sedera**
of Branches Sector, Supervisor of ESP
- 4- Salah Mohamed Ahmed El Sherif**
- 5- Mr. Sami Moustafa Mazloun**
Action Plan Officer
- 6- Dr. Tarek Genenah**

DANIDA Senior Consultant
DANIDA Consultant
Secretary General of EEAA, Head

EMU Manager
EMU, Environmental Profile and

EMU Consultant

All under general supervision of
Dr. Mawaheb Abu El Azem
CEO, EEAA