Menofyia Governorate

EMU

State Ministry of Environment

EEAA

Environmental Action Plan

Menofyia Governorate

May 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 Menofyia Governorate.

We are keen to highlight the contributions of beneficiaries' working groups who participated in developing Menofiya 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 Engineer/ Sami Emara, Menofyia Governor, whose personal participation and kind support and great ideas contributed a lot in developing the Environmental Action Plan of Menofyia Governorate.

Special thanks goes to Abu el-Maati el-Dakrori, Secretary General and Mr. Taha Zaglol, Assistant Secretary General, for their effective role in supervising working groups during preparing the plan.

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 Menfyia Governorate which shall contribute significantly in solving the environmental problems and improving the different echo 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 Engineer/ Sami Emarra, menofyia 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", perhaps they 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

Emphasizing the role of science in managing environmental issues, the governorate has participated in developing its Environmental Action Plan, which includes the existing environmental problems and the governorate efforts to solve those problems over the past five years, the current situation of such problems and the solutions and proposals to handle these problems in the next years in order to protect the environment and develop its resources according to the methodology that serves the environmental purposes in the governorate on scientific and planned basis.

All greetings to the Environmental Higher Committee for its exerted coordination efforts in the fields of environment and sustainable development in the governorate to secure economic and legislative atmosphere to encourage private and foreign investment in the environment and its technologies.

Engineer/ Sami Emara

Governor of Menofyia

Table of contents

1- Menofyia governorate overview as per the environmental profile
2- Environmental Action Plan of the governorate as strategic framework
2-1 Introduction and orientation of Environmental Action Plan (EAP)
2-2 Why do we need Environmental Action Plan?
2-3 How the plan was developed?
2-4 Who are the plan owners?
3- Environmental issues and priorities:
3-1 summary of environmental issues based on the Environmental Profile
3-2 Environmental priorities and working groups
4- Future vision for 2012
5- Environmental Priorities
5-1 Solid wastes management
5-1-1 General background
5-1-2 achievements in the past five years
5-1-3 current situation: problems and causes
5-1-4 Vision and goals
5-1-5 Targets and required actions
5-1-6 proposed projects or included in the five-year plan
5-1-7 description of high priority projects or programs
5-2 Agriculture wastes
5-2-1 General Background
5-2-2 achievements over last five years
5-2-3 current situation, problems and causes
5-2-4 vision and goals
5-2-5 targets and required actions
5-2-6 proposed projects list
5-2-7 description of priority projects or programs
5-3 Potable water and wastewater
5-3-1 general background
5-3-2 Potable water
5-3-2-1 achievements over the last five years
5-3-2-2 Current situation, problems and causes
5-3-2-3 Vision and objectives
5-3-2-4 Targets and required works
5-3-2-5 List of proposed projects
5-3-2-6 Description of high priority projects or programs
5-3-3 Sanitary drainage
5-3-3-1 Achievements over the past five years
5-3-3-2 Current situation: problems and causes
5-3-3-4 vision and objectives
5-3-3-5 Targets and required works
5-3-3-6 List of proposed projects
5-3-3-7 Description of top priority projects or programs
5-4 Air pollution and noise
5-4-1 General background

5-4-2 Achievements over the past five years
5-4-3 Current situation
5-4-4 Vision and objectives
5-4-5 Targets and required works
5-4-6 List of proposed projects
5-4-7 Description of priority projects
5-5 Industrial drainage
5-5-1 General background
5-5-2 Achievements over the past five years
5-5-3 Current situation: problems and causes
5-5-4 Vision and objectives
5-5-5 Targets and required works
5-5-6 List of proposed projects
5-5-7 Description of priority projects or programs
5-6 Hazard medical wastes
5-6-1 General Background
5-6-2 Achievements in the past five ears
5-6-3 Current situation: problems and causes
5-6-4 Vision and objectives
5-6-5 Targets and required works
5-6-6 List of proposed projects
5-6-7 Description of priority projects or programs
5-7 Fishery wealth development
5-7-1 General background
5-7-2 Achievements in the past five years
5-7-3 Current situation: problems and causes
5-7-4 Vision and objectives
5-7-5 Targets and required works
5-7-6 List of proposed projects
5-7-7 Description of high priority projects or programs
6- Required works to promote the public awareness in the governorate
7- Institutional Support and capacity building of EMUs in the governorate
7-1 Institutional Support and capacity building
7-2 Environmental Planning and Management System
7-3 Main Environmental Directorates
7-4 Institutional support for other agencies
8- Roles and responsibilities
9- Plan funding and implementation
9-1 Implementation priorities
9-2 Foreign financial institutions and donor agencies
9-3 Local financial institutions and donor agencies
9-4 Private Sector
9-5 NGOs
10- Contribution to affect national and international issues
11- Following up plan evaluation and implementation

11-1 Following up activities
11-2 Annual assessment
11-3 Evaluating implementation
12- Conclusion
13- Annexes
13-1 Annex no. (1): working groups
13-2 Annex no. (2): statement of groups' workshops

1- Menofyia governorate overview as per the environmental profile

Location	Menofyia governorate is located south to middle Delta between its two branches (Rosita and Damietta). Its border from north is Gharbia governorate, from south west is Giza governorate, south east is Kalubia, and from west is Behira governorate, in addition to the new extension in the desert backyard to the west in Sadat City. It is located on km 93 on Cairo-Alex desert road.
Historical importance	Menofyia is famous of many monuments and historical places. For example: Seresna hills in Shohada, Kofor el Raml in Quesna, Bandria hills, and monuments store in Betla.
Area	The total area of the governorate is 2760.3 km^2 out of which the rural space is 1773km^2 at 70% of the total area, while the populated area is 57.4% of the total area, and the desert area is 42.6% of the total area.
Population	Governorate population is 4011921 capita as per the count of the Central .Agency for Public Mobilization and Statistics in 2006. The total population in urban areas 1200752 capita and in rural areas 2811196 capita
Climate	The climate in general is warm and humid in winter and hot and dry in summer. Relative humidity increases during June.
Administrative divisions & residential areas	The governorate is divided into 9 administrative districts, 10 cities, and 70 local units in villages including 31 villages and 989 satellites.
Economic base	The unique location of the governorate gives it black soil due to its site between the two branches of the Nile River and the accumulation of clay, which makes its land fertile and suitable for all kinds of cultivations. The location also grants it many water resources on which it depends in irrigation through huge network of canals and waterways. The governorate has diversity in natural and greenery life due to the diversity of natural environments and land topography. Natural resources include construction materials of sand and gravels as well as glass sands and minerals outside Sadat city to the west side.
Industry	There are two industrial zones in the governorate that are Sadat city and Mubarak in Quesna. Factories number in the two zones is 389 and the volume of investments is over 6 billion Egyptian Pounds.
Education & culture	Menofyia is a leading governorate in the field of education due to the high rate of educated people. This is may be due to the small agriculture area and population density, which pushed its citizens to rely on education as a way to earn their living. Thus, the governorate care of this sector and ongoing care to manage all obstacles. It established many classes of illiteracy eradication all over the governorate. In pre-college education, the number of schools is 1710, in addition to elementary Azhar education, as there are 445 Azhar institute in all elementary, preparatory and secondary stages. There is a regional university which interacts with local community issues and problems. The university includes 22 colleges and high institutes in different fields. Also, there are two faculties affiliated to Azhar University branch in Menofyia.

Health services There are many healthcare facilities including over 20 central hospitals, 147 rural health units, 18 rural health groups, 7 motherhood and childhood care centers, 21 mobile clinics for family planning and 274 family planning units.

Administrative boarders for Menofyia Governorate

Fayoum Governorate

وزارة الدولة لشئون البيئة
جهاز شئون البيئة

Ministry of State for Environmental Affairs
Environmental Affairs Department

Administrative Division for Menofyia Governorate

Administrative boarders for markazs

الحدود الادارية للمراكز

Fayoum Governorate
محافظة المنوفية

وزارة الدولة لشئون البيئة
جهاز شئون البيئة

Ministry of State for Environmental Affairs
Environmental Affairs Department

2- Environmental Action Plan of the governorate as strategic framework

2-1 Introduction and orientation of Environmental Action Plan (EAP):

This document gives a description to the Menofyia EAP, which lays the foundation of works, and projects that shall improve life quality of the people through identifying number of environmental strategies and projects of local priority, which shall result in real improvements in environment and public health. The EAP aims also at protecting the environment from the negative impacts that may accompany the actions of current and future development. Therefore, EAP works on integrating the social, economic and environmental dimensions in order to achieve the sustainable development. The methodology of the EAP aims at achieving benefits for the local community with special focus on the poorest people.

EAP proposes a bunch of solutions in line with the national five-year plan of socioeconomic development 2007-2012, especially in providing enough sanitary drainage utilities for all urban centers. EAP handles also the priority issues of the National Environmental Action Plan issued in 1992 regarding fields like soils wastes management and use of water and lands. The procedures in the Plan contribute also in meeting Egypt obligations under the international protocols, especially the agenda of 21 century issued by Rio conference and the Millennium Development Goals. During the preparing of EAP, the Environmental Profile of the governorate was issued, including the environmental status and priority issues through specialized reports covering the priority environmental issues like water, wastewater, slum areas, lands, air pollution, health, social development, eco-economics, and environmental awareness and institutional capacity building.

2-2 Why do we need Environmental Action Plan?

Governorate EAP aims at supporting the environmental action system through providing concerned departments in the governorate with a scientific approach for environmental planning and management through working groups of executives and concerned people in the environmental action issues.

The successful implementation of the EAP ensures supporting the governorate in better dealing with issues like:

- Equal provision and effective management of infrastructure and environmental services in the governorate (solid wastes – potable water – wastewater).
- Planning the governorate resources and culture heritage with sustainable management (lands – water – air).
- Mitigating and controlling pollution impacts that may affect the natural resources in the governorate.
- Achieving goals in such a way to ensure improving the living conditions of the poor and marginalized people in the governorate.

In addition to support that the environmental planning and management system provides to the governorate in setting up its priorities and achieving of a set of goals, it also provides the governorate with procedures for monitoring and assessment that are

designed to help assessing the performance. The participation methods followed in developing the EAP provides opportunities to revise the projects and programs that do not achieve its goals. This takes place on updating the EAP and approving the next group of priority works and projects. This, in turn, ensures the sustainability of the environmental planning and achieving many benefits, including the following:

Economic – Financial benefits: Like improving planning and resources allocation, optimizing current utilities effectiveness, avoiding expensive costs of treating water and other resources pollution, reducing the costs of medical treatment and lost productivity due to pollution-related diseases, optimizing the land-use planning to achieve the best returns and increasing the chances of identifying the environmentally friendly technologies and investing in them.

Human and Social benefits: Like improving public health through providing eco services, reducing pollution, training/ awareness promotion, improving living and working environments (especially fir those who live in sever poverty), increasing the feeling of ownership of the projects and programs and increasing participation in designing and implementing.

Benefits for the natural environment: improving the quality and quantity of the water used for irrigation and industry, improving land drainage, preserving the soil, and release pressure on the natural resources.

2-3 How the plan was developed?

Five working groups were established to cover the priority issues, which were identified through the environmental profile of the governorate. These groups include the following:

- Solid wastes management working group.
- Agriculture wastes management working group.
- Industrial wastewater pollution working group.
- Hazard medical wastes working group.
- Fishery wealth development working group.

A coordinator from EMU was assigned t each working group. Groups' formation included different categories of governmental sector, executives, domestic and private

sector. Annex 1 show the formation of the working groups participated in the plan development. Annex 2 points out the consultation process which took place during plan development.

2-4 Who are the plan owners?
Citizens in Menofyia governorate are the owners of the EAP, as it reflects their environmental problems and expectations, and provides the tool through which all beneficiaries in the government can work on improving their environment according to the sustainable development principles.

3- Environmental issues and priorities:

3-1 summary of environmental issues based on the EP

Rank	Priority	Related issues
1	Solid wastes	Lack of solid wastes collection and disposal systems in most villages - insufficient collection vehicles, wastes containers, and wastes collectors in most cities – insufficient dumpsites – burning wastes randomly – expansion of diseases related to wastes problems – lack of awareness concerning solid wastes.
2	Agriculture wastes	Burning of agriculture wastes causes the black cloud phenomenon, air pollution, and respiratory system diseases – dumping wastes on the banks of canals and drains result in blocking these waterways and spread of insects, rodents and bad odors.
3	Water and wastewater	About 1% of urban areas and 10% of rural areas are deprived from clean potable water, in addition to many villages deprived from suitable sanitary drainage services.
4	Air pollution	There are some industrial spots inside the residential areas that produce air pollutants, including coal manufacturing

Rank	Priority	Related issues
	and noise	units and bricks factories. Agriculture wastes are burnt in open areas which pollutes the air.
5	Industrial wastewater	Discharging industrial wastewater into drains that feed the agriculture soil pollutes the crops and mixing with groundwater which pollutes potable water.
6	Hazard medical wastes	Mixing hazard medical wastes with the municipal wastes causes serious risks for wastes collectors, scavengers (zabaleen) and the residents near dumpsites due to poisoned gases and smokes.
7	Fishery wealth development	Waterways suffer from some environmental problems that affect the efficiency and quality of fishery wealth, especially in Pharaoh Sea.

3-2 Environmental priorities and working groups:

Through concentrated consultation with the beneficiaries during developing the EAP of the governorate, the seven main issues mentioned below are identified as per its importance ranking as foreseen by beneficiaries that need quick interventions. These priorities are:

1- Solid wastes management.
2- Agriculture wastes management.
3- Potable water and wastewater.
4- Air pollution and noise.
5- Pollution of industrial wastewater.
6- Hazard medical wastes.
7- Improving and developing fish wealth.

4- Future vision for 2012

EAP aims in general to improving the environmental quality and living conditions of the governorate residents. So, main development issues tat affect people and their environment shall be dealt with in a way that ensures the environmental and living conditions' improvement. There might be a contradiction between the two goals on

the short term, therefore, one main goal of the EAP s to achieve balance between environmental protection and economic development. EAP puts the foundation for the sound use of natural resources in the way that ensures for the coming generations enjoying the fruits of the sound environmental management.
To this end, EAP took into consideration the right of citizens to secure their living, as they need education, income-generating jobs, in addition to access o clean water, health and sanitation services, solid and hazard medical wastes management, electricity supplies and recreational services.

Based on the EAP vision, the following shall be achieved:

Sanitary environment:	Where every citizen in Menofyia finds clean and sanitary environment to live in, including access to enough and sustainable potable water, adequate wastewater systems and solid wastes integrated management.
Sustainable development:	Where natural resources are managed and preserved in line with the ongoing economic development, without affecting the future generations' needs.
Integrated development:	Where communication among governmental divisions and bigger groups of concerned beneficiaries in EMU and coordinating their efforts in an organized and effective way.
Institutional sustainability:	Where all responsible institutions (governorate departments – private sector – NGOs – communities) are provided with financial and human resources enough for the effective implementation of their environmental management tasks.
Community participation:	Whereas Menofyia citizens can have a role in decision making process through effective participation, which help enforcing environmental decentralization methodology.

5- Environmental Priorities:

5-1 Solid wastes management

5-1-1 General background

In Menofyia, the daily generated quantity is 1800 tons, out of which 1000 tons are collected by local units through a clean-up system implemented by the governorate at the level of the cities and villages. Menofyia is among the governorates which managed solid wastes problem depending on local units through implementing and managing clean-up system by its own and collecting fees by hired collectors from young graduates without linking it to other utilities fee collection. The clean-up system in the governorate used 1700 workers from young graduates, thus contributing in solving unemployment problem. Certain service fee is collected from citizens, which is determined according to law 10, year 2005, implemented by the Local Popular Council of the governorate.

Also, the governorate has established two waste recycling factories in Menouf and Ashmon cities and is about to establish another two factories n Shohada and Quesna cities. The governorate is currently establishing a landfill in Sadat city's desert on 50 feddans, within a plan to be implemented in the coming five years.
Despite all of this, solid wastes problem is among the urgent environmental problems in the governorate, as the collected wastes represent only 55% of the total generated wastes. The governorate suffers from insufficient equipment and labors to collect wastes and the landfills don't contain all the collected wastes.
This document analyzes the achievements in the field of solid wastes in the governorate besides the current situation analysis and identifying the targets and required actions to handle the problem as well as describing some proposed projects to improve solid wastes management at the governorate level.

5-1-2 achievements in the past five years

5-1-2-1 decrees and decisions

- implementing the law no. 10, year 2005, amending law no. 38, year 1967 concerning public cleaning to collect service fee against wastes collection at 2 to 30 Egyptian pounds a month as per the following schedule:

Service fee (LE)	activity
2 3	Residential unit without bags. Residential unit with bags.
10	Commercial shops and industrial units of light outputs, small workshops, and cafeteria.
15	Butcher shops, chicken shops, restaurants, female hairdressers, sugarcane juice shops, pickles' shops, private clinics, cafeterias.
30	Factories and big workshops, bakeries, gas stations, car washing and greasing stations, wedding halls, hospitals, empty lands, lands occupied by commercial or industrial activities, car garages, etc

- Menofyia Governor issued the directive no. 8, year 2006 establishing cleaning a unified system in all the governorate cities to manage the waste problem and provide job opportunities for the young graduates.

5-1-2-2 Technical and administrative support:

- A cleaning system management was established to supervise and follow up the system within the governorate General Department to monitor the performance in districts, cities and provinces.

5-1-2-3 implemented projects and programs:

- Establishing waste recycling factories in Menouf City in 2004.

5-1-2-4 projects and programs under implementation:

- Establishing waste recycling factory in Shohada city, where the construction works are being implemented.
- Currently, purchasing a piece of land for a waste recycling factory in Shebin el-Kom city is under negotiation.
- Work is going on in the landfill in the desert of Sadat City and the first phase is expected to be finished in one month.
- Establishing waste recycling factory in Ashmon City. The work has started since February 2008.

5-1-3 current situation: problems and causes

Current situation	Key problems and negative impacts of the current situation	Key reasons of the problem	Current plans or programs to handle the current situation
Insufficient equipment for wastes collection	• Transporting solid wastes from households needs enough number of vehicles to transport it quickly to public dumpsites as the available vehicles are not well and not equipped	• No funds to purchase equipped vehicles in the required number	• Providing the funds to increase the equipment of waste collection. • Improving the fee collection to provide new financial resources.
Incomplete use of wastes	• Lack of factories in all governorate districts to recycle the wastes	• No available adequate lands or funds in some districts (markaz).	• A recycling factory is under establishment in Shohada city and a piece of land is under purchasing to establish wastes recycling factories in Shebin el-Kom city and Quesna city.
Unsafe final disposal of solid and hazard wastes due to lack of enough landfills or cells for safe disposal.	• Lack of landfill, as it is still under construction. • No recycling factories in all districts (markaz). • Wastes are dumped in the public dumpsites. • Unsafe disposal of medical wastes.	• No financial resources. • It is difficult to find suitable land environmentally • Lack of integrated medical wastes management.	• A landfill is under construction now and is expected to be finished in the coming five years, whereas the first phase shall end in one year and the cost is LE27 millions. • Wastes recycling factory is under construction in Shohada city and lands are under purchasing to establish recycling factories in Shebin el-Kom and Quesna cities. • Establishing integrated system for medical wastes management.

5-1-4 Vision and goals

Developing and implementing integrated solid wastes management system in the governorate to minimize the negative impacts of the solid wastes on the environment and health and maximizing its utilizing through the following:

1) Improving and expanding in the current systems of waste collection and transportation and eliminating wastes accumulations.
2) Recycling the biggest amount possible of organic and non-organic wastes and disposing the remaining wastes safely through expansion in establishing recycling factories.
3) Train and promote the awareness of solid wastes workers and providing them with protection gears.
4) Promote the public awareness regarding solid wastes management.

5-1-5 Targets and required actions

Main goal	Targets for the coming five years to achieve the goal	Required decrees, institutional support, projects, and programs to achieve the goal
Developing overall projection to the project and submit it to donor agencies.	• Developing a plan to implement waste collection system in cities and to establish recycling factories. • The landfill is designed by competent consulting offices to ensure the safe disposal of wastes and handling it in such a way to protect the environment in the landfill area. Housing Directorate is supervising the implementation as it is the agency which tendered the work.	• Developing a projection and submit it to donor agencies. • Developing wastes management plan in cities. • Implementing the plan and evaluating the results. • Identifying the general framework of wastes management.

Main goal	Targets for the coming five years to achieve the goal	Required decrees, institutional support, projects, and programs to achieve the goal
Improving and expanding the current wastes collection systems and eliminating wastes accumulations and utilizing it.	• Agree on collection standards in cities and villages including the selection of the adequate vehicles and identifying how governmental agencies can participate and its roles in the governorate. • Evaluating the private sector and NGOs participation in wastes management.	• Working on providing additional financial resources. • Working on finishing the recycling factory. • Finishing the new landfills.

5-1-6 proposed projects or included in the five-year plan

5-1-6-1 high priority projects

Proposed project	Responsible agency	Proposed implementing agencies	Estimated budget (LE millions)	timeframe	Proposed funding agencies
Establishing a landfill in the desert of Sadat city	governorate	EMU in the governorate	5	Two years	Ministry of Planning – Ministry of Environment

5-1-6-2 medium priority projects

Proposed project	Responsible agency	Proposed implementing agencies	Estimated budget (LE millions)	timeframe	Proposed funding agencies
Establishing wastes recycling factory in Shohada city	governorate	Local unit of Shohada	10	One year	Ministry of Local Development
Establishing wastes recycling factory in Shebin el-Kom city	governorate	Local unit of Shebin el-Kom	10	One year	State Ministry of Environment

5-1-6-3 low priority projects

Proposed project	Responsible agency	Proposed implementing agencies	Estimated budget (LE millions)	timeframe	Proposed funding agencies
Establishing wastes recycling factories in Quesna, Talla, Baghoor, Sadat, and Berkit el-Saba'a cities	governorate	Local units of markaz and cities	20	Three years	Ministry of Local Development State Ministry of Environment
Building capacities of the staff of solid wastes management	governorate	Local unit – private sector	1	One year	Governorate
Promote public awareness	governorate		1	One year	Governorate

5-1-7 description of high priority projects or programs

(1) Establishing the landfill in Sadat City

Problem description

- Solid wastes represent a heavy burden on the local authorities.
- Random disposal of solid wastes and its accumulation in the streets result in breeding of insects and rodents and spread of bad odors and sight pollution, which affect negatively on the public health.
- Expansion of waste sorting by individuals, which represents health risk for those individuals and help increasing diseases.

Project description

1- Developing studies to identify the landfill site.

2- Taking the necessary procedures to obtain the administrative approvals and starting the project implementation.
3- Developing the detailed evaluation and engineering drawings as well as terms and conditions documents to be tendered on the contractors.
4- Train the work team on sound environmental management of the landfill.
5- Provide community awareness and focusing on activating the community role to ensure project success.

Project Implementing Agencies:
Menofyia governorate

Projects estimated cost:
LE5 millions.

Proposed funding agencies:
Ministry of local Development – State Ministry for Environmental Affairs.

(2) Establishing wastes recycling factory in Shebin and Shohada City.
Problem Description:

- Non utilization of wastes.
- Wastes accumulations in public dumpsites.

Project description:
Establishing integrated factory for wastes recycling and making compost from organic wastes.

Project Implementation Agencies:
Military factories – The governorate.

Projects estimated cost:
LE20 millions.

Proposed funding agencies:
State Ministry for Environmental Affairs - Ministry of local Development.

5-2 Agriculture wastes
5-2-1 General Background
Space of cultivated lands in Menofyia governorate space is about 576914 feddans, out of which 539256 feddans are crops. Clover, wheat, corn, fruits, and vegetables represent the highest productivity in the governorate. The total fruits space is 37568 feddans. Olives, oranges and lemons are the highest productivity.
Such soils produce 1024590 tons/ year of agriculture wastes. Some of this quantity is used in making untraditional fodders to feed animals, and another part is used to make compost. The rest is burned, which causes the following:

1- The so called black cloud and air pollution.
2- Wastes accumulations and spread of insects and fungal diseases.

3- When stored on the buildings roofs, it causes fires which threaten citizens' lives.

The document presents an analysis for the achievements in agriculture wastes management in the governorate, analyzing the current situation, identifying targets and required actions to deal with the problem and describing some proposed projects to improve the dealing with agriculture wastes at the governorate level.

5-2-2 achievements over last five years

5-2-2-1 decrees and procedures

Several directives of the Governor were issued, including directives nos. 6, 7, and 8, which focused on:

- Tight monitoring of burning the agriculture wastes.
- Closing the unlicensed coal manufacturing units and bricks factories.
- Forbidding open burning and tightening the monitoring.

5-2-2-2 technical and administrative support

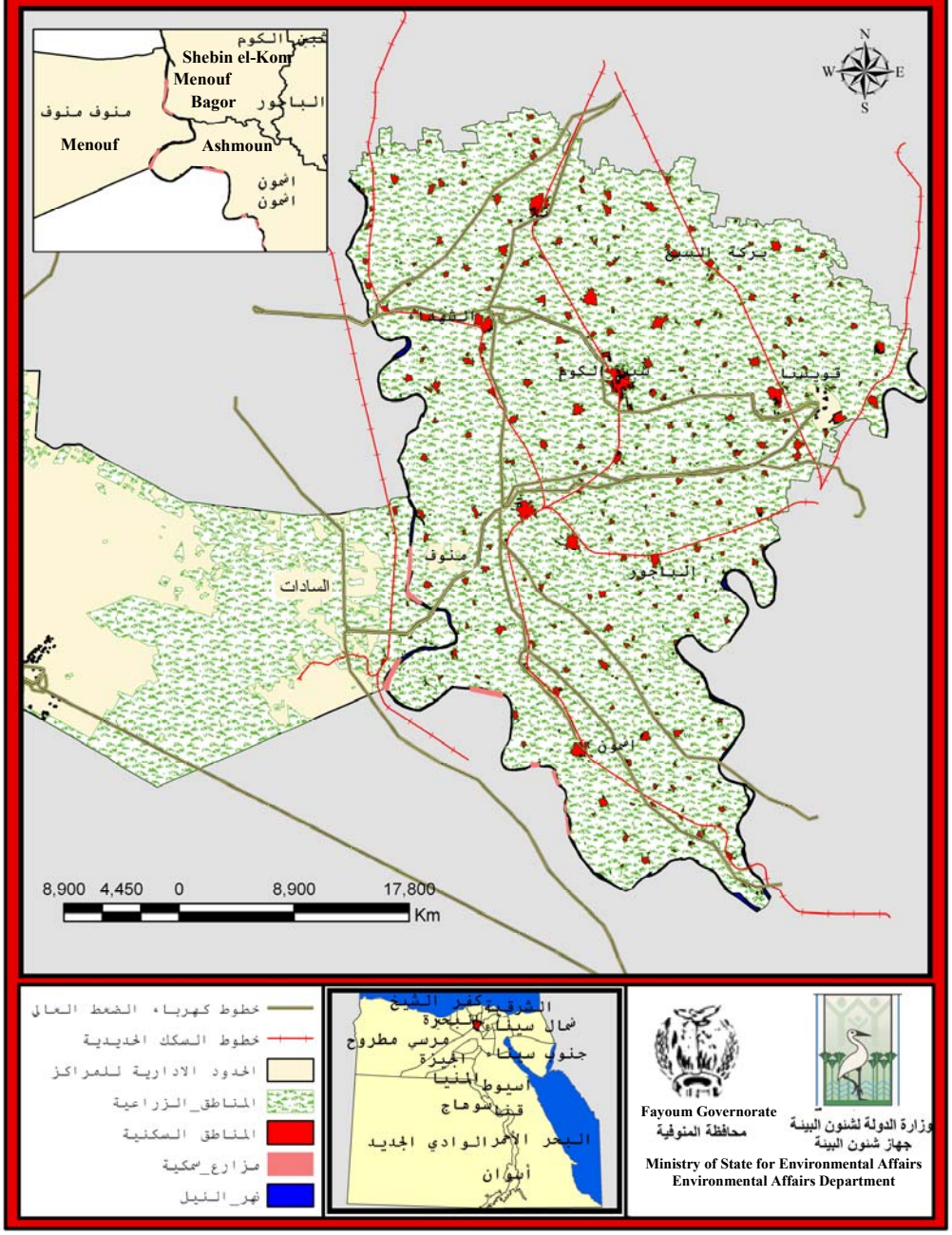
- Train farmers on utilizing the agriculture wastes (fodders – compost), which was carried out by agriculture guiding department of agriculture directorate in Menofyia.
- Implementing clean-up system in the governorate (collecting wastes and transporting it to the assigned places).

5-2-2-3 implemented projects and programs

- Practical training and application on using the agriculture wastes in cooperation with Faculty of Agriculture (teaching improving project) years 2004, 2005, which was implemented in cooperation with agriculture directorate, faculty of agriculture, and governorate EMU.
- Untraditional fodders project, Egyptian/ German project, started in 1996 through 2009, and was implemented by agriculture guiding – agriculture directorate – agriculture faculty.
- Producing untraditional fodders to feed animals by making "silage" from green leaves and corn sticks of about 600,000 – 700,000 tons and using dry woods after crushing them as an alternative for wheat straw and treating the straw with urea to increase protein content and using it in feeding as well as injecting the straw with ammonia to increase and improve protein content.
- Making compost through using the agriculture wastes that are not used to feed animals and convert it into high quality compost, and train most of the farmers on making the compost.

Te remaining part of the agriculture wastes that are not used is dumped into canals and drains or burnt by farmers, which pollutes the water and the air, with most effect in September, October, and November months, which lead t the emerge of the black cloud.

Agricultural Areas at El-lMenofyia Governorate



5-2-3 current situation, problems and causes

Current situation	Key problems and negative impacts of the current situation	Key reasons of the problem	Current plans or programs to handle the current situation
Burning the agriculture wastes	• Emitting heavy smokes that pollute the air, affect the vision, form the black cloud and pollute the air	• Lack of farmers awareness of using the agriculture wastes • Non enforcement of the law on the violators	• Promote farmers awareness of using agriculture wastes • Tighten the monitoring of wastes burning
Dumping agriculture wastes on the sides of and into canals and drains	• Bad odors • Respiratory diseases spread out • Blocking the canals and drains and losing big quantities of irrigation water • High cost of cleaning canals and drains	• Lack of farmers' awareness • Lack of recycling factories to use the wastes	• Establishing recycling factories and employing young people • Providing untraditional fodders at reasonable prices

5-2-4 vision and goals

Mitigating air pollution and black cloud through eliminating open burning by:

1- Promoting farmers awareness to use agriculture wastes.
2- Providing untraditional fodders at reasonable prices.
3- Providing compost to increase soil fertility and dispose waste safely.
4- Providing job opportunities for youth through working in recycling factories.

5-2-5 targets and required actions

Main goal	Targets for the coming five years to achieve the goal	Required decrees, institutional support, projects, and programs to achieve the goal
Promoting farmers awareness to use agriculture wastes	- Safe disposal of agriculture wastes	- Awareness programs - Safe disposal alternatives
Providing compost to increase soil fertility and	- -establishing recycling factory for agriculture wastes	-providing the necessary funding

Main goal	Targets for the coming five years to achieve the goal	Required decrees, institutional support, projects, and programs to achieve the goal
dispose waste safely		
Providing job opportunities for youth through working in recycling factories.	- Providing job opportunities for youth	-providing the necessary funding

5-2-6 proposed projects list
5-2-6-1 high priority projects

Proposed project	Responsible agency	Proposed implementing agencies	Estimated budget (LE millions)	timeframe	Proposed funding agencies
Small recycling factories	Agriculture guidance	Agriculture guidance	2	Two years	SFD
Two seminars every month to promote public awareness of agriculture wastes	EMU	EMU	0.1 for each workshop	One year	EEAA

5-2-7 description of priority projects or programs

(1) establishing agriculture wastes recycling factory

Project description
Field wastes are estimated at one million and tow hundred thousand tons per year. Some farmers burn it due to their lack of environmental awareness, which pollutes the air and gain no benefits from these wastes.

Project components:
Establishing agriculture wastes recycling factory in Kom Osheen.

Implementing agency
Private sector.

Estimated cost:
LE5 millions.

Proposed funding agencies:
Private sector.

5-3 Potable water and wastewater
5-3-1 general background
Menofyia governorate is located between the two Nile branches, Damietta and Rosetta south to the five delta governorates. It enjoys the water of Nile River and its branches inside the governorate; Rosetta, Damietta, Menofi canal, besides Neanaiya, Bagoriya, el-Kased, el-Sersawiya, Behiri and Nasseri canals (Nile River branches) which serve Sadat City, in addition to small canals, which are operated on shifts.

As the governorate is depending on agriculture, which needs water quantities as per the types of crops, and despite the governorate cooperation with Ministry of Water Resources and Irrigation and Ministry of Housing to protect the Nile River water and use it in sound and scientific way, yet there are some pollutants disposed on such waterways:

First Agriculture drainage:-

It is known that water quantity used for irrigation exceeds 10 billions cubic meters annually and Menofyia contributes by half billion meters of this water, yet it contains some external pollutants de to the use of organic fertilizers, which result in remains of phosphor, nitrates, ammonia, and remains of pesticides that stay for long times in the water, which expose human health to some serious disease.

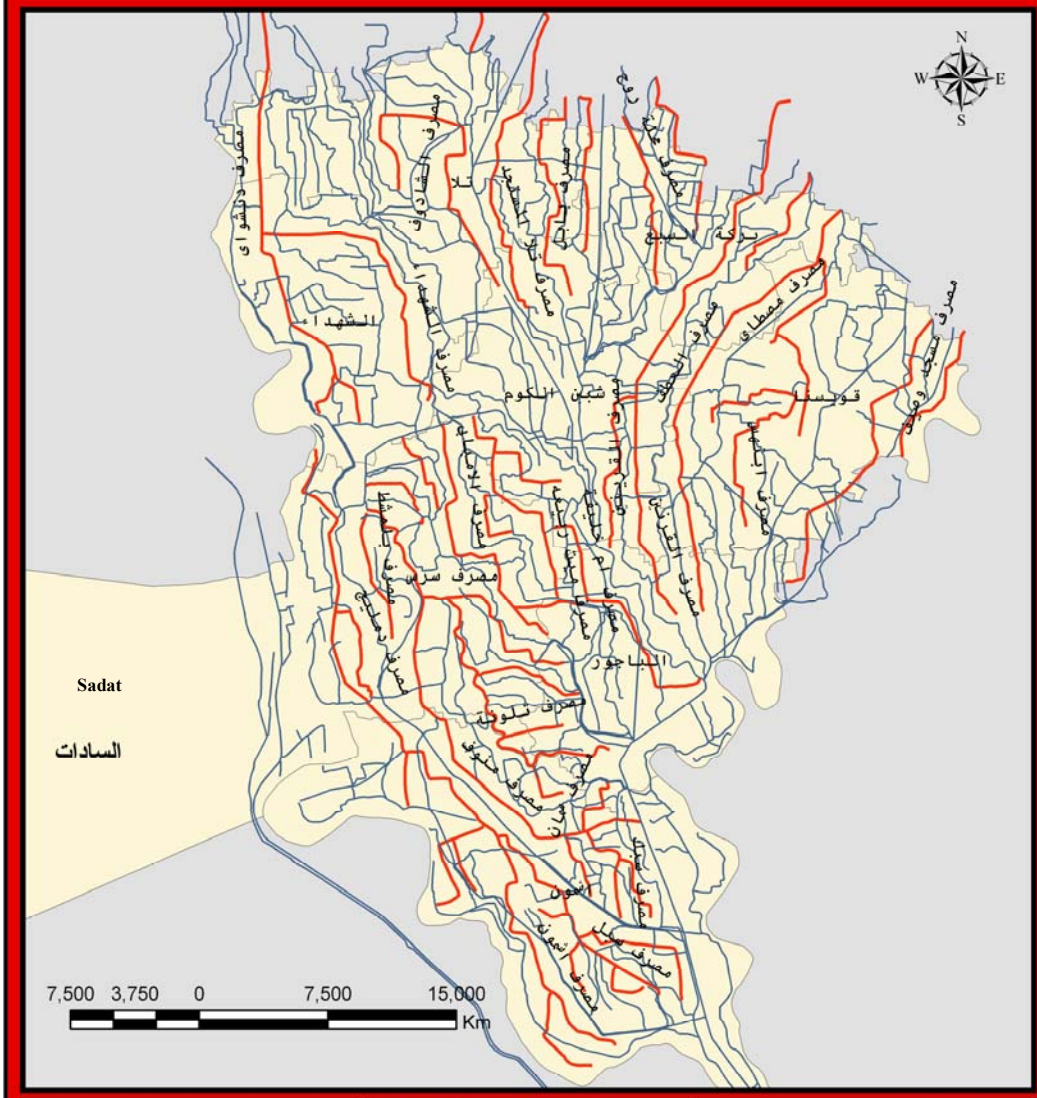
Second: Sanitary drainage:-
It comes from the wastewater of treatment plants of cities and villages of the governorate, which is amounted to 23000 m^3 /day, which are discharged into drains taking into consideration compliance with Environmental Law, and in most cases it exceeds the permissible limits due to the excessive water quantities.

Third: Industrial wastewater:-
This includes the wastewater of the industrial zones resulting from leather factories, chemical industries, and card board, etc. The industrial wastewater quantity is about 52 billions cubic meters annually. Most of this water is untreated despite notifying the factories to conduct preliminary treatment inside the factories (Mubarak and Sadat industrial zones) in addition to small industrial zones. Despite some drains are

available inside the governorate, yet the discharged agriculture, sanitary, industrial wastewaters are gathered at the end with its solid, dissolved, and particulates f greases, oils, pesticides, and chemicals, which is risky due to its mixture with the Nile River water.
Menofyia population is 3.4 millions. Water operations during 2007/2008 are 245 operations in addition to 43 operations of water wells in Sadat City, which is divided into:
(6) big surface operations, (28) compacted operations, (211) artisan water operations, in addition to (11) compacted big water plant under construction by Water and Wastewater Company after the issuance of the Presidential Decree no. 135, 2004 establishing the Holding Company of Water and Wastewater in the governorate. Water produced from surface plants is estimated at 106915 m^3 /day, and from the compacted modern plants is 100162 m^3 /day, and from groundwater are 364099 m^3 /day.

As for the sanitary drainage service in Menofyia governorate over the last five years, it was focused on implementing wastewater projects, the implementation rate of which is 28% of the total governorate, while it was only 11% (by connecting the service to all governorate 10 cities in addition to serving another 23 villages as well as the current 50 villages). Wastewater produced from wastewater treatment plants and the villages are about 230000 m^3 /day, which is discharged on the drains and in most cases it exceeds the permissible limits due to the excessive water quantities. The document includes the key achievements in the field of potable water and wastewater in the governorate and the targets of this sector as well as description of key projects required for improving potable water and wastewater.

Drainage and surfaced watercourse at El-Menofyia Governorate



الحدود الادارية للمراكز
المصارف الرئيسية
الترع والمساقى المائية

Fayoum Governorate
محافظه المنوفيه

وزارة الدولة لشئون البيئة
جهاز شئون البيئة

Ministry of State for Environmental Affairs
Environmental Affairs Department

5-3-2 Potable water

5-3-2-1 achievements over the last five years

5-3-2-1-1 implemented projects

1- Supplying and installing 382 40 l/s electrical water pump groups running on diesel fuel.
2- Supplying and installing 100 KVA 75 electrical generators.
3- Water networks of 1179.7 km length, at 4 to 10 inches diameter.
4- Building overhead tanks in the governorate (Shebr Ilwla – Sabk el-Ahad – Sunsaft – Pegiram).
5- NOPWASD has established new plants (surface) and were handed over:

a- New Shebin el-Kom water plant with 800 l/s capacity on two phases, both are completed and handed over to serve Shebin el-Kom city.
b- Expanding Ashmoun el-Bahari plant at 200 l/s capacity to upgrade the plant to reach 400 l/s capacity and provide rehabilitation to the previous phase.
c- Behwash surface plant was implemented at 30 l/s capacity (small plant) to serve Behwash, Zawet Razeen, and Dmlig villages.

6- Based on the Presidential Decree no. 135, 2004, establishing Menofyia Potable water and Wastewater Company, the urgent plan was implemented according to the instructions of the Cabinet and NOPWASD.

a- Establishing 11 compacted plants to feed the deprived areas.
b- Supplying and installing 900 km of pipes with different diameters in the governorate.
c- Digging and inserting 43 full artesian wells with submerging pumps of 50 l/s capacity.

5-3-2-1-2 Projects under construction:

There are some big projects in the field of potable water and wastewater still under construction by NOPWASD:

1- Building surface plant at 43000 m^3 /day in Shohada area to feed Shohada city and its villages.
2- Building surface plant at 43000 m^3 /day in Talla area to feed Talla city and its villages.
3- Building surface plant at 51000 m^3 /day in Berket el-Saba'a to serve Berket el-Saba'a and Quesna cities.
4- Building surface plant at 34000 m^3 /day to serve Baghor city by subcontractors.
5- Building 33 overhead tanks by Hassan Allam Company with different networks.
6- Establishing 41 isolating units to isolate iron and manganese in different water operations with excessive rates of iron and manganese to remove the chemical pollution.

5-3-2-2 Current situation, problems and causes:

Current situation	Key problems and negative impacts of the current situation	Key reasons of the problem	Current plans or programs to handle the current situation
Still more than 1% of the total urban population and 10% of rural population are deprived from clean potable water including slum areas	Citizens are using Ethiopian pumps to obtain potable water, which lacking the standards and affecting the public health, spreading out diseases and epidemics related to water pollution	-Aggravating population growth which does not cope with the timetable to supply the deprived areas with potable water -there are some deprived areas in NOPWASD plan, which are not implemented till now	-the company has extended 900 km of pipes to the deprived areas during the urgent plan. -digging 43 new wells to support the deprived areas.
Number of wells are polluted due to increased groundwater polluted from wastewater trenches	Using traditional ways in water filtering, which are not enough to eliminate pollutants. Also using chlorine is polluting water due to its interactions resulting in methane compounds and acids which are cancer-causing substances when interacted with organic compounds in potable water	-Lack of financial allocations to spend on scientific researches of developing water treatment methods -Lack of general strategy to cooperate with searching agencies, the university on the top, to use scientific researches concerning potable water sector development	-the general plan of the potable water and sanitary drainage company in Menofyia is under development to upgrade the technology used in potable water purification -All artisan water wells are provided with chlorine to eliminate bacteriology pollution with the participation of Faculty of Sciences, Menofyia University in designing the artisan wells.
Ongoing urban creeping on some operations	-Spreading of wastewater tanks near operations wells which pollute the potable water, especially in the areas that have no sanitary drainage, and in most cases samples are not complying with the standards, and help spreading diseases	-No fences around majority of water operations, which increase pollution. -new urban expansions are not well planned, so they affect the nearby vital operations like water plants. -No identification of water operations.	-The Company built fences around some operations to stop the urban creeping on such operations - Installing chlorine system for all groundwater operations to avoid the non compliance of water samples in the urban creeping areas.
Distributing networks deterioration in some areas	• Great loss of water quantities and many water cut-offs to conduct repair works	Old network pipes and end of its estimated lifetime and lack of	-Replacement of old water networks and changing asbestos pipes according to the unified

Current situation	Key problems and negative impacts of the current situation	Key reasons of the problem	Current plans or programs to handle the current situation
	• Low water quantity • Potable water is polluted y wastewater or groundwater through cracks in the old network pipes which affects the public health	renovation or replacement, which increases the water pressures and lead to explosions in some lines.	plan allocations -Incorporate items of renovation of old networks and replacing asbestos pipes as well as renovation of some small plants. Some deprived areas are connected in 2007/2008 and connections shall take place to slum areas not served by NOPWASD
Siltation	Endangering some water operations on Nile River that may be stopped and cutting the water off some areas for long times.	Clay sedimentation and dead animals and birds	-Ministry of Water Resources and Irrigation is cleaning these sites temporarily - There is 200 meters buffering zone and the regular cleaning is taking place by a diver.
Draying of some groundwater wells	A shortage of clean potable water supply, especially in the villages that depend on groundwater as potable water source, which force people to find another water sources like Ethiopian pumps which lead to spreading out diseases	-Wrong method to withdraw the water from the well (withdrawal rate is faster than supplying rate) -soil nature where the well is located -Siltation and blocking some wells -Well filters blockage	-Cleaning the well or establishing new well
Wrong uses of potable water	Wasting big quantities of potable water in irrelative purposes which impacts negatively on the remaining water used for drinking and the national economy as the cost of water purification is very high and wasting huge amount of public money.	-Lack of public awareness due to lack of programs and campaigns on water importance and rationalizing its use -Current water tariff is not fair for able and non-able persons -Governmental establishments like hospitals and religious places are not obliged to pay the actual amount for water consumption	There are no current clear and definite programs to manage large awareness campaigns on water importance and rationalizing its use and how to involve citizens in managing its resources
High rates of salts in some operations	Water of such wells are not valid for drinking or industrial purposes	Nature of the groundwater reservoir in the area	41 wells sites are identified with increased salts of iron, manganese and shall be purified

Current situation	Key problems and negative impacts of the current situation	Key reasons of the problem	Current plans or programs to handle the current situation
Lack of maps of water networks in most areas	Difficulty of maintenance operations, identification of valves locations, main cross-sections, replaced old parts, or making hydraulic analysis for water pressure distribution	These networks are not placed on the maps regularly in addition to the random installation of these lines in most places.	Menofyia Water and Wastewater Company is cooperating with some competent consulting firms to conduct hydraulic studies of the networks and developing the necessary programs to identify points of strengths and weaknesses in the potable water networks

5-3-2-3 Vision and objectives:

Since the establishment of the Holding Company for Water and Wastewater in Menofyia, an integrated system was developed to manage all water utilities to provide clean water for all citizens of the governorate and reach the standards of human use of water as follows:

1- Developing a comprehensive program to connect pure water to all residential areas in the governorate.
2- Upgrading the service level by increasing a healthy and standard product and covering the governorate with the required needs currently and in the future.
3- Upgrading the capacity of the producing plants and increasing the regional labs to ensure maximum water purification degrees.
4- Improving the water quality either artisan or Bahari waters.
5- Upgrading the plants capacities and expansion in Bahari plants and renovating the water networks (distribution networks) and improving its quality.
6- Promoting citizens' awareness on the ideal utilization of potable water, rationalizing its use and prevent its pollution.

5-3-2-4 Targets and required works

Main goal	Targets for the coming five years to achieve the goal	Required decrees, institutional support, projects, and programs to achieve the goal
Developing overall projection of the current situation of water supply at the governorate level	• Establishing new fixed filtering plants and selecting its locations according to the actual needs. • Identifying the locations of the deteriorated networks, unfit water wells, and negatives of the current system and working on fixing them either though renovation or other solutions.	• Providing the required funds. • Developing the administrative and technical structure of the water sector. • Applying the decentralization approach in the Water and Wastewater Company to facilitate taking decisions in line with the governorate priorities.
Improving potable water supply	• Extend and support water networks for deprived areas and upgrade plants capacities to increase water pressure. • Establishing fixed or slow filtering plants to increase the production of water and link the networks of the villages and the areas supplied from artisan wells and try to avoid groundwater wells, especially those not complied with standards. • Decrease water losses. • Eliminate the use of Ethiopian pumps. • Upgrade the current mobile plants and study the possibility of relocating them in other areas.	• Renovate and replace old networks to decrease leakage and maintain the water pressure and prevent pollution. • Develop complete projection of the actual needs to establish new plants or upgrade the current plants. • Develop integrated system on how to recover the treatment cost to use it in improving ad maintaining the potable water supply service. • Design and select the possible solutions to implement the required development. • Providing the required funds for these projects according to priority. • Ongoing technical training for the staff in charge of the plants operations and maintenance. • Expanding the Bahari water plants to improve the water quality.
Upgrading the technology used in treating and purifying potable water in the governorate and using the state-of-the-art technology in doing so.	• Developing the required scientific studies to upgrade the treatment and purification technology to include alternative materials to be used in purification and the ideal ways to use them.	• Developing cooperation program between NOPWASD (represented by Menofyia Water and Wastewater Company) and Menofyia University and the specialized research centers in water studies. • Implement the proposed solutions in one markaz in the governorate and evaluating the results and applying the solutions on the governorate level if proved successful.

Main goal	Targets for the coming five years to achieve the goal	Required decrees, institutional support, projects, and programs to achieve the goal
Improving potable water quality	• Ceasing the groundwater operations unfit chemically or bacteriological and feeding their areas through nearby filtering plants. • Developing integrated system to monitor the potable water quality and to review the analysis results according to the standards. • Activating the participation of the concerned parties (health Directorate – Preventive Medicine labs in health affairs and local units in the operations of the regular disinfection and washing of all overhead tanks, grounds, networks, and wells every 15 days – governorate EMU) in supervising the washing and cleaning process of water tanks and sedimentation basins and networks.	• Issuing the necessary decrees to remove the aggression on the groundwater wells area. • Developing a plan to tighten the monitoring of pollution sources to mitigate surface water and groundwater pollution either by wastewater or industrial water. • Issuing a decree to prevent the digging of wells that pollute the groundwater in the areas next to artisan potable water plants.
Promoting the public awareness of the importance of potable water and how to rationalize its use and protecting it from pollution.	• Design of media campaigns on the strategic importance of the water. • Developing awareness programs of easy and understandable materials on how to rationalize the use of water targeting the wide sector of citizens (especially woman). • Evaluate the possibility of participation of the private sector, civil agencies, and NGOs in designing and managing the required awareness campaigns. • Developing a plan to involve religious men in educating citizens on the importance of rationalizing the water use from	• Design the required awareness campaigns and present them to the funding agencies. • Actual and practical participation of the Company, Governorate, local units in cities and villages, and the Preventive Medicine in Health Affairs to implement the regular table of the cleaning and washing process to reach the best purified water samples complying with the standards of the human use.

Main goal	Targets for the coming five years to achieve the goal	Required decrees, institutional support, projects, and programs to achieve the goal
	religious prospective.	

5-3-2-5 List of proposed projects

5-3-2-5-1 Top priority projects

Proposed project	Responsible agency	Proposed implementing agencies	Estimated budget (LE millions)	timeframe	Proposed funding agencies
Upgrading the capacity of Pharos plant from 120 l/s to 300 l/s	Menofyia Water and Wastewater Company	Menofyia Water and Wastewater Company	9	One year	NOPWASD subsidies, foreign donor agencies, or loans from Investment Bank
Establishing compacted plant in Sers el-Layan of 200 l/s capacity	Menofyia Water and Wastewater Company	Menofyia Water and Wastewater Company	6.5	One year	NOPWASD subsidies, foreign donor agencies, or loans from Investment Bank
Establishing compacted water plant in Miet Bida and Barageel.	Menofyia Water and Wastewater Company	Menofyia Water and Wastewater Company	6	One year	NOPWASD subsidies, foreign donor agencies, or loans from Investment Bank
Linking between the networks of Pharaoh and Ne'nania villages.	Menofyia Water and Wastewater Company	Menofyia Water and Wastewater Company	3	One year	NOPWASD subsidies, foreign donor agencies, or loans from Investment Bank
Lay down the linking lines of Khadra and villages of the local	Menofyia Water and Wastewater Company	Menofyia Water and Wastewater Company	3	One year	NOPWASD subsidies, foreign donor agencies, or loans from Investment Bank

Proposed project	Responsible agency	Proposed implementing agencies	Estimated budget (LE millions)	timeframe	Proposed funding agencies
unit of Kafr el-Khadra - Seman					
Upgrading mobile plant of Samoli	Menofyia Water and Wastewater Company	Menofyia Water and Wastewater Company	4	One year	NOPWASD subsidies, foreign donor agencies, or loans from Investment Bank
Upgrading mobile plant of Hamoul	Menofyia Water and Wastewater Company	Menofyia Water and Wastewater Company	4	One year	NOPWASD subsidies, foreign donor agencies, or loans from Investment Bank

5-3-2-5-2 Medium priority projects

Proposed project	Responsible agency	Proposed implementing agencies	Estimated budget (LE millions)	timeframe	Proposed funding agencies
Completing overhead tanks in Shubra Plola and Sabk el-Ahad	Menofyia Water and Wastewater Company	Menofyia Water and Wastewater Company	3	One year	NOPWASD subsidies, foreign donor agencies, or loans from Investment Bank
Renovating and replacing water networks in Bagor – Berkat el-Saba'a	Menofyia Water and Wastewater Company	Menofyia Water and Wastewater Company	1.8	five years	NOPWASD subsidies, foreign donor agencies, or loans from Investment Bank
Studying upgrading	Menofyia Water and	Menofyia Water and	2	One year	Part of the surplus of the budget of

Proposed project	Responsible agency	Proposed implementing agencies	Estimated budget (LE millions)	timeframe	Proposed funding agencies
water treatment and purification plants	Wastewater Company	Wastewater Company			Menofyia Water and Wastewater Company, foreign grants, and EPF

5-3-2-5-3 Low priority projects

Proposed project	Responsible agency	Proposed implementing agencies	Estimated budget (LE millions)	timeframe	Proposed funding agencies
Building fences for water operations at the governorate level	Menofyia Water and Wastewater Company	Menofyia Water and Wastewater Company	2	One year	NOPWASD subsidies, foreign donor agencies, or loans from Investment Bank
Promoting the environmental awareness of the workers in water sector and citizens in general	Menofyia Water and Wastewater Company	Menofyia Water and Wastewater Company	2	five years	Menofyia Company, EPF, governorate, NGOs

5-3-2-6 Description of high priority projects or programs

1- Upgrading Pharaoh Filtering water plant

Problem description

There are (13) villages east to Ashmoun City that are (Darwa-Sarawa-Kfr Sarawa-Neinaia-Sahwag-Pharo-Samlay-Shenwai-Kfr Pharo-Sakiet Abu Sha'ara-Kafr el-Hama). These villages need pure potable Bahari water, therefore the first phase of the urgent plan

of the Company was implemented to serve Pharaoh and Kafr Pharaoh Villages and due to the expected expansions of the other villages, the discharge capacity was increased from 120 l/s to 300 l/s.

Description of the project and its components:

- Study to increase sand filters and study the possibility of affording the pressures of transporting the water and keeping the rest of the groundwater inside the benefiting operations to cover break downs and peak times.
- Increasing the intakes pumps and the filters and study whether the ground reservoir of the current operation can contain further expansions.

Project implementation agencies:
Menofyia Water and Wastewater Company.

Project estimated budget:
LE9 millions.

Project funding agencies:
Subsidies of NOPWASD – foreign donor agencies – loans of Investment Bank.

2- Establishing number of compacted filtering plants in some villages

Problem description
High rates of iron and manganese over the permissible limits according to human use standards in some different areas in the governorate where such villages depend on groundwater. The tests results of the samples are not complying with standards, in addition to its distance from Bahari water sources (Nile branches).

Project components:
Ground tank of 1000 m^3 – 4 complete filters with accessories and pumps of 120 l/s discharge capacity – administrative building – a building for the transformer and one for the generator – operations halls – chlorine halls.

Project implementation agencies:
Menofyia Water and Wastewater Company.

Project estimated cost:
LE6 millions.

Proposed funding agencies:
Subsidies of NOPWASD – foreign donor agencies – loans of Investment Bank.

5-3-3 Sanitary drainage
5-3-3-1 Achievements over the past five years
5-3-3-1-1 Decrees and procedures

Implementing households connections and allow payment on installments for the subscribers and collecting 35% of water bill against this service.

5-3-3-1-2 Technical and administrative support

Since the establishment of Menofyia Water and Wastewater Company by decree no. 135, 2004 establishing the companies affiliated to NOPWASD in the fields of potable water and sanitary drainage:

1- Wastewater department was assigned and affiliated to the technical sector of the Company to follow up operation and maintenance of pumping and treatment stations in addition to implementing wastewater projects.
2- Coordination took place between the Company and local units in governorate markazs to provide new cleaning vehicles to collect wastewaters from houses' tanks to improve the environmental situation in the villages.
3- The Company is building trenches to decrease the groundwater level in the villages that suffer from high groundwater level and to keep the ground dry from water ponds which help breeding of mosquitoes and insects and therefore communicate diseases to humans. This water is dumped into the nearest drain by submerging pump and the forcemain of the trenches.

5-3-3-1-3 Implemented projects

1- Integrated sanitary drainage project in Quesna city and some of its villages. The design capacity of the treatment plant is 10.000 m^3 / day.
2- Integrated sanitary drainage project in Ashmoun city. The design capacity of the treatment plant is 20.000 m^3 / day.
3- Integrated sanitary drainage project in Batanon city. The design capacity of the treatment plant is 20.000 m^3 / day.
4- Integrated sanitary drainage project in Shama and Tahwai villages. The design capacity of the treatment plant is 10.000 m^3 / day.
5- Integrated sanitary drainage project in Shohada city. The design capacity of the treatment plant is 20.000 m^3 / day.
6- Integrated sanitary drainage project in Tala city. The design capacity of the treatment plant is 20.000 m^3 / day.
7- Integrated sanitary drainage project in Berket el-Saba'a city. The design capacity of the treatment plant is 20.000 m^3 / day.
8- The technical capacity of the following projects was increased:
a- Upgrading the capacity of sanitary drainage project in Balmay (Shebin el-Kom) by upgrading the capacity of the treatment plant from 30.000 m^3 / day to 60.000 m^3 / day.
b- In Mubarak industrial zone, the treatment plant capacity was upgraded from 30.000 m^3 / day to 60.000 m^3 / day by adding 30.000 m^3 / day treated industrial water to the wastewater.
c- Upgrading the treatment plant capacity in Quesna from 10.000 m^3 / day to 15.000 m^3 / day then to 25.000 m^3 / day to include the affiliated villages.

5-3-3-1-4 Projects under implementation

1- Sanitary drainage projects in Bagor markaz, Sabk el-Dahak – Kafr el-Khadra – Kfr el-Bagor – Kafr Sungulf, at LE47 millions cost.

2- Sanitary drainage projects (independent purification plant) Teta – Ghamreen – Menshat el-Sultan – Deberki, at LE55 millions cost.
3- Projects to complete plants nos. 3 and 5 in Batanon Betbes – Tanbadi – Kfr Tandbadi – Miet Mousa – el-Sukarryia, at LE57 millions.
4- Forcemain project for Samadoun purification plant at LE50 millions.
5- Sanitary drainage project in Sabek el-Ahad – Sentris – Mahalet Sabek, at LE53 millions.
6- Sanitary drainage projects in Menouf villages (Al Omra – Miet Rabia – Belmashet – Barheem – Menshat Barheem – Kafr el- Sanabsa) at LE35 millions.
7- Sanitary drainage projects in Menouf villages (Heet – Sarwheet – Great Fisha – Kafr Fisha) at LE30 millions.
8- Sanitary drainage project in Saba'a el-Regal village – Kafr el-Sheikh Tiama – Kafr Nafra, at LE45 millions.
9- Sanitary drainage project in Talba and pumping stations nos. 1 and 2 at LE43 millions.
10- Sanitary drainage project in Mowansam Delhemo, and Kafr Taraina (purification plant of Shama and Tahwai) at LE30 millions.
11- Sanitary drainage project in Tabloha – Bemm – Kafr el-Sadat at LE37 millions cost.
12- Sanitary drainage projects in the villages of Berket el-Saba'a Horain – Meleg – Kafr Aleem, at LE20 millions cost.
13- Sanitary drainage projects in Kalshi – Kafr Kalshi, at LE20 millions cost.
14- Sanitary drainage projects in Abu Mashour – Ganzour – plant no. 3 at LE25 millions.
15- Sanitary drainage project in Shubra Pakhoum, at LE14 millions.
16- Sanitary drainage project in Abnhas at LE15 millions.
17- Sanitary drainage project in Arab el-Raml – Aghour – Kafr el-Sheikh Ibrahim at LE20 millions.

5-3-3-2 Current situation: problems and causes:

Current situation	Key problems and negative impacts of the current situation	Key reasons of the problem	Current plans or programs to handle the current situation
72% of the governorate population doesn't have sanitary drainage service and majority of the rural sector has unsafe drainage systems.	The non-served cities and villages with sanitary drainage networks depend on septic tanks and open trenches to dispose wastewater. Also wastewater resulting from septic tanks and trenches are disposed in the sub drains, which in turn dispose in Nile River. This results in polluting groundwater and surface water used as potable water sources. This pollution affects the public health negatively. High level of groundwater affects the buildings and monumental areas. Also wastewater rich with organic materials result in increasing COD and decreasing the dissolved oxygen which kill many water creatures and emit bad odors.	• Lack of sanitary drainage service in most governorate villages. • Lack of general strategy in the governorate including forcing citizens who do not have sanitary drainage service to use isolated tanks. • No enough number of wastewater cleaning vehicles and lack of safe disposal places. Weak supervision of local units and safe disposal wastewater.	• Sanitary drainage projects of some cities and villages are under construction. • Some sanitary drainage projects are incorporated in the five year plan 2007/2012. • Some villages are being connected to the sanitary drainage service, especially those next to pumping stations.
Samples of wastewater of some treatment plants are not complying with the standards of disposing wastewater on waterways.	• Inefficient treatment operation and disposing the wastewater with its pollutants on the nearby drains spreads the epidemics and serious diseases among citizens and emits bad odors from the drains. • Non eliminating of the mosquitoes resulting from dilution ponds, due to negligent or equipment break down, causes malaria	• The increased discharged quantities in some treatment plants are disposed directly without treatment and without complying with the standards. • Some plants need rehabilitation or new expansions to afford linking the villages.	• New expansions are made to Shebin el-Kom and the old ones need rehabilitation to upgrade the discharge capacity to 60.000 m3/ day. • Expansions in Quesna plant are needed to link some villages on it.

5-3-3-4 vision and objectives

The governorate vision includes providing healthy and suitable services to dispose wastewater in the governorate cities and villages to protect citizens from the hazards of poor sanitary drainage. This shall be carried out through the following:

- Completing the open sanitary drainage carried out by NOPWASD.
- Utilizing treated wastewater and sludge as a source of income to the Company.
- Studying the new extensions of the plants to serve the nearby villages.
- Completing the open projects before assigning new works or tendering new villages.
- Conducting training to increase the efficiency of the staff in pumping and treating stations and providing the necessary equipment for operations and maintenance and applying the modern protection and safety methods for the staff.
- Applying the state-of-the-art technology in treating wastewater to reuse the water in agriculture.
- Expanding composting projects and establishing factories near treatment plants and using the sludge without industrial or chemical wastes.
- Applying the modern treatment methods to reach the permissible limits in using treated wastewater in agriculture.

5-3-3-5 Targets and required works

Main goal	Targets for the coming five years to achieve the goal	Required decrees, institutional support, projects, and programs to achieve the goal
Increasing the number of villages provided with sanitary drainage projects. The plan is carried out including 73 villages out of 313 in the governorate including the villages incorporated in the national project for sanitary drainage.	• Completing the unfinished sanitary drainage projects in other cities in the governorate. • Identifying how to attract private sector and donor agencies to participate in implementing and completing sanitary drainage projects and reuse of treated wastewater. • Implementing sanitary drainage projects in the villages near the current treatment plants and connecting them to such plants. • Using cleaning vehicles to transport the wastewater from the deprived villages to the nearest wastewater treatment plants.	• Coordinating to provide necessary funds to complete sanitary drainage projects. • Issuing all decrees and procedures to overcome the obstacles impeding the implementation of such projects in the cities and villages and providing the necessary lands. • Study the possibility of linking the villages around cities with the cities networks or providing cleaning vehicles to transport the wastewater from the deprived villages to the nearest wastewater treatment plants and upgrading these plants. • Improving the administrative performance and coordinating among concerned agencies to speed up projects implementation.
Improving sanitary drainage service in Shebin el-Kom city and	Rehabilitate the first phase of the treatment plant and increasing its capacity to 120.000 m3/day to serve big number of villages after conducting rehabilitations and	• Renovate deteriorated sanitary drainage networks and increasing its diameters to receive as much wastewater as possible. • Renovate and replace forcemains of plants nos. 2 and 4 in Shebin el-Kom, as they became very old and there is no use to

Main goal	Targets for the coming five years to achieve the goal	Required decrees, institutional support, projects, and programs to achieve the goal
rehabilitate its plant to serve the nearby villages.	extensions and replicate the experiment in the markazs that require so.	repair them. • Provide funds for implementation. • Upgrade treatment plants in other served markazs. • Establishing new plants to serve the deprived villages.
Upgrade the technical training and train the staff of O&M of sanitary drainage plants and providing safety gear for them.	• High standard training program is being implemented. • Identifying how to select persons fro training according to the required fields. • Developing specialized training program to promote the environmental awareness for the staff in the plants. • Promoting public awareness to use sanitary drainage service without exposure to pollutants to avoid diseases.	• Providing training programs to upgrade plants' staff efficiency. • Developing ongoing training program for technicians. • Water and Wastewater Company to provide a budget to cover training operations and providing safety gear to the staff of the wastewater plants. • Enforcing the law 4, 1994 concerning workplace. • Coordinating between Water Company and Preventive Medicine to reach the safe limits according to standards of wastewater.
Upgrading wastewater treatment methods and reuse the treated wastewater in agriculture.	• Studying the possibility of controlling the different treating phases to produce treated wastewater according to standards. • Developing long term strategic plan to determine needs and required equipment for efficient wastewater treatment. • Establishing forests in Sadat city depending on treated wastewater.	• Developing a plan to provide additional financial resources to spend on upgrading. • Identifying the framework of using wastewater in agriculture according to Egyptian Code and WHO Guidelines. • Developing cooperation protocol between agriculture directorate and faculty of agriculture through which the agriculture directorate shall apply the pilot researches concerning reuse of treated wastewater in agriculture to comply with the environmental conditions of citizens and protecting their health.
Monitoring the quality of the treated wastewater to prevent water and soil pollution.	• Inspecting all factories and companies to force them to install elementary treatment methods inside them to ensure proper treatment of wastewater before disposing it in the waterways. • Cleaning vehicles' drivers were notified not to dump their loads in waterways to avoid polluting them and assigning the nearest wastewater plant to treat it.	• Enforcing law no. 48, 1982 concerning disposing wastewater in waterways. • Issuing binding decrees to observe standards on using treated wastewater in agriculture. • Issuing a decree t prevent digging wastewater wells inside the villages and areas near waterways to avoid polluting them.
Establishing trenches in the high	• Trenches to be used to decrease the level of the groundwater until establishing	• The Company is to implement the trenches for the assigned purpose. • Authorize the follow up department to

Main goal	Targets for the coming five years to achieve the goal	Required decrees, institutional support, projects, and programs to achieve the goal
groundwater level areas to decrease the thickness of the earth layer as a temporary solution until implementing sanitary drainage projects.	the sanitary drainage projects. • Using isolated tanks instead of bottom-open tanks to avoid wastewater leakage to groundwater. • Tighten the monitoring of implementing discharge trenches and on cleaning wastewater, especially in villages. • Assigning safe places to dispose trenches' wastes. • Stop discharging into well unless after treatment.	follow up the implementation of wastewater projects.
Establishing composting factories near wastewater plants.	• Safe disposal of the sludge resulting from wastewater treatment operations and using it in composting.	• Developing detailed study on the sludge quantities resulting from the treatment plant and its adequacy to the expected factory capacity and the technology used to produce compost according to international standards and selecting the site complying with environmental requirements and near from treatment plants. • Developing complete projection for the project through developing feasibility study and submitting it to the proposed donor agencies.

5-3-3-6 List of proposed projects

5-3-3-6-1 High priority projects

Proposed project	Responsible agency	Proposed implementing agencies	Estimated budget (LE millions)	timeframe	Proposed funding agencies
Integrated sanitary drainage project for 11 villages in the eastern side (Darwa	Menofyia Water and Wastewater Company	Menofyia Water and Wastewater Company	100	3 years	NOPWASD subsidies, foreign donor agencies, or loans from

Proposed project	Responsible agency	Proposed implementing agencies	Estimated budget (LE millions)	timeframe	Proposed funding agencies
– Sarawa – Kafr Sarawa – Pharaoh – Kafr Pharaoh – Kafr el-Hama – Neinania – Sahwag – Kores – Abu Rakaba)					Investment Bank.
Sanitary drainage projects (independent treatment plants) Tamlai – Shabsheer Tamlai – Deberki – Shebin independent plant.	Menofyia Water and Wastewater Company	Menofyia Water and Wastewater Company	55	3 years	NOPWASD subsidies, foreign donor agencies, or loans from Investment Bank.
Completion of plants of Bakhati - kafr el-Batanoun – Kafr el-Sheikh Khalil	Menofyia Water and Wastewater Company	Menofyia Water and Wastewater Company	52	3 years	NOPWASD subsidies, foreign donor agencies, or loans from Investment Bank.
Sanitary drainage project of Shatanouf and its villages.	Menofyia Water and Wastewater Company	Menofyia Water and Wastewater Company	75	3 years3 years	NOPWASD subsidies, foreign donor agencies, or loans from Investment Bank.
Sanitary drainage of Shoshai – Kafr Sayed – Manyl Doweb.	Menofyia Water and Wastewater Company	Menofyia Water and Wastewater Company	43	3 years	NOPWASD subsidies, foreign donor agencies, or loans from Investment Bank.

5-3-3-6-2 Medium priority projects

Proposed project	Responsible agency	Proposed implementing agencies	Estimated budget (LE millions)	timeframe	Proposed funding agencies
Sanitary drainage projects for Baranyia – el-Kawadi – el-Ghanamyia villages.	Menofyia Water and Wastewater Company	Menofyia Water and Wastewater Company	35	2 years	NOPWASD subsidies, foreign donor agencies, or loans from Investment Bank.
Sanitary drainage projects Menouf villages (Hait – Sarohait – Telwana).	Menofyia Water and Wastewater Company	Menofyia Water and Wastewater Company	30	2 years	NOPWASD subsidies, foreign donor agencies, or loans from Investment Bank.
Sanitary drainage project of el-Dabayba – el-Halamsha – Toukh Tanbasha.	Menofyia Water and Wastewater Company	Menofyia Water and Wastewater Company	52	2 years	Part of the surplus of Water and Wastewater Company, foreign grants and EPF.
Sanitary drainage project of Monsa – Dalhamo – Kafr el-Taraina (Treatment plant of Shama and Tahwai)	Menofyia Water and Wastewater Company	Menofyia Water and Wastewater Company	30	2 years	Part of the surplus of Water and Wastewater Company, foreign grants and EPF.
Sanitary drainage of Shoshai – Kafr el-Arab el-Bahari – Kafr Mohamed – Pable – Kafr Hamam.	Menofyia Water and Wastewater Company	Menofyia Water and Wastewater Company	37	2 years	Part of the surplus of Water and Wastewater Company, foreign grants and EPF.

5-3-3-6-3 Low priority projects

Proposed project	Responsible agency	Proposed implementing agencies	Estimated budget (LE millions)	timeframe	Proposed funding agencies
Sanitary drainage projects for Begiram - Quesna el-Balad – Beni Gherian villages.	Menofyia Water and Wastewater Company	Menofyia Water and Wastewater Company	20	2 years	NOPWASD subsidies, foreign donor agencies, or loans from Investment Bank.
Sanitary drainage projects el-Kalshi – Kafr el-Kalshi	Menofyia Water and Wastewater Company	Menofyia Water and Wastewater Company	20	2 years	Menofyia Company, EPF, governorate and NGOs.
Sanitary drainage project of Abu Mashour – Ganzor – plant no. 3	Menofyia Water and Wastewater Company	Menofyia Water and Wastewater Company	25	2 years	Menofyia Company, EPF, governorate and NGOs.
Sanitary drainage project of Shubra district, Pakhoum.	Menofyia Water and Wastewater Company	Menofyia Water and Wastewater Company	14	One and half year	Menofyia Company, EPF, governorate and NGOs.
Sanitary drainage of Abenhas.	Menofyia Water and Wastewater Company	Menofyia Water and Wastewater Company	15	One and half year	Menofyia Company, EPF, governorate and NGOs.
Saniary drainage project of Arab el-Raml – Aghour – Kafr el-Sheikh Ibrahim.	Menofyia Water and Wastewater Company	Menofyia Water and Wastewater Company	20	One and half year	Menofyia Company, EPF, governorate and NGOs.

5-3-3-7 Description of top priority projects or programs

1- Implementing adequate sanitary drainage services in the villages of high groundwater levels

Due to the high level of groundwater in some villages, which let the groundwater leakage to houses, and due to the disability of the current wastewater trenches to allow for the safe disposal of such wastewater in these villages, especially in low areas, this led to

forming of some wastewater ponds, which are sources for diseases in addition to other problems. These villages are 117 all over the governorate. A scientific study was conducted to implement trenches in scientific way to be adequate to the groundwater conditions until implementing the integrated wastewater services.

Project description:
The project includes establishing wastewater trenches at 5 m diameters and 4.5 m depths to be isolated from the bottom and sides. A submerge pump is to be installed in each trench to pump the wastewater in a collection network from a number of trenches to the nearest drain, until implementing the integrated sanitary drainage services in the villages. These trenches and pipelines network can be utilized on implementing the integrated sanitary drainage networks and there are pilot projects implemented in the governorate villages which can be built on.

Proposed implementing agency:
Menofyia Water and Wastewater Company.

Project estimated cost:
It depends on the number of the beneficiary villages and the cost ranges from LE150.000 to LE200.000 per village.

Proposed funding agencies:
Ministry of Housing and Utilities – donor agencies.

5-4 Air pollution and noise
5-4-1 General background
Air pollution and noise are clear environmental problems in Menofyia governorate for many reasons. These include unsafe disposal of agriculture wastes which are estimated by one million tons annually and burning it in open areas, spreading of many factories that emit vapors and gases polluting the air like charcoal manufacturing units which are 90 units, and the clay bricks factories that are 41 factories, out of which 5 factories are in Melih village (Shebin el-Kom), 11 factories in Miet Barah village (Quesna), and 3 factories in Sers city.
Among key sources of noise pollution are car parks, markets, carpentry, steel works, and car repairing workshops in villages and cities in addition to wedding halls. Among the most affected area with noise is the area around textile factories in the industrial zone in Sadat City – Kafr Helal, Berkit el-Saba'a markaz. Factories and workshops are followed up to measure the noise density inside and outside the facility by EMU, industrial security office, environmental and waterways police to take the legal actions against violators and to follow up the requirements of EEAA and taking the necessary actions.

The document outlines the current situation and the proposed procedures and projects to reduce the air pollution and noise in the governorate.

5-4-2 Achievements over the past five years
5-4-2-1decrees and procedures

- Preventing burning of any agro wastes like cotton sticks, corn, or any other wastes in the fields, on bridges, or roads and tighten the inspections.
- Closure of no -licensed bricks factories.
- Preventing open burning and tighten the inspections.
- Closure of coal manufacturing units from September to November every year.
- Working on complying of the bricks factories and coal units with the environmental requirements.

5-4-2-2 Technical and administrative support

Efforts of the State Ministry of Environment by providing emissions measuring equipment for bricks factories and coal manufacturing units.

5-4-3 Current situation

Current situation	Key problems and negative impacts of the current situation	Key reasons of the problem	Current plans or programs to handle the current situation
Air pollution due to smoke emissions from cars, factories and workshops in addition to burning agro wastes as well as charcoal units emissions which did not comply with the environmental requirements	- Burning agro wastes and using pesticides. - Burning of cities and villages wastes - Vehicles emissions. - Factories and workshops emissions and lack of equipment to measure such emissions. - Charcoal manufacturing units. - Smoking in public places. - All sources that emit smokes in random way.	- Low awareness of farmers regarding risks of burning agro wastes - Lack of safe landfill to dispose wastes of cities and villages. - Factories and units do not comply with environmental requirements.	- Activating NGOs and civil society role in handling this problem . - Establishing measures and laws to mitigate the reasons of this problem. - Monitoring and follow up and enforcing the law. - Coordination between the committees of the Environmental Ministry, RBO and EMU to mitigate the black cloud phenomenon and to tighten the monitoring on bricks and charcoal factories to reach the permissible limits.
Noise pollution due to using amplifiers in weddings, cafeterias, and the existence of workshops inside the residential areas.	- All transportation means misuse horns. - Workshops and factories near cities and villages - Using amplifiers in cities, villages, weddings, cafeterias and mobile sellers.	- Lack of places outside residential areas to relocate factories and workshops. - Lack of public awareness to care of sick and old people by not using amplifiers.	- Do not use amplifiers unless in the assigned alls. - Punish vehicles drivers who misuse horns. - Do not grant licenses for irritating workshops or factories and relocate the current activities to craftsmen areas or to the industrial zones.

5-4-4 Vision and objectives

Governorate vision to mitigate air pollution and noise is to reach air pollution permissible limits and to reduce noise all over the governorate through the following:

1- Safe disposal of agro wastes.
2- Reducing air pollution from factories and charcoal manufacturing units.
3- Tightening monitoring and taking legal actions against violators.
4- Relocating all workshops away from residential areas.

5-4-5 Targets and required works

Main goal	Targets for the coming five years to achieve the goal	Required decrees, institutional support, projects, and programs to achieve the goal
-making silage from the agro wastes and converting it to animal fodder. –using all straws as animal fodders.	Expanding in establishing projects to convert agro wastes into compost (organic fertilizers).	- Providing necessary funds to establish a project for recycling agro wastes and cities and villages wastes. - Providing a piece of land in each village to establish a project and small factory for wastes recycling. - Covering the drains.
As for charcoal units, smelters and bricks factories, an integrated system shall be developed to mitigate air pollution.	Emissions of bricks factories and charcoal units shall comply with law 4, 1994.	- Tightening monitoring of bricks factories and charcoal units which did not comply with the environmental requirements to comply with the permissible limits of emissions.
Mitigating the use of amplifiers outside the assigned halls.	Monitoring factories and workshops and measuring noise inside and outside facilities by EMU,	- Providing funds to build workshops fro craftsmen outside cities and relocate the existing workshops there.

	industrial security, and environmental police.	- Using internal amplifiers if making parties in booths in the streets.

5-4-6 List of proposed projects:
5-4-6-1 High priority projects

Proposed project	Responsible agency	Proposed implementing agencies	Estimated budget (LE)	timeframe	Proposed funding agencies
Establishing small agro wastes recycling factories	Ministry of Agriculture, Ministry of Environment, the Governorate	CDAs	LE1000 per workshop	One year	-SFD - Donor agencies - Ministry of Agriculture -Ministry of Environment.
Charcoal manufacturing units to comply with environmental requirements and relocate to industrial zones	Governorate	Governorate	Unfixed	One year	Governorate

Converting bricks factories to run on natural gas	Ministry of Environment	Factories owners	Unfixed	One year	Private sector
Developing integrated system to manage air pollution and abide to permissible limits of emissions through providing measuring equipment.	EEAA	EEAA	Unfixed	Two years	Donor agencies

5-4-6-2 Medium priority projects

Proposed project	Responsible agency	Proposed implementing agencies	Estimated budget (LE)	timeframe	Proposed funding agencies
Organizing inspection campaigns to follow up bricks factories and identify which are licensed and which are not.	EMU, the Governorate	EMU, the Governorate	Governorate budget	One year	The governorate
Mitigating the use	EMU, the	EMU, the	Governorat	One year	The

of amplifiers outside the assigned halls.	Governorate	Governorate	e budget		governorate
Stressing the absolute non smoking in public places, governmental buildings, transportation means and railways	EMU, the Governorate	EMU, the Governorate	Governorat e budget	One year	The governorate
Increasing greenery in cities and urging citizens on forestation in front of their houses	CDAs – the governorate	CDAs	One Million Pounds	Two years	Donor agencies, Ministry of Environment

5-4-7 Description of priority projects

1- Factory of converting agro wastes into compost

Project description:
Collecting wastes (vegetables leaves – fruits cuttings – rice straws) and all kinds of plants and bananas wastes – etc, and converting them into compost.

Project components:
Waste shredder – water source – municipal fertilizer of poultry remains – bio fertilizer EM1 – additives as phosphor, calcium, and potassium.

Proposed implementing agencies:
Governorate

Cost:
About LE2 millions.

Proposed funding agencies:
Ministry of Local Development – Ministry of Environment.

2- Connecting natural gas to bricks factories
Connecting natural gas through main pipeline of 8 km length and 250 mm diameter to the clay bricks factories.

Project components:
Maine pipeline – gas network – internal gas network – civil and electrical works for the factory – training of factories landlords.

Proposed budget:
LE 5 millions.

Implementing agencies:
Natural Gas Company.

Proposed funding agencies:
Foreign grants – EPF – Private sector.

3- Integrated system to mitigate air pollution
Problem description:
Listing the clay bricks factories and charcoal manufacturing units which did not comply with environmental requirements due to lack of environmental awareness of its owners which pollutes the air.

Project description:
1- Providing equipment to measure emissions of bricks factories and charcoal units.
2- Promoting the environmental awareness of the owners through workshops during black cloud period.
3- Regular inspection on bricks factories and charcoal units through forming joint committees with Manpower, EEAA, EMU in the governorate.

Proposed budget:
Unknown.

Implementing agencies:
EEAA.

Proposed funding agencies:
Donor agencies – EPF.

5-5 Industrial drainage

5-5-1 General background

Mubarak industrial zone was established by the Prime Minister Decree in 1994 for the first phase and in 1996 for the second phase. Mubarak industrial zone is a promising area for investment and it locates east to Quesna city, 2 km from Cairo-Alexandria agriculture road. It has strategic location in the middle of the Delta, as it is 60 km far from Cairo, 25 km from Tanta, 130 km from Alexandria and 90 km from Sadat city and it is divided into four phases as shown in the next table:

Phase	Establishing date	Area in Feddans	No of factories	Industrial wastewater quantity
First	1994	103	26	3000 cubic meters
Second	1999	104	95	2000 cubic meters
Third	1999	100	11	500 cubic meters
Fourth	Not issued yet			

As for the types of the factories, they include food processing, cardboard, fodders, pharmaceuticals, oils, plastics, metal and engineering industries, electrical tools, textiles, in addition to marble and granite factories, chemicals, shoes, essences, Arabi engineering factory, and about 65 factories under construction.

On establishing the factories, there was no sanitary or industrial drainage network, where factories were dumping its wastes in Khadrawia drain without treatment. Industrial wastewater treatment plants are very expensive; so many factories did not establish its own treatment plants.

The document outlines the achievements in handling industrial wastewater in the governorate and analyzing the current situation, identifying targets and required works to handle the problem as well as describing some proposed projects to improve industrial wastewater drainage in the industrial zones.

5-5-2 Achievements over the past five years

5-5-2-1 Decrees and procedures

- Governor’s decree to mandate technical office in the administration building including environmental official, electricity official, drainage and networks official.
- Governor’s support by establishing urgent industrial drainage pipeline for the first and second phases, as well as sanitary drainage.

5-5-2 Technical and administrative support
None.

5-5-2-3 Implemented projects and programs
- Establishing forcemain network and urgent expelling line consisting of trench and pumping machines temporarily until finishing the treatment plant.
- Investors who consume big quantities of water established forcemain of 16 inches diameter, to increase the capacity of the network to contain sanitary drainage in the region.

5-5-2-4 Projects and programs under construction
There is sanitary drainage treatment plant under construction now.

5-5-3 Current situation: problems and causes:

Current situation	Key problems and negative impacts of the current situation	Key reasons of the problem	Current plans or programs to handle the current situation
Disposing industrial wastewater in Khadrawia drain without complete treatment	• Bad impacts on groundwater in the area and on the drain itself and on the agro soil	• Lack of sanitary and industrial wastewater treatment plants	• Sanitary drainage treatment plant is under construction and a study is underway to build central treatment plant for industrial wastewater
Lack of green belt in the area.	• Harmful impacts on ambient environment from the smokes and vapors of the factories	• Lack of green belt around the area	• A study is underway to plant green belt and irrigate it by industrial wastewater after treatment.
Rare greenery inside the area	• Harmful impacts on ambient environment	• Rare greenery inside the area	• Coordination underway with EEAA and Investors' Association to increase greenery, its forestation and irrigation methods

5-5-4 Vision and objectives
Treating industrial wastewater resulting from industrial activities n the zone and disposing the treatment residue in safe way through the following:

1) Establishing elementary treatment units for all factories (sedimentation ponds).
2) Establishing central treatment plant for industrial wastewater.

3) Increasing the greenery and irrigating it with the produced treated wastewater to reduce vapors and smokes.
4) Implementing environmental awareness programs regularly and intensifying training courses for factories landlords and environmental officials.

5-5-5 Targets and required works

Main goal	Targets for the coming five years to achieve the goal	Required decrees, institutional support, projects, and programs to achieve the goal
Establishing elementary treatment units for all factories (sedimentation ponds).	-Completing central treatment plant for industrial wastewater -Completing sanitary wastewater treatment plant	-Factories were notified to establish elementary treatment units. -The governor issued a decree to establish urgent pipeline until finishing the sanitary drainage
Establishing central treatment plant for industrial wastewater	-Finishing sanitary wastewater treatment plant -Finishing central treatment plant for industrial wastewater	-Allocations of LE40 millions are assigned. Consultation studies and designs were done through the support of Industrial Zones Development Fund "Industrial Development Authority"
Increasing greenery and irrigate it with the treated wastewater	Forestation of the green belt around the zone	Assign areas for green spaces
Environmental awareness in scientific	Conducting training courses for environmental officials and	Developing a plan for environmental awareness

Main goal	Targets for the coming five years to achieve the goal	Required decrees, institutional support, projects, and programs to achieve the goal
and regular way.	factories in the area	

5-5-6 List of proposed projects
5-5-6-1 high priority projects

Project name	Responsible agency	Proposed implementing agencies	Estimated budget (LE millions)	timeframe	Proposed funding agencies
Establishing central treatment unit for industrial wastewater	Governorate and Investors Association	NOPWASD	40	Two years	Industrial Zones Development Fund and Industrial Development Authority
Establishing green belt around the zone	Governorate – EEAA- Investors Association	Governorate – EEAA- Investors Association	2	Five years	EEAA
Completing sanitary drainage treatment plant	Governorate and Investors Association	NOPWASD	10	Two years	NOPWASD
Conducting training courses for environmental officials and factories in the zone.	Governorate	Governorate - EEAA	0.1	One year	EEAA

5-5-6-2 Medium priority projects

Project name	Responsible agency	Proposed implementing agencies	Estimated budget (LE millions)	timeframe	Proposed funding agencies
Conducting workshops and training environmental officials in facilities.	Governorate, EEAA and Investors Association	Governorate, EEAA and Investors Association	0.5 or 0.1 annually	Five years	EEAA and Investors Association

5-5-7 Description of priority projects or programs

(1) Establishing central treatment unit for industrial wastewater

Project description:

Most of the factories in the zone have no industrial wastewater treatment units, but there is elementary treatment units (sedimentation ponds) and wastewater disposed on Khadrawia drain. There are 9000 feddans around this drain and irrigated directly from the drain. There are other waterways that irrigate thousands of feddans and have potable water plants established on them.

Project components:

1- Assigning the place on which the central treatment unit shall be established.
2- Developing the detailed design and engineering drawings.
3- Taking samples from the final outlet frequently in different times by the National Center of Researches in Cairo as a competent and trustworthy scientific agency.

Implementing agency:

Ministry of Industry – NOPWASD.

Estimated Cost:

LE40 millions.

Proposed funding agencies:

Industrial Development Authority – NOPWASD.

(2) Establishing green belt around the area to utilize treated industrial wastewater

Project description:

Establishing irrigation network to use treated industrial wastewater in irrigating trees and greenery.

Project components:

1- Identifying places of forestation and types of trees.
2- Implementing irrigation network.

Implementing agency:
Zone Administration – Investors Association – Governorate – EEAA.

Estimated cost\;
LE 2 millions.

Proposed funding agencies:
Investors Association in Mubarak Industrial Zone and the Zone Administration.

5-6 Hazard medical wastes
5-6-1 General Background
Menofyia governorate area is about 276 km2 and it consists of ten markazs including around 2840 heath facilities. Wastes of hospitals and healthcare units representing sever risk to man and the ambient environment as they communicate diseases for all living creatures. Wastes of healthcare facilities are about 0.8% of total wastes or 6000 tons daily.

There are no standard vehicles to transport such wastes. Number and sizes of the existing incinerators are inadequate, as the average capacity of the incinerator is 100kg/h on 3 shifts daily or 300kg/day. Also, a special cell needs to be prepared in the landfill to dispose the incineration residue.

5-6-2 Achievements in the past five ears
5-6-2-1 Decrees and procedures
An integrated environmental health department was formed in the Health Directorate as well as environmental health sections in the health departments in Menofyia and training was provided for the staff in the safe disposal of the hazard medical wastes.

5-6-2-2 Technical and administrative support

1- Staff was trained on the safe disposal of medical wastes.
2- Training courses were provided for anti-diseases teams.
3- All health departments were notified to provide transportation vehicle to the incinerators and anti-diseases team was established in every healthcare unit.
4- A committee of collecting hazard medical wastes was formed in most hospitals and health units.
5- Integrated environmental health department was formed in Health Directorate as well as environmental health sections in health departments in Menofyia.

5-6-3 Current situation: problems and causes:

Current situation	Key problems and negative impacts of the current situation	Key reasons of the problem	Current plans or programs to handle the current situation
Lack of integrated system to dispose hazard medical wastes (collection – transporting – final disposal – institutional capacity building)	• Catching viruses like "Hepatitis – Typhoid – Respiratory system – Aids, etc). • Unsafe disposal of the hazard medical wastes.	• Lack of equipped vehicles to transport hazard medical wastes. • Lack of adequate incinerators to the hazard medical wastes volume. • Lack of enough financial support.	Non

5-6-4 Vision and objectives

This includes the safe disposal of all hazard medical wastes from public and private healthcare facilities at the governorate level through establishing integrated system for safe disposal of hazard medical wastes including providing enough incinerators to incinerate medical wastes – providing enough equipment to collect and transport wastes – providing special cell in a landfill in the governorate – establishing institutional body to manage hazard medical wastes system.

5-6-5 Targets and required works

Main goal	Targets for the coming five years to achieve the goal	Required decrees, institutional support, projects, and programs to achieve the goal
Establishing integrated	• Provide equipped vehicles to transport hazard medical wastes.	• All healthcare departments were notified to provide vehicles to

Main goal	Targets for the coming five years to achieve the goal	Required decrees, institutional support, projects, and programs to achieve the goal
system for the disposal of the hazard medical wastes	• Provide enough incinerators in line with the volume of the hazard medical wastes. • Provide special cells in the landfills to dispose the incineration residue. • Upgrading the institutional structure of the hazard medical wastes management unit.	pass by healthcare units regularly to collect hazard medical wastes. • Provide financial incentive for the staff. • All staff is trained on the system of safe disposal of hazard medical wastes.

5-6-6 List of proposed projects

5-6-6-1 High priority projects

Project name	Responsible agency	Proposed implementing agencies	Estimated budget (LE millions)	timeframe	Proposed funding agencies
Establishing integrated system for the disposal of the hazard medical wastes	• Healthcare Directorate • Governorate EMU	Healthcare Directorate	4	One year	• EEAA • SFD • Ministry of Health • Donor

Project name	Responsible agency	Proposed implementing agencies	Estimated budget (LE millions)	timeframe	Proposed funding agencies
					agencies

5-6-7 Description of priority projects or programs

(1) Establishing integrated system for the disposal of the hazard medical wastes

Problem description

Mixing of medical wastes with municipal wastes and not sorting them at source threatens the health of the solid wastes collectors and transporters and represents great risk for them. Lack of safe transportation means to landfills or incinerators in the hospitals pose great risks to the public health, as some private hospitals directors have to transport their medical wastes by their own cars. Moreover, there is no safe cell in the landfill to dispose the incineration residue. Also, the governorate is lacking institutional structure to manage the hazard medical wastes system.

Project description

1- Purchasing 8 new incinerators.
2- Building a cell in the landfill of Sadat Center to dispose the residue of medical wastes incineration.
3- Providing equipped vehicles and equipment to transport these wastes.
4- Train the staff on how to handle hazard medical wastes.
5- Establishing institutional body to manage the system of hazard medical wastes in the Healthcare Directorate to ensure system sustainability.

Project implementation agencies

Healthcare Directorate

Estimated cost

LE4 millions.

Proposed funding agencies

EEAA – Private Sector – SFD – Donor Agencies.

5-7 Fishery wealth development

5-7-1 General background

Menofyia governorate is among key governorates that have big waterways. This puts it among the rich governorates in fishery wealth, as the space of natural sources for breeding and fishing is 21050 feddans and the production quantity is 10405 tons. Problems of fishery wealth are summarized in the pollution of the natural sources for fish breeding and fishing, insufficient water quantity in some fishing areas, insufficient water in Pharaoh Sea, discharging wastes recycling factory wastewater and the wastewater of washing the water plant of east Menouf city into the Pharaoh Sea, and insufficient cleaning of fishing areas, especially the Pharaoh Sea.

5-7-2 Achievements in the past five years

5-7-2-1 Decrees and procedures

The governorate holds meetings for fishery wealth sector and issuing the recommendations and directives and working on avoiding problems like:

- Partial cleaning of the Pharaoh Sea – surveying the ring road of the Pharaoh Sea – follow up and inspection by General Department for Roads. A complete quotation is underway to clean the Pharaoh Sea and the recommendation to clean the ends of canals and drains.
- General Authority for Fishery Wealth Development incorporated the Pharaoh Sea in its plan to develop the waterways and is transplanting new kinds of small fishes annually at around 3 to 3.5 small fishes annually.

5-7-2-2 Technical and administrative support

None.

5-7-2-3 Implemented projects and programs

- Building ring road around the Pharaoh Sea.
- Developing the Pharaoh Sea by adding new kinds at LE3 millions annually.

5-7-2-4 Projects and programs under construction

- Cleaning the Pharaoh Sea at LE6 millions.
- Relocating wastes recycling factory from Menouf city.
- Feeding the Pharaoh Sea by a new water source.

5-7-3 Current situation: problems and causes:

Current situation	Key problems and negative impacts of the current situation	Key reasons of the problem	Current plans or programs to handle the current situation
Pharaoh Sea is polluted by wastewater of wastes recycling factory and residue of wastewater plant	Pharaoh Sea is polluted by wastewater, which changes water features.	Discharge sanitary wastewater and residue of washing the wastewater in the sea	Local Unit is to stop dumping wastes to reduce backfilling the waterway and providing place in Sadat City.

Current situation	Key problems and negative impacts of the current situation	Key reasons of the problem	Current plans or programs to handle the current situation
washing			
High level of the bottom of the Pharaoh Sea	High level of water and not cleaning the wastes	Dumping wastes in the sea and backfilling parts of the sea.	Regular cleaning of the whole drain.
Water decrease in the Pharaoh Sea	Non fishing throughout the year	Depending on the polluted water of the Pharaoh Sea	Making new passage to feed the sea.

5-7-4 Vision and objectives

Increasing the fishery production with new kinds free of pollution through achieving a main goal, which is cleaning the Pharaoh Sea Pharaoh Sea to stop pollution sources and developing the waterways in the governorate by adding new kinds of fish, promoting fishermen awareness, feeding the Pharaoh Sea with new water source to reach big production and new pollution-free kinds.

5-7-5 Targets and required works

Main goal	Targets for the coming five years to achieve the goal	Required decrees, institutional support, projects, and programs to achieve the goal
Solving the waterway problem by cleaning the Pharaoh Sea	Cleaning by removing wastes and increasing the depth of the Pharaoh Sea	Regularity of irrigation shifts in the ambient canals. Following up factories inspection visits, which discharge their wastewater in open drains.
	Solving the dumpsite problem.	Stop discharging factory wastewater and backfilling of the Pharaoh Sea

Main goal	Targets for the coming five years to achieve the goal	Required decrees, institutional support, projects, and programs to achieve the goal
	Solving the wastewater washing problem.	Providing financial allocations for cleaning annually.
	Not dumping the wastewater in the sea.	Using extra water by cleaning the ends of the canals and drains.

5-7-6 List of proposed projects
5-7-6-1 High priority projects

Project name	Responsible agency	Proposed implementing agencies	Estimated budget (LE millions)	timeframe	Proposed funding agencies
Solving wastes problem in waste recycling factory of Menouf	Menouf Local Unit	Menouf Local Unit	10	3 years	- Local Unit - Governorate – Ministry of Environment

5-5-6-2 Low priority projects

Project name	Responsible agency	Proposed implementing agencies	Estimated budget (LE millions)	timeframe	Proposed funding agencies
Cleaning the Pharaoh Sea	General Department of West Menofyia Drainage	Menouf local Unit	6	One year	Ministry of Water Resources and the General Department of West Menofyia Drainage – Ministry of Environment
Removing wastes from the bottom of the Pharaoh Sea	Menouf Drainage Department and Local Unit	General Department of West Menofyia Drainage	5	Annually	Menoufyia Governorate – EEAA - Department of West Menofyia Drainage
Increasing the depth of water in the Pharaoh Sea	Menoufyia Irrigation Directorate	Menoufyia Irrigation Directorate	5	Phases	Menoufyia Irrigation Directorate - Menoufyia Governorate – EEAA

5-7-7 Description of high priority projects or programs

(1) Cleaning the Pharaoh Sea
Problem description

- Pharaoh Sea is subject to backfilling of some of its part due to the Menouf potable water plant washing pipe, which affects negatively on the production quantity due to decreasing space.
- Aggressions by some fishermen and farmers by backfilling of the Pharaoh Sea.
- Aggressions by some fishermen who build dams from trees branches.
- High level of wastes and clay, besides dumping agro wastes in the Pharaoh Sea.

Project description

1- Developing studies to identify digging cubic meters.
2- Preparing the drawings of the network and studying the bottom and sides of the sea.
3- Identifying the place of dumping digging out materials.

4- Developing the detailed designs and engineering drawings as well as terms and specs documents to tender on to contractors.
5- Identifying a team from the staff to supervise project implementation.

Project implementing agencies:
Ministry of Agriculture.

Estimated cost:
LE6 millions.

Proposed funding agencies:
General Authority of Fishery Wealth Development – General Department of West Menofya Sanitary Drainage – General Department of Menofyia Irrigation – Donor agencies.

As for the projects of improving solid wastes management and providing waste recycling factories far from the Pharaoh Sea, the required works and proposed projects were mentioned in the part of the solid wastes.

6- Required works to promote the public awareness in the governorate
Encouraging initiatives and creating the feeling of ownership are among the key objectives of the Governorate Environmental Action Plan (EAP). This was done through establishing working groups comprised of concerned persons of environmental management in the governorate. This aims at promoting the awareness of wide range of concerned persons on the importance of their participation in developing the EAP to develop their environment through identifying activities and projects that express their views. Therefore, it is hoped that participants in developing the EAP shall feel responsible towards implementation. This is necessary for many environmental issues that can not be solved without the direct participation of individuals and communities to improve the environmental conditions for themselves and others.

Awareness promotion campaigns shall be arranged to target all categories of the society, as new approaches and concepts that support the goals of the EAP take time to be deepened and they need many resources to support them. In early stages of implementing EAP, awareness campaigns shall focus on priority issues of EAP, including programs that target the following:

- Main concerned agencies:
    - Ways of conserving the groundwater and rationalizing the consumption.
    - Random dumping of wastes and its impacts.
    - Sanitary drainage and hygiene.

- Secondary concerned agencies
    - Importance of providing improved management of wastes, water supply and sanitary drainage.

- Industrial private sector needs self monitoring to the impacts of wrong disposal of industrial wastes on the ambient communities, in addition to the importance of improving work conditions.
- Protecting natural resources.

Public awareness may be launched through several agencies: mass media, educational departments and schools, youth centers, CDAs, and industrial security staff. To support the implementation of EAP in the governorate, it is expected to develop some awareness programs including stickers, video tapes, TV and Radio programs, and special messages that can be delivered by religious leaders. Mass media activities of the EAP shall be coordinated with the current awareness campaigns including environmental events and competitions under the auspices of the Governor, in addition to clean-up and forestation campaigns that can be implemented under the auspices of donor agencies or private sector.

Also, universities and schools must be targeted to promote the awareness of the students, as they can affect their parents' behaviors and also they are the future leaders of the community in the governorate. As a first step, efforts shall be focused on supporting the high level of the environmental awareness of the university professors and school teachers, their commitment and support of EAP goals in the governorate.

These efforts shall be coordinated with the central department of environmental awareness in EEAA, which issues punches of booklets, handouts and stickers for public awareness.

It is crucial to keep good and regular follow up for the impacts of such campaigns, including conducting researches on the extent of change in concerned categories behaviors and ideas. Results of these researches shall contribute in designing and managing awareness campaigns and following them up to ensure their effectiveness and impacts.

7- Institutional Support and capacity building of EMUs in the governorate

7-1 Institutional Support and capacity building

The successful implementation of the works mentioned in the EAP shall lead to the better use of the available resources. It also requires new investments, especially for the proposed infrastructure. In both case, developing the institutional structures and incentives systems to support the implementation shall be needed.

Most of the main institutions are existed in Menofyia. This part of the report point out some required works to strengthen the existing institutions and increasing the effective coordination among them.

The Environmental Higher Committee was established in the governorate, which shall bear the responsibility of facilitating the implementation of the EAP. There is also EMU

working at the governorate level in addition to environmental units at the level of markazs. As for concerned ministries like Housing Ministry, Irrigation Ministry, and Health Ministry, they bear environmental responsibilities pursuant to different laws as well as important roles to fulfill. So, the capacities of such ministries need to support to meet such responsibilities and their institutional structures shall need support to facilitate the effective participation of the private sector, CDAs and all community sectors.

7-2 Environmental Planning and Management System

Developing an effective decentralized system for environmental planning and management is among the important requirements to implement and sustain EAP works. This needs to set up a structure for managing, evaluating, and improving the efficiency and effectiveness of the decentralized environmental management at the governorate level. Environmental planning and management system shall depend on planned and organized approach for environmental management under the supervision of the Environmental Higher Committee, which shall review and update it regularly to ensure its adequacy to the concerned issues. The environmental planning and management system shall have the following general functions:

- Strategic planning to ensure sustainable and environmentally friendly development.
- Applying the land use planning, this observes the environmental laws through enforcing EIA requirements and commiting with.
- Coordinating between the concerned parties' activities to improve environmental services and protecting and treating the resources.
- Promoting the public awareness and consulting the community regarding the environmental issues.
- Capacity building through training and hiring, and operating effective guidance services.
- Providing necessary financial and human resources to implement EAP projects and programs.
- Supporting EAP and ensuring its sustainability and updating.

Institutional support is important for:

- Developing environmental planning and management system to work on effective treatment of the priority issues mentioned in the fifth part of EAP at the government, private sector and community levels.
- Ensuring the commitment of enforcing and implementing EAP and recognizing it at the highest levels in the governorate.
- Encouraging and facilitating the participation of all concerned groups to improve environmental services and protecting the natural resources.
- Establishing linking network to coordinate between all concerned parties to work on EAP sustainability.

The environmental planning and management system does not impose any new red tape burdens, as it depends on the current decentralized system of environmental management in the governorate, which consists of:

The Environmental Higher Committee, which was established recently (September 2005) is responsible of coordinating and integrating environmental planning and management

activities at the governorate level. The governorate is currently identifying the organizational structure of the council and assigning roles and responsibilities, including the following:

- Developing mechanisms to integrate the strategic priorities of EAP in the general planning and developing programs and budgets and allocating resources.
- Support more coordination and information sharing between the ministries and their bodies at the governorate level.
- Increasing coordination and cooperation among sectors' agencies at the governorate level.
- Submitting views to central agencies (like EEAA) and optimizing the local inputs in national environmental policies and plans (EAP).
- Following up the implementation and updating of EAP and ensuring the integration of the environmental issues in development plans.
- Acting as consultant to the Governor regarding the strategic environmental issues.

Ensuring the implementation of the environmental plans and priorities mentioned in EAP is one of the key priorities of the Environmental Higher Committee. To ensure this, the following must be implemented:

- Establishing environmental units (consisting of one or two employees) in all concerned and directorates related to environment like ministries of Housing, Health, Agriculture, Industry, Irrigation, and Tourism.
- Hiring environmental communication officials in the other directorates.
- Hiring environmental communication officials in each village.
- Supporting the capacities of the new environmental units in the markazs.
- The General Authority of Potable Water and Wastewater Management shall improve the standards in the fields of planning, maintenance, collecting fees, promoting awareness and ability on environmental management.
- Hiring environmental coordination and development employee in the Social Affairs Directorate to support the NGOs and CDAs in environmental management more effectively.
- Supporting the capacities and resources of education directorate representatives in charge of supporting environmental activities in schools at the level of markazs.
- Establishing central unit to manage solid wastes to plan, support and coordinate solid wastes management and supporting the privatization of services, including monitoring the performance of service providers from the private sector and their commitment. Staff of this department shall receive training on wastes management in general as well as strategic and financial planning.
- Guiding and awareness promotion unit shall be established to help many small and medium projects to apply safe environmental technologies and sound environmental management projects.

Initiatives under implementation at the central level to support environmental management decentralization include the following:

- Issuing a draft decree to convert EMUs in all governorates to general departments. This decree shall give more concern to environmental issues and shall also support the decentralization of the environmental management. Egyptian Environmental

Policy Programs (EEPP), funded by USAID, in cooperation with EEAA has implemented this decree on number of EMUs in some governorates. So, the turn shall come to Menofyia and it has to move quickly to support the capacities of the new department to provide necessary support to implement EAP.

- Comprehensive coordination to environmental activities in all departments/ markazs and directorates in the governorate is among the main tasks of the general department of environment. This includes developing environmental strategic plans and programs. It is also possible that the general department can act as information and complaints office concerning environmental issues, which shall help environmental monitoring, providing environmental training and promoting the community environmental awareness.

7-3 Main Environmental Directorates

Environmental planning and management system shall be designed based on the current decentralized system of the environmental management in the governorate (table 1) and it has also to help coordinating and supporting the effectiveness of other main directorates in the governorate to fulfill its environmental duties as shown in the following table:

Table (1): Main environmental directorates (responsibilities and coordination)

Directorates	Environmental responsibilities	Coordination with other agencies
Ministry of Water Resources and Irrigation – Directorate of Water Resources and Irrigation	- Enforce Law 12/1984, concerning irrigation and drainage and the related decisions and preparing demand estimations of irrigation water for the central ministry. - Managing infrastructure utilities for drainage and irrigation water and operate and distribute them according to the ministry allocations. - Securing enough irrigation and drainage for agro soil to increase the crops. - Increasing the efficiency of transporting water to the agro lands. - Replace and renovate old drainage networks. - Enforcing law 48 through joint inspections with Waterways Police.	- Health directorates to take samples to test the water quality to protect public health. - Reporting any problems of irrigation water to the central ministry. - Reporting law violations excluding law 48 to EMU or any other entity. - Reporting irrigation water quality problems to the central ministry.
Ministry of Housing, General Authority for Sanitary Drainage	- Enforcing law 93, 1962 concerning the disposal of sanitary drainage and related decisions and ensure the compliance of wastewater collection and treatment service with Egyptian laws. - Encouraging the reuse of treated wastewater and sludge. -Providing enough utilities for collection and treatment for small villages and rural areas. - Ensure providing enough treatment utilities for	- In Health Directorate, there is a program for routine monitoring of industrial wastewater disposed in the public sewage network. - Health directorate conducts tests for drainage effluents on

Directorates	Environmental responsibilities	Coordination with other agencies
	industrial wastes. -Ensure the compliance of household and industrial wastewater disposed into public sewage network with Egyptian standards. - Preparing small and big projects of sanitary drainage (pipelines, systems, and pumps) and implementing them by central ministries and managing them by the governorate. -Markazs' officials shall supervise and follow up projects implemented by private sector. -Markazs officials shall be responsible for inspecting leakage incidents, broken pipes, bad odors of treatment units, and pollution resulting from untreated wastewater.	behalf of EMU or Sanitary Drainage department upon request. - Reporting violations of water pollution to waterways police.
Ministry of Agriculture and Land Reclamation, Directorate of Agriculture.	- Enforcing law 53, 1966 and related decisions. - Agriculture Cooperative Societies shall provide marketing and financial services and agro seeds. - Helping agro sector to mitigate diseases. - Helping protecting soil quality (for instance, making researches on soil salts) - Promoting land reclamation and leveling projects. - Managing and cleaning irrigation and drainage canals (where Water Resources Ministry manages main canals and Agriculture ministry manages sub canals). - Provide information, training, and agro guidance services (like fighting diseases, using pesticides, and animal breeding). - Granting licenses to animal-based industries.	- Ministry of Health and Exports Development Authority shall monitor the quality of agro production. - The directorate shall report EMUs in each markaz of environmental violations.
Ministry of health and Population, Health Directorate.	- Taking samples of potable water sources, water treatment plants, drainage effluents of wastewater treatment plants, wastewater of local sewage networks and canals' water. - Analyzing these samples (or sending them to central Health Ministry to analyze them). - Taking and analyzing samples from industrial and other pollution sources upon request from other agencies. - Monitoring ambient air quality (through two stationed monitoring units and mobile monitoring units).	- In case of problems concerning potable water quality, a committee shall be formed from EMU and Water Company to verify the problem and investigate it. - Samples collected from suspect sites on Nile River are sent to central ministry, which

Directorates	Environmental responsibilities	Coordination with other agencies
	- Implementing vaccination programs to prevent communicable disease and managing them. - Health directorate is not responsible in a direct way to enforce the law.	shall then notify the governorate if there is any problem.

7-4 Institutional support for other agencies

Institutional support shall not be limited on governmental agencies, as great efforts shall be exerted to build the capacities of NGOs, CDAs, public education institutions and private sector to promote their capacities in planning and managing environmental projects and programs. Initiatives shall include encouraging the hiring of environmental communication officials in vocational syndicates and chambers of commerce to promote self monitoring f the member companies and the benefits of improving their environmental performance.

8- Roles and responsibilities

Each environmental goal mentioned in EAP shall have main agencies responsible for achieving it as mentioned in table (2). EMU shall be responsible for coordination the preparing of environmental policy, monitoring outcomes, submitting reports of achievements in this regard, and developing recommendations of improving performance. It shall also assist leading organizations to reach their goals and it shall provide monitoring information and opinions resulting from consultation process, which shall facilitate carrying out the agreed works.

Table (2): implementation responsibilities of Governorate EAP		
Issues and goals	**Main implementing agencies**	**Main participating agencies**
Sanitary Drainage		
• Extending sanitary drainage services to all urban and rural areas	Water and Wastewater Holding Company	Health Directorate
• Supporting and building institutional capacities of sectors at the governorate level	City councils, Village councils, Water and Wastewater Holding Company	Menofyia governorate, EMU
• Maximizing the reuse of treated wastewater and sludge	Agriculture Directorate and Water ad Wastewater Holding Company	EMU, Agriculture cooperative Societies and Agriculture Guiding workers.
Solid Wastes Management		
• Developing adequate strategy for the integrated wastes	EMU	Cities councils, village councils and CDAs

Table (2): implementation responsibilities of Governorate EAP		
Issues and goals	**Main implementing agencies**	**Main participating agencies**
management of Menofyia		
• Improving O&M of wastes services and utilities	Cities councils, villages councils	EMU
• Improving the existing systems of wastes collection and transportation	Cities councils, villages councils	EMU
• Adopting the adequate and quality systems for wastes treatment and disposal	Cities councils, villages councils, hospitals and factories, etc	EMU and Health directorate
Ensuring safe and sustainable wastes recycling	Cities councils, villages councils, hospitals and factories, etc	EMU and Health directorate
Adopting adequate systems for hazard/medical wastes management	Cities councils, villages councils, hospitals and factories, etc	EMU and Health directorate
Improving institutional organization and staff capacity building	Cities councils, villages councils	Menofyia governorate
Water supply and water quality		
Achieving 100% coverage and increasing production to meet the expected demand	Water and Wastewater Holding Company	Water and Wastewater Holding Company and Menofyia governorate
Improving water supply quality to comply with Egyptian standards by 2010	Water and Wastewater Holding Company	Water and Wastewater Holding Company and Health directorate
Increasing fees collection capacity from 65% to 85% and reducing losses in networks from 25% t 20%	Cities councils, villages councils, factories, CDAs and NGOs	Water and Wastewater Holding Company, CDAs and NGOs
Capacity building to improve water supply and service networks	Local Popular Council and Cities councils, villages councils	Water and Wastewater Holding Company
Water Resources		
Improving surface and groundwater management	Ministry of water resources and irrigation	EMU
Improving surface and groundwater efficiency	Ministry of water resources and irrigation, Health	EMU

Table (2): implementation responsibilities of Governorate EAP		
Issues and goals	**Main implementing agencies**	**Main participating agencies**
	directorate	
Decrease the pollution of surface and groundwater resources	Factories, EMU, Agriculture directorate, Public Works and Water Resources directorate, Health directorate	EEAA, waterways police
Agriculture		
Increasing efficiency of soil and irrigation	Agriculture directorate	Ministry of Irrigation and Waterways
Optimizing the use of fertilizers and pesticides	Agriculture directorate	Ministry of Agriculture and Land Reclamation
Increasing fish production	Agriculture directorate	General Authority of Fishery Wealth
Decreasing and handling crops' losses	Agriculture directorate	Ministry of Agriculture and Land Reclamation
Developing the institutional management	Agriculture directorate	Menofyia governorate
Industrial Pollution		
Ensuring safe storage and disposal of hazard wastes	Factories, EEAA, EMUs	Health directorate, Manpower directorate
Reducing gas emissions and particulates from big factories by 50%	Factories	EMU, Public Works and Water Resources directorate
Increasing governmental capacity to manage industrial activities	Public Economic Authority, City councils, Village councils	Environmental management directorate, Menofyia governorate, EMUs
Lack of Environmental Awareness		
Promoting environmental awareness among staff of governmental sector and citizens of Menofyia	Menofyia governorate, Public awareness department, EEAA, Education Directorate	City councils, Village councils, Health directorate
Improving service providing to enable citizens to follow sound and healthy practices.	Water and Wastewater Holding Company	NOPWASD, Health directorate
Natural Resources		
Support planning, operation, and organization of mines and quarries	Mines and quarries Department	Menofyia governorate
Supporting capacities of Mines	Mines and quarries	EEAA

Table (2): implementation responsibilities of Governorate EAP		
Issues and goals	**Main implementing agencies**	**Main participating agencies**
and quarries Department, EMU	Department, EMU	
Improving EIAs	EMU and environmental units	EEAA
Reducing the impacts of mines and quarries operations	Mines and quarries Department, EMU, environmental units	EEAA – Menofyia governorate
Cultural Heritage		
Supporting the management of cultural sites and important environmental sites	Monuments Department	Menofyia governorate, Supreme Council for Monuments
Supporting capacity building	Monuments Department	Menofyia governorate, Supreme Council for Monuments
Protecting cultural heritage	Menofyia governorate	Supreme Council for Monuments
Protecting the area of Tal Shersan, Kfor el-Raml, Tal el-Bandria, monuments store in Tala, Denshwai museum, Sadat museum and some mosques an churches	Monuments Department	Menofyia governorate
Protecting Biodiversity		
Developing a program to maintain biodiversity and environment	Menofyia governorate, Agriculture directorate, EEAA	EMU, city councils, Education directorate
Natural Protectorates' Management	Menofyia governorate, Agriculture directorate, EEAA	EMU, city councils
Mitigate environmental risks (threats)	Menofyia governorate, Agriculture directorate, EEAA	EMU, city councils

9- Plan funding and implementation

9-1 Implementation priorities

It was taken into consideration of preparing EAP proposed works to suggest practical and low cost solutions, but the limited available resources impede the achievement of desired improvements and five main priority issues require quick interventions:

- Improving solid wastes management system.
- Final disposal of harmful agro wastes.
- Improving the quality and quantity of potable water and providing sanitary drainage systems suitable for cities and villages of the governorate.
- Eliminating industrial wastewater pollutants.
- Safe disposal of hazard medical wastes.
- Development of fish wealth and fishery places and protecting them from pollution.

A) Developing implementation budget and five year plan

After developing the plan, the governorate has to communicate with directorates and competent agencies responsible for handling the aforementioned priority issues. These agencies shall be provided with assistance to incorporate related parts of EAP in their operational plans and identifying implementation costs. Detailed implementation plans shall optimize the better use of available budgets and identifying the priorities that need additional resources to achieve the EAP goals. Within the framework of the implementation plan, priority activities shall be identified for each component. For instance, it may be necessary to give priority to governmental basic services for the poorest areas or to promote the works to attract environmentally friendly investments as establishing industrial city (as done in Sadat and Mubarak industrial cities).

B) Increasing monitoring capacities

The governorate shall, from the beginning, identify number of measurable indicators to recognize the progress of EAP activities and also directorates and companies shall e encouraged to set up administrative and individual goals. This shall assist in achieving more effectiveness and utilizing the limited resources to be more useful and realize better environmental performance.

C) Working on disseminating EAP to attract additional resources

Implementing EAP priorities shall mobilize resources inside Menofyia governorate at all levels, starting by the Governor and including communities, CDAs, and NGOs. EAP shall provide clear framework through which funds shall be directed to priority issues. EAP shall be submitted to main concerned ministries, donor agencies and national organizations in a form of ambitious and practical plan to gain support of these organizations to the efforts of EMU in the governorate. Ongoing support and strengthening at top levels can help gaining additional funding to implement EAP.

D) Attracting Private sector participation to provide utilities services

The governorate shall set up legal and economic framework to support the participation of the private sector and investing in supplying and connecting environmental utilities services. This shall decrease the financial and administrative burden on the governorate and shall improve the quality, coverage and connecting of environmental services.

9-2 Foreign financial institutions and donor agencies
The governorate and donor agencies shall finance number of water supply projects, sanitary drainage, and other projects in the governorate, especially in the field of reducing industrial pollution. These agencies shall have important and effective role in implementing environmental priorities. The governorate and concerned parties shall attract such agencies and encouraging them to implement environmental projects in the governorate.

9-3 Local financial institutions and donor agencies
The effective participation of the government in developing the EAP is a basic factor in ensuring its ownership. To this end, governmental representatives have big participation in the working groups to prepare the Environmental Profile of Menofyia governorate and identifying the priorities of the EAP. Executive agencies in the governorate shall cooperate with local donor agencies like SFD and other funding agencies in implementing EAP priorities.

9-4 Private Sector
Private sector has important role to assist in implementing EAP. The development of this role is essential and linked to other concerned parties, especially the governorate, where it has to identify the different ways to enable the private sector to participate and how to encourage it. This could include for instance: increasing the private sector role in providing environmental services (like developing wastes collection and disposal systems, water supply, and wastewater treatment) and establishing more partnerships between EMU, industrial sectors, and investors to handle the commitment to apply EAI and inspection on factories, simulate and support the responsibility of private sector companies through adopting improved systems for self monitoring and good environmental management practices.

9-5 NGOs
There are many NGOs and CDAs in Menofyia working in the field of environmental protection and aim through its programs to improve the environmental conditions in the governorate. Civil sector is participating in the community development with governmental, business, and private sectors. World countries gave more attention to this sector due to its effect and direct contact with citizens and their needs, as they accept its role and self funding, in addition to the State support. Menofyia gives great attention to these NGOs and provide them with material and moral support and it encourages the active organizations in the community, where the number of NGOs in the governorate is 61 organizations.

10- Contribution to affect national and international issues
It is doubtless that implementing environmental priorities mentioned in EAP shall improve the environmental conditions at the national level; as such aforementioned problems are within the action priorities at the national level. EAP also handling the priority issues mentioned in the National Environmental Action Plan issued in 1992 in fields like solid wastes management, water and land uses. The expected environmental improvement shall comply with international agenda in improving life quality for

citizens, especially in issues like decreasing industrial pollution. The aforementioned procedures shall contribute also in meeting Egypt commitments according to the international protocols, especially 21 century agenda issued in Rio conference and the Millennium developmental goals.

11- Following up plan evaluation and implementation

11-1 Following up activities

EAP was designed to allow for measuring and regular follow up of the development of environmental activities of agreed priorities.
Activities of priority environmental issues were identified and goals were set up, through which the success of such activities can be measured. Therefore, it is necessary to design simple and effective follow up system to help measuring the development in activities. For instance, if we want to measure the achieved development in:

a) Solid wastes management, we first shall agree on simple and measurable indicators, like wastes volume that one worker can collect per day, number of dumpsites which burn wastes, etc).
b) For water supply, (lengths of maintained pipes per day, total collected fees, etc).

It is expected that leading organizations with main role in achieving these goals shall be responsible for following up activities' progress and to submit results to the Environmental higher Committee. Although main agencies role in helping and following up achievements with the leading organizations, yet the Environmental higher Committee is the responsible entity for follow up and updating EAP, as priorities may change as time passes.

11-2 Annual assessment

"Environmental Status" report shall be developed and submitted to the Environmental higher Committee annually and shall include a summary on:

- Achievements in the agreed upon activities (implementation).
- Achieved environmental improvement as a direct result of achieving EAP activities.
- Areas that need more attention due to poor performance or obstacles.
- Recommended necessary changes due to changing priorities or environmental conditions.

11-3 Evaluating implementation

EAP shall be effective and realistic to ensure its sustainability. Also, policies and incorporated activities in EAP shall be updated to reflect the changes of local conditions. In addition, learned lessons should be documented in the EAP follow up reports to use them in implementing environmental plans in other places.

As fro updating the goals and activities of EAP, this should be done regularly. Follow up reports shall be developed annually and EAP shall be updated every two or three years. In the EAP circle, the following shall be considered:

- Developing and updating detailed implementation plans (3-5 years) and budget of required priority activities annually.

- Monitoring and evaluating achievements and implementation performance.
- Evaluating implementation obstacles and identifying alternatives to achieve the goals.
- Continue consultations with main and secondary concerned parties and reflecting their views and support for the coming environmental plans.
- Identifying the necessary new activities due to changing conditions (like laws and/or new standards).
- Ongoing attempts to attract external investments either from the government, private sector or donor agencies.
- Complying with technological development that can contribute in providing solutions of economic feasibility and effectiveness for the environmental problems.

12- Conclusion

All main concerned parties have participated in developing EAP to agree on the following:

- Priority issues.
- Main activities and procedures to be taken at the governorate and markazs level by governmental, industrial and private sectors, in addition to number of NGOs and CDAs.
- Basic requirements for institutional support for all main agencies.
- Public awareness and required training courses.
- Tasks of leading organizations and main agencies.
- Needs to develop accurate budgets for the agreed development.
- Required ongoing environmental monitoring and planning.

Concerned parties are expected to participate in implementing the activities and operations of EAP. The following table shows the desired results of implementing EAP as well as the specific benefits which main and secondary concerned parties aim to achieve:

Benefits
• Improved health/ decreased mortalities. • Better level of training and experience to EMU staff. • Promoting citizens' feeling of ownership/ streets clean-up. • Mitigating environmental risks. • Better training on environmental issues. • Wider community participation. • Providing opportunities to increase profits. • Providing more job opportunities • Increasing opportunities of funding from donor agencies. • Increasing cost recovery opportunities of infrastructure and environmental services. • Increased technology transfer. • Providing safe and improved irrigation water. • Improved agro soil drainage and soil protection.

13- Annexes

13-1 Annex no. (1): working groups

First: Solid wastes group

Name	Title
1- Engineer/ Ahmed Ragab Ga'afer	EMU manager, governorate main building
2- Mr. Khalil Ibrahim el-Khadrawi	General manger of cleaning system, governorate main building
3- General/ Hamdi Baraka	Chief of Local Unit of Shebin el-Kom city and markaz
4- Engineer/ Mohamed Nabil Abu el-Eun	Chief of Local Unit of West District of Shebin el-Kom city and markaz
5- Mr. Mohamed Moftah Aly Moftah	Chief of Local Unit of East District markaz and city
6- Mr. Sabri Ameen Khallaf	Chief of Local Unit of Berket el-Saba'a markaz and city
7- Mr. Ismail Attia Shanab	Chief of Local Unit of Talla markaz and city
8- Engineer/ Ahmed Mohamed Abu Dan	Deputy Chief of Local Unit of Ashmon markaz and city
9- Mr. Salah Abdullah Ammar	Chief of Local Unit of Bagor markaz and city
10- General/ Abdul Wahab Abdou Awad	Chief of Local Unit of Menouf markaz and city
11- Mr. Mohamed el-Sayed Abdul Sattar	Representative of the Chief of Local Unit of Sadat markaz and city
12- Engineer/ Mervat Mohamed Fathi	Representative of the Chief of Local Unit of Sers el-Layan markaz and city
13- Mr. Tamer Abdul Moniem	Representative of the Chief of Local Unit of Quesna markaz and city
14- Mr. Maher Mohamed Tail	Representative of the Chief of Local Unit of Shohada markaz and city
15- Mrs. Nagwa Gergis Gobrial	Employee in EMU, governorate main building
16- Mrs. Hoda Wagdi Ibrahim	Environmental researcher, EMU, governorate main building

Second: Agro wastes group

Name	Title
1- Engineer/ Ahmed Ibrahim el-Shal	EMU Manager, Agriculture Directorate, Menofyia
2- Engineer/ Hassan Ibrahim Arnos	EMU Manager, Manpower Directorate, Menofyia
3- Engineer/ Said Othman Bader	EMU Deputy, governorate main building
4- Mrs. Heba Mohamed Khodair	Environmental researcher, EMU, governorate main building
5- Chemist/ Rasha Shaker Abu el-Fotoh	Environmental researcher, EMU, governorate main building
6- Brigadier/ Magdi Sabek Afifi	Chief of Environmental and Waterways Police

Third: Water and Wastewater group

Name	Title
Engineer/ Ayman Abdul Kader Mahmud	Chairman, Managing Director of Menofyia Water and Wastewater Company
Engineer/ Hussein Ibrahim Montaser	Menofyia Water and Wastewater Company
Engineer/ Asma'a Reda Abdul Aziz	Menofyia Water and Wastewater Company
Mr. Osama Belal Abdul Fattah	Menofyia Water and Wastewater Company
Mr. Mohamed Gaber Ramadan	Menofyia Water and Wastewater Company

Fourth: Air and noise pollution group

Name	Title
1- Engineer/ Ahmed Ibrahim el-Shal	EMU Manager, Agriculture Directorate, Menofyia
2- Engineer/ Hassan Ibrahim Arnos	EMU Manager, Manpower Directorate, Menofyia
3- Engineer/ Said Othman Bader	EMU Deputy, governorate main building
4- Mrs. Heba Mohamed Khodair	Environmental researcher, EMU, governorate main building
5- Chemist/ Rasha Shaker Abu el-Fotoh	Environmental researcher, EMU, governorate main building
6- Brigadier/ Magi Sabek Afifi	Chief of Environmental and Waterways Police

Fifth: Industrial Wastewater Pollution group

Name	Title
1- Engineer/ Ahmed Ragab Ga'afer	EMU manager, governorate main building
2- Mr. Mohamed Aly el-Kholi	Industrial Zone Manager, Quesna
3- Chemist/ Mohamed Gamal el-Din	EEAA, RBO, Middle Delta, Tanta
4- Mr. Ibrahim Mohamed Faragalla	Quesna industrial zone
5- Mr. Ragab Mahmud Eliwa	Manager, Investment Department, governorate main building
6- Mrs. Hoda Wagdi Ibrahim	Environmental researcher, EMU, governorate main building

Sixth: Medical wastes group

Name	Title
General/ Abu el-Ma'ati el-Dakrori	Secretary General
Dr. Reda Abu el-Fotoh Essa	Healthcare Directorate
Mr. Said Othman Bader	Inspector, EMU
Mrs. Mona Abdullah Ghazal	Computer specialist, EMU
Mr. Hani Baioumy Abdul Haleem	Environmental researcher, EMU

Seventh: Fishery Wealth Development group

Name	Title
1- General/ Taha Abbas Zghlol	Assistant Secretary General
2- Engineer/ Mohamed Saif	Manager, Fishery Wealth Authority
3- Mrs. Amira Abdul Aziz Mousa	Environmental researcher, EMU, governorate main building
4- Mrs. Nour el-Hoda Mohamed	Environmental researcher, EMU, governorate main building
5- Sergeant/ Amin Aly Amin	Sergeant, Waterways Police
6- Engineer/ Samir Fayez el-Nahass	General manager, West Menofyia Wastewater Department
7- Mrs. Sawsan el-Sayed el-Sheshtawi	General Manager, Information Center, governorate main building

13-2 Annex no. (2): statement of groups' workshops

Workshops and seminars	Responsible entity	Date
Developing implementation plans and programs	Governorate EMU	17/7/2007
Developing EAP	Governorate EMU	24/12/2007
Developing EAP	Governorate EMU	27/12/2007
Developing EAP	Governorate EMU	8/1/2008
Developing EAP	Governorate EMU	15/1/2008
Meeting with environmental consultant to discuss draft EAP	Governorate EMU	12/2/2008
Review of EAP	Governorate EMU	17/2/2008

Participants of developing the Environmental Action Plan

Governorate EMU has participated in developing the Environmental Action Plan. EMU was represented by the following names:

1- Mrs. Hoda Wagdi Ibrahim
Environmental Profile official in the governorate
2- Mr. Said Othman Bader
Environmental inspector in the governorate
3- Mr. Youssef Mahmud Allam
Environmental inspector in the governorate
4- Mrs. Mona Abdullah Ghazal — Computer department
5- Mrs. Nagwa Gergis Ghobrial — Secretary

Under the supervision of Engineer/ Ahamed Ragab Ga'afer EMU Manager

Also, EEAA, RBO has participated as well as all directorates, agencies, institutions and local units of the governorate cities and markaz.

First: Solid wastes group

Name	Title
1- Engineer/ Ahmed Ragab Ga'afer	EMU Manager, governorate main building
2- Mr. Khalil Ibrahim el-Khadrawi	General manger of cleaning system, governorate main building
3- General/ Hamdi Baraka	Chief of Local Unit of Shebin el-Kom city and markaz
4- Engineer/ Mohamed Nabil Abu el-Eun	Chief of Local Unit of West District of Shebin el-Kom city and markaz
5- Mr. Mohamed Moftah Aly Moftah	Chief of Local Unit of East District markaz and city
6- Mr. Sabri Ameen Khallaf	Chief of Local Unit of Berket el-Saba'a markaz and city
7- Mr. Ismail Attia Shanab	Chief of Local Unit of Talla markaz and city
8- Engineer/ Ahmed Mohamed Abu Dan	Deputy Chief of Local Unit of Ashmon markaz and city
9- Mr. Salah Abdullah Ammar	Chief of Local Unit of Bagor markaz and city
10- General/ Abdul Wahab Abdou Awad	Chief of Local Unit of Menouf markaz and city
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13- Mr. Tamer Abdul Moniem	Representative of the Chief of Local Unit of Quesna markaz and city
14- Mr. Maher Mohamed Tail	Representative of the Chief of Local Unit of Shohada markaz and city
15- Mrs. Nagwa Gergis Gobrial	Employee in EMU, governorate main building
16- Mrs. Hoda Wagdi Ibrahim el-Tanbadawi	Environmental researcher, EMU, governorate main building

Second: Agro wastes group

Name	Title
1- Engineer/ Ahmed Ibrahim el-Shal	EMU Manager, Agriculture Directorate, Menofyia
2- Engineer/ Hassan Ibrahim Arnos	EMU Manager, Manpower Directorate, Menofyia
3- Engineer/ Said Othman Bader	EMU Deputy, governorate main building
4- Mrs. Heba Mohamed Khodair	Environmental researcher, EMU, governorate main building
5- Chemist/ Rasha Shaker Abu el-Fotoh	Environmental researcher, EMU, governorate main building
6- Brigadier/ Magdi Sabek Afifi	Chief of Environmental and Waterways Police

Third: Industrial Wastewater Pollution group

Name	Title
1- Engineer/ Ahmed Ragab Ga'afer	EMU manager, governorate main building
2- Mr. Mohamed Aly el-Kholi	Industrial Zone Manager, Quesna
3- Chemist/ Mohamed Gamal el-Din	EEAA, RBO, Middle Delta, Tanta
4- Mr. Ibrahim Mohamed Faragalla	Quesna industrial zone
5- Mr. Ragab Mahmud Eliwa	Manager, Investment Department, governorate main building
6- Mrs. Hoda Wagdi Ibrahim el-Tanbadawi	Environmental researcher, EMU, governorate main building

Fourth: Medical wastes group

Name	Title
General/ Abu el-Ma'ati el-Dakrori	Secretary General
Dr. Reda Abu el-Fotoh Essa	Healthcare Directorate
Mr. Said Othman Bader	Inspector, EMU
Mrs. Mona Abdullah Ghazal	Computer specialist, EMU
Mr. Hani Baioumy Abdul Haleem	Environmental researcher, EMU

Fifth: Fishery Wealth Development group

Name	Title
1- General/ Taha Abbas Zghlol	Assistant Secretary General
2- Engineer/ Mohamed Saif	Manager, Fishery Wealth Authority
3- Mrs. Amira Abdul Aziz Mousa	Environmental researcher, EMU, governorate main building
4- Mrs. Nour el-Hoda Mohamed	Environmental researcher, EMU, governorate main building
5- Sergeant/ Amin Aly Amin	Sergeant, Waterways Police
6- Engineer/ Samir Fayez el-Nahass	General manager, West Menofyia Wastewater Department
7- Mrs. Sawsan el-Sayed el-Sheshtawi	General Manager, Information Center, governorate main building

Under the supervision of:

1- General/ Abu el-Ma'ati el-Dakrori **Secretary General**
2- General/ Taha Abbas Zaglol **Assistant Secretary General**

ESP, DANIDA:

1- Mr. Anders Bjoernshave	**DANIDA Senior Consultant**
2- Mr. Kurt Terpgaard Jensen	**DANIDA Consultant**
3- Dr. Aly Abu Sedera	**Secretary General of EEAA, Head of Branches Sector, Supervisor of ESP**
4- Salah Mohamed Ahmed El Sherif	**EMU Manager**
5- Mr. Sami Moustafa Mazloum	**EMU, Environmental Profile and Action Plan Officer**
6- Dr. Tarek Genenah	**EMU Consultant**

All under general supervision of:

Dr. Mawaheb Abu El Azem
CEO, EEAA