



## Acknowledgements



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- "Sohag Governorate Environmental Profile" -  
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# Acronyms

## Acronyms

CDA	Community Development Association
DFID	Department for International Development
EA	Environmental Audit
EEAA	Egyptian Environmental Affairs Agency
EIA	Environmental Impact Assessment
ELO	Environmental Liaison Officer
EMPS	Environmental Management and Planning System
EMU	Environmental Management Unit
EU	Environmental Unit
GEAP	Governorate Environmental Action Plan
GOE	General Office for Environment
NEAP	National Environmental Action Plan
NGO	Non Governmental Organisation
NOPWASD	National Organisation for Potable Water and Sanitary Drainage
ORDEV	Organisation for Development
SEAM	Support for Environmental Assessment and Management
SEC	Supreme Environment Council
SFD	Social Fund for Development
STW	Sewage Treatment Works
SW	Solid Waste
SWM	Solid Waste Management
SWMS	Solid Waste Management Strategy
TCOE	Technical Cooperation Office for the Environment
TOR	Terms of Reference
WHO	World Health Organisation

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# Introduction



As a newly appointed Minister I am very pleased to be able to help launch this Governorate Action Plan. It is one of the first to have been undertaken on the basis of full stakeholder consultation, and Sohag should be justly proud of the efforts involved.

In time I expect to see the effort rewarded, and I believe that this is, even now the case. Also I hope that other Governorates will follow the approach adopted in Sohag to help sustain and improve Egyptian environmental conditions, for our own and our children's future.

Minister of the Environment



It gives me great pleasure to lend my support to this document, the paper presentation of the Process for environmental action planning for Sohag. The process has been lengthy and, sometimes, frustrating, but I firmly believe that the benefits that will come out of the Process and Plan will help to steer Sohag into the 21<sup>st</sup> Century, and help us to ensure that our development as a Governorate will be sustained.

It is with personal thanks to all who have contributed to this Plan that I confirm the commitment of the Governorate to progressing all aspects of environmental policy management and control, as contained within this Plan and those that will be developed from this Plan in the future.

Under the Command of our President  
Mohammed Hosni Mubarak

General Ahmed Abdel-Aziz Bakr  
Governor of Sohag

# 1. Sohag at a Glance

## 1. Location:

Upper Egypt  
467km south of Cairo, and some 7 hours journey time by car or train  
Assuit to the North  
Qena to the South  
Hurghada on the Red Sea Coast is 360km distant by existing road, but would be only 200km by proposed new link road.

2. **Total Area:** 1,687 kms<sup>2</sup> of cultivated land. (Total area of Egypt is 1,002,000 km<sup>2</sup>, of which 55,039 km<sup>2</sup> is populated).

## 3. Settlements:

11 Markazes. 10 cities. 270 mother villages. 1217 kafr (small) villages.

4. **Total Population** is 3,135,872. (About 6% of the total Egyptian population, 10th largest Governorate population). 78% of these numbers live in rural areas, the remaining 22% are urban dwellers. Illiteracy is high at 36%. Population density 1,881 persons/km<sup>2</sup> (average). 2,739 persons/km<sup>2</sup> (Sohag). 940 persons/km<sup>2</sup> (Geheina). 2,255 persons/km<sup>2</sup> (Girga).

## 5. Infrastructure and Basic Services:

69% of Housing has access to a water supply, of which 64% are on a network supply and 5% area on 'other'. Data for 1995 shows 67% of housing to have access to sanitation. Earlier data shows that only a small percentage of this figure is to a sewage network, with only 12% on a network system and 86% on 'other'. (The network systems are growing with networks being planned/constructed in El Monsha City and Awlat Hamza, Geheina and Maragha). 80% of housing has an electrical supply. The figures relate to formal housing developments, if informal developments were to be included, the figures would show much less utility provision.

## 6. Health

Throughout the Governorate there are 3500 hospital beds, and about 150 rural health units. There are 261 family planning centres but Sohag has the lowest use of family planning measures in Egypt. Infant mortality rate 88/1000; national average ~40/1000. 88/1000 was the national figure about 20 years ago. Sohag reports vaccination rate of 57%, below the national average of 63% and well below the best performance of 77% in the New Valley. Human Development Index (based on longevity, knowledge and income) lowest for all of Egypt. Signs of malnutrition in Akhmim, Dar El Salam, Tema and Sohag markaz, in rural areas.

## 7. Employment

Firms employing >100 workers: - 30. Many smaller establishments exist: with 274 "small industries", and 2,638 "workshops". The greatest concentration of workshops is

found in Sohag (23%), with Tahta and Girga at 17% and 15% respectively.

Workers are employed in the following sectors: 1) Agriculture 66%. Main crops are sugar and cotton. Maize and millet are being increasingly grown. Onions are also grown and provide raw material for the onion drying and onion oil manufacturing factory in Sohag city. A little over 80% of cultivable land is in the top two soil quality classes. Akhmim has the highest markaz percentage of poorest soil quality class (32%). 2) Commerce: 10%. 3) Industry: 10%. Main industries are sugar, weaving, oil and soap, and food processing. 4) Private Sector: 10%. 5) Government 3%.

## 8. Pollution and other Environmental Problems

High water table in some places, especially close to the Nile. Soil salinity. Water quality: groundwater contamination with bacteria from septic tank discharge and seepage, and also contains high levels of iron and manganese. Poverty and poor awareness combine to adversely affect the urban poor in particular.

## 9. Natural and Cultural Features of particular importance include: Limestone hills. Historic Sites and Monuments: including 12 listed Islamic monuments, 23 listed Christian, 6 Pharonic and 2 Roman/Greek monuments. Including Merit Amoun, Abydos, and White Monastery.

Tourist Attractions. El Kawther Village. Sohag Museum (under construction). Karraman Island Park.

## 10. Economic Features

Per capita annual income level LE2395 (Cairo LE5630; all Egypt LE3461)

## 11. Strategic Plan for Comprehensive Development:

Published in 1994, concentrates on five themes for development in Sohag. 1) Industry: centred on the sugar industry in Girga, with factory extension and use of by-products as the main driver, the plan also identifies possible mineral resources for use including cement and brick factories; expansion in fields of mining; engineering; chemical; metal; textile; electronic; and food industry sectors. 2) Agriculture: crop diversification to improve value of agricultural produce, expanding into growth of perfume and medicine plants, and utilising crop strains requiring less water. 3) Tourism: expansion of tourism sector, making use of local sites of antiquity including Abydos, and Akhmim artefacts recently excavated together with newly developed tourist village at El Kawther. 4) Housing: new settlements to cater for growing population in housing supplied with adequate services including water and sanitary provision. 5) Unemployment alleviation: including changes to the curriculum and retraining.

# 10. The GEAP Cycle

This report will enable the SEC to take appropriate action.

To be sustainable the GEAP process needs to be dynamic and flexible. The policies, programmes and projects that combine with consultation to form the GEAP process must be updated to reflect changing conditions and local circumstances. In addition, the progress reports should document the lessons learnt during the process so that improvements can be incorporated into future actions.

The GEAP programmes should be updated on an ongoing basis. Progress reports should be produced annually and the GEAP itself updated every 2-3 years. In the GEAP cycle it will be necessary to:

- 1 Annually prepare and update forward (3-5 year) detailed implementation plans and budgets for the priority actions;
- 1 Carry out monitoring and evaluate progress and implementation performance;
- 1 Assess difficulties encountered and identify alternative ways of achieving objectives;
- 1 Continue consultation with primary and secondary stakeholders and to incorporate their views and support for forward environmental plans;
- 1 Identify new actions that become necessary due to changing circumstances;
- 1 Revise and set new targets and actions as appropriate;
- 1 Accelerate investment in certain areas as a result of outside changes;
- 1 Continually lobby for external investment from Central Government, private sector and the donor agencies;
- 1 Keep abreast of technological improvements that may provide more cost effective solutions to environmental problems;
- 1 Respond to changing requirements for institutional strengthening and capacity building.

# 10. The GEAP Cycle

## 10. THE GEAP CYCLE

The policies, programmes and projects that combine with consultation to form the GEAP process must be updated to reflect changing conditions and local circumstances, and also to provide reports on progress that has been achieved, and to document the lessons learnt during the process so that improvements can be incorporated into future actions.

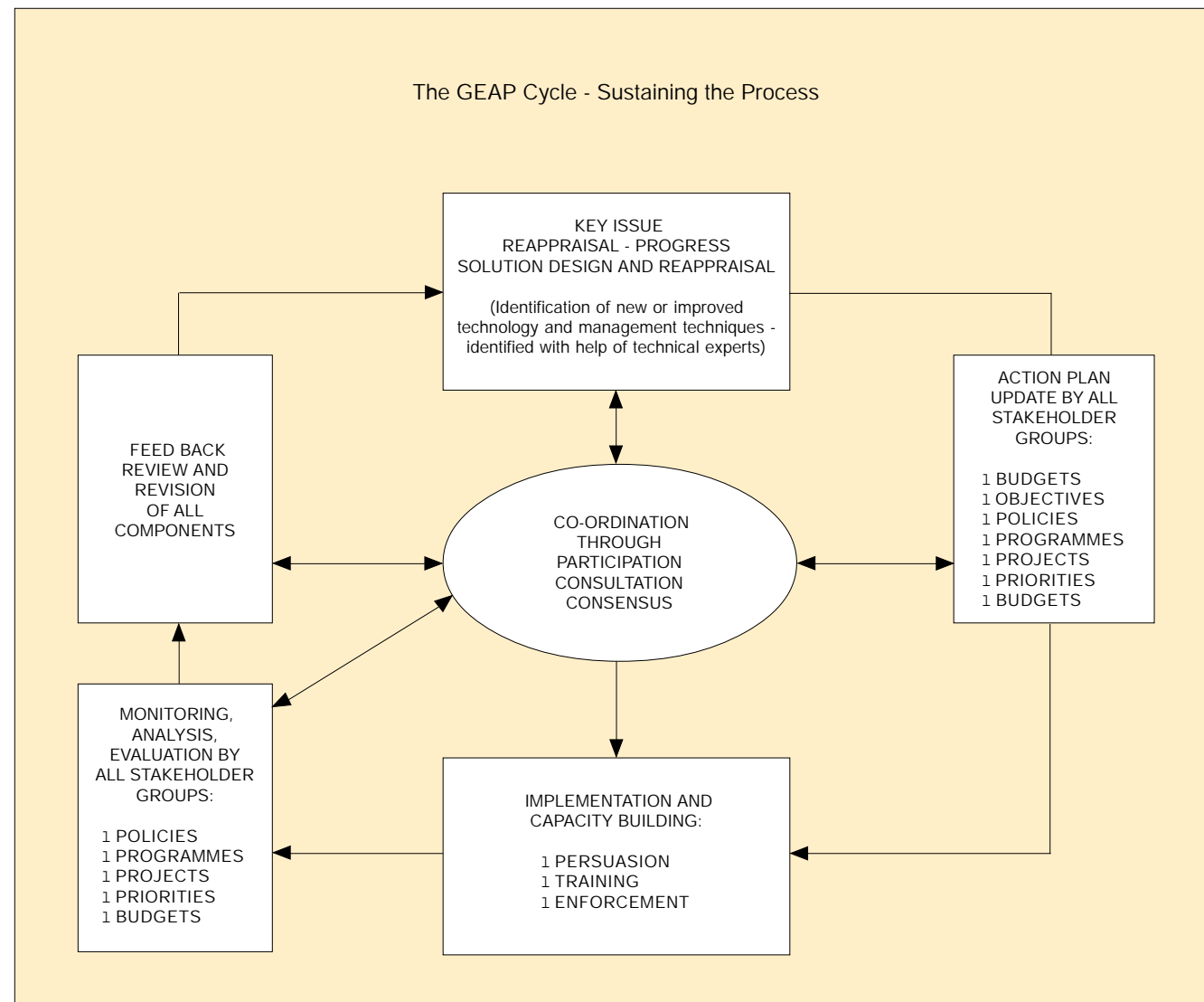
A GEAP cycle is needed, see diagramme below to make this happen, by updating programmes and measuring their progress against the targets set, and for reviewing and adopting new project proposals.

The EMU/GOE will be responsible for reporting progress and providing the initial contact point for information concerning the GEAP. It is expected that annual reviews can be held and Annual Reports published that set out the benefits of the GEAP and the improvements made possible. A "State of the Environment" report should be prepared

each year summarising:

- 1 The progress achieved in implementing agreed actions;
- 1 Improvements obtained to the environment;
- 1 Areas that need to be addressed due to non-performance or difficulties;
- 1 Recommended changes to on-going action that are necessary due to changing circumstances.

Preparation of the report should be coordinated through the EMU. Contributions, however, should come from all EUs and ELOs that have been and will be established throughout the Governorate as part of the EMPS.



# 1. Sohag at a Glance

## Governorate of Sohag and Markazes: Key Factors



### SOHAG

Capital city - most people, most investment. Solid waste dump site in unused canal. Fast urban growth and encroachment.

### TAHTA

Markaz has attempted large reclamation projects, these have not been wholly successful due to their large size and lack of associated services and facilities. Scrap metal is recycled in the markaz, solid waste is dumped in a canal. Tahta city is renowned for its transport businesses, but agricultural is main markaz activity.

### TAMA

Solid waste disposal in unused canal, scrap metal recycling active.

### EL MARAGHA

Local workshops good and enterprising. Solid waste disposal in unused canal, canal also used by squatters to farm, agriculture key markaz activity.

### GEHEINA

No Nile frontage. Remote. Solid waste dumped in desert, but encroachment of local development. Reclamation projects affecting water table, 30% of agricultural land saline to an extent, potable water quality - saline, wheat and maize main crops.

### SAKOLTA

Fish farming, main crop cotton, well served by tile drains, agriculture key markaz activity.

### AKHMIM

Tourism (Merit Amoun), El Kawther Industrial Estate and Tourist Village weaving, "grey" water communal disposal tanks. Fast urbanisation.

### EL MONSHAH

Solid waste disposed of on Nile banks. Local initiative on construction of waste containers.

### GIRGA

Sugar factory. Capital city till 1950s. Solid waste disposed of on banks of Nile. Scrap metal recycling active. Propose extension of sugar factory and development of sugar related industry (and from recovered sugar by-product) key developmental areas.

### DAR EL SALAM

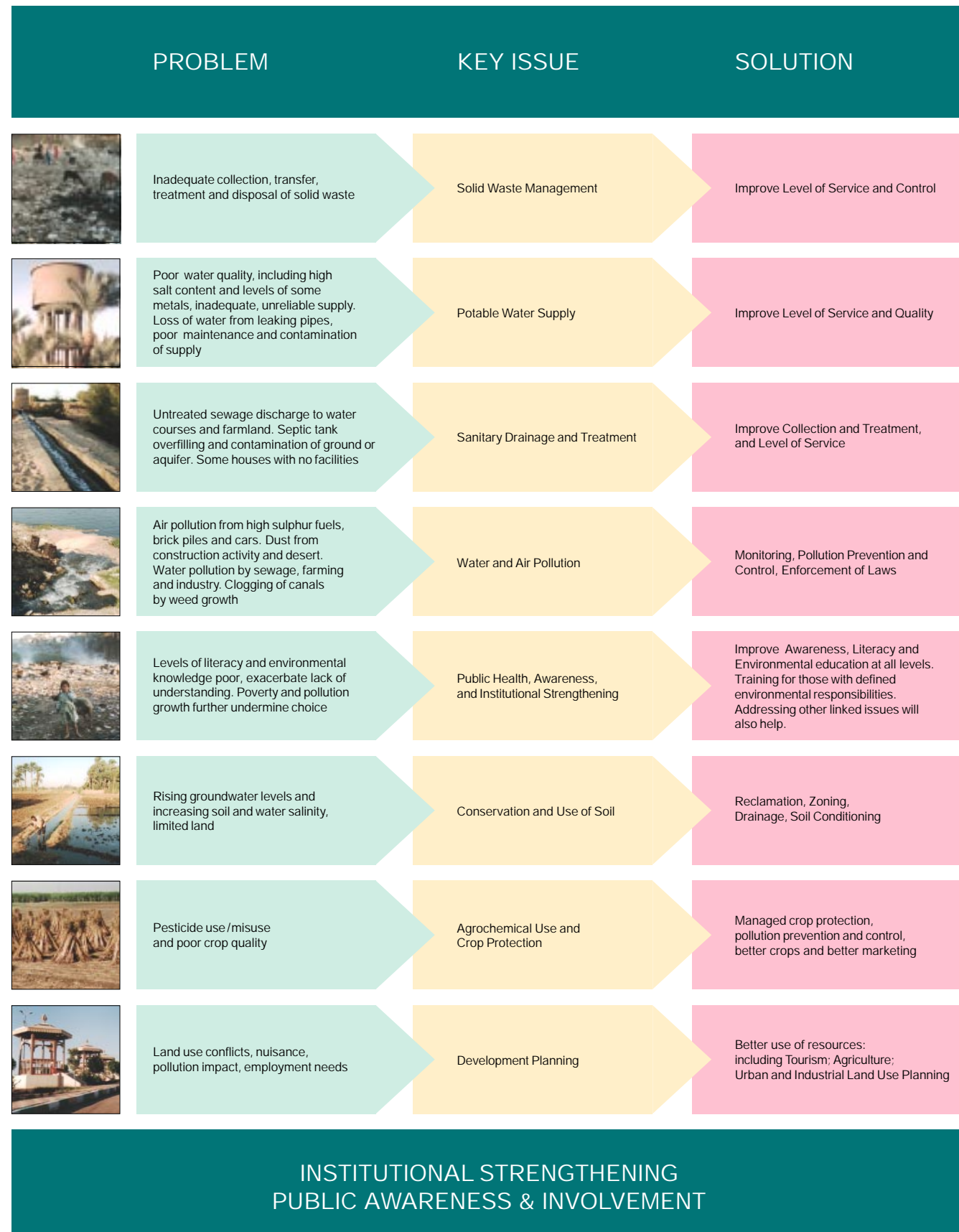
Remote, flood hit. Segregated hazardous waste disposal in desert. Well known for wood and metal work expertise.

### EL BALIANA

Abydos. New sanitary waste system being installed. Existing waste disposal site in unused canal, next to housing causing considerable nuisance. Solid waste and liquid waste disposed of together.

## 2. Setting the Scene

### Why We Need the Plan.



## 9. Financing The Plan

enterprises is so important. These need to cover all economic sectors, especially agricultural (e.g. fisheries and medicinal plant crops), tourism and industrial enterprises. In this context the development of market outlets, through investment in market research and promotion is regarded as being very important. The linkages between local, self-help revenue-generation, international technical assistance and the funds required to implement the GEAP over 15 years, are regarded as important. In raising resources consideration should be given to the following:

1. Financing Improved Water Supply and Sanitation Services
  - Increase Water Supply Tariffs (full cost recovery)
  - Sewage Charges (full cost recovery)
  - Licence Fees for Ground Water Abstraction (full cost recovery)
  - Consent Fees for Discharges to drains and waterways (cf sewers) (full cost recovery)
  - Collection of renewables
  - Establishment of "Utility Chest"
  - Savings from privatisation
  - Revenues from waste water re-use and sewage sludge sales
2. Financing Improved Solid Waste Services
  - Annual Fee for Collection/Use of Landfill Site (full cost recovery)
  - Gate-fee for Composting Facilities (full cost recovery)
  - Gate fee for Landfill Site (full cost recovery)
  - Savings from Waste Exchange Schemes
  - Revenues from Compost Sales
  - Revenues from Recycling
  - Levies for hazardous waste disposal from institutions: hospitals, University, schools, companies etc. (full cost recovery)
  - Waste minimisation plans/projects
  - Savings from privatisation
  - Charges for Domestic & Institutional Collection Services (full cost recovery)
3. Financing Improved Industrial Pollution Prevention/Control Services
  - Pollution fines ("polluter pays principle")
  - Pollution permit fees (full cost recovery)
  - Tax on Marzot to encourage switch to natural gas
  - Vehicle Licence Fees
  - Charges for Vehicle Testing
4. Financing Other/General Environmental Services
  - Removal of all inappropriate subsidies; replacement with income support grants
  - Establishment of Utility Chest
  - Establishment of Environmental Bonds/Environmental Trust
  - Funds
  - Levy on Top Soil sales
  - Fees for EIA Evaluation
  - Lobbying Donors

- Lobbying Commercial Sponsors
- Lobbying Central Government Funds/Grants
- Introduction of Performance Related Pay Schemes (e.g.: reduction in water leakages; improvement in waste collection etc.)
- Savings through improved management (monitoring & accountability)
- Savings and service efficiency improvements through operation of maintenance budgets
- Improved financial planning to achieve more effective use of available funds
- Investment in improved technology and lower operating costs
- Improved management (via training) leading to technical efficiency gains
- Harness customer willingness to pay established via 'research'
- Adoption of energy saving/efficiency programmes
- Investment in Sustainable Development projects to generate increased Government revenues/taxes
- Laboratory charges and fees; Advisory fees charged to other organisations

# 9. Financing The Plan

## 9. FINANCING THE PLAN

### Risks of Doing Nothing

In today's world environmental improvements are an integral part of economic growth. As Sohag strives to increase the value of its agricultural output, accelerate industrialisation and, at the same time, cope with the demands of an increasing population and urbanisation, the pressure on the environment will mount considerably.

Without action the consequences of continued environmental degradation in the longer term can be substantial. The risks to the people and to the economy of Sohag are potentially:

#### 1 Adverse Health Impacts:

- Ambient air pollution can be the cause of acute and chronic respiratory disease and lung cancer;
- Contaminated water supplies and poor sanitation can cause diseases that vary in severity from mild gastro-enteritis to severe and sometimes fatal dysentery. Incorrect dumping of solid or liquid waste will pollute waterways and increase the incidence of disease from vermin or insects;
- Use of polluted irrigation water on edible crops will further aggravate the problem.

#### 1 Depletion of Natural Resources:

- Loss of agricultural land, excess consumption of water, and pollution impacts of industry on agriculture or fishing will have economic impacts.

#### 1 Increased Cost of Essential Services:

- Increasing pollution of surface and groundwater resources from industrial and municipal sources will lead to higher costs for treating the water to achieve necessary standards.

#### 1 Loss of Market Share:

- To compete effectively in the international market it will be essential to have sound environmental practices. This will have the greatest impact on industry as Western countries are increasingly placing more emphasis on sourcing their materials from suppliers who follow this approach.

Other risks of environmental degradation include: social unrest due to deteriorating living conditions; reduced agricultural output due to increased salinisation and impacts of using polluted irrigation water; increased building damage/maintenance from air pollution; increased industrial inefficiency due to in-plant wastage; loss of tourism due to damaged archaeological artefacts; unsightly garbage dumps; possible

loss of inward investment if poor or inadequate supporting facilities are in place.

It should be noted that experience in other countries indicates the cost of pollution remediation is 10-100 times the cost of pollution prevention.

The costs associated with the implementation of the projects developed during the preparation of this report are estimated to add up to about LE 45 million. This substantial investment will be recovered in terms of health improvement and a reduction in lost days due to environmental illness (e.g. diarrhoea, bilharsia, renal failure, goitre, etc.), a reduction in costs associated with environmental clean-up, and better value from invested capital as equipment lasts longer.

The greatest expenditure estimates are associated with Solid Waste Management (LE 13.5 million), Pollution Prevention and Control (LE 10 million), Potable Water Supply (LE 7.5 million).

As stated earlier the inclusion of a project in the action plan does not mean that it has funding. Funding is expected to come from a variety of different sources, including Government, Governorate, Donor Agencies and large non-governmental organisations. At Governorate level funds already allocated to projects such as increasing the provision of sanitary waste collection and treatment will, of course, contribute to the overall success of environmental management in the Governorate. The same applies to the expenditure by the Agricultural Department on, for example, the integrated pest management and tile drainage project programmes.

There are financial benefits of the plan, for example, in improving access to potable water and sanitary drainage services it is probable that approximately LE 2 million per year can be saved in treatment costs of diarrhoea and recovery of wages lost to days off work due to illness.

It is generally expected by the consultees that local stakeholders will make whatever contributions in kind are feasible. In discussing projects and issues with consultees a willingness to pay a contribution to funding requirements was expressed. Whereas this shows a commitment to environmental quality improvement, willingness and ability to pay must not be confused. It is often the poorest communities that are in greatest need of improvements but are the least able to make a contribution to getting them done.

The expectation is that all other funding for these initial actions will need to come from either Central Government or NGOs or donors. The Governorate budgets are already committed to short, medium and longer-term expenditures on the provision of essential environmental service facilities.

The generation of additional revenues and employment to finance the environmental improvements (especially the proposed Programmes) is where diversification and sustainable development of new business

# 2. Setting the Scene

## How the Plan was Prepared

### What is the plan?

This document describes the Action Plan for the environment in Sohag. The plan is a description of the actions necessary to protect the environment in Sohag from the adverse environmental impacts that might be associated with development of all kinds. It is a plan that helps to identify the issues that affect the inhabitants of Sohag and starts to identify solutions, that are practical and affordable, for the resolution of these issues in ways which address the technical and social effects of the problem. It is a Plan for Action.

### Why do we need an Action Plan?

Over the last decade Sohag has recognised that it must develop an industrial base to cope with the demands of a growing population. Without appropriate awareness, planning, controls and supporting infrastructure services growth will not be sustainable and may damage the agricultural potential of the Governorate.

The environmental action plan, therefore, aims to address the following:

- 1 Efficient provision and management of the Governorate infrastructure and environmental services (solid waste, potable water, sanitary drainage);
- 1 The planning, sustainable development and management of the natural (land, water, air and cultural) resources of the Governorate.

### How was it prepared?

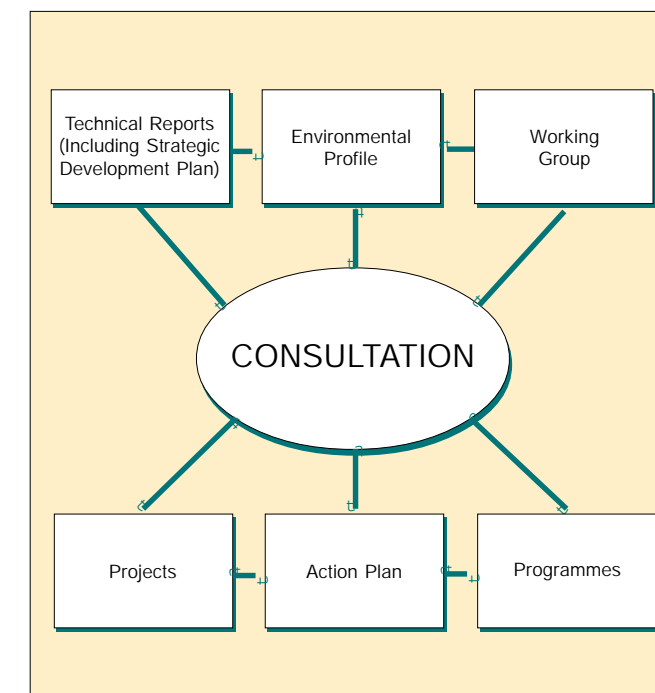
The development of the Governorate Environmental Action Plan (GEAP) has followed a process that has included preparation of technical reports on the environmental conditions found in Sohag; this information forms the basis for the Environmental Profile. Following preparation of technical reports, the process has revolved around consultation with stakeholders. The GEAP Process Diagram opposite illustrates the process that has been followed and shows consultation is central and that the process is iterative. This means that, as new information, ideas or conditions arise, they will need to be incorporated into the Plan, and the plan will require to be updated. The consultation process has been important in formulating this edition of the GEAP and must continue to be so, keeping the GEAP up to date in the face of changing local circumstances.

The GEAP follows the production of a National Environmental Action Plan (NEAP) and the findings of the Governorate process support and reinforce the recommendations of the National level initiative. There are some differences, as would be expected between the key issues that were highlighted in the NEAP and that were identified in the GEAP.

The GEAP also works in conjunction with the Strategic Development Plan for Sohag which focuses on development issues within the Governorate until the year 2005 and uses five themes of industry,

agriculture, tourism, housing, and employment.

The Strategic Development Plan is a very important document for Sohag; it identifies how the Governorate proposes to address the need for development to respond to the need for jobs, income and progress in Sohag so that Sohag can relinquish its position as one of the poorest Governorates in Egypt. The GEAP and Strategic Plan should work hand in hand to shape the future of Sohag.



### Whose plan is it?

Stakeholders are all those with an interest in Sohag's environment. The stakeholder groups that have been involved in the development of the plan through meetings and discussions, and the development of the programmes and projects which are components of the plan, are shown on page 7. This Plan belongs to these people. It is important to take into account the views of as many people as possible in developing such a plan. By adopting this approach, the plan has been produced by many different people working together. This is the first important step to improving the environment in a sustainable way - working together towards a common goal. This is the first GEAP in Egypt to be produced in this way and is a significant feature of the level of cooperation that has been forthcoming in the Governorate

The aim of the GEAP is to respond to the environmental concerns and problems in Sohag; to produce a practical and useable Action Plan that all Sohag residents - whether in the Governorate, in the private sector, in Non Governmental Organisations (NGOs) and Community Development Associations (CDAs) and at the village and community level - were involved in and can understand and recognise as a response to their own and Sohag's environmental concerns.

## 2. Setting the Scene

### Who will make it work?

Some of the stakeholders have a defined role to play in the implementation of the GEAP. These include the Governorate departments and officers and advisors who have a designated role, including the members and advisors of the Supreme Environment Council (SEC), the Environmental Management Unit (EMU) and the Environmental Units (EUs), all of which have important formal roles to play in the management and planning of environmental issues in Sohag. The roles each of these groups will play will be defined in greater detail as one of the first actions of the GEAP.

The media has an important role which should not be overlooked, and should play an active role in heightening public awareness of environmental matters and issues as well as disseminating information about actions being undertaken that can be duplicated or replicated elsewhere.

NGOs and CDAs already have specific roles within the community and this role must be extended to cover environmental considerations. Their environmental duties within the GEAP will be to act as communication conduits, both "upwards" and "downwards" so that the views of the community are passed upwards to decision makers and takers, but also that the actions taken by the Governorate to address the community concerns are explained to the communities who should be benefiting from these actions. It is vital that the opinions of primary stakeholders are included in the development of projects. In this way solutions fit not only the technical issues, but also the social issues raised by a particular problem.

Similarly, educationalists have a remit to include environmental matters in the school and university curriculum so that a new generation of environmentally aware Sohagians emerge to carry responsibility for the future.

The community too has a role in the GEAP and can have an active role in improving the environment. This role cannot be emphasised too much. Communities have a part to play not only in voicing opinions about dissatisfaction to decision makers, but can help in identifying solutions to the problems that cause the feelings of dissatisfaction. The GEAP must provide mechanisms to allow these opinions to be heard, by the right people at the right level and at the right time. It must be recognised that the solutions should be practical and not present other problems but this helps in heightening awareness about bad practices and the benefits of environmentally acceptable alternatives. Communities have a direct role in contributing to projects, both financially and in kind. More importantly in some circumstances they can bring pressure to bear on their peers to make sure bad practices are brought to light and eradicated - like stopping littering or throwing dirty water in the street.

### What happens now?

Up until now environmental issues have not been dealt with in an integrated way. This lack of focus results in duplication of effort and gaps in the work necessary for sustainable development and good environmental practice. Some good work has been undertaken in Sohag by the Governorate and others which has helped to address some of the key issues. This includes work by the different departments in providing potable water and sanitary drainage systems, work on field drainage and control of application of agricultural chemicals - these issues are being dealt with in some parts of the Governorate, but more needs to be done, particularly to ensure that issues are addressed in all parts of the Governorate, not just those that are most accessible, or most noticeable. Work by the Social Fund for Development (SFD), NGOs, CDAs and the Shorouk programme have made important contributions to environmental matters but have only tackled a small part of what is needed overall.

The Action Plan will serve to coordinate and consolidate these activities as well as identifying other things that must be done.

### What Benefits will come from the Plan?

Benefits of the plan will come from many places. They will occur due to shared information, co-ordinated action that stops duplication, and programme and project preparation and follow up that makes sure actions are appropriate and therefore continue to be of use well into the future. Benefits will fall into three main categories, and will relate to:

Human and social resources, - like improved health through provision of environmental services and training, increased civic pride, greater scope to participate in project and programme design and implementation; this will come from consultation, involvement, a reduction in the need for environmentally destructive coping strategies and an increased awareness of environmental issues, and an understanding of the impacts of certain bad practices, and the benefits of improved habits;

Economic/financial resources, - like improved planning and allocation of resources, improved employment opportunities, poverty alleviation, better planned living and working environments, improved opportunities to identify and invest in environmentally appropriate technology, help to identify sources of funding;

Natural environmental resources, - like improved and safer quantities/ quality of irrigation and industrial water, improved land drainage and soil conservation, cultural heritage features conserved and restored.

Benefits have already occurred due to the GEAP process - like raising environmental awareness and providing a means of focusing attention on the problems that need to be addressed.

## The Plan

### The Benefits



#### BENEFITS FROM THE GEAP WILL LEAD TO

A Healthy Environment

Sustainable Development

Maintenance of Cultural and Historic Resources

Integrated Development

Knowledge Based Decision Making and Taking

An informed, Involved, Committed Community

#### KEY ISSUES WILL BE ADDRESSED BY SOLUTIONS THAT

are practical

benefit a range of stakeholders

are replicable

are sustainable

involve stakeholders

are part of a comprehensive plan

take into account resource management and conservation

benefit vulnerable groups

involve and require participation

identify self-help measures

take into account what people think is important

illustrate environmental awareness

demonstrate that the Governorate is at forefront of environmental management

remove the need for environmentally damaging strategies

empower people to take effective action

develop environmental awareness at community level

#### BENEFITS WILL BE

improved health

increased civic pride

increased awareness

improved allocation of resources

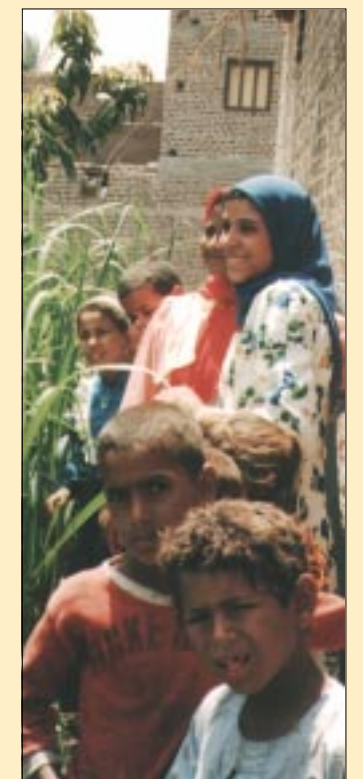
employment opportunities

poverty alleviation

better planned living and working environments

help to identify sources of funding

focus attention on priority issues



## 8. Implementing The Plan

### 8. IMPLEMENTING THE PLAN

#### Implementation Priorities

The three top priority key issues that must receive urgent action are:

- 1 Solid waste management;
- 1 Potable water supply; and
- 1 Sanitary drainage and treatment

It is also recognised that without institutional strengthening and public awareness and involvement, the benefits of the GEAP will not be fully achieved.

Implementation will occur at different levels in the Governorate. The Governorate Officials must enforce the principles of the GEAP and support any legislation changes that may be necessary to fully implement the Policies and Programmes formulated. They must ensure that any development proposals put forward by the various Governorate departments are compatible with the GEAP policies and programmes and do not interfere with the implementation of actions to address the key GEAP issues. The supporting measures will help as tools to ensure that the policies can be adhered to. The project ideas and the project proposals will help to crystallise the solutions to the key issues. The demonstration projects (funded by the SEAM project) as part of the GEAP inception will help to publicise the benefits of environmental improvement.

An important early step in the EMPS will be to agree and ratify targets for the programmes.

A very important element of the GEAP is to give publicity to the successes and to promote awareness and involvement in environmental issues.

Similarly, monitoring of the benefits and progress of the GEAP is an important requirement. Monitoring will need to take into account the project successes and to make recommendations for modifications where necessary. It is likely that an independent advisory committee should be established, reporting to the SEC to chart and map the progress of the GEAP, to assess whether targets are being met, and to provide a forum for wider dissemination of the benefits derived from this particular GEAP process.

In each of the sections identifying the actions necessary to tackle the key issue, a list of 'Who Should Be Involved?' is provided. In each case there will be a lead agency and key players. The lead agency will need to be identified and agreed for each of the key issues. This task will be undertaken as one of the first issues to be addressed by the SEC, in conjunction with the EMU and the EUS of the Line Ministries. The general role of the lead agency is to:

- 1 Coordinate policy development within the overall Action Plan through the consultation process;
  - 1 To develop standards through the consultation process;
  - 1 Advise other agencies and stakeholders on implementation and the progress of implementation;
  - 1 Where a number of agencies are involved, plan and coordinate management;
  - 1 Manage specific issues or areas of specialisation;
  - 1 Monitor outcomes and provide feedback;
  - 1 Report to Central Government on the level of success of the policies programmes and projects;
  - 1 Carry out agreed programmes.
- The general role of key players will be to have the following responsibilities:
- 1 Be involved in consultation;
  - 1 Consult with their organisational membership;
  - 1 Provide information to Lead Agency;
  - 1 Monitor role of Lead Agency; and
  - 1 Carry out agreed programmes and projects.
- The relevant people and organisations involved should:
- 1 Establish a 3-5 year implementation plan and budget;
  - 1 Strengthen monitoring capabilities;
  - 1 Disseminate and promote the GEAP to attract additional resources;
  - 1 Establish an effective legal and economic framework;
  - 1 Attract the private sector into utility services.

Implementation will fall to both primary and secondary stakeholders, those with formally designated responsibilities include the SEC, EMU(GOE), EU and ELO. Others will also be included.

## 2. Setting the Scene

### WHOSE PLAN IS IT

#### SOHAG GEAP STAKEHOLDERS

Stakeholders for the Sohag GEAP include all those with an interest in Sohag's environment.

The following groups have been involved in the development of this plan through meetings and discussion.

Governorate Officials: including HE the Governor, the Secretary General and Deputy Secretary General.

Governorate Departments: including Departmental Heads and their representatives from the EMU, Health, Social Affairs, Agriculture, Fisheries, Irrigation, Education, Housing and Utilities, Roads, Manpower and Training, Youth and Sports, Media and Culture, Tourism, Antiquities, and EUs within Directorates.

District Level Officials from all Markazes

NGOs and CDAs

Social Fund for Development

Industry; including major Sohag industries (Oil and Soap, Sugar, Textile, Food and representatives of EI Kawther Industrial Zone); and representatives of Small Businessman's Association

Farmers and Fishermen.

University and Research Institutes.

Primary stakeholders, including urban and rural communities in cities, villages and hamlets.

Technical Cooperation Office for the Environment (TCOE), Egyptian Environmental Affairs Agency (EEAA), donor agencies.

THIS PLAN BELONGS TO THE PEOPLE OF SOHAG

# 3. The Vision

## 3. THE VISION

The overall vision or aim of the GEAP can be simply stated as:

“to improve the quality of the environment and the lives of all persons living and working in the Governorate.”

At the present time this means that the key issues affecting the people and their environment must be addressed in such a way that improves the environment, improves people’s quality of life, and in solving one problem does not introduce another. It also means that local natural resources (including the ancient monuments) must be used wisely so that future generations can continue to reap the benefits. In satisfying the aim, the GEAP must recognise that people require education and gainful employment, as well as access to services, including a good quality water supply, health facilities, waste collection and disposal, electricity, and other things people value in their lives.

The GEAP vision can be directly linked to the aim of the Strategic Plan which is similarly linked to improving lives of persons in the Governorate by increasing the wealth of the Governorate.

Through the GEAP process we have developed a vision for the environment of Sohag; this vision is contained within the statements opposite. These principles will be used to guide us to achieve this vision.

### The vision will give us

- 1 A healthy environment - access to clean water, safe food, clean air, good soil;
- 1 Sustainable development - which provides us with income to grow and buy the things we want but does not pollute the environment or deplete resources for our children’s use;
- 1 Maintenance of cultural and historical resources - so that tourists will still want to visit the Governorate and our children grow up in the knowledge of our ancestors;
- 1 Integrated development - that does not create new problems for every one that is solved;
- 1 Knowledge-based decision making and taking - so that we address any potential issues and take steps to prevent them from affecting our environment, our decisions are based on economic and environmental factors and we share information with our colleagues;
- 1 An informed, involved, committed community.

### The vision will enable us

- 1 To provide the means by which the quality of both the environment and the lives of all residents of, and visitors to, the Governorate are enhanced;
- 1 To facilitate and encourage the improved provision and management of all the infrastructural services, upon which the quality of the Governorate’s environment depends: potable water supplies; sanitation; treatment of all wastes; pollution prevention/control measures; and public health facilities;
- 1 To support the conservation, wise use and sustainable development of all the Governorate’s natural and associated resources, so that the capital stocks of resources are kept intact for the benefit of future as well a present generations;
- 1 To uphold the key principles, underlying the aim and objectives of the Plan and its implementation.

**KEY PRINCIPLES**

To facilitate sustained development and poverty alleviation

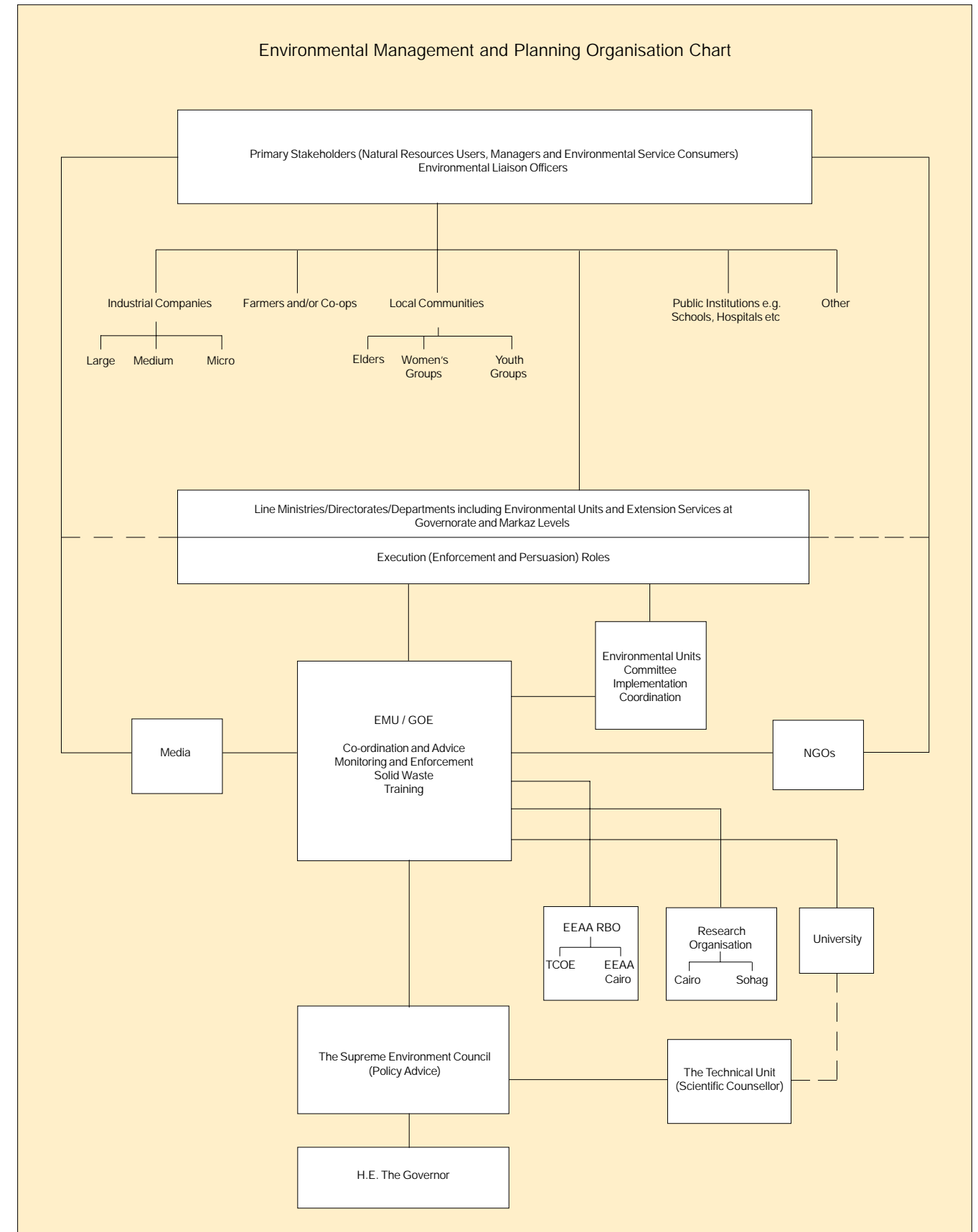
To conserve and protect natural and associated resources

To repair depleted or degraded resources

To establish an efficient environmental management and planning system

To be self-financing and to foster self-help initiatives

# 7. Institutional Strengthening & Capacity Building



# 7. Institutional Strengthening & Capacity Building

most appropriate means of expanding/intensifying environmental awareness campaigns. This has included discussions with NGOs, the EMU and the EUs.

At the present time, the Actions identified so far, including Policies, Programmes and their supporting measures and Projects will be managed and implemented by the EMPS described.

## Training and Public Awareness and Involvement

From stakeholder discussions it is clear that there are three priority action prerequisites to a sustainable GEAP process which need to be implemented during the first 12 to 24 months. All of these issues are related to training to some degree and are as follows:

- 1 The preparation and execution of a comprehensive training programme. This is to be designed to assist institutional strengthening of all stakeholder groups in relation to the different levels of activity: technical on-site operations; monitoring and analysis of emission levels; environmental management and planning, including law enforcement;
- 1 Institutional strengthening with respect to coordinating, overall monitoring and updating of the GEAP. Due to local financial constraints, this should be undertaken through the provision of appropriate external advisory contributions from EEAA and possibly consultants.

The organisation and execution of effective public awareness campaigns covering all stakeholder groups. These should be supported by the production and presentation of appropriate audio-visual aids, especially both general and specific technical videos.

The content and quality of the latter should be such as to win the interest and support of significant sections of the population.

Following on from training to build capacity of local stakeholders in these key areas, stakeholders will be able to formulate additional programmes and projects to address the overall aim, and update the GEAP Manual (the accompanying document which provides lists of the actions or a "tool kit" for the GEAP).

Training Needs			
Stakeholder Group	Training Type		
	Training of Trainers	Environmental Control Technology	Environmental Management
Line Ministries			
Ministry EUs			
Markaz EUs			
Social Development NGOs			
Environmental NGOs			
Economic NGOs			
EMU			

# 4. Priority Issues

## 4. PRIORITY ISSUES

The NEAP published in 1992, provided a nationwide perspective on the Environmental issues faced by Egypt. The NEAP identified that environmental problems and issues are dominated by the need to manage the scarce resources of water and arable land to effectively meet the demands of a growing population. The Government, through the NEAP report, identified the need to focus on actions for more efficient use of natural resources, particularly land and water, and to stop the degradation of the Egyptian heritage and the urban environment. The report also noted that air pollution in industrialised areas and solid waste management, including hazardous waste from industrial activities were growing issues.

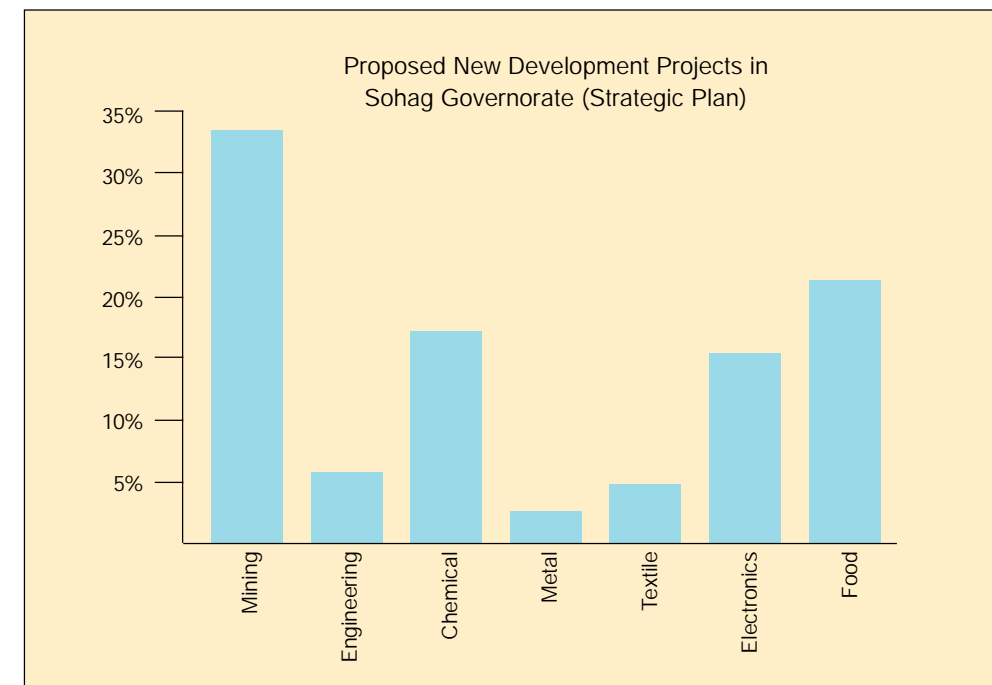
Development is of critical importance to Sohag, which like the rest of the country has a growing population to support. In the past, the residents of Sohag, like much of Upper Egypt have suffered from disproportionate investment, and Upper Egypt is poor, relying (with few notable exceptions) on subsistence level agriculture. The development prospects and opportunities for Sohag have been appraised within the Governorate, and are described in an innovative Strategic Plan for Comprehensive Development. The strategy for development, together with the local environmental concerns and issues form the background to this current work, the Environmental Action Plan.

The Strategy for Comprehensive Development is based on five themes considered central to the future of Sohag. These themes are integrated into the GEAP so that environmental issues raised by strategic development concepts can be incorporated at the planning stage of the development and managed effectively. To be most effective the Strategy and GEAP must work hand in hand.

Priority issues to be dealt with by the GEAP in Sohag were identified by a process that revolved around discussion and consultation. During the many meetings held during the GEAP process a number of things were referred to when people were asked what concerns or worries they had in relation to the environment and how it affected them. These concerns sometimes backed up the findings of the technical reports that were prepared by experts, but sometimes new issues were raised, or raised from a different perspective. During the meetings, people were asked not only about the things that worried them, but also ways in which the problems that caused these worries could be

solved, and who should be involved in putting these solutions into practice.

All of the information collected during the study has been distilled into a series of "key issues". These key issues are the issues that affect nearly everybody in Sohag, either directly or indirectly as a consequence



of the links between health, water quality, waste (solid and liquid) disposal and the other environmental issues.

Some of these key issues echo the national level concerns and key issues identified by the NEAP. However in Sohag, the problems associated with air pollution and hazardous industrial waste are not yet critical key issues, (albeit they may become so if they are not properly taken into account in future development).

On the basis of these key issues and in response to the suggestions for solutions to these issues, several Actions arise which are incorporated into this first Environmental Action Plan for Sohag.

Control



## 4. Priority Issues

The key issues are

- 1 Solid Waste Management;
- 1 Potable Water Supply;
- 1 Sanitary Drainage and Treatment;
- 1 Pollution Prevention and Control;
- 1 Public Health;
- 1 Conservation and Use of Soils;
- 1 Use of Agrochemicals and Crop Protection;
- 1 Development Planning - Urban, Rural, Agriculture, Tourism.

Typical actions required in each of these key areas are as follows:

### 1 Solid Waste Management

Improve level of service including collection and disposal. Waste (including hazardous waste) needs to be disposed of at controlled and managed sites. This is of particular concern in urban areas. Poor waste disposal can lead to health problems.

### 1 Potable Water Supply

The supply of potable water needs to be extended so that all of the Governorate population has access to a clean, wholesome water supply.

### 1 Sanitary Drainage

Needs to be extended so that both collection and treatment is increased. Poor sanitary drainage leads to water pollution and health problems.

Pollution Prevention and Control of industrial pollution sources needs to occur. At the moment Sohag does not have a strong industrial base, and so problems that exist are relatively small scale; this is the best time to start managing an issue, before it has become so bad that pollution from the factories affects the whole of the population of the Governorate.

Public Health - need to raise levels of awareness, and encourage involvement, including family planning, recreation and employment.

Conservation and Use of Soils - important due to limited land.

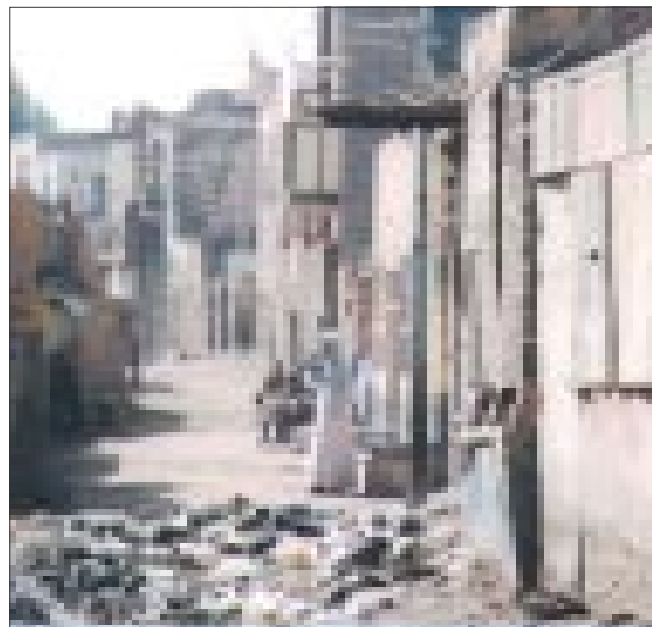
Use of Agrochemicals and Crop Protection - relates to pollution prevention, exposure to health hazards, and also to the quality of goods and hence their value.

Development Planning - relates to wide ranging management and planning issues that provide the links between control of the issues affecting the environment, including development of tourism, preventing loss of agricultural land due to urban encroachment, planning reclamation projects and zoning of industrial land use so that people are not adversely affected by the development.

Those that are of most concern to most people are the issues that are highlighted: solid waste management; potable water; and sanitary waste. It is also recognised that, without institutional strengthening and public awareness and involvement, the benefits of improvement cannot be maximised. These are the priority issues.

This Governorate Environmental Action Plan identifies means by which the issues can be addressed, thereby helping to improve the quality of life of Sohag residents.

Waste Accumulation in Street



## 7. Institutional Strengthening & Capacity Building

### 7. INSTITUTIONAL STRENGTHENING AND CAPACITY BUILDING

The foregoing sections describe basic elements of the GEAP, i.e. the framework, bricks and mortar of the development. However, one important element is missing, the architect that keeps a day to day watching brief to make sure that the building is developing according to the plans. In terms of the GEAP the architect is the Environmental Management and Planning System (EMPS) behind the Action Plan.

Up until now each of the individual groups of people with some environmental responsibility have been working independently of each other. This is wasteful of resources and leads to duplication of effort, and some areas of concern are overlooked completely. The GEAP helps to address this by focusing attention on all matters relating to the environment in one coordinated and cohesive system of planning. This is the EMPS. Successful implementation of the actions outlined in the GEAP will result in a more efficient use of resources, but will also require new investment particularly in the proposed infrastructure developments. However for these actions to be sustainable, much greater attention must be given to the organisational structures, processes and incentive systems needed to achieve them.

### Environmental Management and Planning System (EMPS)

The Action Plan sets out the issues that drive the need for environmental management in Sohag. The initial implementation of the plan will start the management process. This process involves a management structure that is based on the existing Governorate management system. Integrating environmental management into the daily activities of running the Governorate means that issues that affect the environment stand a better chance of being picked up. Environmental management in Sohag is in the early stages of development and will continue to develop and reflect changes learnt from experience. At the present time it is vested in a tiered approach that relies heavily on continued consultation between stakeholders.

Overall it is expected that The Supreme Environment Council will provide policy advice and direction, the Environmental Management Unit will provide a central coordination and service role together with advisory and training aspects. It is proposed that the EMU will grow into a General Office for the Environment (GOE), and will have a Department for Solid Waste. The Environmental Units and Committee comprise the implementation and coordination roles of the various Ministries represented by EUs and extension services. These Environmental Management bodies already exist in Sohag and have started to work out ways in which they will work together to make the GEAP function. The proposed organogram for the environmental management and planning system shows all the parties that will be involved. The parties include local community representatives (ELOs), and it is important to remember that the EMPS should provide a forum for information exchange, and that information should go from the "bottom up" as well as from the "top down". The EMPS should

function as a communication channel, not only for views and a means of expressing concerns but also for publicity, raising awareness and increasing involvement in environmental decision making. It is considered that most of the new organisation structure could be established through the redeployment of existing human resources, although key positions may require outside recruitment. Additional financial resources will be required to achieve an effective and comprehensive EMPS.

Steps already taken in setting up the EMPS in Sohag are:

- 1 Establishment of Environmental Units in a series of Line Directorates/organisations, which already have important environmental management responsibilities both at headquarters in Sohag and in the Markazes. The organisations involved in nominating two to three staff members for these Units are the Directorates/Department of Agriculture, Social Affairs, Education, Health and Supply, both at Governorate level headquarters and in each of the Markazes. The Businessmen's Association of El Kawther has been similarly involved;
- 1 Formulation of proposals to strengthen and expand the Environmental Management Unit (EMU) through the appointment of two senior people. These appointments will help the Unit to fulfil its principal role, namely: coordination of the Plan's implementation in pursuit of environmental planning and management improvement. Other changes are proposed for the EMU, to strengthen it and to provide additional support for the EMPS as it grows. These proposals, that have been agreed in principal, are to develop the unit into a General Office for the Environment. The tasks of the GOE will be four-fold, and Departments will be set up specifically to deal with a) coordination and advice; b) monitoring and enforcement; c) solid waste and d) training. These changes will significantly improve environmental management and planning in the Governorate;
- 1 Preparation of guidelines for the evolution of the GEAP Steering Committee into a Supreme Environmental Council under the Chairmanship of His Excellency the Governor;
- 1 A preliminary assessment of the environmental training needs in the case of all key stakeholders: Government Officers and NGOs (those of the private sector and local communities will follow later);
- 1 Suggestion for Environment Liaison Officers to aid communication system between stakeholders. ELO will be nominated for each mother village (and other villages if necessary); industry groups, and commercial groups will also nominate representatives. The ELOs will act as information channels to and from the EMPS to the various stakeholder groups.

The second initiative has involved preliminary consideration of the

## 6. What Actions Can We Take

Some initial funding had been provided by the SEAM project for initial community level action. Proposals that had a strong environmental message could be more easily developed, might be replicated and, where local support could ensure they were implemented, were proposed as pragmatic entry points. Projects now being designed, developed and implemented with the community as illustrations of possible GEAP action are:

- Potable water supply and sanitation in the villages of Naga El Deir and Naga El Karakra
- Developing an environmental curriculum for adult literacy classes;
- Environmental awareness and hygiene improvements at two community hospitals, Geheina and Sohag;
- Provision of ablution facilities, improving maintenance and raising environmental awareness (with community involvement) at two regional primary/secondary schools in Sakolta and El Maragha Markazes;
- Rehabilitation of an area of polluted surface water and creation of a community facility, Naga El Hager, Geheina Markaz;
- Solid Waste collection with community involvement for the villages of Bardees, El Baliana Markaz.

These actions will provide a first illustration of how “we”, the communities of Sohag Governorate, can take action within the GEAP framework. Communities have been assisted in developing the design of these initiatives to ensure that the action could be replicated elsewhere and that the impact on people’s lives and their environments can be measured by the communities. The actions that the community can take are:

- 1 Participating in developing projects to meet specific needs;
- 1 Giving full support to projects that are so designed;
- 1 Taking messages from awareness campaigns into their homes and passing them on to others;
- 1 Sustaining the operation of projects (eg by not using waste containers for other purposes), and by not littering when alternatives are provided, or by not stopping others from using taps or other services by not using them properly;.
- 1 Collectively instilling a civic pride in the community in which you live by not littering, organising clean-up campaigns and discouraging persistent offenders;
- 1 Supporting NGOs and CDAs and encouraging them to work with the Governorate and businesses to bring about environmental improvements;

- 1 Encouraging employers to be more environmentally responsible and assisting them by not leaving taps running, by minimising waste and so on;
- 1 Advising your local Environment Liaison Officer of pollution incidents.

### Strengthening NGOs

NGOs identified particular problems in developing successful proposals for the variety of funding sources available for community development work. Action was proposed to develop NGO capacity and help them fully take part in the GEAP plan process. NGOs will now be able to:

Prepare environmental proposals to “unlock” donor funds.

This workshop was the first step. NGOs will be fully involved in GEAP consultations and stakeholder meetings.

### Future Partnership Action

As part of the Plan process it is proposed to further strengthen NGOs and help them to support communities develop and implement sustainable environmental action. It is also proposed that the role of NGOs, communities and the private sector as partners in the GEAP process will be consolidated in future GEAP discussions, initially through their involvement in the EMPS. (see Section 7.)

## 5. Actions That Are Needed

### 5. ACTIONS THAT ARE NEEDED

Actions are required to allow the vision to be achieved and these are the main content of this plan; they fall into several different types, namely

- 1 Policies
- 1 Programmes
- 1 Projects

#### Policies

Policies are statements made by the Governorate which provide guidance for subsequent Governorate activities. In this context they provide the basic goal (ie the aim) that the actions should meet. All programmes, supporting measures or projects will have to meet the requirements of the policies and the principles set out on page 8. This applies not only to the actions of the GEAP but to all Governorate activities.

It will be the function of the policies, formulated by the Supreme Environment Council (SEC), to provide a framework, within which actions are prepared and implemented in appropriate parts of the Governorate.

Policies have been drafted for this document by the GEAP team and are given later in this section as the overall aim for each of the key issues. It is expected that in the future, policy formulation and revision will be a main function of the SEC.

#### Programmes

Programmes are broad action steps that will allow the key environmental issues to be addressed at a Governorate level; they are a series of statements of strategic requirements that must be followed if the overall aim is to be met by the various actions that are recommended.

The programmes need to be agreed and this will be one of the jobs that will fall to the Supreme Environment Council, the central Environmental Management Unit and the Environmental Units in the Line Ministries in Sohag. The programmes shown need to be developed by the respective responsible parties to give agreed targets, and dates for target achievement. Programmes need supporting measures; these are the tools that the various line ministries and other stakeholders require to allow the projects to be effectively implemented and supported, so that the projects will support the programmes and therefore work together to achieve the aim.

To be effective an Action Plan cannot be sustained by a framework (the policies) for environmental improvement alone. As with any framework it needs materials so that it can be built. Thus the policies can be likened to the design and plans, and the supporting measures and projects as the “mortar” and the “bricks”. This is why Supporting

Measures, which provide the ‘mortar’ linking and binding the projects, are essential. They also serve to provide a supporting infrastructure for the preparation and implementation of more projects as the Action Plan evolves. As time passes and environmental awareness and involvement grow, the necessary supporting measures will change focus and the mix of measures seen as necessary will also change; this underlines the need for the GEAP to be flexible and to be able to respond to changing circumstances and needs.

Supporting measures fall into two broad categories: persuasion measures and command and control devices. The design of supporting measures involves the selection of “packages” of measures, which are deemed to be most appropriate to the particular needs under consideration. Details of the proposed supporting measures are given in the GEAP Manual.



Waste Transport

#### Projects

Projects are discrete components that address a particular issue, or part of an issue, in a defined area, or for a defined set of beneficiaries. It is important that the projects address not only the technical issues, but also the particular concerns of the target group, and that the project is developed with the participation of the beneficiaries. In this way the project will fit the problem and will be successful. A successful project can be replicated elsewhere thus providing knock-on benefits to other cities, villages or communities. Projects have been identified and developed during the GEAP process by the various stakeholders involved. They represent stakeholders’ ideas about how to respond to some of the issues. As the GEAP cycle continues projects will continue to be suggested. The criteria which a GEAP project must fulfil and the process for developing such projects are given in the GEAP Manual. Some are ready for implementation, some require additional development work. More details are given in section 6.

The projects form the basic building blocks upon which this initial Plan is founded. They require to be implemented at different levels within the Governorate, variously involving support from all stakeholder groups: Governorate Directorates and Departments; community interest groups; industry; Markaz officials; local village

## 5. Actions That Are Needed

### List of GEAP Projects

#### Solid Waste Management

- 1 Provision of waste transport vehicles
- 1 Upgrading of Sohag City waste management equipment
- 1 Improved disposal of clinical waste
- 1 Training and information exchange
- 1 Preventive maintenance and stores control
- 1 Metal reclamation
- 1 Public awareness
- 1 Composting
- 1 New landfill site
- 1 Street cleaning

#### Pollution Prevention

- 1 Effluent treatment plant for Nile Company for Oil and Detergents Hydrogenation Factory
- 1 Environmental monitoring at El Kawther
- 1 Relocation of Sohag City workshops
- 1 Improving waterlogged areas

#### Potable Water

- 1 Potable water supply infrastructure improvement
- 1 Demonstration village
- 1 Increase availability of potable water

#### Sanitary Drainage

- 1 Assistance for septic tank provision
- 1 Waste water and solid waste technology comparative assessment

#### Public Health

- 1 Environmental health information centre

#### Soil Conservation

- 1 Reclamation research
- 1 Local composting

#### Use of Agrochemicals and Crop Protection

- 1 Disease free vegetable nursery
- 1 Utilising mixed water resources for crop irrigation

#### Planning for Development

- 1 Fish farm demonstration project
- 1 Use of drains for fish culture
- 1 Fish cultivation
- 1 Provision of warehouse for fresh fruit and vegetable storage
- 1 Resource mapping
- 1 Controlling groundwater levels around Abydos
- 1 Training in tourism management
- 1 Architecturally interesting buildings list
- 1 Facelift of the West Bank Corniche
- 1 School maintenance
- 1 Environmental management and tree planting at El Kawther

#### Environmental Awareness

- 1 Adult literacy
- 1 Tree planting
- 1 Environmental messages
- 1 Environmental education
- 1 Support for NGOs

leaders; right down to individuals. All concerned have stewardship and 'duty of care' responsibilities. Stakeholders with specific roles to play in tackling each of the key issues are shown in the following sections but everybody has something they can contribute.

In practice, project proposals will be implemented as funds are identified. Therefore care needs to be taken to ensure that, individually as well as collectively, GEAP projects address the key issues and are compatible with the GEAP vision and its policies and programmes.

The following sections give the "why", the "what", and the "how" it is proposed to take the necessary Action to address each key issue.

The actions identified in this report are not, nor are they intended to be, a comprehensive list of all the issues which could have been addressed in an Action Plan. Rather they are a synthesis of the priority issues identified during stakeholder discussions. As the GEAP process continues, so additional issues can be

added. Likewise, it has not been possible to set targets for each of the issue programmes. Where this is the case, a priority of the ongoing Action Plan process should be the setting of, and agreement upon, realistic and achievable targets by all the relevant stakeholders.

Section 7 describes the Action taken so far to address the necessary policy changes and support for programmes within the Governorate management, and Section 10 describes the GEAP cycle - the things that must be done to keep the GEAP working.

The GEAP Manual gives more details about the supporting measures that are considered necessary and projects that have been proposed so far.

Programmes and projects will continue to be developed as part of the GEAP process. The GEAP Manual gives details about how this should be done.

## 6. What Actions Can We Take

- 1 Begin to open the channels for discussion about industrial hazards and means of control alongside more positive action;

- 1 Self monitoring.

This is an initial step in drawing the private sector into the GEAP process as one of the partners. Representatives from the private sector will be part of the EMPS to ensure that their participation and involvement in environmental improvements will be developed and encouraged.

### Community Based Action

Considerable dialogue took place with local communities and the NGOs that support them in Sohag as part of GEAP plan preparations. Qualitative assessments of the environmental problems for urban and, particularly rural communities, were undertaken by specialist Egyptian social development consultants. Discussions were held with various NGOs undertaking community development and integrated rural development projects in the Governorate. Discussions were held with various CDAs and Ministry of Social Affairs staff who support community action. Visits were made to a number of villages and some community-based projects.

In particular, during the GEAP plan-making process, a dialogue began with local NGOs that had formed into a network. Sohag faces particular community problems with remote and poorly serviced rural settlements. While some donor support has been provided for community action (such as the Social Fund for Development) and the Government provides support to community based action through the Shorouk project, most action is organised and delivered by these local NGOs with limited funding and support.

- 1 Contact with the NGOs and with stronger CDAs in Sohag was important as a way of assessing possible community action. From the visits and meetings a wide range of ideas for action were developed. They were very disparate ideas. Communities did not necessarily think solely in terms of environmental problems. They had not necessarily had experience in designing such projects. It was agreed to review these ideas and to help develop them further. It was agreed to look for some pragmatic community action to:

- 1 Gain enthusiasm;
- 1 Give confidence;
- 1 Show responses to environmental issues people feel are important;
- 1 Demonstrate to communities how the GEAP can relate to them.

In addition technically the GEAP is concerned to ensure projects are:

- 1 Practical;
- 1 Involve vulnerable groups - women, elderly, unemployed youths, children, poorer communities, and target areas with few services and facilities;
- 1 Inject into projects participatory approaches;
- 1 Involved with training that provides practical environmental support;
- 1 Concerned with how people/villages etc. are chosen to benefit;
- 1 Trying to ensure that benefits such as employment opportunities are evenly allocated.

Awareness



## 6. What Actions Can We Take

### 6. WHAT ACTIONS CAN WE TAKE

#### Partnerships

The concern of this GEAP has been to generate action and a sense of ownership. The GEAP has to be a product that everyone in the Governorate - public and private sectors, rural and urban communities, men and women, - believes they own. Beneficiaries must be given a voice and a say in what happens. It cannot be driven by top-down solutions imposed on beneficiaries. If a wide range of people can see its relevance to their lives and its responsiveness to their needs, they will give it greater importance. If they can recognise their own ideas in the Plan they will feel more of a responsibility to make the ideas work in practice. This is important since many of the environmental issues cannot be resolved without the direct participation of people. It is also hoped that greater involvement will also lead to communities taking greater action themselves to improve environmental conditions in their areas.

A key part of the GEAP process has been to explore these issues of partnership and ownership. All stakeholders were involved in the process of identifying needs and environmental issues (discussed in Section 2). They have also been equally encouraged to identify action and propose projects that respond to the environmental issues.

This has meant taking a special approach. It is easy to involve Governorate staff in strategic plan making. This is their job. It is not necessarily so easy for other stakeholders, such as the private sector, NGOs, communities and vulnerable groups to operate at this level. The GEAP has been concerned to look initially at environmental action that they will understand.

A pragmatic approach to environmental action has to be taken, especially at the community level. People have particular concerns and special local problems that they want addressed. These may not necessarily be key environmental issues but are seen by them as important. They may not have considered their problems as specific environmental issues before. They may not be able to immediately articulate what their needs are. Possibly once they see responses to immediate problems, they will then be more able or willing to consider broader environmental issues that affect their communities or businesses. It may change attitudes and motivate communities to become more self-reliant and take more action themselves, rather than depend on the Governorate.

Most stakeholders are likely to be cautious of a Plan. Their concern is to see what it can deliver. The GEAP, therefore, has been promoting some initial and demonstration action that could respond to need, illustrate environmental responses and show how the GEAP can help to solve environmental problems. Particularly at community level, promoting this small scale action is seen as an "entry point", a way of helping stakeholders to see what an Action Plan can do for their lives and businesses so they will promote and support the GEAP. It is also seen as the initial way of promoting greater joint action and partnerships between different stakeholders: for example,

- 1 Governorate staff supporting communities, and
- 1 NGO's action involving the private sector.

#### The Private Sector

The private sector is seen as having a key role in GEAP responses but this will require considerable development of this role and joint work with other stakeholders, particularly the Governorate. What have been identified, at this stage, are some initial activities/projects initially exploring the action that the private sector can take itself to improve environmental conditions.

A wide range of industries were approached as part of the GEAP process. It became apparent that some (like the Sugar and Integrated Industries Company, Sugar and Distillation Factory in Girga and the Egyptian Bottling Company Sohag Factory) had already taken steps to improve the environmental performance of their operations. These steps have helped them to identify how to develop and run their businesses in the future. One way in which the GEAP is helping industry is by publicising the lessons learnt by these factories to other businesses, during consultation.

In particular, attention was focused on the new El Kawther Industrial Estate and the strong environmental enthusiasm shown by the managers of this estate. Working with the estate and Governorate staff, a project has been developed. Supporting action, via the GEAP, to improve the environment of the estate will help to maintain the value of this area as a "showcase" for industry.

In addition, smaller-scale business interests have been consulted and consideration given to small-scale business and employment action as part of community-based action. Environmental improvements in market areas, more effective waste disposal by butchers, joint community, shops and street vendors clean-up campaigns have all been proposed as possible small-scale and immediate action that can be taken.

The main role of the private sector will be to:

- 1 Embrace the principles of the GEAP in running their business - especially environmental audit;
- 1 Show to others the benefits of environmental action on industrial businesses;
- 1 Develop a dialogue with the Governorate on industrial issues and develop beneficial partnerships;
- 1 Seek ways to provide private services (eg waste collection, water meter reading) to assist Governorate in its tasks;

## 5. Actions That Are Needed

### SOLID WASTE MANAGEMENT

#### Current Status and Improvement Aims - "Why?"

Solid Waste Dump Site



This issue addresses concerns expressed at all stages of the waste management cycle, including:

- 1 Collection,
- 1 Transfer and
- 1 Disposal,

as well as the intermediate steps in between. Concerns stem not only from the visual evidence of overstretched collection service, for example:

- 1 Piles of refuse in streets,
- 1 Litter,
- 1 Burning piles of refuse,
- 1 Scavengers,

but also the use of incompatible collection vehicles, access of vehicles into narrow streets, the effects of privatisation of collection services, the lack of space remaining at managed disposal sites, the location of disposal sites close to the Nile, and old canals - that might lead to water pollution, and the haphazard disposal of refuse and ash in rural locations. Recycling and reuse of materials is also a critical component of the waste disposal issue.

Litter is an often-quoted problem as it provides a visible reminder to all of the issues. There are other less visible but no less concerning problems. In particular the disposal of clinical waste. Waste from clinics, dental surgeries, and from some hospitals is collected with

general refuse and disposed of on sites which are then scavenged. This poses a significant health risk not only to scavengers but to all who traverse waste sites. Refuse collectors are also at risk. The disposal of hazardous waste would also pose similar problems.

These are the issues that need to be addressed.

Because solid waste management is of particular concern, it has been the subject of a separate, detailed study within the Governorate. This Solid Waste Management Strategy (SWMS) study has resulted in proposals which, when implemented, will address the issues of pollution, contamination and health linked to solid waste.

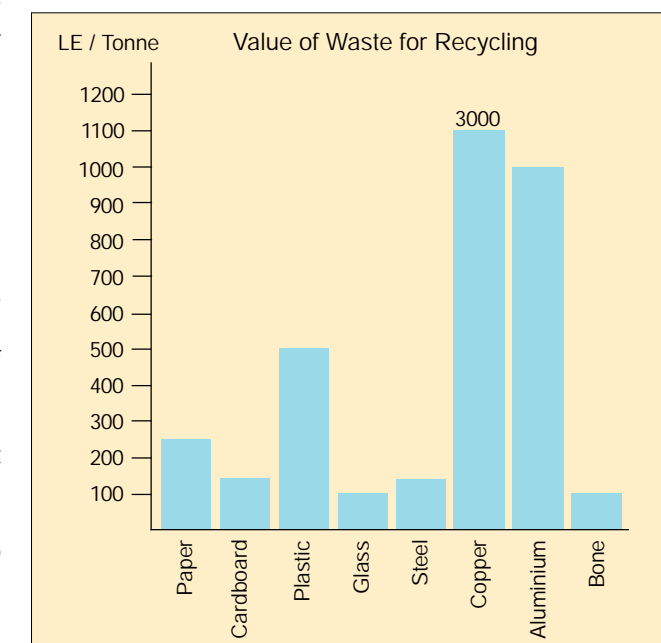
The issues associated with solid waste are different in cities and villages. In the cities collection is the main issue, whereas in villages, where more waste is recycled (e.g. as soil conditioner or animal food), it is the interim storage of waste prior to reuse that is the main problem, although the disposal of ash from domestic ovens along road-sides is a local problem in some villages. The availability of suitable disposal sites is a universal problem, particularly if the site that is available is at a distance from the source of waste and collection and transport is not arranged, effective or regular.

This key issue is a priority issue and the actions should have an immediate term focus.

#### "What?"

The overall aim for improving solid waste management is to:

Collect and satisfactorily reuse, recycle or dispose of solid waste throughout the Governorate, including waste generated in cities and villages, and by industry.

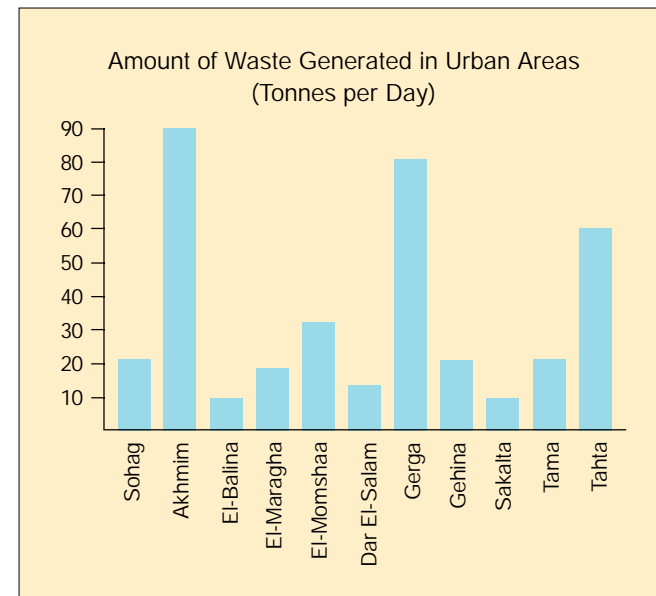


## 5. Actions That Are Needed

### Programmes and their Supporting Measures - "How?"

This aim can be achieved by the implementation of programmes that are designed to address:

- 1 Waste segregation;
- 1 Collection;
- 1 Transport;
- 1 Treatment;
- 1 Disposal;
- 1 Attitudes of different stakeholder groups to waste.



The programmes should be designed to take into account the differences between urban and rural areas, and to work hand in hand with law enforcement, efficient prosecution and the imposition of fitting penalties.

Targets for timing for the programmes should initially focus on dealing with waste from cities. Sohag as the capital of the Governorate, is the most visible city and therefore the benefits of improving waste management practices (across the board) will be most evident. Lessons learnt in dealing with waste in Sohag City shall be passed on to other cities. Where Sohag can learn from other cities this must happen. Other priority areas are those with existing industry (Akhmim, Tahta, Tima, Girga) or areas where industrial expansion is planned (El Kawther, Saqolta). Akhmim has the most waste to deal with, and so recycling of waste in this city might be expected to generate the most return.

#### 1 Waste Segregation

Recover reusable and recyclable materials from city waste paper, cardboard, plastic, metal, glass and bone;

Separate hazardous (clinical and industrial) waste from ordinary domestic or commercial waste;

Implement the Solid Waste Management Strategy (SWMS).

#### 1 Waste Collection

Introduce effective waste collection services;

Use private companies where appropriate;

Provide collection bins of a size compatible with the amount of waste and collection frequency;

Maintain quality and quantity of collecting containers at necessary level;

Pay workers a proper wage to dissuade them from scavenging;

Extend collection to keep pace with urban growth;

Implement SWMS.

#### 1 Waste Transport

Provide effective transport for local conditions, including size of streets, amount of waste;

Plan vehicle collection routes to coincide with collection bin size, and amount of waste collected;

Plan vehicle maintenance, include a preventive maintenance programme;

Provide training;

Implement SWMS.

#### 1 Waste Treatment

Identify best treatment options for different waste - including industrial waste, hazardous waste and domestic waste, (eg composting);

Implement SWMS.

#### 1 Waste Disposal

Identify new disposal sites that will be properly managed as landfill sites;

As existing dumps are filled, close them beneficially for subsequent re-use;

## 5. Actions That Are Needed

#### 1 Additional media campaigns;

1 GEAP publication/dissemination to reach all parts of community;

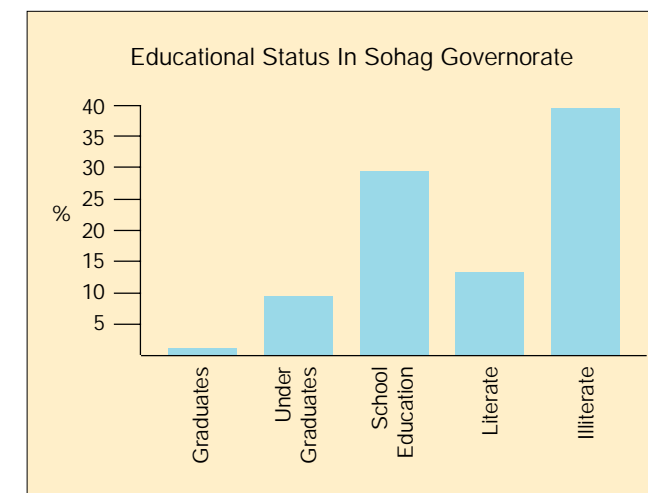
1 Demonstration projects described and replicated;

1 Provide feedback mechanism for local communities into GEAP process;

1 Nominate local village/markaz representatives as part of GEAP management system - involve in regular meetings, (Environment Liaison Officer);

1 Publication of environmental success stories and the steps that are underway to address other issues of concern.

Supporting measures for these programmes include the dissemination of information to others. It should be considered as a duty by all to further the awareness and involvement of others in environmental matters and issues, whether at work, at school or in the home.



### Projects

This key issue is the community counterpart to the institutional strengthening described above. Without improvements in this area, many of the benefits associated with the GEAP will go unnoticed and, furthermore, full implementation will not occur.

Projects include the preparation of information that can be used in adult literacy classes that has environmental messages at the appropriate level.

### Who Should Be Involved?

- 1 All primary stakeholders.

### Action taken so far

- 1 NGO training;
- 1 Consultation;
- 1 SW collection survey and interviews.

## 5. Actions That Are Needed

### INSTITUTIONAL STRENGTHENING

#### Current Situation and Aim of Plan - "Why?"

Under resourcing of Governorate Departments to deal with their existing (and newly established) environmental responsibilities; lack of law enforcement, and little or no monitoring data to check compliance or otherwise; no forum for Governorate-wide environmental management - these are the underlying background to the need for strengthening. Section 7 deals with this issue in more detail.

#### "What?"

The overall aim to remedy this is:

To strengthen the capacity of local Governorate officials and others to deal effectively with their environmental roles and responsibilities.

#### Programmes and their Supporting Measures - "How?"

Programmes to achieve this aim are as follows:

- 1 Provide training to Governorate staff to allow them to undertake their environmental responsibilities effectively;
- 1 Appoint new staff with backgrounds and experience to complement existing disciplines;
- 1 Establish effective mechanisms for GEAP implementation;
- 1 Establish effective mechanisms for GEAP dissemination and publicity;
- 1 Establish effective mechanisms for GEAP involvement;
- 1 Enforce environmental laws and standards;
- 1 Develop capacity amongst stakeholders to plan and implement self help environmental improvement project and programme initiatives.

#### Projects

Much of the activity associated with the GEAP in the early years of implementation will relate to this key issue. Strengthening the organisations responsible for environmental management will help with the implementation of both supporting programmes and projects. It will also foster and encourage the development of new projects and the updating of the GEAP, including identification and prioritising of issues. Furthermore, this activity will help towards the integration of the GEAP process and principles into day-to-day Governorate activities.

#### Who Should Be Involved

- 1 All secondary stakeholders.

#### Action taken so far

- 1 Initial training needs analysis;
- 1 Setting up embryo EMPS with SEC and EU Committees.

### ENVIRONMENTAL AWARENESS

#### Current Situation - "Why?"

Primary Stakeholders



A significant barrier to environmental improvement is seen as a lack of awareness of the repercussions of a practice which results in environmental degradation, for example the dumping of refuse in canals and drains. Coping strategies adopted by communities to deal with difficulties often result in additional problems and knock-on effects for other parts of the population or community. The aim of addressing this key issue is, therefore, to

Increase the level of understanding of environmental issues throughout the Governorate population, and promote involvement in decision making at all levels.

#### Programmes - "How?"

Programmes to achieve this aim must focus not only on the overall aim, but also on the provision of alternatives to replace behaviour that leads to bad environmental conditions e.g. littering. Programmes suggested at this stage are:

- 1 Introduce environmental issues into curriculum at primary, secondary and tertiary education levels;
- 1 Provide environmental education in adult literacy classes;
- 1 Introduce regular "environmental news" slot in local newspapers, radio and television programmes;

## 5. Actions That Are Needed

- Share information at Markaz level;
  - Identify disposal options for industrial waste especially toxic/hazardous waste;
  - Prepare plan/strategy for dealing with additional industrial waste as industry sector grows;
  - Implement SWMS.
- 1 Attitudes
    - Public awareness campaigns to prevent/control littering, and promote new collection strategies;
    - Control scavenging;
    - Training for operators and supervisors;
    - Training for managers;
    - Implement SWMS.

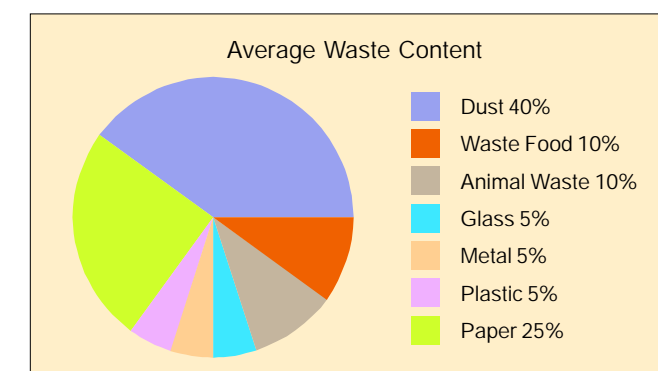
#### Projects

- 1 Commence waste recycling, start with two cities as pilot projects then expand to others as experience grows. Suggest start with Sohag and Tahta, and replicate in others (1 year starting in 2000). Include tin can recycling, composting, plastics, rubber, paper, etc.
- 1 Commencing with pilot programme in two cities (Sohag and Girga), introduce appropriate collection containers and vehicles, train staff to segregate clinical waste, for separate collection.
- 1 Develop a management plan for Akhmim dump site, including consideration of a recycling transfer station and mixed disposal of municipal and liquid waste.
- 1 Provide new collection containers and vehicles for cities and villages, target 1 city/year, and 3 largest villages per year for next 5 years. Redistribute older vehicles to other locations for replacement with more suitable vehicles as time progresses.
- 1 Target managers of cleaning departments for training workshops in years 1-3, and require this expertise to be disseminated amongst staff. Enlist help of EMU/University Departments for training in Sohag.
- 1 Publicise new containers, make people aware of collection days, identify a contact point in cleansing department for complaints and grievances to be made. Make waste management issues a regular agenda item at Environmental Management and Planning System (EMPS) meetings, require action feedback to prevent similar problems recurring or occurring in other districts, villages, or cities. Start now.

The projects identified so far cover issues raised by stakeholder groups, including collection services in urban areas; health hazards to workers and scavengers; maintenance and management issues; training of work-force and managers; and focus on several different areas of Sohag to allow wide dissemination of ideas. Proposals have been formulated by responsible Governorate departments and at a community level by NGOs and CDAs. Replication of the projects in other cities and villages would be possible in time.

They include capital equipment investment proposals for means of collection and transportation of waste, and are associated with the segregation and disposal of clinical wastes. In response to discussion during the GEAP process, some hospitals are recommissioning incinerators so that clinical waste can be disposed of safely and is not mixed in with general refuse.

One of the SEAM Solid Waste Management demonstration projects links strongly to public awareness programmes by undertaking a widespread questionnaire survey to understand users views of local waste disposal.



#### Who Should Be Involved

- 1 City Heads
- 1 Health Department
- 1 Village heads
- 1 Markaz Officials
- 1 EMU/GOE (see section 7)
- 1 Communities and CDAs
- 1 EUs
- 1 Private Companies

The specific roles of these groups in managing the actions required to address this key issue (as with the other key issues addressed in following sections) will be determined by the EMPS. However, each party's role will relate to existing areas of specialisation and their existing role in daily management of the Governorate. Thus City and Village heads will be responsible for ensuring waste is effectively collected, recycled, and disposed of in their areas according to the SWMS. The EMU/GOE Solid Waste Department will have a specific role in ensuring implementation of the SWMS is complete throughout

## 5. Actions That Are Needed

the Governorate and that all areas are properly responding to the requirements of the plan. Communities will have responsibility for disposing of their waste at the designated place and not littering or otherwise putting their waste in the wrong place where it could cause pollution, encourage flies, or other nuisance.

### How much?

Section 9 provides a breakdown of the costs associated with the SWM projects so far identified.

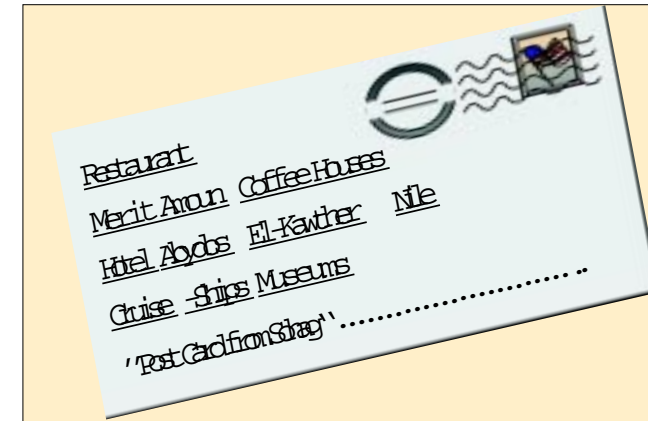
### Actions taken so far

- 1 SWMS developed
- 1 Projects on:
  - Containers/vehicles;
  - City SWM including survey and collection design;
  - Composting pilot plant- implemented.
- 1 Proposals for SWM strengthening;
- 1 Repair and use of hospital waste incinerators.

Solid Waste Dump Site



## 5. Actions That Are Needed



Housing Development

There is also agreement that legal enforcement measures should be extended to involve the payment of compensation, as well as the execution of restoration works, in situations where land or water features have been polluted. Appropriately, this represents the most rigorous application of the "polluter must pay" principle.

The issue is strongly linked to land use zoning, law enforcement, and prevention of misuse of resources. It should be borne in mind that such planning relates to the management of all Sohag resources including, natural, physical and cultural resources.

### Projects

Six projects have been proposed, and provide the starting point for dealing with the issue. The issue has many facets, and it is only with experience that it will begin to be adequately addressed and managed for the future. Many of the supporting programmes will assist in addressing this issue. In particular the first steps are to increase awareness of environmental management and planning techniques, so that they might be included in project design.

### Who Should Be Involved

- 1 SEC
- 1 EMU
- 1 EUs
- 1 Youth & Sports Directorate
- 1 Roads & Transport Directorate
- 1 Manpower Directorate
- 1 Line Ministries
- 1 Markaz Officials
- 1 Village Heads
- 1 Communities
- 1 University
- 1 Department of Agriculture
- 1 Department of Tourism
- 1 Department of Antiquities

Abydos



## 5. Actions That Are Needed



Nile Transport



Road Transport

1. Develop an effective and comprehensive Environmental Management and Planning System;
  - Develop and keep updated an information database on the state of the environment in Sohag;
  - Provide training to all who need it, keep up to date.
1. Fully develop potential of Governorate in tourism, industry, fishing and agriculture, in a sustainable way;
  - Developing tourism potential including linking antiquity tourist attractions with supporting facilities of hotels, restaurants, travel arrangements etc;
  - Developing fisheries potential of the Nile and other surface water-courses both as a source of food for population, income from sales outside the Governorate and as a means of weed control;
  - Police management of fisheries;
  - Identify locations suitable for fisheries - sell/market these to locals;
  - Training of Officials in resource management including tourism;
  - Empowerment of Officials;
  - Diversify agriculture.

Urban and rural planning and development needs to be improved with respect to the provision of networks of environmental services (particularly potable water, sanitary drainage, and solid waste collection). New development needs to include provision of services and be subject to environmental assessment as a matter of routine.

The other measures in addition to institutional strengthening, which are recommended to form part of the supporting package include: public awareness campaigns concerning the benefits of sound planning; formal education; technology transfer in the case of both reclaiming desert lands for agriculture and the use of traditional building materials; expansion of the extension services; environmental management training; and law enforcement. The latter applies particularly because of the need to ensure that developers are strictly required to comply with planning standards, laws and regulations. EIA procedures have an important role to play in strengthening urban and rural planning services.

The supporting programmes should take due note of traditional behaviour and customs, particularly where they are compatible with environmental improvement.

The resolution of this issue is of fundamental importance, and is very strongly linked to institutional strengthening requirements, described in section 7. Stakeholders feel it calls for greater use of controlling supporting measures. Thus strict legal enforcement, backed by the imposition of "on-the-spot" fines are seen as the most important measures. The achievement of this level of enforcement will almost certainly involve empowering the appropriate officials of both Central and Markaz-based Directorates to administer the penalties. However, it is well recognised that such innovations should be prefaced by adequate public education, the definition of realistic emission standards, the provision of the necessary monitoring facilities and the introduction of appropriate technology (e.g. cars with more efficient exhaust systems).

Merit Amoun



## 5. Actions That Are Needed

### POTABLE WATER SUPPLY

#### Typical Concerns, and Aims of Actions - "Why?"



Village potable water supply

This issue causes considerable concern throughout Sohag, in urban, rural and all economic sectors of the population. This issue is a priority issue amongst the key issues identified during consultation. Supply shortfalls exist in terms of the quantity, physical, chemical and biological quality and reliability of supply and relate to ground, surface, pump and network supplies alike. The degree of severity of problems vary from district to district and community to community, but most users are dissatisfied for one reason or another. In addressing the improvement of supply of potable water, it is important to match water supply with waste water collection, and to realise that increased availability of potable water increases the volume of waste water for treatment and disposal.

#### "What?"

The aim for this key issue, and therefore the main supporting policy objective is to:

Improve the supply and quality of potable water throughout the Governorate.

#### Programmes and their Supporting Measures - "How?"

This aim can be achieved by the following programmes and associated actions and targets. The programmes and targets need to be agreed by the responsible parties and organisations involved in the management of this issue. Targets for timing of the actions should focus on a balance between providing an accessible, clean water supply to everyone in the Governorate and keeping pace with population growth and maintenance requirements. Key targets are those communities who already suffer ill health due to polluted water, particularly where the pollution is from sanitary waste. Poorly installed and maintained hand-pump wells are particularly vulnerable to this problem. Such supplies are prevalent in small, poor rural communities. The following

programmes show the sort of actions that could help. Actions should be selected and put together in agreed programmes

1. Extend the reticulated pipe work system in cities and villages, link increased demand for water to increased supply.
  - Extend reticulated supply such that it provides reliable service to all houses in cities and mother villages;
  - Increase water production so that a reliable supply is provided match the supply to the population figures (on a district and village level) and rate of growth so that water production matches a per capita use of 200 litres per day;
  - Increase coverage as urban development occurs to maintain supply provision;
  - New house approval only if connected to reticulated system or access to properly installed well;
  - Identify satellite village requirements, introduce programme to address satellite village requirements;
  - Set a capital investment target for each of the next ten years, review expenditure and reset targets annually;
  - Introduce effective meter readings at all premises (houses, factories and workshops) with working meters (by 1999);
  - Consider requiring all premises to have working meters by 2005;
  - All new water supplies to be metered;
  - Use water usage as basis for charging, water supplies that are metered could be charged at a lower rate than unmetered supplies to promote meter use and water conservation;
  - Introduce water conservation measures including public awareness campaigns.
1. Improve the maintenance of water tanks and pipework.
  - Introduce regular maintenance programme on markaz basis;
  - Preventive maintenance plans in place and operational by 1998;
  - Reduce water losses from pipe leakage and tap faults, by a percentage of losses each year, in five years, reduce losses by 75% of present level;
  - Ensure adequate stocks of spares are held.

## 5. Actions That Are Needed

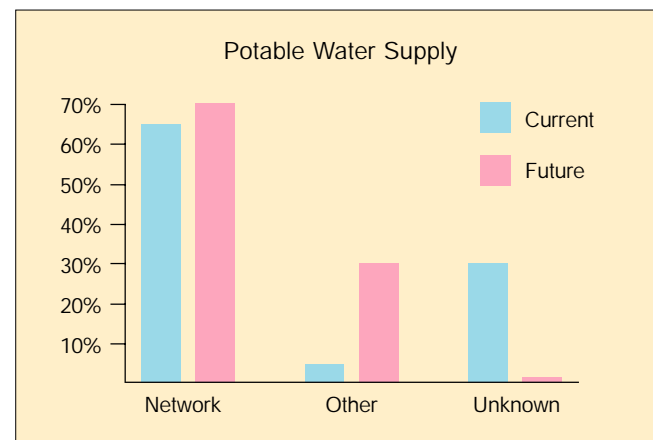
- 1 Improve the reliability of treatment by compact units;
  - Ensure cleaning frequency of compact units is commensurate with flow and maintenance of water quality;
  - Keep log to optimise cleaning schedules;
  - Ensure quality of supply to compact unit is compatible with what compact unit can achieve by way of treatment;
  - Ensure compact unit abstraction (intake) points are not affected by polluting discharges;
  - Protect abstraction points;
  - Phase out first generation compact units and units which do not provide appropriate level of treatment to achieve WHO standards.

- 1 Ensuring supplies (whether well or reticulated) meet WHO standard guidelines;
  - Identify units able to remove iron and manganese concentrations to meet necessary standards, use these units when water concentrations exceed Fe and Mn standards;
  - Check all wells meet standards for installation (depth, protection from sanitary drainage etc);
  - Rectify well installations that do not meet installation standards;
  - Increase public awareness of necessary hygiene practices to keep wells safe.

- 1 Protect surface water sources from pollution;
  - Protect water resources from pollution/contamination sources including solid waste disposal (particularly hazardous wastes), sewage, agricultural chemicals, oil and/or fuel stores, industrial development;

- 1 Protect ground water sources from pollution;
  - Protect water resources from pollution/contamination sources including solid waste disposal (particularly hazardous wastes), sewage, agricultural chemicals, oil and/or fuel stores, industrial development;
  - Undertake research into ways to alleviate rising groundwater levels, (including consideration of groundwater abstraction rates, leakage from canals, and irrigation techniques - see also key issue on soils).

- 1 Law enforcement;
  - Enforce laws which are designed to protect drinking water quality, (eg prohibiting discharge of sewage and industrial waste into groundwater aquifer);
- 1 Training;
  - Improve training for leak detection;
- 1 Awareness;
  - Build people's awareness of links between water and health, and sources of drinking water pollution (eg sanitary drainage, littering, animals, storage in unhygienic conditions etc).



Technology transfer features in the package of measures developed on account of the need to find cost-effective methods of dealing with the high concentrations of iron and manganese in ground water supplies. This will require some institutional strengthening, which will also enable both maintenance and monitoring activities to be improved. In the longer term water supply and sanitary drainage provision need to be managed in an integrated fashion. An accessible, good quality water supply, leads to an increase in the volume of water used and hence an increase in the volume of waste water for disposal. In planning for new communities it may be beneficial to look at a three-tiered system of potable, flushing and waste water.

Measures which lead to improving the conservation of water by all users are recognised to be important. Here there is scope for improving both the methods and rates used in levying water charges. Currently the full costs of water treatment and distribution are not reflected in the water charges. If poorer sections of communities are unable to pay the full costs, the difficulty can be overcome by using other financial support mechanisms, such as direct income supplements, in place of subsidised water charges.

Three project proposals were developed during the GEAP process, (details can be found in the GEAP Manual), and these have been further

## 5. Actions That Are Needed

### PLANNING FOR DEVELOPMENT

#### Typical Concerns and Aims - "Why?"

Planning for development control was a theme highlighted by stakeholders in terms of incompatible neighbouring land uses, including industrial workshops, and overcrowding affecting the quality of urban life. Problems associated with the location of discharge and abstraction points in water courses were a common concern. Other factors such as the provision of recreation services may be considered in this category, as may requirements relating to the visual attributes of new buildings. The category also includes consideration of the sustainable use of cultural resources for tourism. Tourism is a significant potential source of development in Sohag and needs to be carefully managed to allow its potential to be maximised without putting unacceptable pressure on the antiquities of tourist value. Tourism is of sufficient importance to be classed as a stand-alone key issue.

As a Governorate, Sohag has plentiful mineral, cultural, natural and human resources that can effectively be harnessed in the future to allow economic development. A central theme of the GEAP is to develop and conserve resources so that development can be sustained. There are many ideas, including those from the Strategic Plan (industry, agriculture, tourism), and stakeholders for development, and in order to ensure that these are compatible with environmental concerns and other demands placed on the environment this issue is a vital component.

El Kawther Industrial Zone



#### "What?"

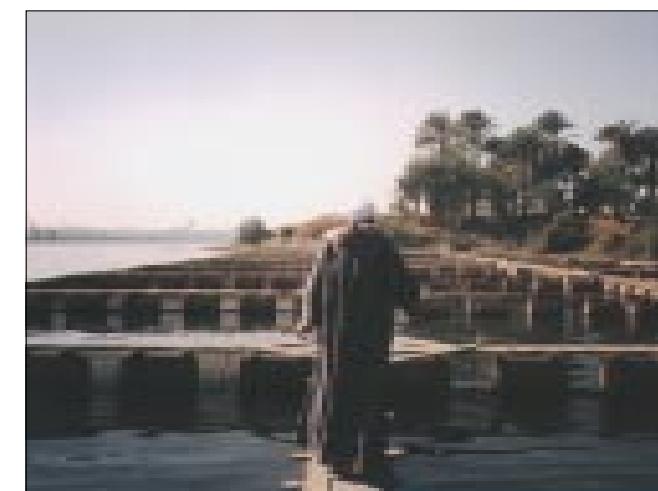
The overall aim for this issue is to:

Develop an integrated and sustainable development plan for Governorate;

Develop an effective and comprehensive Environmental Management and Planning System;

Fully develop potential of Governorate in tourism, industry, fishing and agriculture, in a sustainable way.

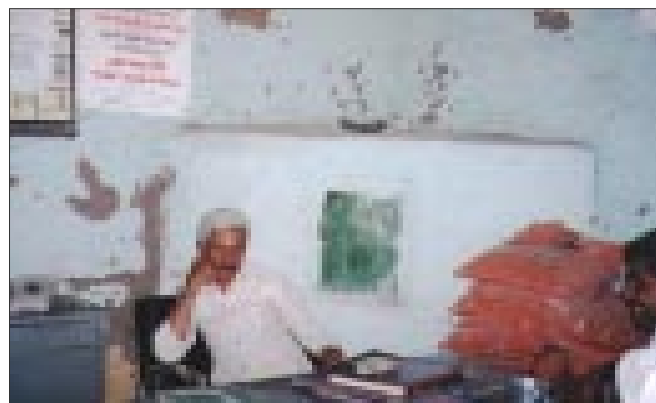
Fish farm



#### Programmes and their Supporting Measures - "How?"

- 1 Develop integrated and sustainable development plans;
  - Preparation of social development plans based on consensus, for each Markaz;
  - Require settlement plans to be developed for each city, and mother village - to be produced locally with incentives for demonstration of participation;
  - Reclamation planning;
  - Promote the use of riverine transport of goods;
  - Improving settlement structure plans;
  - Preparing local level EAP for Markazes;
  - Developing zoning guidance for developments;
  - Prevent loss of agricultural land to development.

## 5. Actions That Are Needed



Agrochemical

### Projects

Closely related to the conservation and use of soils, this issue can be directly linked to crop quality and hence revenue generation and health. Prevention of misuse of chemicals has direct links to the prevention of pollution and ill health.

As with soil conservation, the Governorate has already made significant reductions in the use of agrochemicals, particularly in the field of insect pest control by the use of pheromones replacing a significant quantity of pesticide use. Similarly the use of Mabruk fish in drainage canals as a means of controlling weed growth is a significant contribution to the use of environmentally more acceptable control techniques.

In addressing this particular issue, care must be directed to education and training associated with the storage and use of chemicals. This has also already been addressed in Sohag by requiring that where chemicals are to be used they are applied by trained operators under the supervision of the Department of Agriculture. Disposal or appropriate reuse of empty containers also needs to be considered.

Continued diligence and awareness is required to ensure that chemical use continues to be controlled by close scrutiny and involvement and policing the "black market" suppliers who coerce farmers into using chemicals by promising non attainable goals by non sustainable techniques.

### Who Should Be Involved

- 1 Department of Agriculture
- 1 EMU
- 1 EUs
- 1 Shandaweel Research Institute
- 1 NGOs
- 1 CDAs
- 1 Social Affairs Directorate
- 1 University

## 5. Actions That Are Needed

developed by the SEAM project and community environment projects are being undertaken which help to address local level issues in particular, and short term improvements. These are described in Section 6.

The projects clearly pick up on a major key issue, identified by all stakeholders, particularly in relation to quality and quantity. Water conservation is not universally identified as a key issue by Sohag stakeholders. However, it is an issue that will require to be addressed in future. Utilising water resources in a manner that acknowledges quality and quantity constraints and opportunities for management will be important steps.

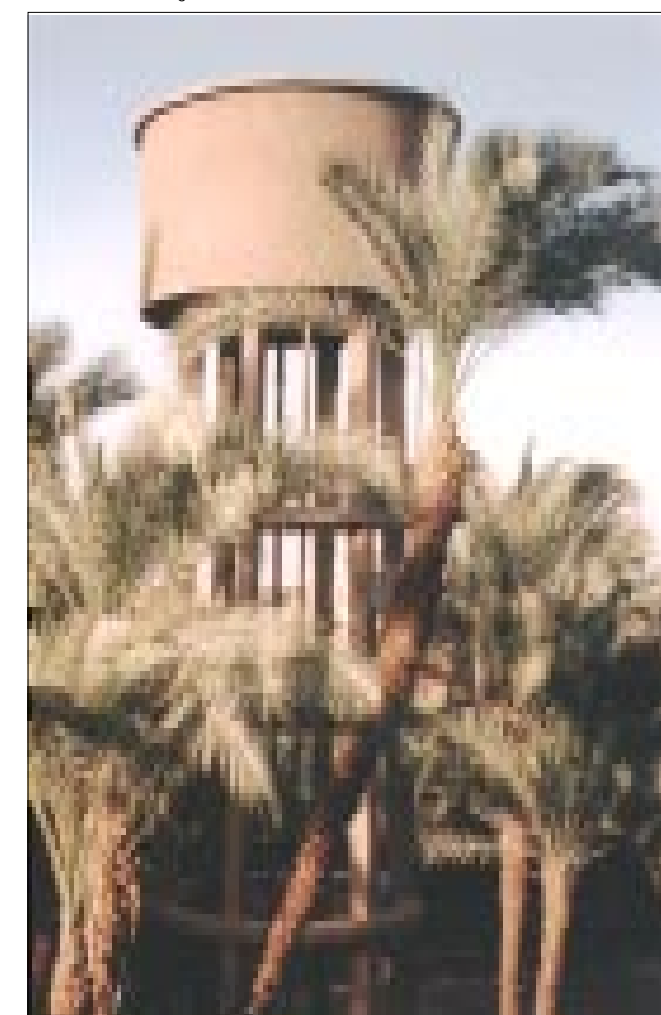
### Who Should Be Involved:

- 1 EMU
- 1 EUs
- 1 NGOs
- 1 CDAs · Housing and Utilities Directorate ·
- 1 Social Affairs Directorate
- 1 Ministry of Health
- 1 Ministry of Housing
- 1 Directorate of Water Supply

### Action taken so far

- 1 NGO/CDA organisations are active in providing local level support in villages, but are only able to address a small part of what is needed. The GEAP will help to coordinate this activity and identify best practice to ensure that actions that are appropriate and comply with peoples needs, technical issues and environmental legislation.
- 1 Community Environment Projects

Potable water storage tank



## 5. Actions That Are Needed

### SANITARY DRAINAGE AND TREATMENT SERVICES

#### Typical Concerns - "Why?"

Grey water disposal tank



At present the collection and treatment of sanitary waste water is at an early stage of development in the Governorate. One sewage treatment works treats waste collected in Sohag, others are planned for the other cities of the Governorate, and are being designed for Geheina and El Maragha at the time of writing this first GEAP report. These two facilities are based on oxidation systems and will treat 50,000m<sup>3</sup> each. Collecting networks are already under construction in Akhmim, El Baliana and Girga and are planned for El Monshaa, Geheina and El Maragha.

In areas where networks exist, concerns include connection requirements, blockages, and costs of maintaining the system. Problems for communities that rely on septic tanks are: capacity of collecting tanks, frequency of emptying, and disposal of tank contents. Some communities and families have no facilities whatsoever. Akhmim has a "grey" water collection system utilising communal tanks in the city into which sullage is discharged. This approach could provide an interim management measure for all cities and mother villages until such time a reticulated service is in place, but solid waste must not be thrown into these tanks. The existing treatment works is overloaded, both in terms of the quantity and quality of influent. The use of effluent (treated or untreated) as a source of irrigation water is recognised as a potential benefit, as is the use of sludge as organic fertiliser. The

risks associated with contamination of such resources with pathogens or bacteria are not well recognised.

#### "What?"

This issue is a priority issue and the overall aim and hence supporting policy objective is to:

Improve collection and treatment of sanitary drainage and to prevent water and land pollution and thereby improve public health.

This can be achieved by a set of integrated programmes to:

- 1 Improve the collection and treatment of sanitary drainage;
- 1 Increase wastewater treatment;
- 1 Reuse treated water for irrigation;
- 1 Extension of coverage of services to keep pace with urban growth;
- 1 Control of untreated and treated effluent discharge locations to prevent water, groundwater and land pollution.

#### Programmes and their Supporting Measures - "How?"

These aims can be achieved by the introduction of the following steps. As with the other issues the list needs to be agreed and can be supplemented as necessary to deal with changing concerns and conditions.

- 1 Improve the collection and treatment of sanitary drainage;
  - Plan for provision of sanitary drainage for all households - short term - to include reticulated systems in cities and larger villages and discharge to communal tanks and septic tank treatment in rural areas;
  - Plan for routine emptying of septic tanks at Markaz level, ie a service that can be provided as necessary to all households with septic tanks - short term, by 1999;
  - Consider the benefits of privatising this service;
  - Provide managed sewage discharge points at Markaz level to control pollution of surface water courses and agricultural land, identify, mark and fence sites by end of 1997;
  - Fines for non use of allocated points - by 1999;
  - Introduce a charging scheme for cost recovery;
  - Train technicians/operators - short term;
  - Set a capital investment target - for each year over the next ten, revise targets as necessary;

## 5. Actions That Are Needed

### USE OF AGROCHEMICALS AND CROP PROTECTION

#### Typical Concerns and Overall Aim - "Why?"

Closely linked to the issue of conservation and use of soils, the use of fertilisers, pesticides, and herbicides is an important issue. Sohag has significantly increased the use of biological control measures replacing chemical use, including the use of pheromone traps for insect control, and also the use of fish species to help in weed control in canals and drains, but the benefits of this need to be promoted to a wider audience. The issue is related to pollution prevention and control and to public health.

Farmer irrigating fields



#### "What?"

The overall aim for this issue is to:

Reduce use of agrochemicals (chemical fertiliser, pesticides, herbicides) consistent with crop production and environmental management.

#### Programmes and their Supporting Measures - "How?"

As a Governorate that relies on agriculture, the aim is already the subject of much effort in Sohag. The following programmes are proposed to assist and will work in concert with existing Agricultural Department initiatives and also support the agricultural diversification plans of Sohag's Strategic Development Plan.

- 1 Reduce agrochemical use;
  - Extend integrated pest management systems;
  - Apply local research results and knowledge;
  - Training of extension workers in new techniques, appropriate chemicals and advances in research;

- Ensure farmers have access to extension workers and to up to date information;

- 1 Improve value of Agricultural activities to Governorate;
  - Diversify agricultural production; - Reduce crop spoilage by improved harvesting, storage and marketing;
  - Apply local research results and knowledge.

Much effort has already been expended upon the introduction and widespread application of Integrated Pest Control systems and techniques, including the use of pheromone traps. Experience has led to the present situation whereby the minimum use of pesticides is restricted to the production of fruit and vegetable crops.

The principal components of the proposed supporting measures centre on:

- 1 Appropriate research into the particular vegetable and fruit crops which are able to yield better in the face of minimal pesticide and insecticide use levels;
- 1 Public awareness and formal education to increase recognition of the benefits associated with "natural" foods;
- 1 The introduction of improved technology, based on proven results, coupled with increased training in environmental management for both extension service staff and farmers;
- 1 Continuing efforts to improve the Integrated Pest Control systems and techniques adopted, in which an increasing role is played by biological methods.

The Agriculture Department is already committed to this issue; to support their work, and the actions suggested above, improved access to training for extension workers is necessary.

Irrigation



## 5. Actions That Are Needed

- Use crops suited to local conditions, types that are less water demanding where a choice can be made, and use appropriate salt tolerant species;

- Ensure species conservation considerations are included in reclamation plans;

- Map waste disposal sites, to prevent disturbance due to reclamation;

### 1 Restore degraded soils;

- Conserve and restore land through drainage and prevention and removal of unacceptable levels of soil and irrigation water salinity, use salt tolerant species.

degraded by misuse of agricultural techniques, soil is improved by the use of soil conditioners, pollution does not cause soil contamination etc.

The Governorate Agriculture Department is already addressing this issue by improving the coverage of tile drainage, which helps to control groundwater levels and associated salinisation and water logging problems.

### Who Should Be Involved

- 1 EMU
- 1 EUs
- 1 Department of Agriculture
- 1 Shandaweel Research Institute

Overall this is an issue which the Directorate of Agriculture is already committed to addressing. To further support their activities, two principal supporting measures are thought to be required: technology transfer and institutional strengthening through the provision of additional staff resources.

### Projects

For this initial GEAP, two project proposals have been developed to address this issue. However, one of the other project proposals (classified as pollution prevention and control) considers the issue of the control of surface ponding as result of rising groundwater levels; this is a closely related issue.

Themes that will eventually need to be covered when addressing this key issue, which is strongly linked into the Strategic Plan for Comprehensive Development and the Planning for Development key environmental issue described on page 31, include such diverse issues as land-use zoning to ensure land capable of supporting high yield crop growth is conserved, soil quality is managed by identifying irrigation techniques which minimise salinisation problems, soil is not

Farmer irrigating fields



## 5. Actions That Are Needed

- Consider and develop role of private sector and introduce or seek support of if/when appropriate;

- Provide separate septic tanks for workshops.

### 1 Increase wastewater treatment;

- All urban areas to be linked to STW and treated effluent to be used in irrigation schemes;

- STW to match water supply and treatment capacity to match 200l per capita supply target;

- Promote use of appropriate technology in rural areas (septic tanks, bio gas generators, reed beds);

- Prevent discharge of sanitary and industrial liquid waste to boreholes where it can pollute groundwater;

- Consider the provision of a central treatment works for the industrial zone, specially designed to meet the treatment needs of industry; ·

- Major new industrial developments (e.g. cement factory, fertiliser factory etc.), must have own treatment works specially designed to treat their effluent and to achieve the necessary discharge standards.

### 1 Effective /efficient reuse of treated water;

- Link treated liquid discharges from water treatment plants to shelter belt plantations or other non edible plantations.

### 1 Control of untreated and treated effluent discharge points;

- Identify specific locations for waste discharge.

### 1 Law enforcement;

- Enforce laws relating to prohibiting discharge of sewage and industrial waste to groundwater aquifer.

### 1 Training;

- Training for employees, particularly at operator level, on hygiene, and need for strict control of discharge locations;

- Training on groundwater monitoring to detect sanitary drainage problems.

### 1 Awareness;

- Develop public awareness of the health effects of sanitary waste, and the adverse effects of using untreated effluent and sludge.

The transfer of appropriate technology, along with the organisation of public awareness campaigns and formal education, feature prominently in the necessary supporting measures. Considerable institutional strengthening and environmental management training (especially for technicians and operators) is also required.

The same comments, as made above for the levying of charges for potable water services, apply in the case of sanitary drainage and treatment services.

### Projects

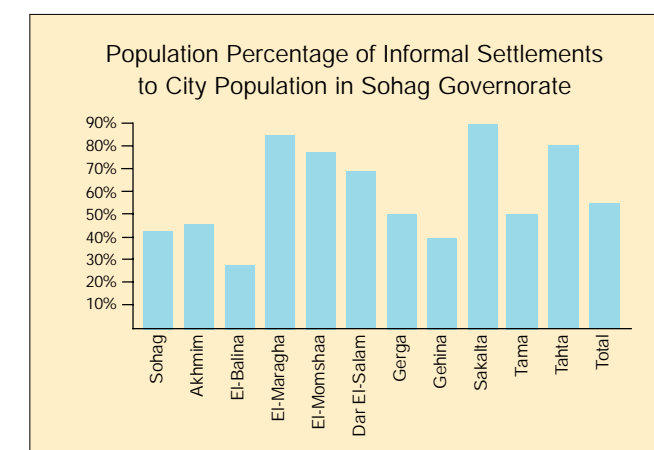
Three project proposals which address this key priority issue have been compiled. At a central level within the Governorate, funds are currently being directed to extending the network provision of sewerage and treatment works. Activity is concentrating on the main urban areas. The proposals developed in the Plan are complementary to this and relate to smaller scale schemes in rural areas where connection to a network and thence to a treatment works is not likely in the short term.

### Who Should Be Involved

- 1 EMU
- 1 EUs
- 1 Housing and Utilities Directorate
- 1 Agriculture Department
- 1 Social Affairs Directorate
- 1 Irrigation Department
- 1 CDAs and NGOs
- 1 NOPWASD
- 1 ORDEV
- 1 Markaz and Village Officials
- 1 Directorates of Water Supply and Sanitation

### Action taken so far

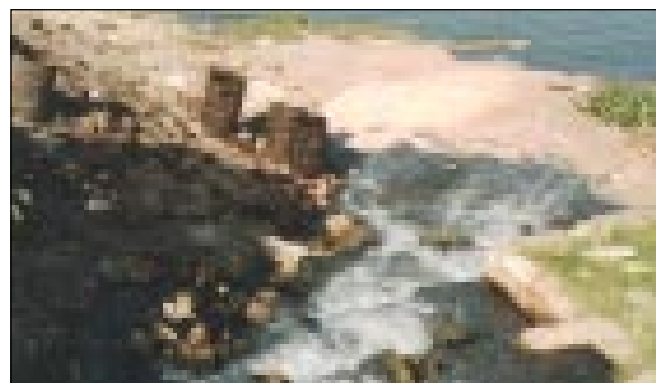
- 1 Projects on community level sewage treatment at two villages have been implemented as demonstration projects (see section 6)



## 5. Actions That Are Needed

### POLLUTION PREVENTION AND CONTROL

#### Current Status and Aims - "Why?"

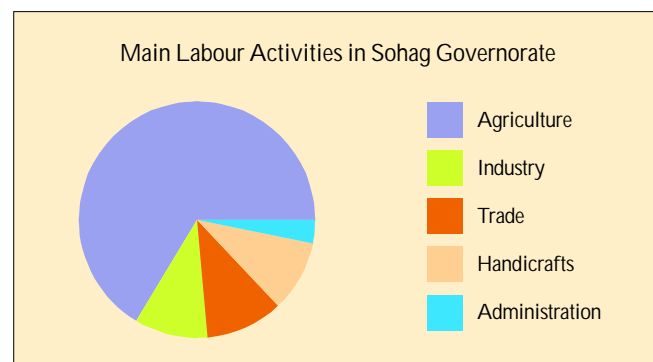


Liquid effluent discharge into the Nile

Concern was expressed by stakeholders about industrial pollution sources which, although relatively few in Sohag (compared to other Egyptian Governorates), are seen by locals as significant problems. As the industrial base of Sohag increases (in response to strategic growth and development proposals), care needs to be taken to ensure that the pollution burden of the Nile and atmosphere in Sohag is not similarly increased. However sources such as vehicles and local brick manufacture (kammayen) should not be overlooked. Similarly, local bakeries can often present a significant local source of pollutants as they are fuelled on mazot or sola which have a high sulphur content.

Discharges of polluted water from sanitary waste systems that seep into the ground, are not generally recognised as 'polluting' although when the discharge is formalised through a pipe, as in case of the overflow discharge from the waste water treatment plant they become a recognised source of pollution. Nevertheless pollution of water bearing strata is potentially a significant environmental issue, as it will adversely affect the resource potential of the aquifer.

Related issues in this category include the need for monitoring of environmental quality and emissions from polluting sources to help in prevention and control requirements. Law enforcement was often cited as a means of improving the level of pollution control and is an



important tool in preventing future problems. Using El Kawther industrial area as a focus for new industrial development was seen as a means of managing industrial pollution.

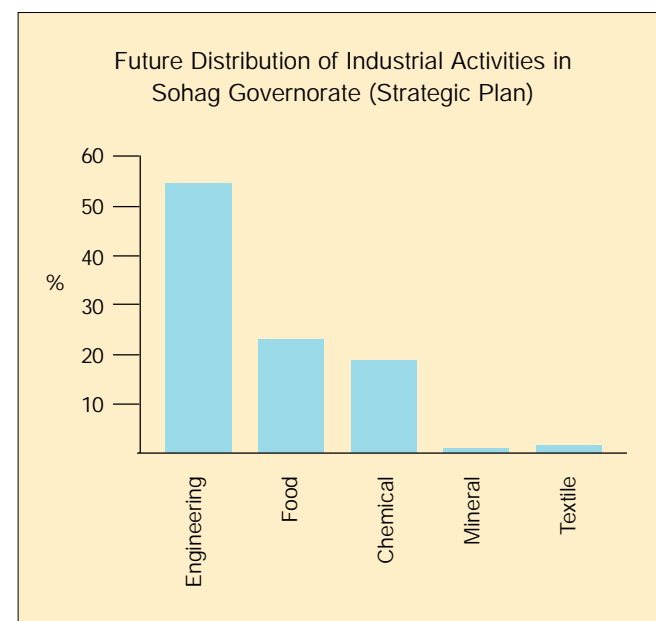
#### "What?"

The overall aims are seen as:

The control and reduction of emissions of air and water point pollution sources - from industrial, agricultural and domestic sources;

Maintenance of environmental quality - including air, water (surface and ground) and land;

Improvement of impaired environmental quality (including air, water and land).



#### Programmes and their Supporting Measures - "How?"

These aims can be achieved by programmes designed to support:

- Enforcement of existing Laws requiring certain controls and emission levels and environmental impact assessment;
- Introduction of planning zones;
- Clean up of areas already polluted so that pollution does not disperse into the wider environment.

## 5. Actions That Are Needed

### CONSERVATION AND USE OF SOILS

#### Typical Concerns and Overall Aim of the Plan - "Why?"

Soil is a vital natural resource to Sohag and with the advent of the Aswan High Dam is no longer annually replenished by the flood waters of the Nile. Soil conservation is therefore an important issue. Quality problems relate principally to agricultural practices, particularly irrigation and reclamation. Soil salinisation and an increasing groundwater level are particular issues, as is the use of soil to manufacture bricks to provide local housing for population growth. The control of development such that it does not encroach onto high quality agricultural land is also important. Reclamation of desert land is an important means of keeping pace with the demands for land. Reclamation needs to be undertaken in a well planned and phased manner.

#### "What?"

The aim for this issue is to:

Use soil so that the natural resource is sustained.

#### Programmes and their Supporting Measures - "How?"

This aim can be achieved by a variety of programmes to prevent and control soil degradation, increase productive areas by reclamation and where soil degradation has occurred in the past, take steps to recover the resource quality.

Brick making



Brick making

- Prevent and control soil degradation;

- Continuous training for extension staff - involve local institutions, including the Shandaweel Research Institute and the University in training;
- Increase tile drainage coverage - target 5000 feddans per year;
- Maintain and repair existing tile drainage systems as required;
- Reduce groundwater levels by pumping and reduction of flood irrigation, (also maintenance of reticulated water supply system) target water table level at 80cm throughout Governorate by year 2010;
- Consider lining canals to prevent water loss;
- Establish resource data base (soil and water quality);
- Use organic compost to improve soil quality and structure;
- Identify alternatives to bricks made from alluvial muds - encourage use of alternatives;

- Reclamation;

- Reclaim land by the most suitable techniques having regard to effects on soil quality, sustainability and ground water levels;
- Improve soil quality and structure in reclaimed areas by use of organic compost;
- Promote the use of BPEO irrigation techniques;

## 5. Actions That Are Needed

- 1 Public awareness campaigns on radio, in newspapers and on television;
- 1 Training of extension workers.

Awareness campaigns, technology transfer, law enforcement and the imposition of stiffer/more appropriate penalties are the principal supporting ingredients needed to make these programmes work.

### Projects

Public health is linked to all key issues, and stands as a key issue in itself. Almost all the projects proposed have elements that link them through to health improvement either directly or indirectly. It is expected that as experience grows in managing and identifying environmental issues, the associated benefits for health will be widespread. These will stem from improved income, education, access to services and improved overall health care associated with other Governorate wide initiatives to improve access to choice. A specific project proposes the establishment of an environmental health data base - to help in decision-making and formulating priorities.



Agricultural Land Encroachment

### Who Should Be Involved

- 1 EMU
- 1 EUs
- 1 Department of Health
- 1 Social Affairs Directorate
- 1 NGOs and CDAs
- 1 Media

A Common Dumping Ground



## 5. Actions That Are Needed

The following tasks and action targets for programme implementation are suggested as a starting point; the list can of course be extended.

- 1 Enforcement of existing Laws requiring certain controls and emission levels and environmental impact assessment.
  - Identify non complying industries - by 1997;
  - Enforce compliance with law by March 1998, unless approved pollution abatement plan exists. - Monitor emission quality - lab and technician and field staff facilities operating by 2005, (involve University skills);
  - Monitor ambient environmental quality - introduce programme by 2005;
  - Impose fines on non complying industries - by 1998;
  - Require cleanup programmes for licence renewal - from 1998;
  - Require all new factories to comply with the EIA system - from now;
  - Promote EA at all established factories - with incentives for implementing recommendations;
  - Introduce requirement for use of cleaner fuels in bakeries by 2005, elsewhere by 2010, incentives for early adoption of change;
  - Car emission testing with licence renewal;
  - Consider spot testing and fines for grossly polluting vehicles being driven on the highway;
  - Training for EUs and others in responsible industries in Environmental Management - start process as soon as possible, EMU to be involved in training;
  - Training programme for SFD personnel to be aware of environmental implications of projects - by 1998;
  - Set up "Nile Protection EMPS Task Force Committee", to review all decisions affecting the Nile and to collect data base of Nile water quality.
- 1 Introduction of planning zones - for industry, housing, special protection areas, agriculture etc. stick to plan.
  - Use zones for planning location of new industry and workshops, to assist in prevention of bad neighbour issues of nuisance,

- Designate zones as soon as possible in all markaz, identify special EMPS committee;
- Identify different zones for different types of industry - taking account of prevailing conditions and pollution potential of the specific industries;
- Develop guidance about what industry each zone can accommodate;
- Guidelines can be strict - but areas can be made attractive to prospective developers by helping them to achieve strict guidelines by providing central water treatment and waste management.



Sugar Factory



Effluent Treatment

- 1 Clean up of areas already polluted so that pollution does not disperse into the wider environment.
  - Map areas in each markaz that might be polluted, including illegal waste disposal sites from industry, areas where liquid industrial waste is or was dumped, areas where agricultural chemical containers may have been stored or discarded;
  - Analyse levels of potential pollutants in soils and groundwater in vicinity of these dump sites;
  - Set levels at which clean up should be affected;
  - Identify clean up programmes and implement associated actions.

The strengthening of monitoring and law enforcement provisions are seen as being essential to the success of the programmes, and would need to be accompanied by a quartet of persuasion measures: public awareness campaigns; environmental management training; institutional strengthening to enable the measures to be effected, and, of course, the adoption of more environmentally appropriate technology. These measures are underlined by the managers of the El Kawther industrial zone who suggest means to make the area more attractive to industry, including centralised waste management schemes.

## 5. Actions That Are Needed

### Projects

Three project proposals to help address this issue have been developed during the course of the GEAP process. These cover large and small industrial enterprises, and have been designed to deal with existing pollution problems and to prevent pollution problems arising in the future. Two of the proposals are being addressed by SEAM demonstration projects, including pollution control for the Nile Company for Oil and Detergents Hydrogenation Factory in Sohag, and environmental management guidelines for the El Kawther Industrial Zone. Also at El Kawther, a solid waste recycling project is being undertaken. The latter project also addresses issues linked to another key issue, planning for development - land use zoning being an important means of controlling development to minimise impacts on neighbouring communities. Elements of the original proposal ideas remain to be addressed, and these will need to be picked up in future issues of the GEAP.

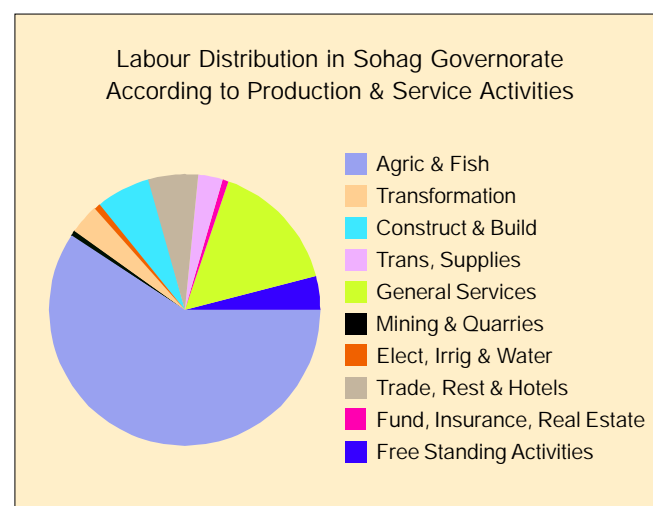


Pollution Prevention

Significant links are likely to be promoted through the projects between the new environmental management functions of ministries and directorates, the private sector and NGOs. One of the projects in particular provides a strong link between communities and pollution control. Emphasising local responsibilities in pollution control, and providing the educational link between pollution and day to day activities will help to boost support for the GEAP initiatives.

The project linked to pollution control of a major polluter is potentially significant in terms of the opportunities for publicity; many local residents and organisations view the Nile Company for Oil and Detergents, Hydrogenation Factory as a significant source of environmental pollution, the solution to this issue will deserve widespread publicity.

Other projects can be developed from the list of tasks identified in the programme tasks identified above. One important project yet to be developed is making sure that the benefits of pollution prevention measures are given a wide audience.



### Who Should Be Involved

- 1 Department of Agriculture
- 1 EMU
- 1 EUs
- 1 El Kawther Businessman's Association
- 1 Industrial Companies
- 1 SFD
- 1 Small private sector workshops and factories
- 1 Manpower & Training Directorate
- 1 Ministry of Information
- 1 Roads & Transport Directorate

### Action taken so far

- 1 Audit of Nile Company for Oil and Detergents, Hydrogenation Factory;
- 1 Waste segregation plans implemented;
- 1 Project proposal being developed;
- 1 Audit of El Nasr Company for Drying Agricultural Products;
- 1 Sugar and Integrated Industries Company and Egyptian Bottling Company have already invested significant effort in pollution control measures.

## 5. Actions That Are Needed

### PUBLIC HEALTH

#### Typical Concerns - "Why?"

Public health is generally poor in Sohag because of the level of poverty in the Governorate. Although access to health care is improving, malnutrition, cost of treatment and traditions serve to compound the effects of inadequate levels of service provision. Public health benefits will accrue not only from the implementation of actions to address this key issue, but also from other key issue actions. Disposal of polluted sullage water in villages is a key source of ill health. Diarrhoea and diseases carried by vectors including flies, mosquitoes and snails are seen as key concerns. Kidney disease as a result of poor water quality is a growing problem in Sohag.

#### "What?"

The aim for addressing this issue revolves around the need to:

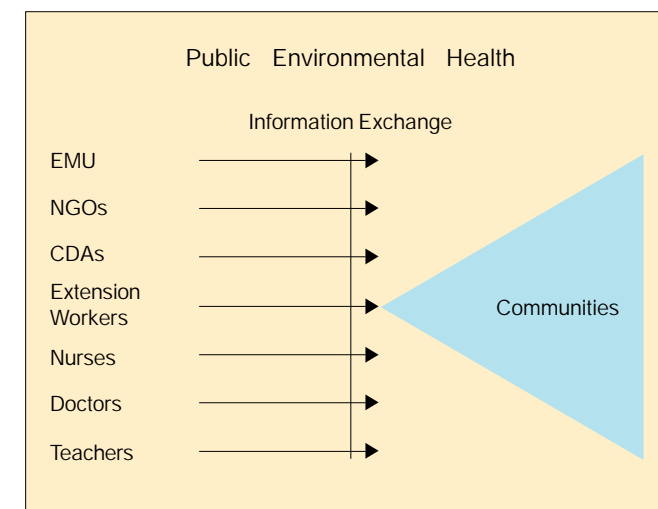
Seek to provide equality in health care provision throughout the Governorate in both urban and rural populations.

#### Programmes and their Supporting Measures - "How?"

This aim can be achieved by programmes designed to:

- 1 Address children's, women's and men's health issues equitably;
- 1 Improve personal health/hygiene standards including at abattoirs and cafes.

#### Primary Stakeholders



And this can be done by:

Ensuring that health messages get to their targets, providing services that are affordable, and in the right place, and at the right time, providing services that address prevention as well as cure.

Programmes revolve around providing the right service, and in raising environmental awareness and involvement among the communities. The priority areas should be those that currently suffer from the poorest health, and this is likely to be the rural and urban poor and underprivileged. Here poor health will be exacerbated due to malnutrition and inability to afford preventive treatment, and overcrowding and unhygienic home environments which help to spread infection. The areas of the Governorate where public health is most critical are the isolated areas, furthest from the cities, and where urban areas are growing so rapidly that services cannot keep pace. These features are found in Dar El Salam and Akhmim, but occur wherever there are particularly under-privileged communities.

The sorts of actions that might arise from these needs are:

- 1 Training established extension worker staff in environmental health matters;
- 1 Appoint new staff trained in environmental health to disseminate the messages to a wide audience (in schools, at markets, in clinics, wherever the opportunity exists); Target 1 new environmental health trained staff to each 750 of population. Staff must be based in Markaz;
- 1 Establish data base to monitor health levels;
- 1 Improve local environment with respect to climate control (e.g. shelter belts for dust control) and recreation facilities (e.g. to remove risk of swimming in contaminated waters);
- 1 Provide public taps in markets and food preparation areas;