



GLOBAL ENVIRONMENT FACILITY
INVESTING IN OUR PLANET



Arab Republic of Egypt
Ministry of Environment
Egyptian Environmental Affairs Agency



Shared Environmental Information System (SEIS)

Alexandria Coastal Zone Management Project

(ACZMP)
2010 - 2017

Introduction

- The project is financed by a Grant from the Global Environment Facility (GEF) in the amount of US\$ 7.15 million. Managed by the WB, and implemented by the EEAA during the period of 2010-2017
- The main objective of the project is to reduce water pollution reaches the Mediterranean from Lake Mariout.

Project Objectives

Supply a strategic framework and immediate small- scale investments to reduce the load of land- based sources of pollution entering the Mediterranean Sea in the hot spots of El Mex Bay and Lake Mariout.

Protect/restore globally significant coastal heritage and ecosystem processes by supporting the Government of Egypt's efforts to develop and implement a National Coastal Zone Management Plan.

Project Components:

Component (1):

Planning, Institutional Capacity and Monitoring.

Component (2):

Pollution Reduction Measures.

Component(3):

Project Management and Monitoring & Evaluation.

Current Environmental Problems

- Most of the lake area is covered by reeds which leads to a decrease in the rates of dissolved oxygen and in available fishing area.
- Decrease in the annual fish production which leads to socio-economic problems
- Deterioration of water quality
- Lake drying up.
- Management conflicts between stakeholders.

Project Framework

US\$ 7.15 million

Alexandria Coastal Zone Management Project (ACZMP)

COMPONENTS

Planning, Institutional Capacity and Monitoring Strengthening

Pollution reduction

Project Management and Monitoring and Evaluation

OUTCOMES

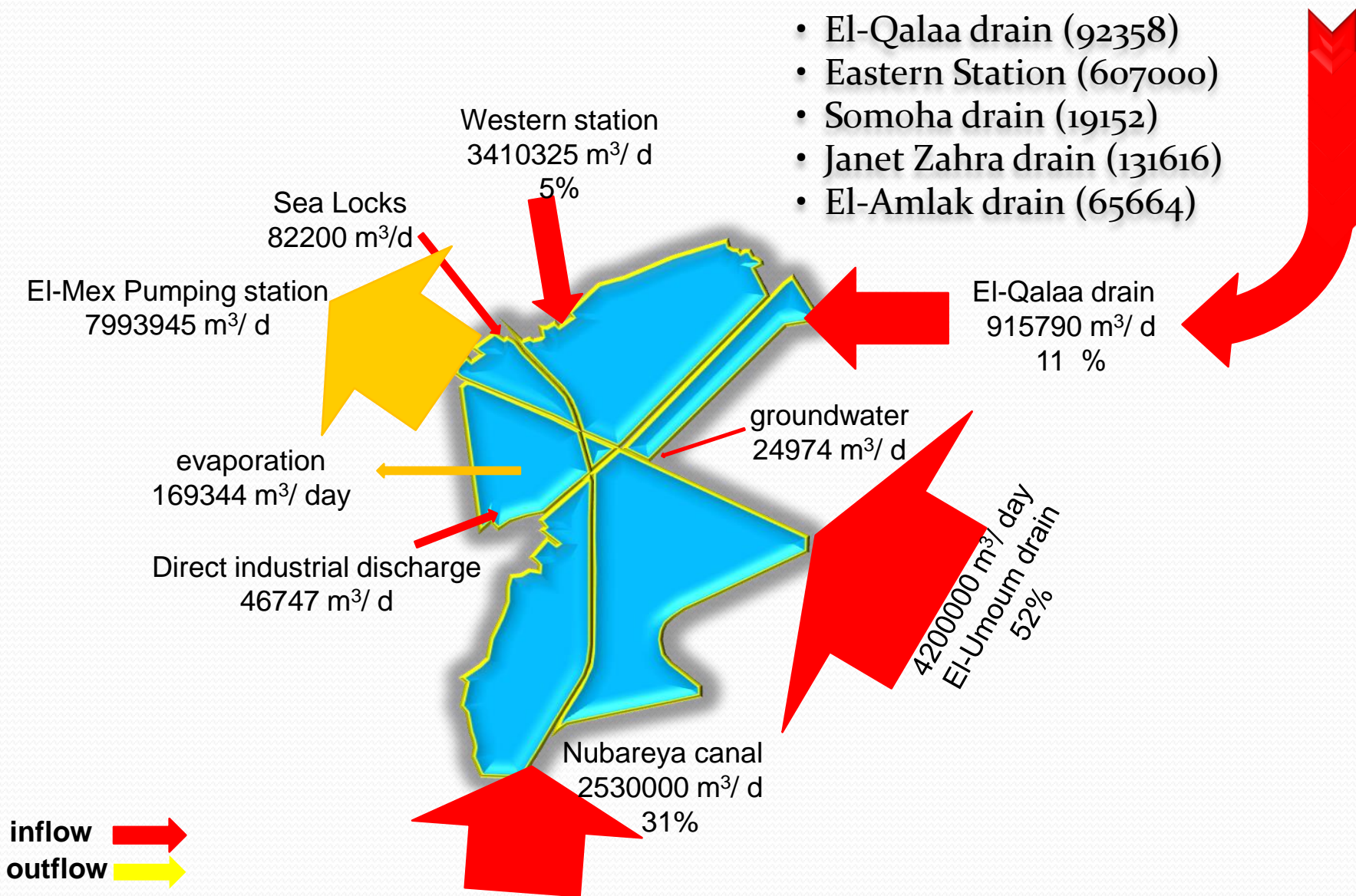
Increase capacities to manage the coastal zone

Reduction in the land based source through pilot measures

Completion of a M&E system and dissemination

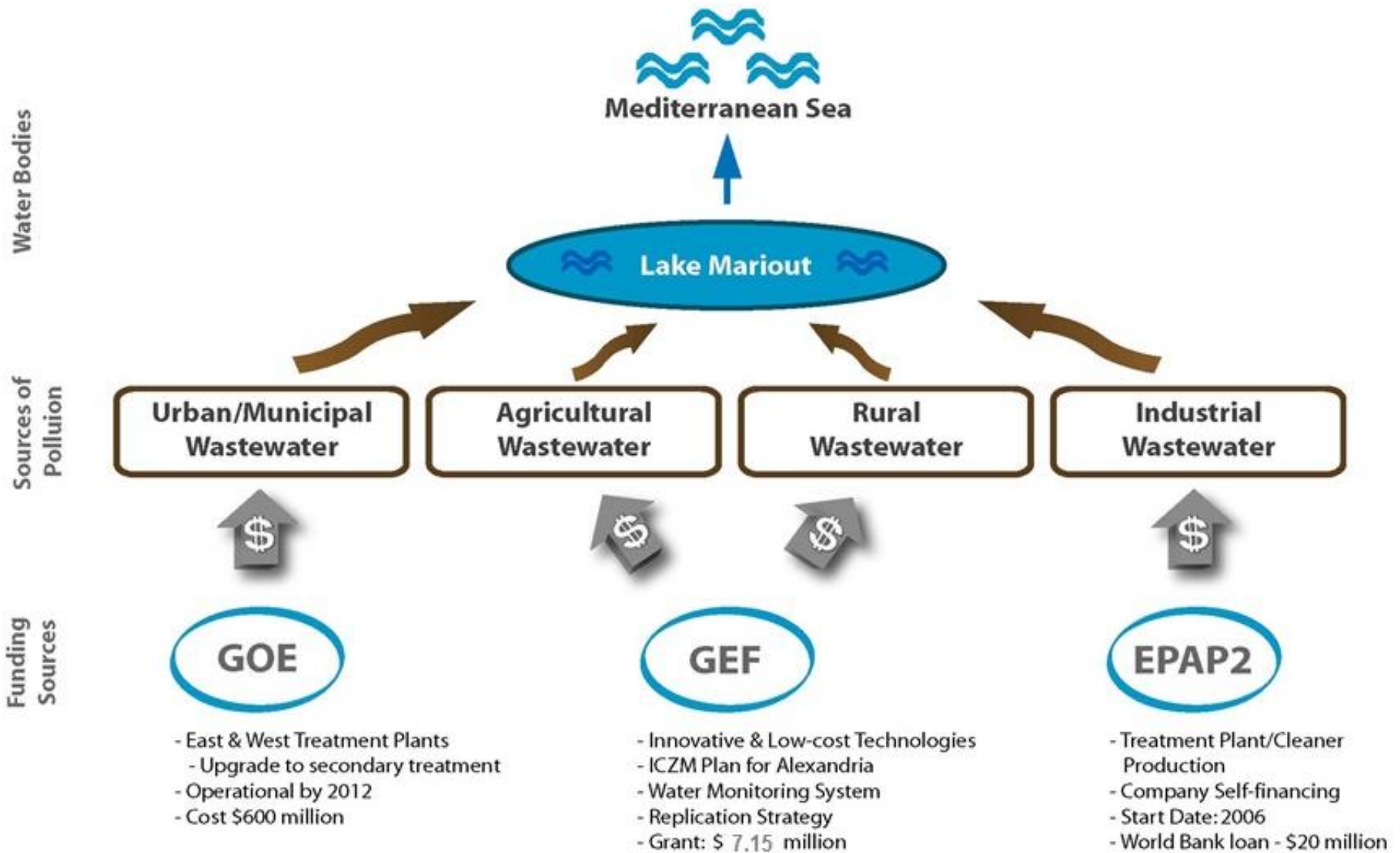
- i) Preparation of an ICZM plan for Alexandria including Lake Mariut
- ii) Development of an integrated water quality monitoring network for Lake Mariout and Med. Sea including a water quality and hydraulic model
- iii) Supporting stakeholders with required equipments, capacity building programs , and technical support.

Lake Mariout Water Balance



- El-Qalaa drain (92358)
- Eastern Station (607000)
- Somoha drain (19152)
- Janet Zahra drain (131616)
- El-Amlak drain (65664)

POLLUTION REDUCTION MEASURES FOR ALEXANDRIA COASTAL ZONE



Component (1): Planning, Institutional Capacity and Monitoring.

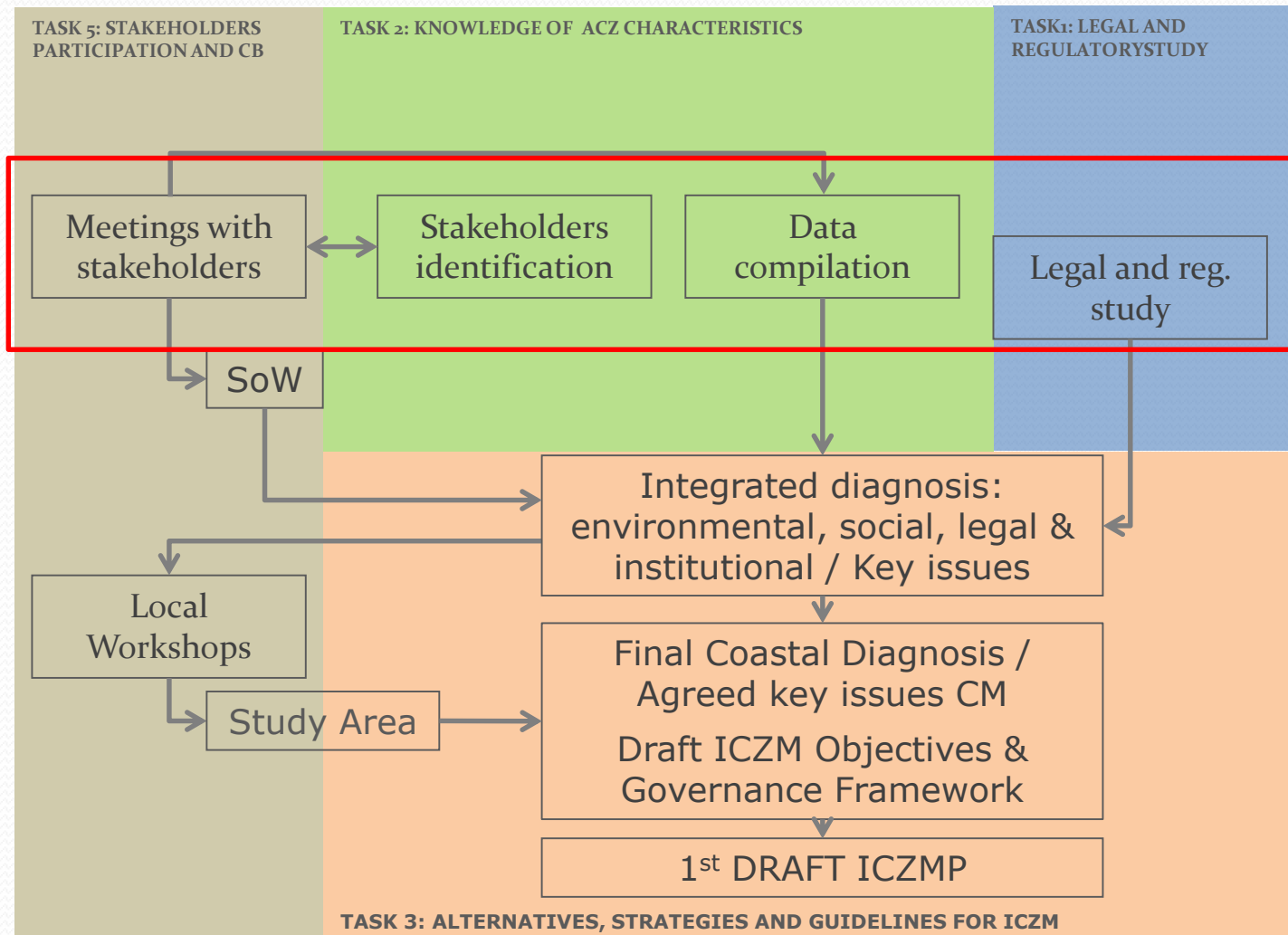
The expected outcome is an increased capacity for various relevant entities to manage the coastal zones in and around Alexandria .

The outputs for this component include

- (i) A master plan for the management of the coastal zones of Alexandria including Lake Mariout
- (ii) Development of a water quality monitoring network for Lake Mariout.

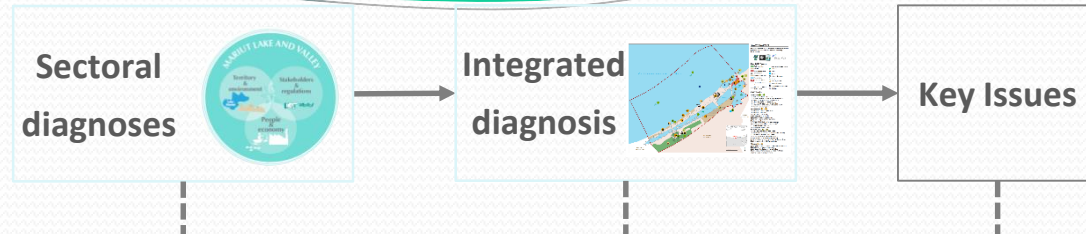
Activities

Strategy for developing ACZM Plan



PHASE 1: ISSUES IDENTIFICATION AND ASSESSMENT

OBJECTIVES AND ACTIONS



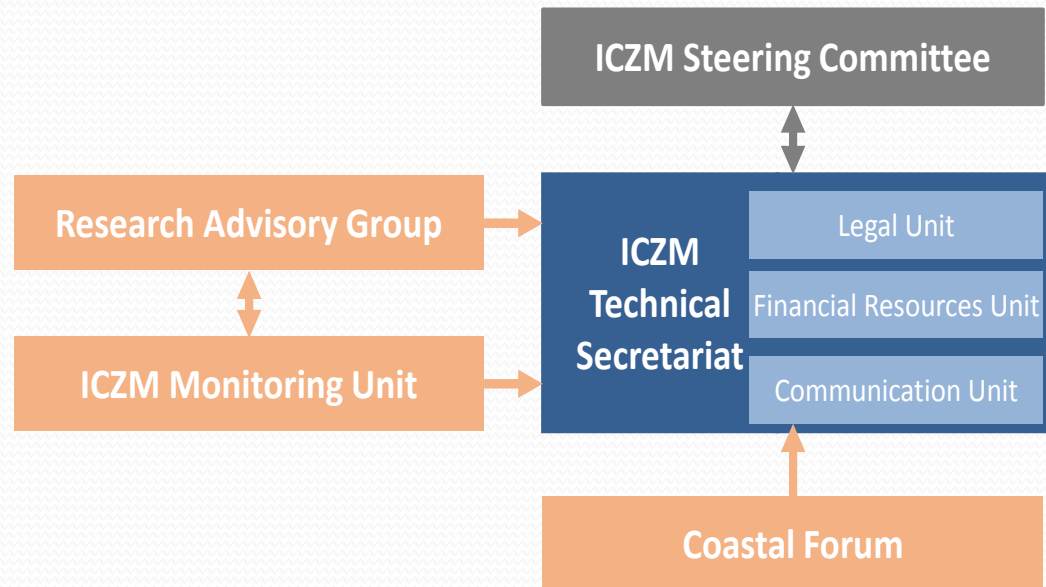
METHODOLOGY FOR ITS DEFINITION

STRATEGIC OBJECTIVE		OPERATIONAL OBJECTIVE		ACTION	
S1	ENHANCING WATER QUALITY MANAGEMENT IN MARIUT LAKE AND VALLEY	S1 O1	Increasing the Temporal and Spatial Scope of the Water Quality Monitoring System	1	Extending the water quality monitoring system to Mariut Valley.
				2	The development and implementation of a set of indicators to monitor climate change effects on water quality.
		S1 O2	Ensuring the Adoption of Water Quality Criteria under Future Development Plans	3	Including water quality assessment procedures into development plans and projects.
				4	Establishing the communication framework for managers of water quality and urban development.
S2	IMPROVING THE WATER REGULATORY SYSTEM AND ITS ENFORCEMENT	S2 O1	Updating Water and Environmental Regulations	5	Updating discharge emission limits.
				6	Establishing receiving water standards for Lake Mariut, Mariut Valley and waterways.
				7	Establishing water quality standards for water uses.
		S2 O2	Increasing Efficiency of Water and Environmental Regulations	8	Detecting and solving overlaps in water and environmental regulations.
				9	Adjusting procedures to consider the socio-economic context under the Law drafting process.
				10	The development of agreements for collaboration between the Legal Unit and competent stakeholders.
		S2 O3	Enforcing the Application of Water and Environmental Regulations	11	The establishment of a single Legal Unit.
				12	Strengthening mechanisms for the surveillance and punishment of water quality violations.
				13	Strengthening mechanisms for the incentive of environmentally friendly actions.
S3	ENSURING SUSTAINABLE ICZM	S3 O1	Developing the Institutional Framework for Local ICZM	14	Establishing the ICZM Steering Committee and its Technical Secretariat.
				15	Enhancing capacity building of the ICZM Steering Committee, its Technical Secretariat and the Technical Units on collaborative management and water and environmental quality.
		S3 O2	Integrating Science and Management	16	Establishing the Research Advisory Group.
				17	The development of a Research Agenda.
				18	The launch of the ICZM Monitoring Unit.
		S3 O3	Ensuring a Sustainable Funding System for Local ICZM	19	Establishing the Financial Resources Unit.
				20	Guaranteeing the provision of national ICZM funds to local ICZM processes.
				21	Ensuring the equitable distribution of stakeholders funding.
				22	Obtaining funding from international donors.
S4	PROMOTING STAKEHOLDERS PARTICIPATION IN WATER AND ENVIRONMENT MANAGEMENT	S4 O1	Promoting Stakeholders Awareness	23	Activating the Communication Unit.
				24	Designing awareness campaigns regarding water and environmental quality.
				25	The development of online dissemination tools for ICZM initiatives.
		S4 O2	Promoting Stakeholders Participation	26	Establishing the Coastal Forum to discuss priority issues for coastal management.
				27	Capacity building of coastal managers on collaborative management.
				28	Capacity building of private sectors (industries, farmers, aquaculture) on water quality management.
		S4 O3	Increasing Collaboration on Coastal Management	29	The inclusion of collaborative management procedures within the regulations of key stakeholders.
				30	The design of an innovative tool to promote and provide shared ICZM information.

4. INSTITUTIONAL ARRANGEMENTS

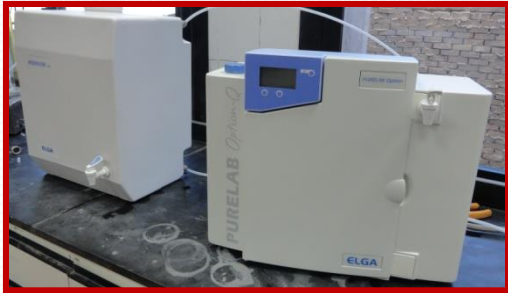
DESCRIPTION OF ICZM STRUCTURES: description of the management structures and agreements required to develop ICZM in the area:

- Policy –making structures
- Executive structures
- Advisory structures



BOTTOM-UP AND TOP-DOWN APPROACHES

Activities – WQ Equipment Purchased



Activities – WQ Equipment Purchased



**Lab – Car for
Alex. RBO.**



**Sampling Boats was
purchased to support
GAFRD, and RDI**

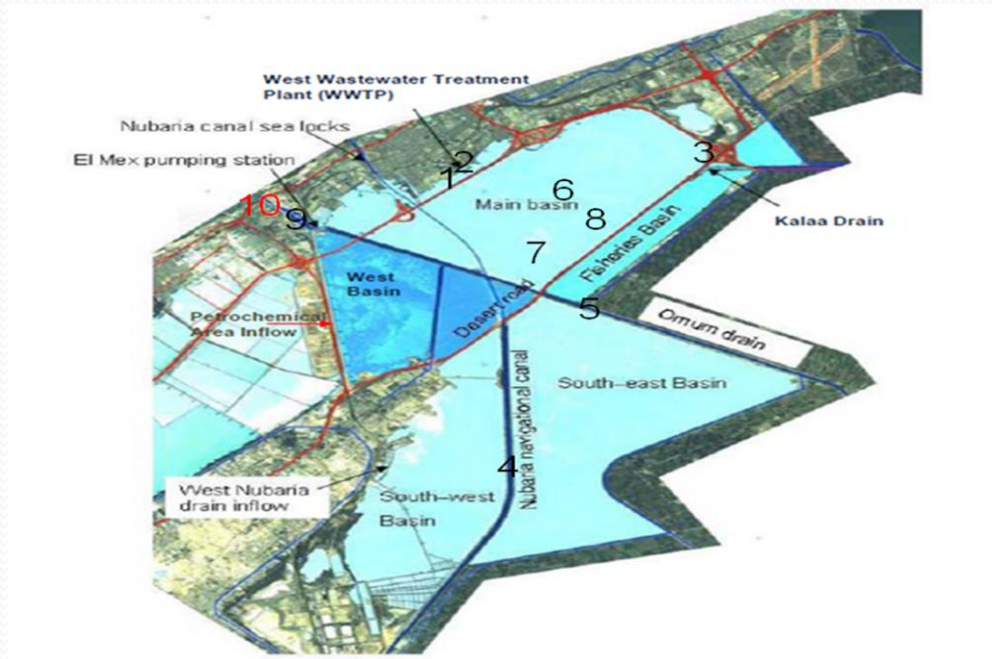


Reed Removal

Floating dredger was purchased to reduce the density of reeds in the fishing lake basin to enhance water circulation and increase DO levels



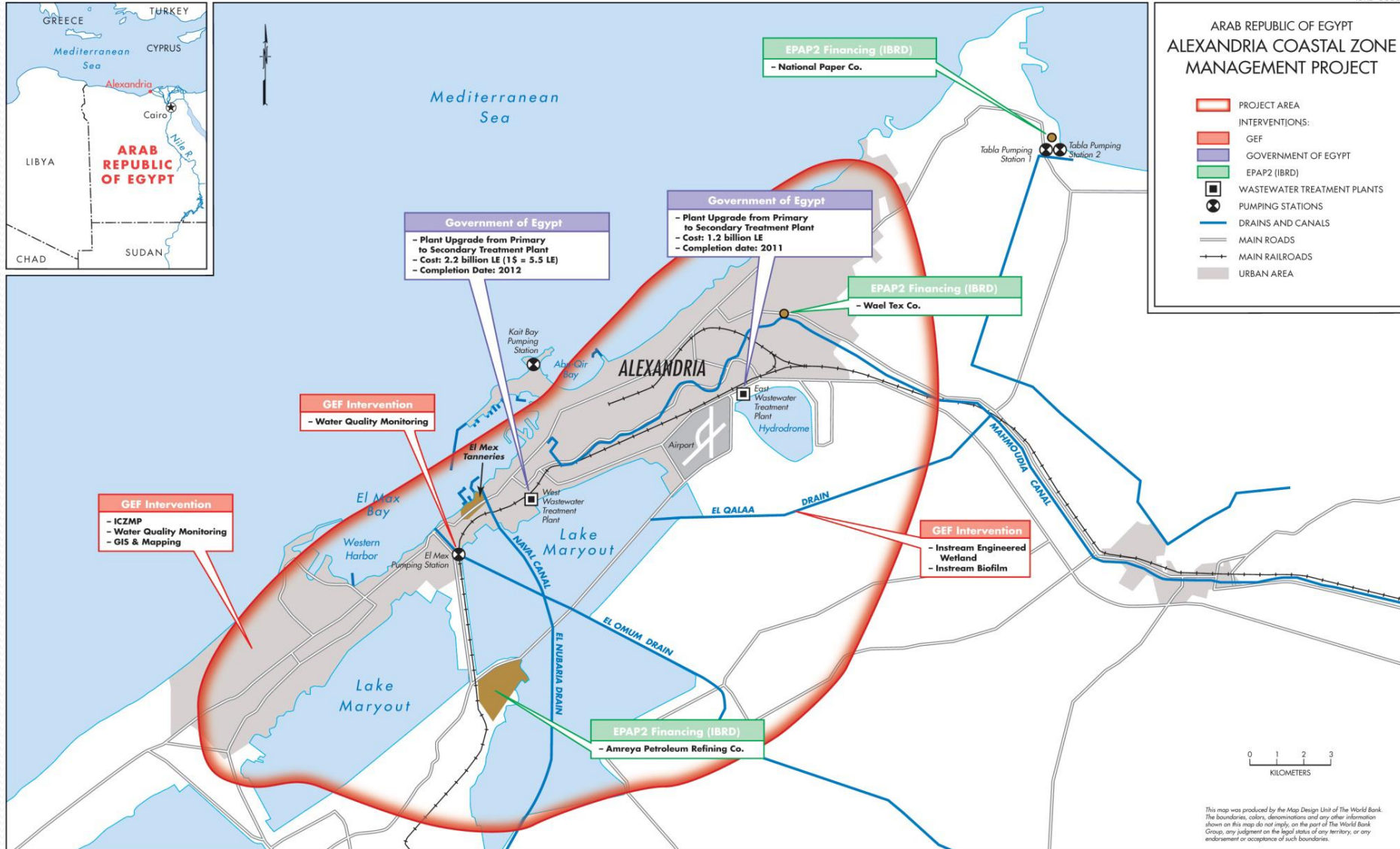
WQ Monitoring Program



Parameter type	Location	Frequency	Responsible Organization
Water Quality	1,2,3,4,5,6,7,8,9	Monthly + Continuous at Elmex station only	Alex RBO
Sediment	1,2,3,4,5,6,7,8,9	Every 3 months	Alex RBO
Reed	Temporary storage site	Once after the removed reeds dry out	Alex RBO
Biota	6	Half Annual	GAFRD

Delft 3D Water Quality Model for Lake Mariout

IBRD 36568



**ARAB REPUBLIC OF EGYPT
ALEXANDRIA COASTAL ZONE
MANAGEMENT PROJECT**

PROJECT AREA

INTERVENTIONS:

- GEF
- GOVERNMENT OF EGYPT
- EPAP2 (IBRD)

WASTEWATER TREATMENT PLANTS

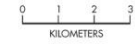
PUMPING STATIONS

DRAINS AND CANALS

MAIN ROADS

MAIN RAILROADS

URBAN AREA



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Component (2): Pollution Reduction Measures

The expected outcome is a reduction in the land based source of pollution entering the Lake Mariout and subsequently the Mediterranean Sea.

The output of this component is the completion of small scale innovative pollution reduction measures such as in-stream treatment (bio-films and aeration) among others..

Feasibility Analysis – Studied Options



Allocated Areas



Preferred Option:

50,000m³ Biofilm Outside PS and Wetland



Google earth

Component (3):

Project Management and Monitoring and Evaluation

The expected outcome is the completion of a comprehensive Monitoring and Evaluation scheme and the documentation of the project results for the purpose of up-scaling and replication.

Component (3):

Project Management and Monitoring and Evaluation (Status)

- WQ monitoring plan has been developed
- Intensive training on the monitoring program including QC/QA has been conducted for all stakeholders
- Website has been developed
- Electronic financial system has been set-up
- PMU actively participates in exhibitions
- Study tour for 10 stakeholders' representatives has been conducted

Component (3):

Project Management and Monitoring and Evaluation- Training programs (more than 135 trainees)

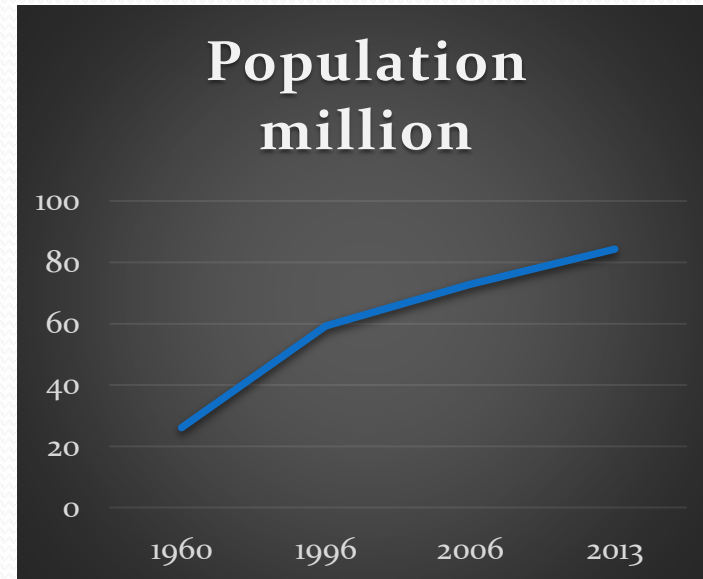
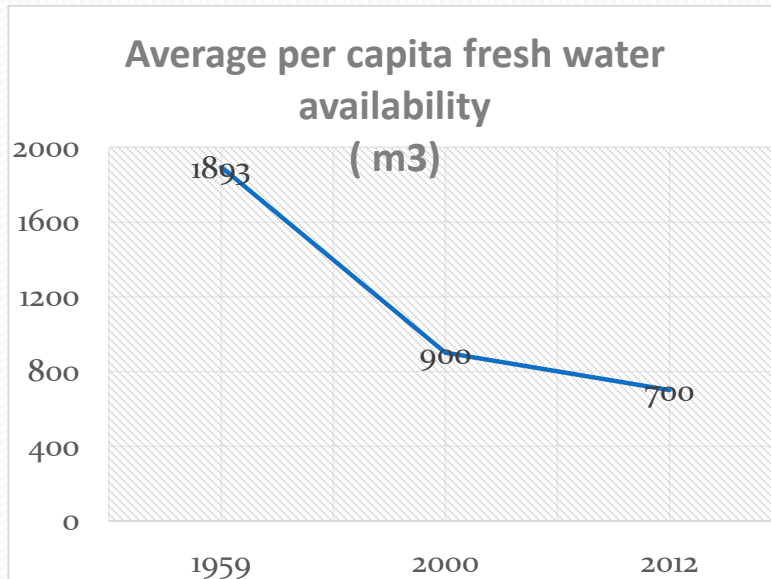




**Alexandria
Coastal Zone
Management
Project – Direction
for the future**

Water Scarcity and Pollution Issues in Egypt

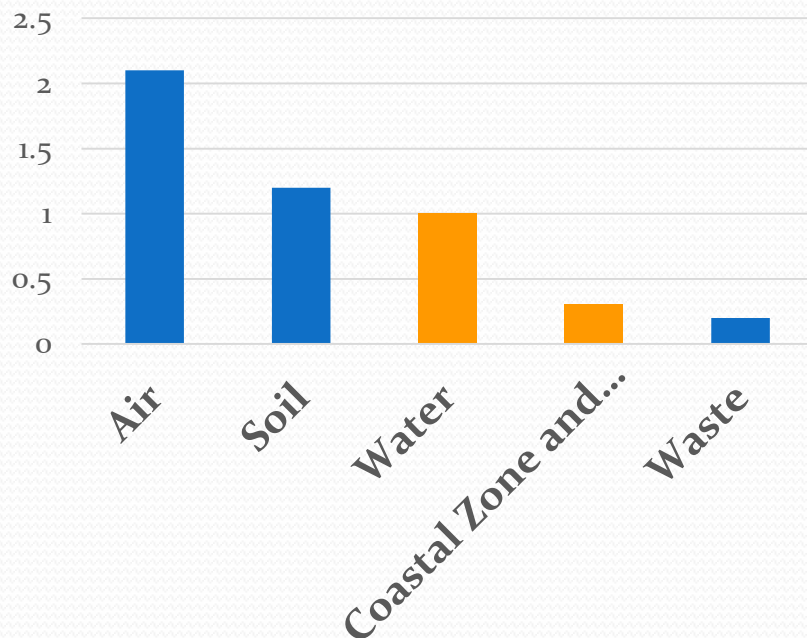
Fresh water availability on the decline while pollution of the available water sources is exacerbated and the population increases further pausing the pressure



Source: *Water Pollution in Egypt, ECESR, 2013c*

Cost of Environmental Degradation in Egypt

Annual cost of environmental degradation
(Mean estimate as % of GDP)



Category	Million LE per year	% of GDP
Air	6,400	2.1%
Soil	3,600	1.2%
Water	2,900	1.0%
Coastal Zone and Cultural Heritage	1,000	0.3%
Waste	600	0.2%
Total	14,500	4.8%

Importance of Lakes

- Lakes for Fishing
- Lakes as Tourist and Recreation as well as Urban Development
- Lakes as Social Habitats Supporting Livelihoods
- Lakes as Biodiversity Conservation Areas
- Lake as Natural Balance Preserving Reservoirs
- Lakes as Water Sources as well as Natural Resources

\$\$ Economic
Value \$\$
Environmental
Buffer

However....

- Important water resources such as lakes and the Nile have become an open dump from various sources (agriculture, municipal, industrial, etc)
- As a result, negative impacts on health, land productivity, fishery, biodiversity, and tourism
- Uncoordinated and unregulated urban development and land reclamation further encroaching the lakes

Needs to avoid lock-in where sustainable management becomes so expensive that no one can afford

Achievement of ACZMP

- ICZM plan developed based on, and presented to, stakeholder consultation
- Cross-sectoral platform to discuss interventions in Mariout Valley
- Increased knowledge on 2D and 3D Lake modeling which encourages informed decision based on scientific evidence and potential impacts
- Pilot investment in low-cost pollution reduction technology (biofilm, engineered wetland) at West Wastewater Treatment Plant which has potential for

Scaling up potential

- ACZMP on spatial planning and scale up this experience in other northern lakes and delta. Scale up can include:
 - (i) institutionalization and development of lake management systems;
 - (ii) spatial planning for development of the northern lakes and their catchments;
 - (iii) co-management of natural resources to improve livelihood and ensure sustainable development;
 - (iv) implementation of investments in low cost pollution mitigation measures; and
 - (v) pilot, plan-compliant, public (private project):partnership projects in the Lake Basin.



Thank You