

SWITCH PROJECT: ALEXANDRIA, EGYPT

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<http://switch.cedare.int/>



VISION & GOALS FOR URBAN WATER MANAGEMENT

We envisage a city where available water resources are managed in an integrated manner, with the participation of all citizens, and are used effectively for development within a framework of environmental sustainability, where all citizens have access to high quality (according to national norms), reliable, sustainable, and affordable water and sanitation services and benefit from a clean and healthy environment.



DEMONSTRATIONS

A panel of LA members was chosen to visit several sites to select an appropriate demonstration site according to LA developed criteria. A decision was made to select the fishing village (Maa'wa Elsayadien). Information pertaining to this specific area, including water and sanitation services was collected.

ALEXANDRIA LEARNING ALLIANCE



The Learning Alliance (LA) has already been formed with representatives from all the sectors in Alexandria.

LA Members

- Alexandria Governorate
- Ministry of Water Resources and Irrigation (MWRI)
- Drinking Water and Sanitation Holding Company for Egypt (under Ministry of Housing)
- Alexandria Company for Drinking Water
- Alexandria Company for Sanitary Drainage
- Ministry of Agriculture
- Egyptian Environmental Affairs Agency (EEAA) (under Ministry of State for Environmental Affairs)
- Ministry of Health
- Center for Environment and Development in the Arab Region and Europe (CEDARE) (City coordinator)
- NGOs (leading: Egyptian Water Partnership (EWP), and Friends of the Environment)
- Research Community in Alexandria (University of Alexandria, and National Institute for Ocean Sciences)
- Local community
- Consulting firms



MEASURING SUSTAINABILITY

- A clean and well managed aquatic environment (coastal zones and water bodies e.g. lake Maryout)
- Provided by a renewed and upgraded network
- With full separation of sanitation and (agricultural and rainwater) drainage networks
- With treatment and reuse of agricultural, industrial, and domestic wastewater
- With agricultural water use managed as part of a city whole wide integrated water management plan

ALEXANDRIA'S WATER SYSTEMS & PRESSURES

Alexandria City in the northern coast of Egypt is the most downstream city on the Nile River, with Egypt being the most downstream county on the Nile, which is shared by ten countries. Similar to the whole country of Egypt, the Nile River represents the main renewable source of water supplying over 95% of its water demand. Currently, Alexandria receives its urban water from the Nile. Inhabited by more than 4 million people, Alexandria resides on the Mediterranean coast, which makes it a summer destination. This increases its population in the summer to 6 million people, putting more pressure on the city's water demand. Although the city receives rainfall of about 200 mm/year, this storm water find its way into sewage systems, drains into the Mediterranean Sea without use, or seeps into the coastal groundwater aquifer through the now scarce infiltration areas of the city. Most of the city is covered with potable water supply networks, but many peri-urban and informal settlements lack sewage/sanitation coverage. Most of the city sewage is at least primary or secondary treated, however potential uses of this treated wastewater are yet to be explored in line with the country's National Water Resources Plan.



Issues and challenges

- Increase in water demand
- Collecting and separating storm water
- Groundwater use
- Grey water recycling
- Reuse of treated wastewater
- Water demand management
- Allocating the appropriate water resources to the appropriate water uses
- Exploring other non-conventional water resources such as sea water or brackish groundwater desalination
- Protecting water ways, and water bodies such as lake Maryout from pollution
- Nine low-income, peri-urban areas that remain un- or under-served with water and sanitation services
- Water as an element of urban design to develop attractive locations

FACTS & FIGURES

- Population according to Jan. 2007 Census: approximately 4 million.
- People that are served by drinking water in Alexandria (as of Dec. 2007): approximately 97% of population.
- People that are served by sanitation services in Alexandria (as of Dec. 2007): approximately 87% of population.
- Growth rate: 1.8%, with a population increase in the summer months to 6 million people

POTENTIAL FUTURE SCENARIOS

Worst case scenario

In 2037, Alexandria is a city characterized by:

- continued explosive population growth (summer population 12 million)
- a weak and stagnant economy
- low availability of Nile water which is 40% less than in 2007 (due to increased national water demand and/or climate change)
- increased risk of flooding (due to sea level rise)
- poor availability of financial resources.

Best case scenario

In 2037, Alexandria is a city which:

- has a population which has largely stabilised (at 8 million)
- is benefiting from a dynamic and fast growing economy
- has a guaranteed allocation of Nile water similar to that of 2007
- has a positive scenario related to climate change (with sea level rise minimum, and increased rainfall)
- benefits from the new vitality of the Egyptian economy which means that financial resources are readily available.

Business as usual

In 2037, Alexandria continues to be a city dealing with considerable uncertainty:

- population is 10 million, and continues to grow.
- national allocation of Nile water is 20% less than in 2007
- economic growth has been steady but unspectacular
- rising sea levels are starting to threaten some parts of the city.

RESEARCH FOCUS AREAS

- Storm water management
 - Grey water recycling
- Reuse of treated wastewater
- Water demand management

