

## SWITCH Alexandria City Story

### Description of the city and its water resources

Alexandria City in the northern coast of Egypt is the most downstream city on the longest river in the world, the Nile River, with Egypt being the most downstream country on the Nile that is shared among 10 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 the City of Alexandria receives its urban water from the Nile. Currently inhabited by more than 4 million people, the city of Alexandria resides on the Mediterranean coast, which makes it a summer destination, increasing its population in the summer to 6 millions people putting more pressure on the city's water demand. Although the city receives rainfall in 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 little-left 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.

### Main water pressures and issues

Satisfying the increasing water demand, developing local water resources, collecting and separating storm water and making use of it, along with 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, and protecting water ways, and water bodies such as lake Maryut from pollution are some of the challenging water management issues that puts pressure on the city of Alexandria.

In the city of Alexandria there are 9 low-income, peri-urban areas that remain un- or under-served with water and sanitation services. Though there are city and governorate level plans for extending or up-grading services to these areas, the involvement of residents / users from these marginalised areas of the city has been limited.

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### Learning Alliance members goals and aspirations

Overall objective of SWITCH-LA in Alexandria is to produce an Integrated Urban Water Management (IUWM) plan. This plan will address the above mentioned pressures and possible alternatives for solutions. It will try to build on the innovations developed in the SWITCH research activities and other demo cities, as well as those urban water management measures that will prove applicable for Alexandria.

LA member	Issues, goals and aspirations
Ministry of Water Resources & Irrigation (MWRI), Egyptian Water Partnership (EWP), Universities, Research Institutes	<b>Supply optimization</b> , including assessments of surface and groundwater supplies, water balances, wastewater reuse, and environmental impacts of distribution and use options.
EWP, MWRI	<b>Demand management</b> , including cost-recovery policies, water use efficiency technologies, and decentralized water management authority.
Peri-Urban Communities, NGOs	<b>Equitable access</b> to water resources through participatory and transparent management, including support for effective water users association, involvement of marginalized groups, and consideration of gender issues.
EWP, MWRI, Ministry of Environment (MOE), Alexandria Sanitation Company (ASC), Governorate of Alexandria (GOA)	<b>Improved policy, regulatory and institutional frameworks</b> , such as the implementation of the polluter-pays principle, water quality norms and standards, and market-based regulatory mechanisms.
MWRI, GOA, EWP, ASC, Universities, Research Institutes	<b>Intersectoral approach</b> to decision-making, combining authority with responsibility for managing the water resource

### **SWITCH in the City**

SWITCH has been introduced to the city of Alexandria to set the stage for Alexandria to be among the leading cities in implementing Integrated Urban Water Management (IUWM). An IUWM long term plan will be developed. The IUWM plan will address current problems and issues of urban water management in Alexandria including lack of sanitation coverage, industrial pollution and challenges facing the supply of water to a city that is located at the end of the Nile River system, which is considered the main renewable water resource of Egypt that supplies more than 95% of its demand.

The “Alexandria Integrated Urban Water Management (IUWM) Plan for year 2030) / A Vision for the Water Future of Alexandria” is envisaged to include futuristic thinking of the water supply and sanitation sector in Alexandria. It looks at how Alexandria can meet a large part of its future water demand locally without depending mainly on Nile Waters as it will be difficult in the future to meet the growing demands with increasing demand in the upstream part of the Nile in Egypt. It looks at making use of rainfall harvesting and storm water usage in Alexandria which receives little rain but can help in filling the demand gap. It looks at using groundwater while managing potential problems of salt water intrusion, with Alexandria being a coastal city. It looks at Water Demand Management measures that could be considered to reduce water requirements. It doesn't leave out the wastewater treatment and reuse options, the enforcement of regulations to prevent industrial pollution of water bodies.

## **Major activities and impact of SWITCH in first 12 months**

- 1- Planning & Startup of Activities (February 2006)
- 2- SWITCH Kick Off Meeting (Delft – April 2006)
- 3- Pre-Scoping Visit & Collection of Basic Information & Data
- 4- City Coordination Meeting (Hamburg - October 2006)
- 5- Scoping visit a SWITCH launching workshop (Alexandria - October/November 2006)
- 6- Communication with MSc Students and collection of data for their research (November/December 2006)
- 7- Prepare work plan and report on existing stat and communication with potential LA members and resource persons for demo city activities (December 2006)
- 8- Presenting SWITCH Project in Alex on regional Arab Satellite chann(Beat CEDARE Board of Trustees, and Members of the Arab Water Council, UNDP
- 9- SWITCH General Assembly Meeting & Presenting Paper on SWITCH in Alexandria at SWITCH Scientific Meeting (Birmingham, January 2007)
- 10-Hosting and Organizing Learning Alliance Facilitation Training (CEDARE- Cairo, January 2007)
- 11-Organizing the first Alexandria Learning Alliance Meeting (Alexandria, January 2007) where the following items where discussed:
  - Introduction of LA Members
  - Briefing on IUWM as it relates to Alexandria
  - Briefing on the SWITCH Project
  - Agreement on Current Urban Water Challenges in Alexandria
  - Agreement on Possible Solutions that can be addressed in an IUWM Plan
  - Agreement on Objective of Learning Alliance (Advisory Committee) on IUWM
    - Develop an IUWM Plan (Target Year ?)
    - Establish Demonstration Sites
    - Advise the Governor on IUWM
    - Scope of Work (City vs Governorate, Boundaries, ...etc)
    - Size, Members, Number of Meetings, Other Issues
  - Linking with Other Activities
    - National Water Resources Plan-NWRP (Egypt's IWRM Plan 2017)
      - Scaling Up to National Level
      - Piloting to Governorate Level
    - National Water MDGs Plan (2015)
    - WSS Master Plans (2037)
    - Lake Maryut Project
    - World Bank Project
    - Governorate Advisory Committee on Storm Water Management
  - Existing Urban Water Related Models
  - Existing GIS, Land Use Maps, Administrative Maps, Agr / Irrig Districts Maps
  - Agreement on Detailed Studies & Models needed
    - IUWM DSS for Planning Using Sustainability Indicators & Risk Measures
    - Mapping of the key functional & Geographical stakeholders
    - Financing & Cost Recovery (including recommendations for effective penalty collections/incentives systems, willingness to pay)
    - Financing Strategy & Plan for the WSS MDGs in Alexandria
    - Storm Water Management
    - Groundwater / Seawater Intrusion Modelling
    - City Website Development & IUWM communication Strategy Development

- Prioritizing Actions in the Alexandria Water Sector based on life-cycle analysis
- Demonstration Projects
- Opportunities for Cost Sharing
- Learning Alliance Facilitation
  - Learning Alliance Facilitation Training
  - Learning Alliance Facilitator Mandate
  - Procedures for Appointing Alexandria Learning Alliance Facilitator
  - Location of Operation of Learning Alliance Facilitator
- Expected Visioning Workshop (Alexandria, March / April, 2007)

12- SWITCH Impact on the City of Alexandria was reflected by:

- Agreement of the LA Members (Governorate/city, Water & Sanitation Companies & Holding Company, Researchers & Academics, NGOs, & Ministries) on the need to develop under the SWITCH project an Integrated Urban Water Management (IUWM) Plan & Vision for the City.
- Decision of the LA Members to link the SWITCH Alexandria City IUWM Plan to the National Integrated Water Resources Management (IWRM) plan of Egypt (NWRP).

#### **Linkages of SWITCH with other regional/city water initiatives**

- The SWITCH Project has established links with several activities and initiatives in Alexandria including:
  - National Water Resources Plan-NWRP (Egypt's IWRM Plan 2017)
  - National Water MDGs Plan (2015)
  - WSS Master Plans (2037)
  - Lake Maryut Project
  - "Alexandria Growth Pole" World Bank Project
  - Governorate Advisory Committee on Storm Water Management

#### **The NEXT 18 Months**

##### **Summary of the main points/focus of SWITCH activities in the next 18 months**

- ◆ Analysis of National Water Resources Plan
- ◆ Analysis of existing water planning process in city
- ◆ Analysis of existing sanitation planning process in city
- ◆ Joint concept agreed for an IUWM plan at city level
- ◆ Agree on scope of plan
- ◆ Put IUWM plans on national policy agenda
- ◆ Discussion paper (10-15 pages) on concept. A policy brief
- ◆ Draft list of data and indicators
- ◆ Agree on details of how plan will be produced and institutional roles
  - MDG financing strategy
  - Mapping of financial sources and cost recovery mechanisms
  - Institutional mapping (WP6.1 and 6.2)
- ◆ Develop principles for a city IUWM process (paradigm shift)
- ◆ Guidelines for preparing IUWM plans
- ◆ Vision/ scenarios Workshop and outline strategies report
  - Identify scope for institutional change (wp6.1)
  - Review of implications of institutional change on financing MDGs (wp6.4)
  - Evaluate implications of different institutional scenarios (wp6.1)
  - Water volumes, quality, and contaminant balance models for case studies (1.2)
- ◆ Test using guidelines in Alexandria
  - Tools, model, indicators, ready for first evaluation of base case and

- scenario
    - Link of impacts of demos on the overall city planning
    - City GIS
- ◆ Strategic plan
- ◆ An IUWM plan for Alexandria that is owned by local stakeholders and subsequently implemented
  - Evaluate planning process in Alexandria and revise guidelines
  - Assist with implementation of adopted institutional change (wp6.1)
- ◆ Under the "Social Inclusion" Work Package 6.3 activities in Alexandria in the next 18 months will be:
  - to link with work packages 6.2 (Learning Alliances), 6.4 (Finance & Cost Recovery), and 1.1 (Sustainability Indicators)
  - to identify all the stakeholder groups, with specific attention to those groups currently under-served, for improved integrated urban water management
  - to conduct a participatory needs identification and prioritisation with those groups
  - based on the outcomes of the prioritisation activity, to plan pro-poor measures that seek to enhance the opportunities for these stakeholders' participation in the Learning Alliance decision making processes
  - to develop a locally tailored assessment methodology for measuring the impact of the pro-poor measures with regards to technical, economic, social, environmental, etc indicators.

## **Issues to be addressed**

### **1. Water Supply and Sanitation:**

- Making use of rainfall harvesting and storm water usage in Alexandria.
- Making use of groundwater while managing potential problems of salt water intrusion.
- Water Demand Management measures that could be considered to reduce water requirements.
- Wastewater treatment and reuse options
- The enforcement of regulations to prevent industrial pollution of water bodies.
- Emphasis on ensuring that the poor are served;
- Commercial viability of utilities;
- Separation of provider and regulator;
- Increasing role of the private sector through a variety of methods, ranging from management contracts to full privatization;
- Developing approaches which distinguish between the large city and the peri-urban areas;
- Emphasis on transparency of process
- Reforming legal and institutional frameworks;
- Capacity building for regulators;
- Growing emphasis on increasing sanitation and sewerage coverage;

### **2. Environment**

- Promote better policy, regulatory, and institutional frameworks for sustainable

environmental management;

- Greater attention to rights and market-based instruments;
- Attention to possible climate change impacts;
- Promotion of Strategic Environmental Assessments to move "upstream" in the decision-making cycle;
- Promoting environmentally and socially sustainable private sector development;
- Focusing on the positive linkages between poverty reduction and environmental protection;
- Focus first on local environmental benefits, and build on overlaps with broader benefits;

### **SWITCH goals and objectives – Impact to be realised**

- **An effective partnership for knowledge sharing in urban water management in Alexandria and Egypt.** To support the development of the IUWM plan and demonstration activities, a learning alliance involving key city (but also national and neighborhood level) stakeholders would provide a platform to identify detailed research needs, undertake joint research activities and share results. It would also collate and make accessible existing knowledge and best practice, document case studies and accessible policy briefs targeted at decision makers (English and Arabic language), develop a city urban water management website and newsletter, and hold regular conferences, workshops and other events. The learning alliance would facilitate two key activities that have been provisionally identified:
  - a. IUWM planning
  - b. piloting development-scale IUWM approaches
- **An integrated urban water management plan for Alexandria that is owned by key stakeholders and is implemented.** This activity would support the Governorate and other key institutions to develop a plan for integrated urban water management up till 2017, and possibly a vision for IUWM up till 2037, identifying scenarios, strategies and plans for more sustainable, less risk-prone and more equitable water management that supports city development. The plan would be consistent with the National Water Resources Management Plan (which envisions the development of local plans) and existing sector plans in Alexandria (water and sanitation master plans are currently being developed to 2037). However there is currently no integrated planning or innovative urban water management measures taking place at the city scale. Implementation would depend on alignment and adding value (without duplicating existing plans and planning processes). SWITCH's role would be to provide an integrated planning methodology, framework/ principles, mentoring/ facilitation/ backstopping support etc. Potentially the planning methodology could be scaled up to other cities in Egypt.
- **Development of sustainable neighborhood-scale integrated urban water management demonstration Projects.** Options to move towards closed loop systems that minimize water use, recycle water, improve aesthetics and public health, include institutional and governance systems, and are feasibly

operational, and financially viable will be explored for both areas. The project will involve piloting of the most appropriate technologies and strategies for water sensitive design including decentralized wastewater treatment, demand management, rainwater harvesting and water reuse. SWITCH could provide options and support demonstration projects to promote more sustainable service delivery and improved urban development in sensitive environments that reduces the burden of new development on water resources, utilities and the environment. In the slum area, SWITCH would focus on providing options and facilitating planning of upgraded basic infrastructure (water, sewerage and drainage, and possibly solid waste management to protect open water bodies from pollution) and decentralized wastewater treatment to improve the environmental health of the community and reduce pollution impacts on water bodies such as lake Maryut.

### Learning Alliance Activities

Activity	Specific objective	Task	Deliverables	Milestones
Hire LA Facilitator	Facilitate Learning Alliance Formation and Effectiveness	Facilitate preparation of LA meetings, Document LA Meetings Outcomes, Maintain a City Website,	<ul style="list-style-type: none"> <li>• Up to Date IUWM City Website</li> <li>• LA Meetings Reports</li> <li>• Consultants hired to undertake studies</li> <li>• Training Activities Facilitated</li> </ul>	Feb 2007
2 <sup>nd</sup> LA Meeting on SWITCH approach & scenario planning (March 2007)	Plan Visioning Workshop on SWITCH approach & scenario planning	Define Issues & Problems	List of Issues	March 2007
Visioning Workshop on SWITCH approach & scenario planning (April 2007)	Identify UWM challenges, possible measures, and indicators for sustainability		<ul style="list-style-type: none"> <li>• Conceptual Model for a DSS on IUWM in Alexandria</li> <li>• Ideas for Alexandria City IUWM Vision</li> </ul>	April 2007
Stakeholder Analysis in Alex	Development of a framework of stakeholder entitlements and obligations		<ul style="list-style-type: none"> <li>• Report on Stakeholder Analysis in Alex</li> </ul>	April 2007
Develop Alexandria IUWM Vision & IUWM Plan TOR (May 2007)		Compile ideas to formulate a vision for IUWM in the city, and the steps towards developing an IUWM Plan	Alexandria IUWM Vision Concept, IUWM Plan TOR	May 2007
City Website Development & Communication Strategy Training		Attend City Website & Communication Training in Delft		May 2007

UNESCO-IHE Conference	Disseminate Information on SWITCH in the Cities	Present Paper on SWITCH Alexandria IUWM at Conference	Published Paper on SWITCH IUWM in Alexandria	June 2007
Report on Alex IUWM Vision and plan			IUWM Vision & TOC for IUWM Plan	June 2007
3rd LA meeting "Discuss Social Inclusion in IUWM Planning & institutional mapping	Discuss Social Inclusion in IUWM Planning, and Institutional Mapping in relation to IUWM		TOR for Social Inclusion Study in IUWM, and TOR for Institutional Mapping in Alexandria	June 2007
Report on Institutional mapping report in Alex & Social Inclusion Study in IUWM				July 2007
Workshop on Social Inclusion in IUWM				July 2007
Report on institutional analysis focusing on the challenges in working towards a paradigm shift and institutional change				August 2007
4th LA meeting on Discuss WDM measures	Discuss Water Demand Management Measures	Prepare for WDM Training, TOR for WDM Study in Alexandria		September 2007
1 <sup>st</sup> WDM Training (October 2007)	Train Alexandria & Other cities Professional on WDM, Put WDM on the Political Agenda	Select Professionals to be trained, Provide WDM training	WDM Trained Professionals	October 2007
IUWM City Website			Alexandria IUWM Website	October 2007
Prepare WDM Potential Report in Alexandria (November 2007)			WDM Potential Report	November 2007
5 <sup>th</sup> LA Meeting Discuss Storm Water Management & Potential (December 2007)	Discuss Storm Water Management & Potential		TOR for Storm Water Study in Alexandria	December 2007
2 <sup>nd</sup> Component of the WDM Training (January 2008)	Complete WDM Training of Professionals, Get Preliminary Indications on WDM Potential in Cities	Provide Training, Compile WDM preliminary data, Analyse data, Recommend best WDM measures for cities	Trained Professionals, Recommendations for Feasible WDM measures at city level	January 2008



Prepare Storm Water Reuse Potential Report			Storm Water Reuse Potential Report	February 2008
6th LA Meeting on discussions on Wastewater Reuse Measures	Discuss Wastewater Reuse Measures		TOR for Wastewater Reuse Study	March 2008
Prepare Interim Report on Decision Support System			Interim Report on DSS in Alexandria	April 2008
Prepare Report on Wastewater Reuse			Report on Wastewater Reuse Potential in Alexandria	May 2008
7 <sup>th</sup> LA Meeting (June 2008)	Cost Alternative Policy Measures		TOR for Water Cost Recovery Study	June 2008
Prepare Report on Water Cost Recovery Study			Report on Water & Sanitation Cost Recovery in Alexandria	July 2008
Water Awareness workshop (end users, gender, NGOs)			Alexandria IUWM Awareness Workshop	July 2008

### Research activities

- Egypt has a flourishing tannery industry, much of it is concentrated in Alexandria. The tannery industry is heavily polluting and, consequently, needs significant improvement in its environmental conduct. Similar situations exist in many countries. One of such countries is Colombia where, over the past 4 years, environmental improvements attempts have been made following the resolution of environment conflicts which allowed institutions and industries to arrive at speaking terms. The hypothesis is that the approach to resolve conflicts and to improve the tannery industry, followed in Colombia, is not country specific. In order to test this hypothesis, the approach will be transferred to a tannery community in Egypt, possibly in Alexandria. An Egyptian MSc-student from UNESCO-IHE, Mrs. Hanaa Khalil Ali, attended SWITCH launching Workshop in Alexandria and met with CEDARE representative as the City Coordinator who facilitated her data gathering in Alexandria. She worked to prepare the grounds by establishing the baseline process-technological and environmental status of the tanneries, determining tanneries potentially interested in cooperation. She will be establishing provisionally the potential environmental improvement based on the success of implementing some of the Colombian tannery improvement measures.
- A research work will be conducted in Alexandria by an IHE MSc student from Egypt (Mr. Mohammed Maghoub), in coordination with the LA and the CEDARE City Coordinator. The research will build a conceptual model/ map of the city, in which all elements (like water treatment plants, pumping stations and wastewater treatment plants) will be described (location, energy use, water quality). All this information will be used to carry out a Life Cycle

Analysis to quantify the overall environmental impact of the urban water system. Time allowing, also a Life Cycle Costing study will be carried out. Qualitatively, also social impacts of various scenarios will be described.

- Together with the LA and the support of Theme 1 researchers (coordinated by Prof. Dionysus, Athens) a workshop will be organised in Alexandria in early 2007. The objectives of this workshop will be developed together with the partners (and possibly the LA) itself. In general terms the workshop objective will be to 1) develop a number of sustainability indicators 2) to develop a consensus on the role sustainability and risk indicators could play in planning and decision making in Alexandria 3) to explore what type of decision support system would be feasible for use in Alexandria. The outputs of the workshop will be used to define further actions. These actions will be coordinated and to a certain extent carried out by the team from Athens, UNESCO-IHE, CEDARE, IRC, and the Alexandria LA. It will include the development of models that will be coupled with decision making tools in a framework of a Decision Support System, fit for use by the LA. At the end of month 18 the features of the DSS will be clear and agreed, as well as the data and software requirements. Development of the DSS will start in month 19, in close cooperation with CEDARE and the Alexandria LA, and at the end of month 30 a first draft will be ready.
- Some Research activities will take place in partnership between CEDARE, EPFL, and the Alexandria LA, in the area of GIS-based DSS for IUWM.
- Work package (6.1) Governance for integrated urban water management
  - Task 1: Literature review of the theory and practice of 'good governance'
  - Task 2: Development of institutional, governmental and social organization maps including, mapping of Technologies, Institutions, and government structures for UW
  - Task 3: Stakeholder analysis, and Development of procedural equity guidelines and criteria for stakeholder engagement in IUWM
  - Task 4: Testing of stakeholder communication tools, through development of hand book of appraisal and communication tools to assist conflict resolution, communication strategy and website
  - Task 5: Theoretical consideration and Evaluation of institutional cooperation and coordination approaches and their application to IUWM
  - Task 6: Identification of Barriers and opportunities and organizational arrangements for IUWM
  - Task7: Development of generic guidelines for IUWM
- Work package (6.2) Learning Alliances
  - Task 1: To identify research needs and possible demonstration projects based upon participatory problem and needs assessment within demonstration cities, and modify action plans for implementation of LAs within Alex linked to all theme and sub-themes.
- Work package (6.3) Optimizing Social Inclusion

- Task 1: Survey of existing local 'best' practices and cases including state of art and base line reports from Alex
- Work package (6.4) Financing, cost recovery, and institutional models
  - Task 1: develop a conceptual framework for evaluating the financial side of the relevant infrastructure in the demo projects
  - Task 2: Develop conceptual framework for evaluating the financial side of the relevant infrastructure in the demo projects in Alex, including the role of the private sector, cost of impact study report, and develop costing methodology for achieving the Water MDGs

The following table shows some of the research activities linking Working Packages to Tasks, and Partners involved.

*Table on specifics of work activities (work packages to contribute)*

Work package	Specific objective	Task	Deliverables	Milestones	Lead Partner
1.1		<ul style="list-style-type: none"> <li>● Modelling of Alex water supply, Modelling and developing DSS, Sustainability, Risk, etc.</li> <li>● Prioritising Actions in the Alexandria Water Sector based on life-cycle analysis</li> </ul>	DSS for IUWM in Alexandria, MSc thesis		UNESCO-IHE CEDARE Athens University IRC
1.4	Use GIS tools to assist in IUWM Planning	Develop GIS indicators and tool for IUWM planning	GIS-Based Decision Support Tool		EPFL CEDARE
4.2	Tanneries & Cleaner Production		MSc Thesis		UNESCO-IHE CEDARE
6.1	recommendations for effective IUWM	Mapping of the key functional & Geographical stakeholders, & Institutions	Report on Institutional Mapping in Alexandria		MU CEDARE
6.2	Learning Alliances	In addition to the tasks mentioned above under LA activities, there will be a need to perform several research studies at the City Level	Assessment of Alexandria's Potential Non-conventional Water Availability & Feasibility of: <ul style="list-style-type: none"> <li>●WDM</li> <li>●Storm Water</li> <li>●Treated Domestic Wastewater Reuse</li> <li>●Grey Water</li> <li>●Groundwater Use</li> </ul>		IRC CEDARE

			<ul style="list-style-type: none"> <li>•Agriculture Drainage</li> <li>•Treated Industrial Wastewater</li> </ul>		
6.3	Optimising Social Inclusion – measuring the impact of pro-poor, participatory approaches		Stakeholder Analysis Report in Alexandria		IRC CEDARE
6.4		<ul style="list-style-type: none"> <li>• Financing &amp; Cost Recovery (including recommendations for effective penalty collections/incentives systems, willingness to pay).</li> <li>• Financing Strategy for the WSS MDGs in Alexandria</li> </ul>			1.University of Greenwich 2.IRC 3.CEDARE

### Demonstrations

- Demonstration activities in two contrasting areas would focus on developing more sustainable water management schemes.
  - a. One area could be in a prime real estate planned for mixed development of housing, retail, business and leisure properties on an old part of lake Maryut that has been cut off by road construction and where the land is being reclaimed (adjacent to the Carrefour supermarket), where high end water demand management and recycling technologies could be demonstrated
  - b. The second area could be a slum (e.g. Fisherman's Village) or a village (e.g. Abees Village) currently with inadequate official and community-developed sewerage systems.

### Training plans

Although training funds required are still to be sought, the following training activities for the staff from Alexandria will need to be undertaken through out the remaining period of the project:

Training activity	Purpose	Target audience	Type of materials/delivery	Deliverable
1. Storm Water Management (08)	Effective IUWM, Paradigm Shift in UWM	Water & Sanitation Companies, Holding Company, MWRI Planners, MoH Planners, Governorate / City Specialists	Course Material, Presentations, Models	Trained Specialists
2. Groundwater /	Effective	Water &	Course Material,	Trained

Seawater Intrusion Modelling (08)	IUWM, Paradigm Shift in UWM	Sanitation Companies, Holding Company, MWRI Planners, MoH Planners, Governorate / City Specialists	Presentations, Models	Specialists
3. IUWM Planning (08)	Effective IUWM, Paradigm Shift in UWM	LA Members	Course Material, Presentations, Models	Trained Specialists
4. City Website Development & IUWM communication Strategy Development (07)	City Public Awareness, Replication in other Cities, Public Support to IUWM	LA Facilitator, City Coordinator Assistants	Course Material, Presentations, Website Development Software	Trained Specialists, Effective IUWM City Communication Strategy
5. Learning Alliance Facilitation (07)	Efficient Administration of LA	Potential LA Facilitators	Course Material	Trained Specialists
6. GIS/DSS/Modeling (08)	Effective IUWM, Paradigm Shift in UWM	Water & Sanitation Companies, Holding Company, MWRI Planners, MoH Planners, Governorate / City Specialists	Course Material, Presentations, Models	Trained Specialists
7. WDM (07)	Effective IUWM, Paradigm Shift in UWM	Water & Sanitation Companies, Holding Company, MWRI Planners, MoH Planners, Governorate / City Specialists	Course Material, Presentations, Models	Trained Specialists
8. Financing & Cost Recovery (09)	Water Equity, & Mobilizing Resources for O & M	Water & Sanitation Companies, Holding Company, MWRI Planners, MoH Planners, Governorate / City Specialists	Course Material	Trained Specialists
9. Stakeholder Involvement (07)	More Social Inclusion in Decision Making	Learning Alliance Members	Course Material	Trained Specialists

## Dissemination activities

Dissemination activity	Purpose	Target audience	Deliverable
Press Releases	Get Public Support to SWITCH innovative ideas	General Public	Press Releases
TV Interviews	Get Public Support to SWITCH innovative ideas	General Public	TV Shots
Radio Interviews	Replicate SWITCH in other Cities	General Public	Radio Shots
Newsletters	Create Awareness on IUWM	Specialists	Newsletters
Publish Papers at Conferences	Create Scientific Support to IUWM	Researchers	Articles
Website Home Page	Provide IUWM tools and methodologies to a bigger audience	Professionals & General Public	Web Pages

## SWITCH Alexandria City timeline of activities (all activities including research, demos, training, and LAs.)

February (07)	<p>Recruitment of City Facilitator (Alexandria)</p> <p>Setup &amp; Operation of SWITCH City Office</p> <p>Finalize City Workplan</p> <p>Mapping of Stakeholders</p> <p>Overview and action planning for optimizing social inclusion start-up activities (6.3)</p> <p>Field visit for MDG Financing Strategy</p>
March	<p>2<sup>nd</sup> LA Meeting on SWITCH approach &amp; scenario planning</p> <p>Water Supply/Demand Projections</p> <p>Needs prioritization and detailed pro-poor action planning for social inclusion (6.3)</p> <p>Prepare Alexandria IUWM Plan TOR</p> <p>Finalize Methodology for MDG assessment and financing strategy</p> <p>MDG assessment &amp; costing model</p> <p>Document local Best Practices (cases &amp; methodologies) for optimizing social inclusion (6.3)</p>
April	<p>Visioning Workshop on SWITCH approach &amp; scenario planning</p> <p>Stakeholder Analysis in Alexandria</p>
May	<p>Develop Alexandria IUWM Vision &amp; IUWM Plan TOR</p> <p>City Website Development &amp; Communication Strategy Training</p> <p>Alexandria IUWM Planning Stakeholder Participation Workshop</p>
June	<p>UNESCO-IHE Conference</p> <p>Report on Alex IUWM Vision and plan</p> <p>3rd LA meeting "Discuss Social Inclusion in IUWM Planning &amp; institutional mapping</p> <p>Methodology development and training for impact assessment of optimizing social inclusion activities (6.3)</p>
July	<p>Report on Institutional mapping report in Alex &amp; Social Inclusion Study in IUWM</p> <p>Workshop on Social Inclusion in IUWM</p>

	Develop the MDGs Financing Strategy
August 2007	Report on institutional analysis focusing on the challenges in working towards a paradigm shift and institutional change
September	4th LA meeting on Discuss WDM measures
October 2007	1 <sup>st</sup> WDM Training
October 2007	Develop IUWM City Website
November	Prepare WDM Potential Report in Alexandria
December	5 <sup>th</sup> LA Meeting Discuss Storm Water Management & Potential
January 2008	2 <sup>nd</sup> Component of the WDM Training
February	Prepare Storm Water Reuse Potential Report
March 2008	6th LA Meeting on discussions on Wastewater Reuse Measures
April 2008	Prepare Interim Report on Decision Support System
May 2008	Prepare Report on Wastewater Reuse
June 2008	7 <sup>th</sup> LA Meeting
July 2008	Prepare Report on Water Cost Recovery Study Water Awareness workshop (end users, gender, NGOs) Recruit Alexandria IUWM Plan Consultant to identify scope and cost out possible Demonstration Projects
July 2008	Develop TOR for detailed Plan for City Demonstration Projects

### Links to other areas of the SWITCH DOW

Work package	Partners	Task
1.1	UNESCO-IHE, NTUA, CEDARE, IRC	Modelling of Alex water supply, Modelling and developing DSS, Sustainability, Risk, etc. Prioritising Actions in the Alexandria Water Sector based on life-cycle analysis
1.4	EPFL, CEDARE	Develop GIS indicators and tool for IUWM planning
4.2	UNESCP-IHE, CEDARE	Research Activities related to Tanneries and cleaner production to protect Alexandria's water resources against pollution
6.1	MU, CEDARE, IRC	Mapping of the key functional & Geographical stakeholders, & Institutions for effective IUWM
3.1, 6.2	CEDARE, IRC, WEDC	In addition to the tasks mentioned above under Learning Alliance activities, there will be a need to perform several research studies at the City Level in assessing potential for WDM, storm water use, wastewater reuse, groundwater conjunctive use, grey water recycling
6.3	IRC, CEDARE	Optimising Social Inclusion – measuring the impact of pro-poor, participatory approaches
6.4	Greenwich University, CEDARE	Financing & Cost Recovery (including recommendations for effective penalty collections/incentives systems, willingness to pay) Financing Strategy for the WSS MDGs in Alexandria