MEDITERRANEAN COMPONENT of the EU Water Initiative (MED EUWI)

Strategic Partnership on Water for Sustainable Development

Lead Country: Greece

MED EUWI Egypt Country Dialogue on Water

Brief policy document outlining the Dialogue’s key findings:

Financing water supply and sanitation in the Greater Cairo area

April 2009
MED EUWI Egypt Water Policy Dialogue

**Key issues addressed in the dialogue**

- Is there a financing gap in the Water Supply and Sanitation Sector (WSS) in Greater Cairo?
- If so, then how big is it?
- How will it develop in the period to 2026 if no decisive policy action is undertaken?
- What are the different options for closing the financing gap?

These are the questions that this Policy Dialogue has aimed at answering. The dialogue involved key policy makers from various parts of the Egyptian Government, including MoHUUD, HCWW, MoFin, MoEcoDev, MoSocial Solidarity, the Greater Cairo Water and Wastewater Companies, as well as key donors, NGOs and IFIs. The financial gap analysis is using the FEASIBLE financial model developed by the OECD and Denmark, and uses data that has been provided by the Ministries and institutions that participated in the dialogue.

**Key conclusions**

- If no policy action is taken and under-funding continues, the Greater Cairo area water infrastructure and related services will significantly deteriorate over the next 20 years.
- This is due to very low user charges, a serious backlog of investment accumulated over past decades, and a strongly projected demographic growth over the next 20 years that will require significant investment.
- Measures to increase efficiency can help to reduce the overall system costs, but not sufficiently to close the financing gap.
- User charges play a minor role in contributing to the financing of the sector, but there is significant potential in increasing their contribution.
- User charges could be raised to cover all operation and maintenance costs without affecting affordability for the poor.
- However, achieving full cost recovery from tariffs, including all operation, maintenance and capital costs may be possible to achieve in the more distant future, due to the affordability problems that this would cause to the population.
More analytically, the key conclusions entail the following:

- **If no policy action is taken and under-funding continues, the Greater Cairo area water infrastructure and related services will significantly deteriorate over the next 20 years**

Existing water and sanitation infrastructure in the Greater Cairo area is rather extensive, with high levels of coverage in water and sanitation services (92 and 98% respectively), but infrastructure and service levels suffer from a number of shortcomings, including insufficient wastewater treatment, high levels of leakage, and excessive domestic water consumption (237 l/cd compared to 120 l/cd in most of the EU countries) combined with low levels of household-level metering.

**Chart 1  Financing gap, WSS sector in Greater Cairo, Baseline Scenario, selected years**

These problems are compounded by significant under-funding of the sector over past decades, leading to insufficient maintenance of existing infrastructure, the accelerated deterioration of assets and ultimately the deterioration of services. Chart 1 shows the dramatic increase of the financing gap over the next 20 years if no corrective policy action is undertaken and sector funding from user charges and the public budget continue in line with past trends.\(^1\)

- **This is due to very low user charges, a serious backlog of investment accumulated over past decades and a strongly projected demographic growth over the next 20 years that will require significant investment**

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\(^1\) i.e. if they increase in line with projected growth of GDP over the next 20 years.
The total financing gap over 20 years amounts to EGP 169.2 billion (EUR 23.6 billion) or EGP 532 per capita (EUR 74 per capita). The financing gap increases almost 45% in the period 2006-2026. The reasons for this development are the following:

- User charges do not nearly cover O&M costs in any of the two sub-sectors. They account for only 11% of the total available finance (see chart 2 for water supply). The state budget accounts for as much as 83%.²

- A serious backlog of investment into the rehabilitation of existing infrastructure exists in water supply. This sub-sector has suffered from underinvestment for many years.

- Demographic growth increases total expenditure needs if coverage and service levels are to remain at current levels.

Chart 2   Financing gap, overview, water supply, 2006-2026 (selected years)³

- Measures to increase efficiency can help to reduce overall system costs, but not sufficiently to close the financing gap

In a scenario conceived to improve water and sanitation services compared to the current situation, it is shown that a series of efficiency measures would allow lowering overall system costs by 19%. The assumed efficiency measures are to reduce domestic water consumption

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² So-called indirect revenues from non-core activities account for 7%. Indirect revenues from non-core activities are not considered a sustainable source of financing and therefore not included in calculations.

³ Investments are broken down by re-investments (made to compensate for the annual loss of value to wear and tear) and new investments (made to add to the capital stock). New investments are also referred to as service extension.
(from 237 lcd in 2006 to 150 lcd in 2026), to reduce water losses (from 23% in 2006 to 10% in 2026), and to increase pumping efficiency (from 40% in 2006 to 70% in 2026). The scenario in which these efficiency measures were considered also assumed improvements in service levels, i.e. increasing wastewater treatment to 100% biological in 2026, increasing connection rates for water supply (from 92% in 2006 to 98% in 2026), reducing discharge of untreated wastewater (from 27% in 2006 to 0% in 2026), and increasing bill collection rates (from 48% in 2006 to 95% in 2015).

The reduction in water losses is a good example: Simulations assumed that approximately 6,300 km of pipes of the old distribution network with the highest leakages rates would be replaced and rehabilitated. The total costs hereof are approximately EUR 400 million. Furthermore, total costs of pro-active leak detection equipment are EUR 100 million. Thus, a total investment of EUR 500 million is required. However, such an investment leads to a reduction in expenditure needs of EUR 1.4 billion (over 20 years) due to reduced O&M costs and re-investments.

- **User charges play a minor role in contributing to the financing of the sector, but there is significant potential in increasing their contribution**

The reasons why user charges play a minor role are twofold. First, bill collection rates are currently low (at about 50%), even though they have increased in recent years from even lower levels. Second, user charges are low compared to international benchmarks. On average user charges represent less than 1% in household expenditure, which is well below the frequently used affordability limit of 4%. In Greater Cairo, domestic user charges amount to 0.04 USD/m³ (for a 10 m³ consumption). For comparison, in Istanbul they amounted to 1.65 USD/m³ in 2007.

The tariff setting system within the WSS sector in Egypt has remained unchanged since 1992. Residential user charges have featured a two-block structure, with a 30 m³ per month consumption limit for the first block (equivalent to as much as 200 lcd in a household with 5 persons). This first block is priced significantly below unit costs and is meant to make a basic quantity of water affordable to the population.

The Egypt Water Policy Dialogue spent much attention on determining a tariff scenario that would generate significant additional revenue and at the same time remain affordable to the population. The stakeholders involved in the Dialogue recommended establishing a lifeline consumption level of 100 lcd in Egypt. The World Health Organisation considers this lifeline consumption level as adequate to meet an adult's vital needs for water (drinking, hand washing and bathing, cooking, laundry and toilet flushing). The current domestic water consumption level in Greater Cairo of 237lcd is well in excess of the 100 lcd lifeline consumption level decided upon.

Furthermore, stakeholders recommended that an affordability level of 2% of household income at the lifeline consumption level of 100 lcd should not be exceeded.

- **User charges could be raised to cover all operation and maintenance costs without affecting affordability for the poor**
This guidance has been factored into tariff simulations to close the financing gap and would result in a three-fold increase of the lifeline tariff and a near seven-fold increase in the second block tariff, over a period of ten years to ensure a smooth transition. Higher prices in turn are expected to result in a demand-response leading to a significant reduction in water demand to an average consumption of 154 lcd (down from 237 lcd). This tariff scenario would ensure that low-income households would not pay more than 2% of their income for water services, and therefore not require any public subsidies to support the poor. This tariff scenario would allow to generate sufficient revenue to cover all operation and maintenance costs, but would not cover any capital costs, which represent 75% of funding needs.

A willingness-to-pay study conducted in Cairo in 1995 found that residents of low-income areas were willing to pay nearly five times the average monthly bill for piped water service and twice as much for reliable service. This report also notes that in real (inflation-adjusted) terms, people in 1995 were paying twice what they pay now. This combined with the relatively low levels of people living in “extreme poverty” in the Greater Cairo area (0.7% of the population in Cairo and Alexandria compared to 3.8% at the national level) suggests that such a tariff scenario should be socially and economically feasible.

However, this option would pose serious affordability problems to the state budget. State investments will double throughout the period - from a little more than EGP 6 billion to a little less than EGP 12 billion annually. In other words, state investments will continue to grow, and spending levels will become even higher than they are today. Current public spending levels are already high in comparison with other sectors, such as education and health, and it is unlikely that the State budget will be able to sustain even these levels. State investments into the WSS sector in Greater Cairo amounted to EGP 2.3 billion in 2006/2007, corresponding to 9.1 % of total state investments and 34.0 % of all state investments into the WSS sector in Egypt that year. For comparison, state investments in education and health accounted for 9.8 % and 5.6 %, respectively, of total state investments.

- **Achieving full cost recovery from tariffs, including all operation, maintenance and capital costs may only be possible in the more distant future, however, due to the affordability problems that this would cause**

Full cost recovery would require even steeper increases in domestic user charges - by a factor of 12 for 1st block tariffs (lifeline tariffs) and a factor of 29 for 2nd block tariffs compared to current tariff levels. These increases are expected to be partly compensated by reduced demand, but they will pose serious affordability problems to the population. For low-income households, the share of household income that is spent on water and sanitation would reach 5.1 % in 2018, and for middle-income households, 3.4 %. These shares are well above the affordability level of 2 % at the lifeline consumption level of 100 lcd agreed upon by Egyptian policy-makers in the framework of the Dialogue. As a consequence, there would be a need to provide income support from social protection programmes to an estimated 94% of population in order to ensure

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4 The demand response is an estimate as no demand-elasticity figures are available. The estimate builds upon experience in other countries that have introduced significant price increases.
continued access to water services. Total income support in the period to 2026 would amount to EGP 27.8 billion (EUR 3.9 billion).

Table 1  

WSS expenditures as % of household expenditure, low income households, at different cost recover levels$^{1,2}$

<table>
<thead>
<tr>
<th>Years</th>
<th>Full cost recovery</th>
<th>User charges cover all except new investment</th>
<th>User charges cover O&amp;M</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010-11</td>
<td>0.7 %</td>
<td>0.7%</td>
<td>0.5%</td>
</tr>
<tr>
<td>2012-13</td>
<td>1.1 %</td>
<td>1.0%</td>
<td>0.6%</td>
</tr>
<tr>
<td>2014-15</td>
<td>1.9 %</td>
<td>1.7%</td>
<td>0.8%</td>
</tr>
<tr>
<td>2016-17</td>
<td>3.1 %</td>
<td>2.7%</td>
<td>1.0%</td>
</tr>
<tr>
<td>2018-2026</td>
<td>5.1 %</td>
<td>4.3%</td>
<td>1.3%</td>
</tr>
</tbody>
</table>

Note:  
1) Low income households spend less than EGP 12,500 annually.  
2) Different recovery options assume that tariff increases would occur gradually over a ten year period, so as to reach the cost-recovery target in 2018. Furthermore, all options assume that state budget support for O&M is phased out in the period to 2018. After 2018, public budget subsidies would only be used for investment.