The purpose of the municipal water and wastewater financing strategy for Georgia is to determine a realistic, agreed and affordable service and to demonstrate how environmental expenditure can be financed. The water and wastewater financing strategy has been developed in an iterative process in a dialogue with the finance, environmental and other relevant authorities. This report presents the final contribution by the consultant.

Municipal Water and Wastewater Sector in Georgia, Environmental Financing Strategy
Submitted to the Government of Georgia
This report was prepared by COWI Hungary in association with COWI AS. The work was financed by the Danish Environmental Protection Agency (DEPA) as part of the Danish Cooperation for Environment in Eastern Europe (DANCEE). The work was coordinated by a DEPA steering committee also comprising representatives of the Organisation for Economic Cooperation and Development (OECD) and the beneficiary ministries. The opinions expressed are those of the consultant. The Danish Ministry of Environment – Danish Environmental Protection Agency (DEPA), the OECD EAP TF and the beneficiary ministries may not agree with these opinions.
Municipal Water and Wastewater Sector in Georgia, Environmental Financing Strategy

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DEPA/DANCEE
Danish Environmental Protection Agency
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1 Introduction

Environmental expenditure needs and finances

This environmental financing strategy elaborates the need for environmental expenditure that follows from specific, measurable, agreed, and time-bound environmental policy targets. The environmental financing strategy contrasts these environmental expenditure needs with the supply of environmental finance that can be raised and the environmental "service" level, which the country can support in the long run from user charges (for environmental services) and public budgets.

Quantitative assessments for realistic planning and attracting finance

The environmental financing strategy is based on cost modelling and quantitative analysis. For this purpose, a costing and finance decision support tool was developed. In consultation with the advisory committee, the project team and representatives of the Ministry of Environment have used the tool extensively to develop the scenarios which demonstrate the consequences of alternative policies and environmental targets.

There are two immediate objectives for these background analyses and the cost modelling tool for the environmental financing strategy, viz:

• To serve as a realistic planning tool at national (strategic) level;

• To be a vehicle for attracting additional finance for environmental purposes through the establishment of specific, measurable, agreed, realistic and time-bound targets and quantitative illustration of the financing requirements to meet these.

Focus is on water and sanitation

The environmental financing strategy focuses on needs within the water supply and wastewater sector. This is in line with the priority of the Georgian National Environmental Action Programme.

The sectoral approach of the financing strategy reflects the policy focus on public budgetary expenditure for environmental infrastructure. Urban water quality problems were identified as a serious public health threat for the Georgian population in the NEAP. Municipal water and wastewater management is the area where public investment financing needs are heavy and public budgetary finance plays an important role.

Government finances dominate nature conservation expenditure as well but there the investment expenditure needs are lower and preserving nature is not
directly linked to public health threats. Solid waste management is an emerging new environmental policy target but lack of data makes it more time-consuming to develop a financing strategy for it. In air quality protection, the dominant financing responsibility lies directly with the private sector. While transport related local air pollution constitutes a serious human health threat preventive measures must be financed by vehicle owners.

1.1 Beneficiaries and target group

Composition of advisory committee

This paper presents the background analyses prepared for the environmental financing strategy for Georgia. The environmental financing strategy was developed in close co-operation with the project advisory committee. The project advisory committee was chaired by the Ministry of Environment and included representatives of the Ministry of Economy, Ministry of Finance and Statistical Department. Jointly, these authorities are considered the beneficiaries of the project.

Target group

The staff of these authorities as well as interested donors constitute the target groups for the background analyses. The environmental financing strategy will be developed on the basis of these analyses.

1.2 Acknowledgements and disclaimer

The Danish Ministry of Environment and Energy - The Danish Environmental Protection Agency, (The Danish EPA) has decided to fund a number of projects to provide assistance to the OECD Environmental Action Plan Task Force (EAP TF) Secretariat and directly to selected Ministries of Environment in the NIS. In this connection, COWI prepared the present paper, which constitutes a major output of the project "National and Regional environmental financing strategies in the NIS". The principal authors of the report were Zsuzsanna Lehoczki and Michael Munk Sørensen in collaboration with Malkhaz Adiesvili and Zaal Lomtadze. However, many others provided helpful comments and contributions.¹ These contributions notwithstanding, all errors and omissions remain the responsibility of the authors. This report is the final financing strategy for municipal water and wastewater submitted by the Consultant to the Government of Georgia.

The opinions expressed are those of the consultant. The Danish Ministry of Environment and Energy - Danish Environmental Protection Agency (Danish EPA), the OECD EAP TF and the beneficiary ministries may not agree with these opinions.

¹ Especially: Grzegorz Peszko (OECD), Michael Jacobsen (COWI), Niels Bent Johansen (COWI)
2 Executive Summary

2.1 Environmental policy and economic background

2.1.1 Environmental policy context

Environmental Protection Act

The Environmental Protection Act provides the general legal framework for environmental protection in Georgia. Its implementation requires passing specific acts and decrees, which is in progress. Legislation, however, has real impact only if it is enforced. Strict and consistent legislation on paper can hardly prevent environmental deterioration. Drafting legislation must be guided and supported by environmental strategy. In the strategy, well designed and realistic environmental policy measures are needed to ensure compliance with the legislation.

Environmental strategy development

A relevant environmental strategy must aim at solving important environmental problems. Therefore, the first step is the identification of the pressing environmental problems. Related objectives define what constitutes the elimination or reduction of a problem. The objectives can be achieved through specific actions only.

Need for SMART targets

However, there are likely to be several different sets of actions and time paths to achieve the defined objectives. A strategic view is needed to choose among those options. The selection criteria must have scientific, technical, financial, social and political dimensions. Selection results in formulation of targets. The targets set boundaries and time frame for specific actions to achieve the defined objectives. Targets can fulfil their role only if they are specific, agreed upon, realistic and time bound (SMART).

NEAP development

In line with the above requirement, National Environmental Action Program also has been developed starting in 1996. It has been elaborated in a participatory way and revised in a review process. The latest (dated March 2000) version has been presented to the government for approval.

Characteristics of the Georgian NEAP

The NEAP is a programme in which:

- Environmental problems and related objectives are identified;
- Related targets, however, are not well defined;
- Actions are planned;
- Costs of the actions are not consistently estimated;
- Cost of actions are not aggregated and affordability is not considered;
- Sources for financing the actions are not clearly identified.

### Need for financing strategy

The lack of cost assessments and identification of financial sources generated the need for financing strategy. The latest version of the NEAP is taken as the starting point for the definition of environmental targets and connected actions.

### Sector focus: municipal water and wastewater

NEAP has identified the poor state of municipal water and wastewater infrastructure which is the likely reason for the high incidence of infectious diseases in the urban population. In Tbilisi, the incidence of infectious diseases is 2.5-3 times higher than the national average. Some cases of infectious diseases were detected in Nadzaladevi and Chugureti regions of Tbilisi in 1994 and 1995 respectively. In 1994 twenty people were reported ill because of the faecal pollution of drinking water in Rustavi. Some cases of diarrhoea caused by polluted water were detected in Tskaltubo and Sagaredjo districts in 1994 and 1996 respectively (more than 180 cases detected). As reported by the Ministry of Health, water quality related diseases were once again observed in Tbilisi in 1998.

Financing needs for all the actions identified in the NEAP in relation to the maintenance and rehabilitation of the municipal water and wastewater systems are high and clearly beyond affordability. Therefore, it is very important to devise a strategy that (i) defines realistic targets over a longer period of time and (ii) identifies feasible additional financing sources.

### 2.1.2 Economic and finance context

A financing strategy that takes into account financial and affordability constraints needs to consider predictions about economic and finance variables. Some short term predictions are available but longer term assessment of future economic and finance performance must be done as part of the environmental strategy development.

#### National economic performance

Georgia has experienced a very steep economic decline after its independence. Its economy was dependent on "planned" demand for its agricultural and highly specialised industrial products and the supply of energy, mineral resources and spare parts from other parts of USSR. The breakdown of the traditional economic ties and the civil unrest has resulted in shocking decline in the economy. While GDP dropped to about 20% of its 1989 level by 1994, inflation soared and foreign debt increased.

The political stabilisation has reversed the devastating trend in 1995. A new currency has been introduced, inflation curbed and 11% real growth rate was achieved in 1997. The Russian financial crisis hit Georgia hard and together with the drought it slowed down the economic development in 1998. The per

---

3 NEAP, 1999
capita GDP estimate is GEL 1036 (USD 512.7) and total GDP in current prices is GEL 5 594 million (USD 2 854 million) for 1999.

**Prices**

Inflation declined between 1995-1998 and reached 3.3% in November 1998. The trend changed at the end of 1998 due to a sudden depreciation of the GEL. Predicted inflation for 1999 is around 5-6%.

**Weaknesses of the economic development**

Major weaknesses of the economic development are (i) the very high indebtedness of the government both domestically and internationally and the poor conditions of the debt, (ii) the low tax revenues, (iii) randomness and uncertainties in law enforcement in many areas. External debt increased to USD 1.8 billion by mid-1999.

**Difficulties for predicting future trends**

Fluctuation in economic performance makes predictions for major economic variables, such as GDP, inflation and interest rate, rather difficult. Therefore in our background analysis we must assume alternative development trends: high growth and lower growth predictions.

**Structure of the economy**

The structure of the economy has changed radically, as well, after 1999. Industry’s share of GDP dropped from 23% in 1990 to 10% in 1998. The share of agriculture increased until 1995 and has been fluctuating around 30% since then. The trade and service sector has gained 22% share by 1998.

Structural changes partly reflect the adaptation to the new trade relationships. The radical increase in the service sector, however, indicates low investment levels. This in turn reflects the shortage or rather high cost of available capital. This indicates difficulties for borrowing in general and particularly long-term borrowing for infrastructure investments.

**Predicted GDP for the analysis**

We predicted GEL 5 800 million for GDP in 2000 on the basis of the GEL 5 594 million GDP in 1999 and 8% nominal GDP growth rate. We predicted two different growth rates for the period: the low rate is 4% real GDP growth rate and 4% inflation rate, and the high rate is 8% real growth rate phased in over five years and the inflation rate is 4%.

**Population and household expenditure**

There have been no substantial changes in population size over the last five years. The medium term projection is also the present 5.4 million people.

**Unemployment**

The official unemployment rate is well below 10% but the estimate by the international standards is around 13% for 1999. The average monthly wages of employees was GEL 64 (USD 32) in the first half of 1999. The fairly low unemployment rate is partly due to employers' policy of non-payment rather than laying off employees in case of lack of funding. This policy has strong implications for the level and regularity of households' income.

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4 IMF estimate
5 IMF estimates
6 Statistical Yearbook, 1999 p.43.
7 IMF estimates
There are some uncertainties in household income estimates due to underreporting of cash income and unreliability of non-cash income. The statistical yearbook gives the figure of 140 GEL/urban household/month as cash income and 15 GEL/urban households/month as non-cash income in 1998. The figures are similar in the first two quarters of 1999. The estimated cash expenditure, however, is 220 GEL/urban household/month while the in-kind consumption is in line with non-cash income in urban households. Estimated cash and in kind expenditure for rural households 170 GEL/rural household/month.

The household expenditure pattern is dominated by spending on food. The share is 52-54% for both urban and rural households. A high share of food expenditure is a signal of low income which in turn sets the affordability limit for setting user charge (tariff) level. Data on spending on utility services is not available. In the Financial Study for TWU, it is estimated that 13-27.4% of monthly household income has been spent on all communal services in Tbilisi in 1997.

Taking the expenditure figure as a better representation of the actual income and assuming an 8% nominal GDP growth, we calculated an income of 940 GEL/capita/year for urban households for 2000. We include this figure in our affordability calculation. Similar calculation results in 650 GEL/capita/year for rural households and 1080 GEL/capita/year for Tbilisi in 2000.

In our households’ affordability and tariff policy analysis we include our calculated figures for 2000 and we assumed that the household income increase follows GDP growth.

The share of government budget revenue in GDP is around 15% while the share of budget expenditure is around 21-22%. It is below the average figure of 28% in NIS and around 40% in CEEC. The share of environment related spending including water sector spending is around 1.2% of the government budget.

The poor performance of revenue collection is the major problem of the Georgian public finance system. In 1999, it was particularly weak and caused heated discussions during negotiations with IMF.

Failure in revenue collection partly results in reduced spending and partly in increased budget deficit. The 25-30% spending cuts were not allocated equally across the ministries in 1998. Below or above average spending cuts showed the "real" strength of ministries. Such severe cuts also introduce special, ad hoc and non-transparent processes for setting spending priorities. Spending cuts did not seem to hurt the small environment related budget.

The consequences of not meeting the government’s obligations for paying pensions and wages in 1998-1999, however likely affects all future government
spending. It has generated large future government obligations, reducing the room for expansion of other spending even in the medium term.

External financing obligations

External debt service is likely to cost 20-25% of the export revenue in the medium term. In 1998, about 10% of the government budget revenue was spent on external debt servicing. In 1999, it was planned to increase to 15%.

Financial Sector

The banking sector in Georgia is still in the transformation stage. The lending activities of the banks is mostly on-lending of IFI loans. Few investment activities are financed by domestic banks and practically none in the environmental sector. The interest rate on short term loans was 37% in mid 1999. Long term loan possibilities are scarce from domestic sources. The source of loan financing is largely IFIs loans.

International assistance has been at high level and it is likely to continue in the medium term. By 1999, about USD 2 billion had been committed across 284 different programs. A dominant part of this assistance was targeted to support structural adjustment programmes. Major organisations and donors providing assistance are WBG, IMF, the EU, and the US.

2.2 Analysis for the sector financing strategy elaboration

Key water quality problems

NEAP has identified priority environmental problems. Among these, protecting the quality of the drinking water supply and providing proper sanitation have highest priority.

Low quality drinking water supply at the tap is the main problem. In some places insufficiently maintained sewage network contaminates drinking water creating health hazards. Shortage of chlorine prevents proper water disinfection.

Municipal wastewater discharges are the main source of surface water pollution including the Black Sea. Public health problems due to contamination from untreated hospital wastewater have been observed.

2.2.1 Existing situation

Municipal water supply

About 95% of the urban and 35% of the rural population is supplied by centralised water service. This indicates high network coverage by international standards.
Table 2.1  Main technical parameters of the municipal water supply systems (the region of Abkhazia is not included).

<table>
<thead>
<tr>
<th>Type of town</th>
<th>Number of towns with centr. water supply systems</th>
<th>Number of water intakes total/surface water</th>
<th>Total designed capacity 1,000 m$^3$/year</th>
<th>Number of reservoirs</th>
<th>Total volume of reservoirs, 1,000 m$^3$</th>
<th>Total length of collection and distribution systems, km</th>
<th>Length of network that needs renovation km</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>6</td>
<td>9/2</td>
<td>1.25</td>
<td>11</td>
<td>4.78</td>
<td>144.00</td>
<td>14.00</td>
</tr>
<tr>
<td>II</td>
<td>43</td>
<td>70/10</td>
<td>171.30</td>
<td>112</td>
<td>69.36</td>
<td>1,709.60</td>
<td>293.80</td>
</tr>
<tr>
<td>III</td>
<td>12</td>
<td>27/1</td>
<td>219.00</td>
<td>64</td>
<td>52.66</td>
<td>1,588.30</td>
<td>137.10</td>
</tr>
<tr>
<td>IV</td>
<td>9</td>
<td>28/1</td>
<td>209.00</td>
<td>40</td>
<td>36.80</td>
<td>1,022.60</td>
<td>131.40</td>
</tr>
<tr>
<td>V</td>
<td>3</td>
<td>6/0</td>
<td>144.00</td>
<td>17</td>
<td>21.60</td>
<td>681.20</td>
<td>55.00</td>
</tr>
<tr>
<td>VI</td>
<td>4</td>
<td>15/4</td>
<td>2,093.00</td>
<td>110</td>
<td>422.00</td>
<td>4,128.20</td>
<td>1,349.50</td>
</tr>
<tr>
<td>Total</td>
<td>77</td>
<td>155/18</td>
<td>2,837.55</td>
<td>420</td>
<td>607.20</td>
<td>9,279.90</td>
<td>1,980.80</td>
</tr>
</tbody>
</table>

Type of towns:  
I - population < 1,500  
II - 1,500<population<10,000  
III - 10.000<population<25,000  
IV - 25.000<population<50,000  
V - 50,000<population<100,000 (Zugdidi, Poti, Gori)  
VI - 100,000 < population (Tbilisi, Kutaisi, Rustavi, Batumi)

Source: Ministry of Environment Georgia

Quality of the system  
The actual performance of this system is a problem, however. Poor quality of the distribution network results in a water loss rate of 10-51%, and 40% water loss in Tbilisi. All urban households suffer interrupted supply, receiving water much less than 24 hours a day, in some cities as little as 8-10 hours a day. In rural areas the supply system often does not function at all. This affects mainly people living on higher floors of buildings, because of low pressure in the system. The major reason for that is the shortage of electricity supply due to a lack of payment and also physical shortages.

Drinking water quality  
The majority of the connected urban households can have potentially good water quality as the main source is groundwater. Groundwater sources provide about 90% of the water supply apart from Tbilisi. (In Tbilisi 44% is from surface water). Drinking water quality problems are related to leaking pipes and cross contamination from the sewage system.

Sewage system coverage  
The centralised sewage system exists in 37 towns in Georgia. 78% of the population is connected to sewerage, indicating high network penetration by international standards. The systems are, however, in poor condition. Wastewater treatment facilities are serving 33 towns, with the total daily design capacity of 1.42 million m$^3$. There are 19 traditional mechanical/biological treatment plants, with a total design capacity of 1.39 million m$^3$/day. Four purely mechanical treatment plants with a design capacity of 0.03 million m$^3$/day are available.

Quality of the system  
However, the plants are typically 10-25 years old; some are as yet unfinished, and most are not maintained. None of the existing plants is actually providing
biological treatment since the technical facilities are out of order. Power and other resources are also needed. They are not delivered, as they are not paid for. Mechanical treatment is effective to a certain degree only in Tbilisi\(^{11}\), Rustavi, Kutaisi, Tkibuli, Gori and Batumi and its total estimated daily capacity is 0.7 million $m^3$.

**Table 2.2** Main technical parameters of municipal sewerage systems and waste water treatment plants (the region of Abkhazia is not included)

<table>
<thead>
<tr>
<th>Type of town</th>
<th>Number of towns with cent. sewerage systems</th>
<th>Length of collectors and networks (km)</th>
<th>Treatment plants</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Designed capacity, 1,000 m(^3)/day</td>
<td>Actual capacity, 1,000 m(^3)/day</td>
</tr>
<tr>
<td></td>
<td></td>
<td>M</td>
<td>MB</td>
</tr>
<tr>
<td>I</td>
<td>1</td>
<td>2.0</td>
<td>0</td>
</tr>
<tr>
<td>II</td>
<td>13</td>
<td>188.6</td>
<td>1</td>
</tr>
<tr>
<td>III</td>
<td>8</td>
<td>235.8</td>
<td>1</td>
</tr>
<tr>
<td>IV</td>
<td>8</td>
<td>376.2</td>
<td>1</td>
</tr>
<tr>
<td>V</td>
<td>3</td>
<td>134.6</td>
<td>1</td>
</tr>
<tr>
<td>VI</td>
<td>4</td>
<td>2941.2</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>37</td>
<td>4,878.48</td>
<td>4</td>
</tr>
</tbody>
</table>

Type of towns:
- I – population < 1,500
- II- 1,500 < population < 10,000
- III- 10,000 < population < 25,000
- IV- 25,000 < population < 50,000
- V- 50,000 < population < 100,000 (Zagdidi,Poti,Gori)
- VI- 100,000 < population (Tbilisi,Kutaisi,Rustavi,Batumi)

Source: Ministry of Environment Georgia

### 2.2.2 Macroeconomic framework predictions

Due to the considerable uncertainties in predicting future economic development we assume two development frameworks for our analysis.

**Low and high growth assumptions**

In the low-growth macro-framework we assumed a 4% real GDP growth rate and a 4% inflation rate. In the high-growth macro-framework 8% real growth rate is phased in over five years and the inflation rate is 4%.

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\(^{11}\) It is a regional treatment plant for Tbilisi, Rustavi and Gardabani
2.2.3 Costing

Table 2.3  Total and average unit costs for water supply in the existing system

<table>
<thead>
<tr>
<th></th>
<th>Calculated average unit costs GEL/m³</th>
<th>Water production Million m³/year</th>
<th>Total annual costs Million GEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maintenance</td>
<td>0.15</td>
<td>384</td>
<td>59</td>
</tr>
<tr>
<td>Operation</td>
<td>0.12</td>
<td>384</td>
<td>49</td>
</tr>
<tr>
<td>Total</td>
<td>0.27</td>
<td>384</td>
<td>108</td>
</tr>
</tbody>
</table>

Source: Ministry of Environment, Georgia

The total estimated costs of producing one cubic meter of water through basic maintenance and operation of the system that exists in 2000 is equal to 0.27 GEL per m³ (about 0.14 USD per m³).

Table 2.4  Total and average unit costs for wastewater collection and treatment in existing, actually operated facilities

<table>
<thead>
<tr>
<th></th>
<th>Amounts Million m³/year</th>
<th>Calculated unit costs GEL/m³</th>
<th>Total costs Million GEL/year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collection</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maintenance</td>
<td>335</td>
<td>0.08</td>
<td>26</td>
</tr>
<tr>
<td>Operation</td>
<td>335</td>
<td>0.02</td>
<td>7</td>
</tr>
<tr>
<td>Sub-total</td>
<td>335</td>
<td>0.10</td>
<td>33</td>
</tr>
<tr>
<td>Treatment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maintenance</td>
<td>250</td>
<td>0.07</td>
<td>18</td>
</tr>
<tr>
<td>Operation</td>
<td>250</td>
<td>0.02</td>
<td>6</td>
</tr>
<tr>
<td>Sub-total</td>
<td>250</td>
<td>0.09</td>
<td>24</td>
</tr>
<tr>
<td>Totals</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maintenance</td>
<td></td>
<td></td>
<td>44</td>
</tr>
<tr>
<td>Operation</td>
<td></td>
<td></td>
<td>13</td>
</tr>
<tr>
<td>Grand total</td>
<td></td>
<td></td>
<td>57</td>
</tr>
</tbody>
</table>

Source: Ministry of Environment, Georgia

In the light of international experience, the unit cost figures for water supply seem high relative to the wastewater treatment unit costs. Since the dominant source of water supply is underground water and the wastewater treatment plants are designed for mechanical-biological treatment we would expect treatment unit costs closer to if not higher than the water supply unit costs. The explanation is the severely limited water supply in many towns resulting in very low per capita water consumption in spite of the high loss rate. Meantime, none of the treatment plants operate at their design level.
2.2.4 Baseline scenario analysis

As a starting point for our background analysis, we have identified maintenance of existing situation as the baseline target. Whenever the concept of maintenance of existing situation is used as a target it denotes maintaining the level of actually delivered water and sanitation services in the year 2000, which is described as existing situation.

**Baseline target**

To maintain the conditions of the existing situation (starting year: 2000) in both the water supply and wastewater collection and treatment infrastructure. It means replacement of all assets actually used in 2000 according to the linear depreciation (deterioration) rate and provision of mechanical wastewater treatment in the five treatment plants that are in operation in 2000.

Presently, maintenance is insufficient, therefore both water supply and the wastewater systems deteriorate. Availability of funds would allow to maintain the existing infrastructure adequately. Maintenance would stop deterioration but would not restore the network to its original design characteristics.

For the five plants that are designed for mechanical and biological treatment, but currently provide mechanical treatment only, maintenance means continuation of mechanical treatment only.

**Expenditure needs**

The summary of estimated expenditure needed to cover the costs of meeting the baseline target is shown below.

| Table 2.5 Baseline expenditure need in million GEL in fixed year 2000 prices |
|---------------------------------|---------|---------|---------|---------|
| Maintenance                     | 59      | 59      | 59      | 59      |
| Operational                     | 49      | 49      | 49      | 49      |
| Wastewater                      |         |         |         |         |
| Maintenance collection          | 26      | 26      | 26      | 26      |
| Maintenance treatment           | 18      | 18      | 18      | 18      |
| Operational collection          | 7       | 7       | 7       | 7       |
| Operational treatment           | 6       | 6       | 6       | 6       |
| Water sector total              |         |         |         |         |
| Maintenance                     | 103     | 103     | 103     | 103     |
| Operational                     | 62      | 62      | 62      | 62      |
| Total                           | 165     | 165     | 165     | 165     |

Source: Consultant’s calculation using the Decision Support Tool

**Predicted supply of finance**

The baseline supply of finance comprises:
MoE experts estimated that about 1.2% of the government budget was spent on environmental - including water supply - expenditure in 1999. The environmental expenditure survey indicates that about 80% of the total environmental spending is related to water and wastewater. Maintaining this structure, we calculated that public budget contribution would amount to somewhat more than GEL 12 million in 2000. We maintained the start year assumption and predicted the future public budget contribution on that basis.

These public subsides are meant primarily to compensate water utilities for the revenue foregone if the government exempts some users (e.g. pensioners) from the water charges and to cover a share of operations costs if the government refuses to establish the tariffs at the level that covers operational costs. A small share of government subsidies is available for rehabilitation investments, mobilised mainly in crisis situations.

In the baseline calculations we have assumed that the share of government expenditure in GDP is unchanged over time. Thus forecast government expenditure will grow with the same rate as GDP. Similarly, the relative distribution of expenditure on different components is assumed to remain unchanged over time. Thus the subsidies are assumed to increase in line with national income (GDP).

The two main groups of customer are the households and non-households (industry and institutions). When calculating the households’ payment we assume that the average monthly household water bill is around GEL 2.4 in 2000. If we multiply this by the number of households connected to centralised water and wastewater systems (0.6 million households), the annual payment is GEL 17 million.12 Today these constitute 0.8% of average household income (we have taken 940 GEL/capita/year) and provide an estimated revenue of GEL 17 million per year. The current collection rate is low, an estimated 40-60% in the last years13. We assumed a 70% collection rate for 2000 since it was indicated that serious measures were planned.

User charges from industrial consumers and from budget organisations etc. The revenue from these other consumers is estimated at GEL 15 million per year - it is assumed that this source remains constant. The collection rate is 100%, which is not far from actual levels reported by utility representatives. The payments in kind and through offsets by budgetary institutions were considered to be a problem until 1999, when the presidential decree made it prohibited.

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12 According to the Tbilisi feasibility study report GEL 10.2 million is billed to households annually in Tbilisi.
13 Source: personal interview, Tbilisi financial assessment
Table 2.6 Baseline supply of finance under low growth projection

| Source: Consultant’s assessment as explained in the text |
| Note that assumptions about GDP growth affect only the finance available from national and local budgets. |

**Financing gap**

A comparison of baseline expenditure need and the supply that can cover the expenditure reveals a significant financing gap in the years to come. As shown in the figure below, if the present trends in available finance continue there will be not enough money to maintain even present, low level of water and sanitation services. Even worse, the finance under this "business as usual" scenario will not be even sufficient to cover the costs of proper operation of existing systems until 2014 assuming high economic growth and after 2020 if the GDP growth is slower. Therefore, if no more finance is provided the existing, already deteriorated infrastructure will decay further and its operations will continue to be irregular and inappropriate. This will be characterised for example in less than 24 hours water supply in many places, persisting occurrences of low water pressure due to the inability to pay for electricity for pumps and poor water quality due to the lack of money for treatment chemicals.

| Table 2.6 Baseline supply of finance under low growth projection |
|-------------------|--------|--------|--------|--------|--------|
| Public budget     | 12     | 15     | 18     | 21     | 26     |
| User charges      |        |        |        |        |        |
| Households – billed | 17     | 17     | 17     | 17     | 17     |
| Households – collected | 12     | 12     | 12     | 12     | 12     |
| Other consumers   | 11     | 11     | 11     | 11     | 15     |
| International sources | 1      | 1      | 1      | 1      | 1      |
| Total             | 36     | 395    | 42     | 46     | 51     |
Development of real GDP plays a key role for how large the financing gap is, although it affects only the amount of money available from the central and local budgets. Below, the financing gap is illustrated under both GDP growth projections.

The consequence of not maintaining the infrastructure is a continued deterioration and eventually even lower than the present service level for at least the next 20 years. A simple measure of how the system will deteriorate under alternative assumptions is to estimate the backlog of maintenance expenditure.
The backlog of maintenance expenditure is an accumulated financing gap that measures the scale of further deterioration of the infrastructure if adequate funds are not provided for maintenance. It also indicates the amount of payments that are deferred, but that will have to be made in the future in order to restore the system to its present (not design) level of performance.

**Baseline national affordability analysis**

An assessment of the national affordability gap (see definition in the main report) shows that the expenditure needed to maintain the existing status of the infrastructure is 2.4% (high growth) or 2.6% (low growth) of the GDP at the beginning of the period. This is not in itself that high for the entire economy, especially given that as the economy grows over time the relative burden on GDP is likely to decrease to about 1.3% with low economic growth and to 0.5% with high growth. However, if we consider the share of the external and internal debt burden then it is clear that budget financing cannot in the short run bridge that gap.

**2.2.5 Increasing supply of finances**

**User charges**

Closing the baseline financing gap through increased user charges would require households and industries to pay GEL 155 mill in the year 2000, or five times the baseline user charge payment. In other words this implies an immediate increase of average household user charges to 4.5% of the average household income as well as maintenance of the relative ratio of industry/budget organisation tariffs and constant collection rates. This is not likely to be a feasible scenario.
Taking the more realistic assumption that average user charges for households can be increased gradually over five years to 4.0% of average household incomes, while maintaining charges from budget organisations and industries, as well as public operational subsidies at their present levels, this would result in the supply of finance illustrated below.

**Table 2.7 Supply of finance with households’ user charge increase under low growth projection**

| Source: Consultant’s calculations using the Decision Support Tool |

<table>
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<tbody>
<tr>
<td>Public budget</td>
<td>12</td>
<td>15</td>
<td>18</td>
<td>21</td>
<td>26</td>
</tr>
<tr>
<td>User charges</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Additional households – charges</td>
<td>17</td>
<td>50</td>
<td>63</td>
<td>78</td>
<td>96</td>
</tr>
<tr>
<td>Households – collected</td>
<td>12</td>
<td>17</td>
<td>17</td>
<td>17</td>
<td>17</td>
</tr>
<tr>
<td>Other consumers</td>
<td>11</td>
<td>11</td>
<td>11</td>
<td>11</td>
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</tr>
<tr>
<td>International sources</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>41</td>
<td>79</td>
<td>92</td>
<td>107</td>
<td>125</td>
</tr>
</tbody>
</table>

We also assume that the collection rate of the household charges will be increased from the present 70% to 100% in four years.

The diagram below shows the impact of increasing user charges on the financing gap and time lag before the present level of service is restored. In the most optimistic case, with high economic growth and a significant increase in household user charges, which means a level of four to five times the current payment, the financing gap would be closed in about 7 years. Up to that date the system would continue to deteriorate and restoring the service characteristics of year 2000 could then happen by year 2015.

As long as the current gap is greater than zero, the maintenance backlog increases because the cash flow deficit gets accumulated. When the financing gap reaches zero (thick lines intersect with vertical axes) the system begins to generate the average current cash surplus which is assumed to be spent on improved maintenance. Therefore, maintenance backlog starts decreasing. When the maintenance backlog becomes zero in 2015, it means that the system has been restored to its conditions as of the year 2000. Negative values of the financing gap (after 2007 with high growth and 2013 with low growth) indicate the current operational and maintenance surplus. From that time on, the current surplus can also be used for rehabilitation investments, i.e. restoring the system to its original design conditions and improving its performance compared to the current levels.
Increasing Public spending

There is a potential for increasing public finance available for environment if the share of government budget increased over five years from 21% to 25% closer to the CIS average level which is estimated around 28% by the IMF.

The result of these assumptions is an additional public budget contribution starting with 2 million in 2001 and increasing gradually after 5 years along with GDP. The strong condition for such an increase is that the Ministry of Environment can maintain its share from the higher budget. Looking at the main government expenditure arrears, the first priority for spending additional budget revenue is likely to pay long overdue pensions in the short run at least.
Establishing an environmental fund is assumed to provide additional GEL 9 million annually and the amount remains constant over the period.

**Increasing foreign finances**

GEL 1 million is included into the sources of finances in the baseline. There might be a chance to increase it in the short run but grants are only in limited supply. We can predict some increase in the medium run.

**IDA loan**

An IDA loan is constrained by the requirement that there is a national contribution. Also, the size of a loan is limited by the national borrowing capacity. Here, the IDA loan scenario is based on:

- the loan is about 200 million GEL disbursed over 9 years with 25 to 35 million annually starting in 2001. The budgetary sources are considered as the maximum potential for local contribution. This defines the upper limit for the loan assuming an average of 40% requirements for local financial contribution.

- the loan services is based on a payback period of 35 years, annual interest of 0.75% and a grace period of 10 years.

**less soft loan**

A near commercial or less soft loan conditions as under the IDA loan are included in the last scenario for increasing the supply of finance. The key assumptions are:

- over the next 5 years an annual GEL 30 million is taken as a loan, which amounts to 150 million over this 5-year period,
- loan conditions are 10 years of payback period, a real interest rate of 5% and a grace period of 3 years.

For these loans the key limiting factor is the borrowing capacity and state of the economy. Commercial loans with the above conditions are not likely to be available for domestic borrowers due to the high interest rate on the domestic market and the low credit rating on the international capital market.

We take this option into consideration, however, because it might be a possible financing option with foreign private sector involvement. Foreign investors or managing companies have better access to the long-term capital market with reasonable interest rates.

Source: Consultant's calculations using the Decision Support Tool

*Figure 2.6  Closing the gap: Partial impact of loan financing (other assumptions as in baseline).*

The profile of the financing gap in case of loan financing reflects that loans provide additional finance at first, but when repayment starts it increases the financial burden. The very preferential IDA loan generates only minor additional costs. Loans with less favourable terms (still not commercial terms), however reduces financing gap at the beginning with high additional costs later.

**Comparative view on the partial analysis**

All partial simulations imply a reduction of the financing gap but with different profiles.

Increasing the public budget contribution reduces the gap over the whole period while the IDA loan has a much larger effect on the gap in the next 9 years while later increasing the gap a little.
The commercial loan only reduces the gap for a five-year period and leads to a significantly larger gap in years 5 to 14. Thus financing maintenance of present water infrastructure with loans on terms "harder" than IDA is not likely to be feasible unless a combination of rapid economic growth and almost unlimited access to loan financing is assumed.

However, if user charges are gradually increased to 4% of average household incomes this will provide a significant contribution to closing the gap in the long term.

2.2.6 Revising baseline targets

The financing gap can be closed theoretically by reducing the baseline targets. However, it is difficult to do that when the target is merely preventing the present, low service level from declining further. One possibility is to assign priority to which part of the infrastructure would be maintained and which would be deliberately allowed to deteriorate in the short to medium term. Moreover, if the targets for this strategic deterioration were selected outside of Tbilisi, this unfortunately would not bring much relief, since water supply and sewage services in Tbilisi dominate the total costs for the country (around 45-50%). If maintenance were given up everywhere else, the financing for proper operation and maintenance of Tbilisi system would still be short of needs. Therefore, priority maintenance targets should be identified inside the Tbilisi system.

It is possible to reduce future operation costs through investment in rehabilitation of the pipes and pumps. Replacement of pipes which are in the worst condition reduces water losses in the system. Therefore the same level of consumption could be maintained with lower production. Replacement of pumps increases energy efficiency and results in energy cost savings\(^{14}\).

For the purpose of our further analysis we have identified the following targets:

- **Full rehabilitation**: improving existing situation, and putting the design capacities and related level of services of water wastewater infrastructure back into operation is denoted by the concept of rehabilitation. In this report rehabilitation does not include any extension of the network coverage or the design capacities of already installed facilities.

\(^{14}\) The main report provides detailed assumptions.
Table 2.8  Expenditure need in million GEL in fixed year 2000 prices

<table>
<thead>
<tr>
<th></th>
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<tbody>
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<tr>
<td>Rehabilitation</td>
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<tr>
<td>Maintenance</td>
<td>59</td>
<td>59</td>
<td>59</td>
<td>59</td>
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<tr>
<td>Operational</td>
<td>49</td>
<td>49</td>
<td>49</td>
<td>49</td>
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<tr>
<td>Wastewater</td>
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<tr>
<td>Rehabilitation</td>
<td>140</td>
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<tr>
<td>Maintenance</td>
<td>48</td>
<td>40</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td>Operational</td>
<td>14</td>
<td>16</td>
<td>16</td>
<td>16</td>
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<tr>
<td>Water sector total</td>
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<tr>
<td>Rehabilitation</td>
<td>740</td>
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<tr>
<td>Maintenance</td>
<td>107</td>
<td>99</td>
<td>99</td>
<td>99</td>
</tr>
<tr>
<td>Operational</td>
<td>63</td>
<td>65</td>
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<td>65</td>
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<tr>
<td>Total</td>
<td>910</td>
<td>164</td>
<td>164</td>
<td>164</td>
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</tbody>
</table>

Source: Consultant’s calculations using the Decision Support Tool

Partial rehabilitation  

**Tbilisi partial rehabilitation targets:** to maintain the existing situation and in addition partial rehabilitation of Tbilisi water supply network through pump replacement and increased replacement of pipes by 2006.

With those considerations the following options have been analysed for the rehabilitation of the Tbilisi system:

- Improving energy efficiency by pump replacement
- Reduction of water losses
The partial impact of these modest rehabilitation targets on the financing gap is not straightforward. Since these changes require higher investments in the short run it is not surprising that the financing gap first increases, which is counterbalanced with cost savings only in the longer run.

### 2.3 Scenario analysis

In the scenario analysis we have looked at the joined impacts of several individual measures together on the costs and supply of finance. Individual measures from partial analyses were sometimes modified to bring them closer to reality, and their combinations have formed the following policy packages.

- Maintenance policy scenario
- Tbilisi rehabilitation scenario with private sector participation

#### 2.3.1 "Maintenance" scenario

In this scenario we maintain the baseline targets of merely maintaining the present service level. Therefore the financing gap can be reduced and/or closed only through increasing supply of finance. Comparing the five options of increasing the supply of money, analysed above we can draw the following conclusions:

*Domestic budgets.* It is assumed that the share of public revenues in GDP can increase by 1 percentage point per year for five years. However, the isolated
effect hereof on financing is very limited. This reflects the small share of public expenditure currently used for municipal water and wastewater.

_Earmarked environmental funds._ The MoE could utilise chances to strengthen its position by assisting the MoF to raise general government revenues from environmental taxes or from debt from environment swap arrangement if those are deemed appropriate.

Earmarking environmental taxes for environmental spending could secure potentially sizeable revenue sources. In this case financing water sector investment might get a large share of that funding since improving water supply and wastewater service is a high-priority policy target. However, the assessment depends on a number of factors. One is the strong resistance of the MoF (and IMF). Another is that earmarking and creating an environmental fund does not necessarily mean increased budgetary allocation. MoF often uses the existence of earmarked revenues as arguments for reducing direct budgetary contribution or refusing to finance some environmental tasks. They claim that earmarked revenues should be used instead. Earmarked funding can still bring certainties into budget finance. IFIs or foreign donors might prefer such arrangements as these funding sources can bring more certainties into providing local contributions to the investment projects they co-fund. A third is that earmarking in itself does in no way guarantee purposeful use of the resources.

_Foreign grants._ Similarly, increased foreign grant finances can contribute little to closing the financing gap. The advantage is that foreign grants are offered in short run before economic growth could increase local funding. The likely size of such grants is around GEL 2 Million in the first 10 years, which corresponds to about 10-15% of the baseline financing gap over those years.

Foreign grants, however, are usually tied to specific development projects. They are usually intended to support changes to the existing situation rather than simply maintaining the present level. This constraint is not necessarily too restrictive since in reality the difference between the scope of maintenance and rehabilitation projects is not necessarily strict. The limited size and their non-recurrent nature make these sources unfit for financing O&M costs over medium to long run.

_Foreign loans._ Due to limitations in the domestic banking system, increase of financial sources through loans practically also means increased funds from international sources. The co-financing need puts a limit to the utilisation of such sources. We assumed that the co-financing limit also reflects the constraint associated with the debt carrying capacity of the country (which is very relevant for Georgia).

Under such assumptions the very preferential IDA loans can provide substantial additional financing over some years without adding too much extra burden to the expenditure needs later. It still does not provide a sustainable solution because it mainly addresses the liquidity issue rather than the issue of funds for financing recurrent costs. There is however an important positive impact. The physical characteristics of the infrastructure would be improved, therefore the
maintenance log would be lower even when the financing gap increases to its baseline level.

User charges. The only sustainable option to close the gap is if user charges are increased. However if the target is maintaining present service characteristics it is not feasible to increase user charge payments to the maximum affordable level. Attempts to increase payments up to 4% of average household income would certainly contribute to the citizens’ distrust of their government and even more widespread non-payment habit. Therefore in the maintenance scenario we have assumed a more modest increase of user charges up to the 2% of household income on average.

We also have to note that increasing user charges are likely to go together with the need for metering. However, that would entail additional and not insignificant costs as well. In 1997, the costs of installing metering for all users was estimated at USD 10 million.

In the calculations, we assume that systems have a given lifetime (n years) and that they require an equal rate of maintenance each year (1/n). However, starting to have maintenance funds from now on could bring more than proportional improvements in the service level. The reason for this is that during the period of no maintenance, systems have deteriorated in a non-linear fashion. There are therefore certain urgent repairs that, if carried out, would bring benefits in the service level that are disproportionate to the funds needed to carry them out. Thus if a return to "normal" levels of maintenance are combined with careful planning of the maintenance programme, considerable improvements in the service level can be achieved.

The following graph illustrates the financing gap if the package of the following measures was implemented in order to reach the maintenance target:

- increasing the share of government budget spending in GDP to 25% over 5 years;
- earmarking environmental taxes for water and wastewater spending (an additional GEL 9 million);
- obtaining foreign grants in the amount of 2 million GEL until 2010 year;
- utilizing IDA loans (on terms as in the partial scenario);
- increasing households’ user charge payments to 2% of average household income over 5 years and increasing the collection rate to 95% in 5 years,
Figure 2.8  Closing the financing gap: "Maintenance" scenario.

The critical assumption is the GDP growth prediction. High growth allows a closure of the financing gap over 12 years. The backlog of maintenance expenditure indicates that high growth also makes it possible to bring the system to its present characteristics about 2020. If the growth is slower, the current financial deficit of the system will be persistent and the chances of restoring the present service level in the entire system by 2020 are very small.

Figure 2.9  "Maintenance" scenario.
2.3.2  "Tbilisi rehabilitation" package

We have devised a scenario, in which in addition to the maintenance targets we assume rehabilitation of pipes and pumps in Tbilisi. However, it does not include rehabilitation of the regional wastewater treatment plant in Gardabani. For the supply of finances we assumed the increased budgetary finance and earmarked environmental taxes as in the maintenance scenario. We also include the same preferential (IDA) loan financing.

The rehabilitation also results in a higher level of service characteristics, therefore it is more feasible to require higher payments from households. In that scenario we assumed that user charge payments are increased to 3% of the average household income in Tbilisi and to 2% elsewhere. Allowing consumers to be metered may furthermore reduce consumption and thus operational costs.

The results of the simulation show that the increase of costs due to more ambitious targets can be more than offset by increased revenue from higher user charges in Tbilisi. Therefore the financing gap is closed earlier than in the "Maintenance" scenario (2006 with high GDP growth). The increase in the financing gap after 2008 is due to the loan repayment. A few risk factors need to be considered. The date for closing the gap is very sensitive to the growth assumption. In case of a low growth scenario the gap is closed only in 2014.

The following figure illustrates the financing gap for this policy package.

![Figure 2.10 Rehabilitation in Tbilisi" scenario.](image)

Source: Consultant's calculations using the Decision Support Tool

These results also mean that practically all domestic spending on water and wastewater infrastructure (and probably almost all environmental spending from the budget) will need to be concentrated on improving the system in Tbilisi. Other regions would not get resources before 2014 in case of high growth or even later if the economy grows at a slower pace.
The backlog of maintenance expenditure is shown below.

**Figure 2.11 Rehabilitation in Tbilisi scenario.**

If high economic growth occurs, available resources allow for investments after 2015.

In case of the Tbilisi project, we can consider the potential impact of private sector involvement. The private sector can bring two types of benefits. One is an efficiency gain in the operation which is more associated with management contracts. The other is access to financing but these finances would be commercial loans or equity investments.

We analysed the simplified impact of introducing a management contract type of arrangements. The usual form of those agreements includes promised efficiency gains and improved revenue collection in exchange for either a fixed fee or sharing the financial gain from efficiency improvement. We found that if there is a possibility to double labour productivity through low costs measures it would reduce annual operation and maintenance costs by GEL 2 million annually. If this needs to be shared there is not too much financial gain for the utility. Cost saving potential of energy efficiency improvement, however, is much more significant. About 30% energy use reduction per unit of water production can result in about GEL 10 million annual costs savings. The relatively significant costs saving is due to the high share of energy costs as opposed to the labour costs.

Access to capital can be modelled through the impact of loan financing. We analysed the impact of a reasonably cheap loan and that already has shown the potential risks of such a loan.
The main conclusion from the analysis conforms to what is observed in reality. Available finances are barely enough to cover operation costs at the beginning of the period. The present level of available finance is enough to cover about 70% of the total cost of proper operation and only about 25% of the total current costs of operations and maintenance of the currently functioning water and sanitation infrastructure. As it is reported in describing existing situation, water supply systems are sometimes operated without proper chlorination, pressures in the system are low, supply of drinking water is frequently interrupted and both the water supply and sewage system lack maintenance.

According to the calculations just trying to maintain the present infrastructure generates a financing gap all through the next two decades if the major characteristics of financing do not change. This conclusion is unaffected whether we assume lower growth or a more optimistic economic scenario. Moreover, the lack of annual maintenance accumulates, resulting in accelerated deterioration of the infrastructure. Without increasing the supply of financing, Georgian citizens should be prepared for continuing, further deterioration of infrastructure and decreasing of the level and quality of services. This will entail e.g. discharging untreated wastewater even from the largest cities, low pressures and interrupted supply of drinking water, and repeating incidences of contamination of drinking water.

Preventing the currently working infrastructure from further deterioration will not be easy. The financing gap in the baseline scenario reduces the options for policy choices on the environmental target side. If the target is merely to maintain the present, low level of services, it may be not feasible to reduce this target even further. The maintenance scenario therefore focuses on the options for increasing the supply of available finances. There the realistic policy package is:

- increasing the user charge rates to the affordability limit (2% of households income) and improving collection rates;
- earmarking a part of the environmental tax revenue (about GEL 9 million/year), or alternatively increasing the share of government budget spending on water supply and sanitation;
- utilizing IDA loans up to the level which can be supported by local contributions.

If these measures are implemented according to the assumed schedule most parts of the system will continue to deteriorate in the short to medium term (up to 12 years). However, it will be possible to restore the 1999 service-level and quality in a 20 years perspective.

Phasing in more ambitious targets, such as partial rehabilitation of essential parts of the water supply and sanitation infrastructure in Tbilisi, or rehabilitation of the waste water treatment plants around the Black Sea add to the costs
and increase the demand for financing. However, it also brings early improvement in the level and quality of water services, making it more feasible to increase the user charges more steeply and faster in these areas (e.g. up to 3% of average household income). This additional revenue may offset additional expenditure needs, closing the financing gaps earlier than in the maintenance scenario. The present service level could also, on average, be restored earlier (by 2015). Unfortunately, rehabilitation of the infrastructure in several cities at the same time is not likely to be possible. While local budgets will continue to spend their funds locally in a dispersed manner, difficult trade-offs will put a constraint on the allocation of the central budget expenditure, foreign grants and loans. Georgia can only afford narrowly targeted priority rehabilitation investments in the next 20 years. Given the very small size of the central budget for many years to come, and limited borrowing capacity of the country, the funds controlled at the national level can be spent either for rehabilitation of the Tbilisi system or elsewhere (e.g. Kutaisi and the Black Sea cities) but not in all these regions at the same time. If one is rehabilitated in the short term, the other will have to wait about 15 years, and in the meantime only the efforts to properly maintain and operate at the present level are feasible.

Policy implications
The necessary component of any realistic reforms is to raise the water user charges for households. At present they are established below the level of affordability and poorly collected. All other sources of finance taken together cannot generate even nearly as many resources for operations and maintenance. User charges will also be central in attracting debt financing for rehabilitation investment.

National and local budgets will continue to have an essential role in the short and medium term in financing capital investments and facilitating access to credit. At present public funds are thinly distributed across the whole system. To achieve any improvement, however, the scarce funds of central budgets will have to be narrowly concentrated (targeted) on rehabilitation of selected parts of infrastructure, while leaving others only maintained or strategically deteriorating. Narrow targeting is also needed for foreign grants and external loans. IFI and private finance could play an important but limited role in the short term due to the high cost of capital and limited borrowing capacity. Private financing can help bridge the financing gap for the large cities but it carries a high price tag as well. Paying this high price is realistic only if increased costs are more than offset by the operational cost cuts and efficiency gains.

The scopes of projects under development by donors and IFIs need to be carefully revised taking into consideration the affordability of subsequent maintenance and operations. Care needs to be taken to ensure that whatever financing commitments are made they do not impose unrealistic claims on limited public and household budgets, crowding out other priority environmental and social goals. Without realistic financing strategies scarce public funds can be drained from other essential infrastructure in the country accelerating deterioration of social services elsewhere.
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Performing organisation(s):
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The purpose of the municipal water and wastewater financing strategy for Georgia is to determine a realistic, agreed and affordable service and to demonstrate how environmental expenditure can be financed. The water and wastewater financing strategy has been developed in an iterative process in a dialogue with the finance, environmental and other relevant authorities. This report presents the final contribution by the consultant.

Terms:
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Municipal Water and Wastewater Sector in Georgia, Environmental Financing Strategy
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