

**Raising awareness about the UNECE Water Convention and its Protocol on Water and Health and strengthening
the role of the civil society organizations in their promotion and implementation**
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New perspectives of Georgia towards target setting process under the Protocol on Water and Health

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Target indicators were set based on the already identified problems in Georgia

- **I. Drinking Water Quality (field I according to the protocol);**
- **II. Reduction of outbreaks and Water Related diseases (field II of the protocol)**
- **III. Availability of Drinking Water (field III according to the protocol)**
- **IV. Discharge of untreated waters (field IX of protocol)**
- **V. Bathing Water quality (field XV of protocol)**
- **VI. Identification and re-cultivation of polluted places (field XVIII of protocol)**
- **VII. Effectiveness of Water resources management, protection and use (field XIX of protocol)**
- **VIII. Periods of publishing the information on drinking water available to the population and**
- **other water quality conditions within the framework indicators (field XX of protocol)**

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Study covered the following aspects of water quality:

- Man-made infrastructures:
 - Connection to safe drinking water
 - Level of sanitation and hygiene, i.e. connection to the sewage network and hygiene conditions
 - Level of waste water treatment
- Natural assets
 - Surface water quality
 - Water resource use

Water Resources of Georgia

Georgia has significant surface water and groundwater resources, and with West Georgia being bordered by the Black Sea. Its coastal zone along the Georgian border is 315 km.

While Georgia is rich in water resources, they are distributed unequally, being mainly in the west part of the country.

Water covers 8,765 km² or 11% of the country or 1,980 km² excluding the territorial Black Sea. The distribution of the various sources is as follows:

- Lakes: The 860 lakes with a total surface of 175 km² and total volume of 400 million cubic meters, represent 9% of the country's water resources. Most of the lakes are very small. Paravani Lake has the largest area and Tabatskuri Lake the largest volume, and both are located in southern Georgia.
- Reservoirs: 9%: 43 reservoirs (35 of which are in East Georgia) represent 9 % of the water resources. They are mainly used for the production of hydropower and for irrigation in the semiarid east of Georgia. Some reservoirs are also important in terms of drinking water supply.
- Glaciers: 11%.
- Main line canals: 25%.
- Rivers: The more than 26,000 rivers, with a total length of some 60,000 km, represent 46% of the water resources. The Mtkvari River is the main river of Georgia with a total length of 1,364 km (185 km in Turkey, 390 km (its middle part) in Georgia and 789 km in Azerbaijan). The Mtkvari rivers flows down in the Caspian Sea on the territory of Azerbaijan. The largest river in West Georgia is Rioni. It covers only the territory of Georgia. However, most of the rivers are very short mountain shallow rivers, with 97% with a length of less than 10 km and 99% below 25 km. Georgian rivers are distributed into two main basins and they are divided by Likhi ridge. 70% of rivers are in the Black Sea basin in the west of the country, and 30% in the Caspian Sea basin, comprising the rivers flowing in the north of the country and from the Mtkvari River basin.

Potential environmental improvements

Targets to be reached by 2020

Targets for which benefits are assessed in this study are:

1. Drinking-water:

- a. Achieving 100% population connection (except in isolated rural areas) to reliable and safe piped water supply at household premises.
- b. Ensuring that the population currently having piped water supply continuously receives reliable and safe water at household premises.
- c. Providing plentiful and equally safe drinking water from other improved water sources in isolated rural areas.

2. Sewage connection:

- a. Achieving 100% population connection (except in isolated rural areas) to a sewage network system.
- b. Upgrading to flush toilet (with sewage connection) for households with dry toilet or no toilet).
- c. Providing improved sanitation to households currently without such facilities in isolated rural areas.

3. Hygiene:

Improving hygiene practices especially ensuring good hand-washing with soap at critical junctures wherever such practices are currently inadequate for protection of health.

Qualitative assessment of the benefits of reaching the targets

Table 4-4 Benefits of improved potable water supply, sanitation and hygiene practices

	Good quality piped water supply	Connection to a sewage network system (and flush toilet for those with dry toilet or no toilet)
Health benefits	<ul style="list-style-type: none"> – Every year, waterborne diseases, such as hepatitis, shigellosis and diarrhoea affect many people in Georgia, mostly in regions with sub-standard conditions of water supply and distribution networks. – Good quality piped water supply, hygienic sanitation (flush toilets connected to sewage network) and good hygiene practices reduce the presence and transmission of pathogens, thus reduce the incidence of diarrhoea and other diseases (Fewtrell et al, 2005). – Reduced incidence of diarrhoea in early childhood contributes to improved nutritional status among children (World Bank, 2008). – Good hygiene practices (especially regular hand washing with soap) also reduce transmission of respiratory infections (Rabie and Curtis, 2006; Luby et al, 2005). – Reduced chemical, heavy metal, and other toxic substances contamination of drinking water reduce the incidence of associated diseases and health disorders. 	
Environmental benefits	<ul style="list-style-type: none"> – Piped water connection and improved piped water quality do not lead to direct environmental benefits. – However, some benefits to habitats and water resources may accrue if water utilities press for protection or restoration of water quality of raw water abstraction sources. 	<p>Sewage collection provides opportunity for proper treatment of wastewater which helps improve environmental quality including cleaner communities, cleaner urban and rural waterways (e.g., canals), cleaner rivers, lakes and coastal waters, and reduced pollution of land resources (see sections on Wastewater Treatment and Surface Water Quality).</p>
Economic benefits	<ul style="list-style-type: none"> – Piped water connection with reliable and continuous good quality water reduces/ eliminates the need for: <ul style="list-style-type: none"> ○ household water storage tanks ○ spending time and money on household point-of-use treatment/ disinfection of water prior to drinking or on purchase of bottled water. – Good quality piped drinking water 	<ul style="list-style-type: none"> – The environmental benefits (see above) of sewage collection and proper treatment of wastewater can provide substantial recreational, tourism, and fishery benefits. (See sections on Wastewater Treatment and Surface Water Quality). – Good treatment of wastewater can also: <ul style="list-style-type: none"> ○ allow for wastewater reuse in agriculture

Table 4-4 Benefits of improved potable water supply, sanitation and hygiene practices

	<p>also:</p> <ul style="list-style-type: none"> ○ reduces public and private health care expenditure ○ improves labour productivity and reduces work absenteeism. <ul style="list-style-type: none"> – Access to good quality water can also provide cost savings to industries and make them more competitive, especially those relating to the food and beverage processing. – Rehabilitation of existing piped water distribution networks (to improve water quality) reduces water losses and thus costs of providing potable water. – 	<ul style="list-style-type: none"> ○ provide substantial cost savings in mobilizing and treating potable water, especially important in water scarce countries (see section on Water Scarcity).
Social benefits	<ul style="list-style-type: none"> – Piped water connection with reliable and continuous good quality water supply provides increased convenience from having potable water available at premises. – Access to good quality piped water also improves the public's perceptions of utilities and the state providing good quality services. 	<p>Sewage connection (and hygienic toilet on premises for those currently without it)</p> <ul style="list-style-type: none"> – increases household convenience (no needs for emptying and maintaining sewage pits/septic tanks; reduced access time to toilet facility or place of defecation), – and reduces odours and nuisance from preventing direct sewage discharge into the local environment.

Quantitative assessment

Expected diarrheal disease and diarrheal mortality reduction from reaching the targets by population group

				Expected average reduction in diarrheal disease and mortality	
Groups	<i>Current water supply and sanitation coverage</i>	<i>Population distribution 2008</i>	<i>Water and sanitation improvement</i>	<i>Already good hygiene</i>	<i>Substantial scope for hygiene improvement</i>
1	Piped water supply and sewage connection	42%	Improvement in reliability and quality of piped water (so as to ensure plentiful and safe water supply) for those of this population currently having water reliability and quality problems	15%	45%
2	Piped water supply but no sewage connection	31%	a) Improvement in reliability and quality of piped water (so as to ensure plentiful and safe water supply) for those of this population currently having water reliability and quality problems. b) Sewage connection (and flush toilet for those with dry toilet or no toilet) for all of this population.	35%	65%
3	Not piped water supply but sewage connection	1%	Reliable and safe piped water supply to premises for all of this population	25%	55%
4	Not piped water supply and no sewage connection	26%	Reliable and safe piped water supply and sewage connection (and flush toilet for those with dry toilet or no toilet) for all of this population	45%	75%
	National total	100%		31%	63%

Source: Authors. Population distribution estimated from WHO/UNICEF (2010a,b) and the Georgia MICS 2005 survey.