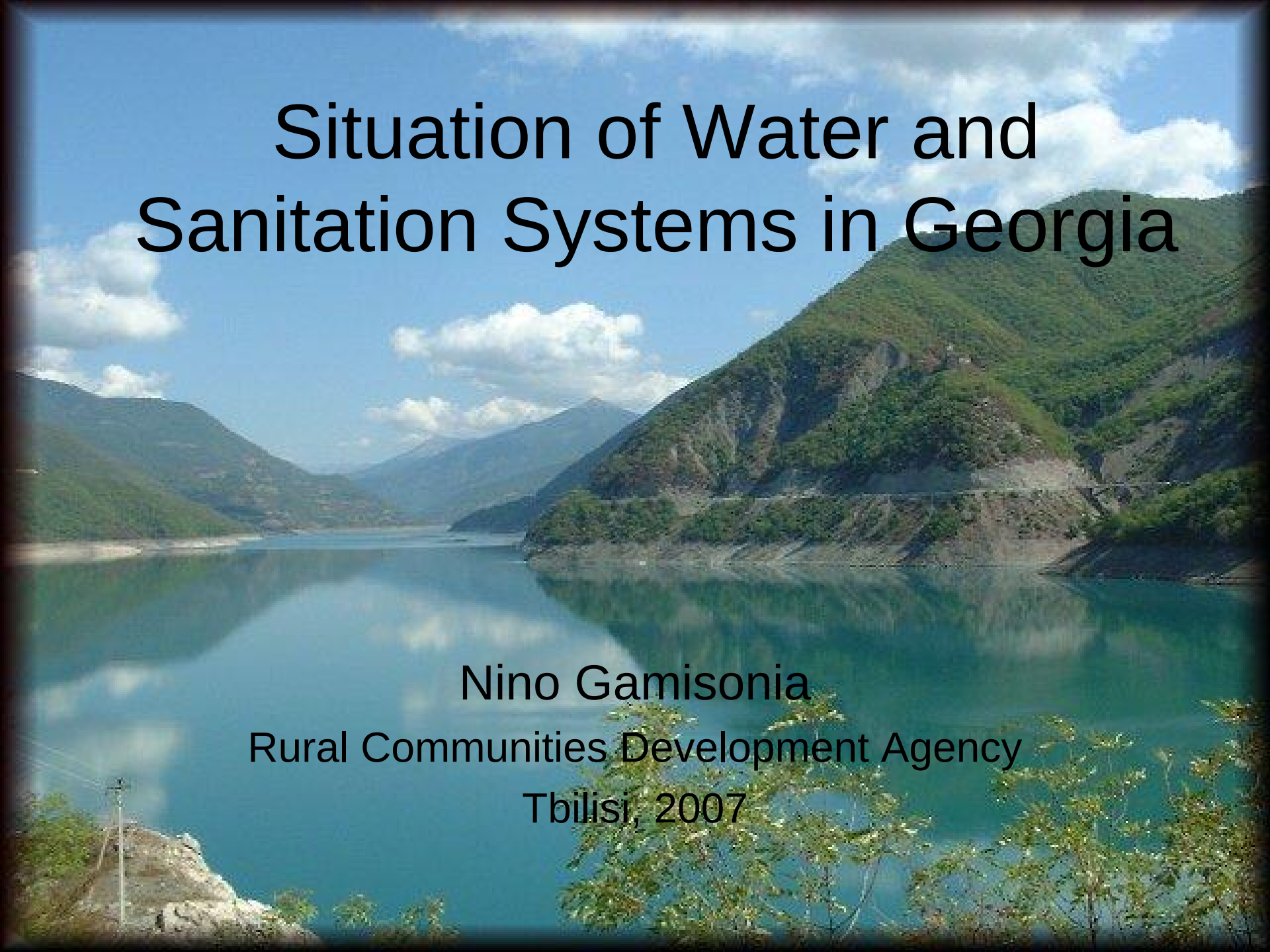

Situation of Water and Sanitation Systems in Georgia

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Tbilisi, 2007

Background

- Water balance calculations suggest that Georgia have four times or more water available per capita than their neighbors in the South Caucasus.

- Territory of Georgia consists of two - the Black Sea and the Caspian Sea basins with more then 26 thousand rivers - length 58 957 km.
  - 860 lakes (with a total water surface area of about 170 km2).
  - 43 reservoirs in the Caspian Sea basin (total volume: 1703,8 mln m3), 8 in the Black Sea basin (volume: 1471 mln m3). Reservoirs are used for irrigation and power engineering and less for drinking water supply.

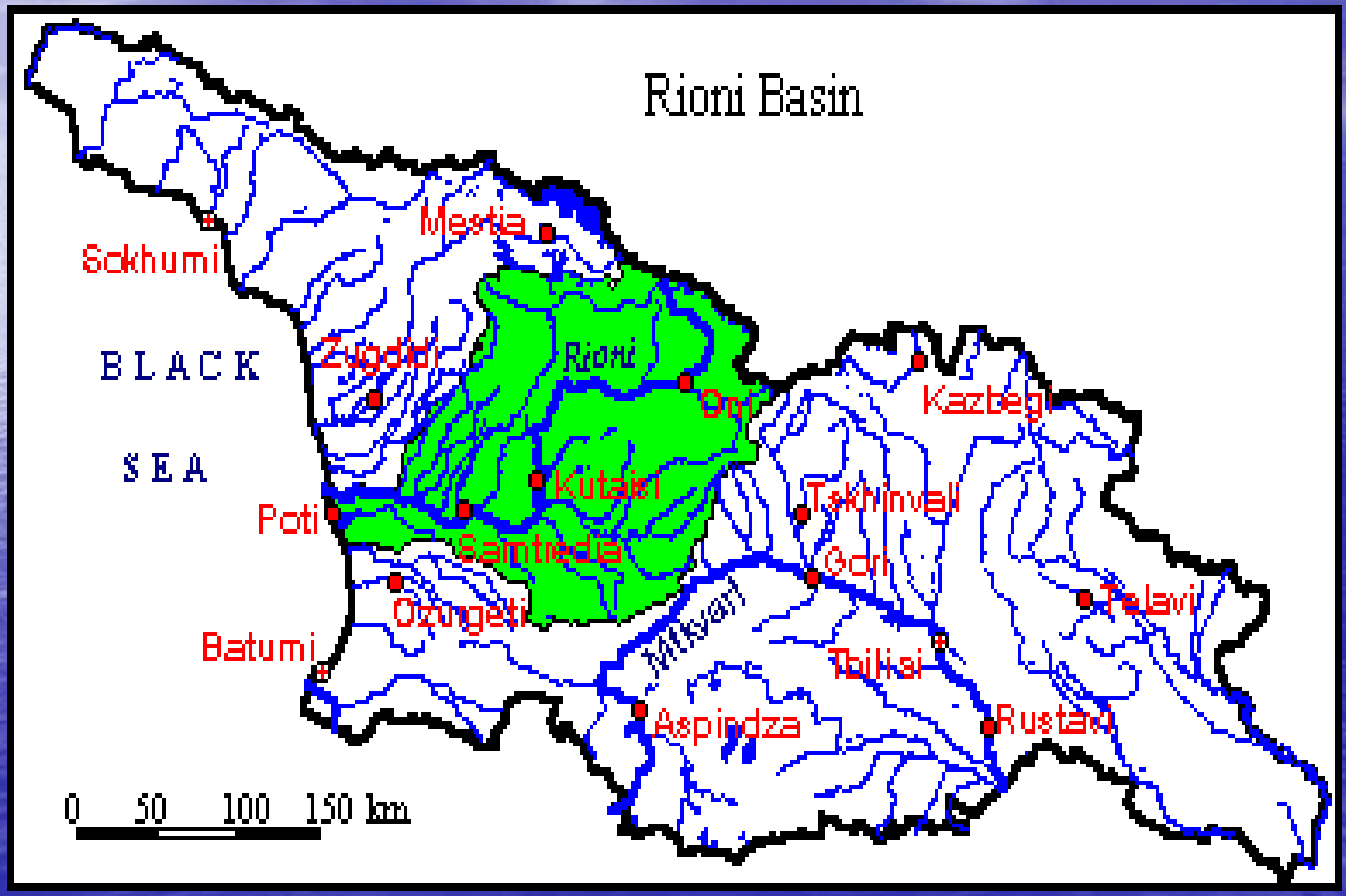
- The total annual river flow - 65,8 km3 out of which 56,5 km3 of water is formed on the territory of Georgia. Surface water resources are distributed as follows: West Georgia (Black Sea basin) annual river flow - 75% of the total flow (49,7 km3), East Georgia (Caspian Sea Basin) - 16,1 m3 (25 %).

- The largest river of Georgia - the Kura/Mtkvari River in the Caspian Sea Basin. The catchments area - 21 120 sq. km and the largest rivers in the Kura/Mtkvari River basin are the Alazani river (catchments area – 12 000 sq. km), Kcia-khrami river (catchments area – 8 260 sq. km) and Aragvi river (catchments area – 2 724 sq. km).

- The major rivers in the Black Sea basin - Rioni (catchments area – 113 418 sq. km) and Inguri (catchments area – 4 062 sq. km).

- 90% of the country's drinking water is supplied by groundwater resources.

Rioni and Mtkvari Basins



Mtkvari and Aragvi Link

Water Use

Total water use per year - 2,010 billion m3.

39% - irrigation

36% - thermal power production

25% - municipal water supply

398 million m3 was returned as permitted discharge, predominantly as municipal wastewater (71%) and cooling water (27%).

Water Quality

- **Ambient surface water quality exceeds Georgian (and comparable international) norms many times over throughout the main stems of both the Rioni and Kura rivers;**

- **The main stem of the Kura is affected downstream from the cities of Borjomi, Gori, Tbilisi and Rustavi;**

- **Tributaries to the Kura of concern include the Vere river in the Tbilisi area, the Alazani river downstream from Telavi, the Mashavera river downstream from Madneuli, and the Suramula river downstream from Khashuri;**

- **Impacts on the Rioni river are reported to be downstream from Kutaisi and at Poti near the Black Sea;**

- **The ground waters are contaminated by municipal, agricultural or industrial pollutants.**

Waste on the Bank of Rioni

Drinking Water

Drinking water is provided through centralized systems in 77 cities and larger towns in Georgia.

- **The top four systems in terms of population:**
  - **Tbilisi (1,272,000)**
  - **Kutaisi (241,000)**
  - **Rustavi (159,000)**
  - **Batumi (137,000)**

- **Centralized distribution is present in approximately 870 smaller towns and villages.**
  - **75% of Georgians living in urban areas are served by centralized systems delivering water to individual dwellings.**
  - **8% received water from taps in household yards**
  - **3% from public taps**
  - **10% from unprotected springs**

- **In rural areas 37% of population is being served by unprotected wells and springs, 20% by water piped in their yards, 13% from public taps, 10% piped to individual dwellings, 13% from rainwater harvesting, and 4% from protected and springs.**

Problems

Breakdowns in physical infrastructure and the prevalence of cross-connections with wastewater systems.

- Many of the drinking-water systems were either installed or last upgraded in the 1980s. Drinking-water distribution pipes are often co-located in the same ditches as wastewater collectors.
- ***Inadequate drinking-water disinfection***

Georgia does not produce chlorine, the basic chemical that is used most commonly for disinfection of drinking water. Import costs are high and disinfection equipment at many treatment plants is not functioning. As a result, it is estimated that 70% or more of systems are not disinfected.

- ***Financial needs of water utilities***

Utility companies are burdened by payments for energy - in some cases 2/3 or more of total budgets. This is exacerbated by the inefficiency of the old pumps and other equipment.

- ***Inadequate quality control and surveillance***

At least 70% of water utilities do not have even rudimentary laboratories to optimize treatment or check on the quality of water delivered to consumers.

- ***Health considerations*** Water-borne disease outbreaks - Water-related diarrhea illnesses, outbreaks of amoebiasis
- ***Inadequate sanitary protection zones***
- ***10 % of industrial discharge is treated***
- ***Lack of incentives for private sector participation in drinking-water services.***

Water Management

- **5 of the 29 municipal wastewater treatment plants in the country are currently operational. Biological treatment units are not operational at any of the 22 facilities in Georgia.**

- **43 out of 100 connections to the sewer collectors are actually installed. The rest of the wastewater (*estimates range from 30% to 50% of the total*) from Tbilisi discharges directly to the Kura River without rudimentary treatment.**

Table: Status of Municipal wastewater Treatment Plants

Town	Technology	Operational Since	Design Capacity	Current Condition
Black Sea Basin				
Kutaisi	M B*	1980	110.0	Mechanical only
Batumi	M B	1983	85.0	Mechanical only
Kobuleti / Ozurgeti	M B	1985	50.0	Out of order
Zugdidi	M B	1975	23.3	Out of order
Poti	M**	1981	23.1	Out of order
Samtredia	M B	1978	17.0	Out of order
Tskhaltubo	M B	1976	13.0	Out of order
Zestaphoni	M B	1976	11.5	Out of order
Chiatura	M	1978	8.2	Out of order
Sairme	M B	1978	0.8	Out of order
Kura River Basin				
Tbilisi / Rustavi	M B	1986	1,000.0	Mechanical only
Tskhinvali	M B	1983	25.0	Out of order
Gori	M B	1968	18.0	Mechanical only
Sagarejo	M B	1975	10.2	Out of order
Khashuri	M B	1971	10.0	Mechanical only
Kareli	M	1968	5.3	Out of order
Telavi	M B	1975	4.5	Out of order
Java	M B	1982	3.5	Out of order
Kaspi	M	1978	2.5	Out of order
Bakuriani	M B	1978	2.1	Out of order
Dmanisi	M B	1983	1.4	Out of order
Abastumani	M B	1981	1.4	Out of order
Tetritskaro	M B	1981	1.0	Out of order

***Source*: Ministry of Environment and Natural Resources Protection**

*MB = mechanical and biological treatment

**M = mechanical treatment only

Wastewater

- Water use dropped from a reported 1,542 million m3 in 1985 to 975 million in 2006.

- Principal industrial category is food processing that generates organic contamination.

- Pretreatment of wastewater by the vast majority of industrial users is the exception rather than the rule.

- 80% to 90% of industrial wastewater is not treated before being discharged to sewers and municipal wastewater treatment or directly to surface waters.

- Most treatment plants do not monitor either the quantity or the quality of their wastewater.

- Municipal wastewater is projected as the major contributor of organic pollution to surface water. The inflow to municipal plants is diluted by storm water, wastage from leaking drinking-water systems, and groundwater infiltration.

- Wastewater is not routinely disinfected. The biggest concern is:
  wastewater from health centers and hospitals, including those that treat patients with tuberculosis, may not be disinfected at municipal plants.

Limiting factor in making progress in this area is the lack of basic equipment for carrying out independent field inspections.

Watershed and Transboundary Water Management

- No effective regulations or incentives in Georgia to launch either watershed-based plans, or administrative bodies to share information or manage quality or quantity on a watershed basis within the country.

- Georgia is a party to the Convention on the Protection of the Black Sea Against Pollution but not to the Convention on the Protection and Use of Transboundary Waters and International Lakes.

Protection of the Black Sea

- Black Sea is heavily contaminated with nutrients (i.e. nitrogen and phosphorus series), causing severe eutrophication, with a subsequent steady, steep decline in fish production over the past 25 years.
- The greatest sources of organic pollution are municipal wastewater treatment plants and agriculture.
- Additional contaminants from industrial facilities, oil refineries and leaking tankers affect overall conditions in the Black Sea.

Key Deficiencies

- No active, funded programs to improve the water and wastewater infrastructure of key port cities, particularly Batumi, Kobuleti and Poti.

- Lack of basic investments to decrease industrial and municipal pollution, with consequent human health impact.

- Lack of resources to strengthen basic needs for field surveillance by the Ministry of Environment and Natural Resources Protection (to oversee wastewater discharge) and the Ministry of Labor, Health and Social Affairs (to oversee drinking-water quality, bathing-water quality, and track water-borne illness).

The Legal Framework

The Law on Water sets up the legal basis for water resources protection and management in Georgia and defines the main principles of water policy:

- **Protection of water bodies and rational use of water taking into account interest of present and future generations as well as the principles of sustainable development;**
- **Supply the population with safe drinking water as the first priority;**
- **Sustainability and sustainable use of water inhabitants;**
- **Prevention of harmful impacts on water resources;**
- **Guarantee the security of the state interests in the field of water protection, use and international trading;**
- **Production of water as goods according to the international principles and norms;**
- **Defense of interests of legal and natural entities in the field of water use and protection.**

- According to the national legislation water is the state property and can only be given to entities for use.
- The Law on Mineral Resources of Georgia defines the principles of groundwater use, regulation and protection.
- Water bodies of Georgia form the water state fund.
- The Water State Fund land includes the land occupied by water bodies, hydraulic works and its waterworks as well as the land allocated as a water-body protecting zone, a sanitation zone, etc.
- Other environmental laws are the frame legal acts that are to be implemented through the more concrete normative acts. Normative acts are already adopted, some are under development and amendment-making process.

Institutional Bodies

- National legislation envisages establishment of reserve fund of water bodies in order to create a network of water bodies of special significance. Not established.
- The Ministry of Environment Protection and Natural Resources is responsible for water state accounting, registration and use, and maintenance of water state cadastre.
- National legislation requires establishment of clearing house of natural resources facilitating the state accounting and registration. Not established.


Thank You