Ministry of Environment and Natural Resources Protection of Georgia

Policies, data collection, strengths and challenges related to water quality in Georgia

13th JTF on Environment Statistics and Indicators
29 June, 2017 Geneva

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Main Goals

Sustainable Development

Prevention of Environmental Degradation

Means for Achieving Key Goals

- Good Environmental Governance
- Public Awareness
- Greening the Economy
- EU Integration

EU Integration

- European Neighbourhood Policy (ENP) — 2013
- Association Agreement and DCFTA — 2014
- AA/DCFTA Roadmap — 2015
- Updated Roadmap and 1-year Report — 2016

- Roadmap for EU approximation;
- AA/DCFTA Annual National Plans;
- New Units responsible for EU integration:
  - Sustainable Development and EU Integration Policy Division
  - EU Legislation Harmonisation Division

THE GLOBAL GOALS
For Sustainable Development

Government Administration

SDG Nationalisation

Ministry of Environment and Natural Resources Protection of Georgia

environmentally related goals and targets

SUSTAINABLE DEVELOPMENT GOALS

Goal 11. Make cities and human settlements inclusive, safe, resilient and sustainable

TARGET	GEORGIA ADJUSTED	BASE LINE INDICATOR
11.6 By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management	11.6 By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management	11.6.1.Annually generated municipal waste - 900 thousand tons; Annually collected and disposed municipal waste - 700 thousand tons. 11.6.2. Municipal waste placed on landfills - 100%; Recycled 0 % 11.6.3.Air pollution annually measured - in 5 big cities of Georgia (Tbilisi, Batumi, Kutaisi, Zestaponi and Rustavi); 2015 average air pollution in Tbilisi (in mg/m³) - PM 0.77; Sulfur dioxide 0.14; carbon monoxide 3.1; nitrogen dioxide 0.084; lead 0.0002, ozone 0.0469. Out of above listed six components, five exceed the maximum allowable concentration (MAC), except lead.

Goal 12. Ensure sustainable consumption and production patterns

TARGET	GEORGIA ADJUSTED	BASE LINE INDICATOR
12.8 By 2030, ensure that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature	12.8 By 2030, ensure that people of Georgia have the relevant information and awareness for sustainable development and lifestyles in harmony with nature	12.8.1. Because of the absence of Strategy on Environmental Education for Sustainable Development, integration of environmental education into high or continuous education system is limited. Basic framework document of the standard - "Environmental Education for Sustainable Development" is already prepared, but not yet approved.

SUSTAINABLE DEVELOPMENT GOALS

Goal 13. Take Urgent action to combat climate change and its impacts

TARGET	GEORGIA ADJUSTED	BASE LINE INDICATOR
13.2 Integrate climate change measures into national policies, strategies and planning	13.2 Integrate climate change measures into national policies, strategies and planning	13.2.1. Integration of climate change measures into national policies, strategies and planning is not sufficient. At the moment Georgia follows business as usual scenario (BAU) in reduction of GHG emissions.

Goal 15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

TARGET	GEORGIA ADJUSTED	BASE LINE INDICATOR
15.2 By 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and increase afforestation and reforestation by [x] per cent globally	15.2 By 2020, promote the implementation of sustainable management of all types of forests, reduce deforestation, restore degraded forests and increase afforestation and reforestation	15.2.1. Forests occupy about 40 per cent of the territory, a total of 2,822,500 ha. From this, about 100 000 ha (3,5 %) can be considered to be sustainably managed. 15.2.2. No full-scale state inventory has been conducted during last 15 years and current date is mostly inaccurate. Between 2003 and 2015 690.4 ha were reforested within the state forest fund. According to 2013 estimates, 34 000 ha require afforestation and reforestation.
15.5 Take urgent and significant action to reduce the degradation of natural habitats, halt the loss of biodiversity and, by 2020, protect and prevent the extinction of threatened species	15.5 Take urgent and significant action to reduce the degradation of natural habitats, halt the loss of biodiversity and, by 2030, protect and prevent the extinction of threatened species	15.5.1. In 2014, total area of Protected Areas comprised 8.62% of the country's territory. In recent years it has been doubled (600.59 ha) compared to the 2004 coverage (265.85 ha). 15.5.2. According to the available data, species that are in the "Red List" can be considered as the threatened species and in Georgia there are 185 different species with various conservation status, included in the Red List.

Legal Framework

Law of Georgia on Water (16 October, 1997)

- Sets up the legal basis for water resource protection and management

Main Sub-legal acts under the Law on Water:

- Regulation on the protection of Georgian surface waters from the pollution
- Regulation on water protection zones
- Methodology on the calculation on Maximal Admissible Discharges of pollutants in the wastewater discharged to the surface water
- Instruction of State Accounting of Water Use

Justification for the New Water Legislation

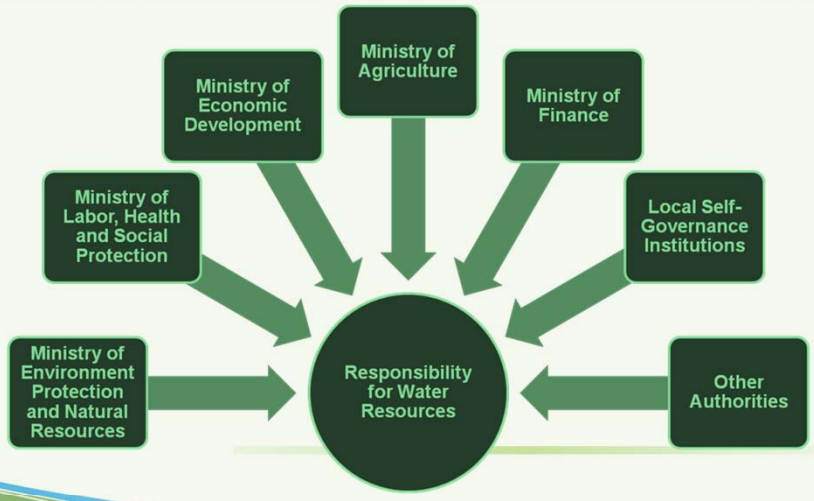
- Nominal and questionable legal validity of the most of the provisions of existing Law on Water
- Inconsistency of the latest water linked legislation to basic principles and provisions of the existing Law
- Outdated water resources management system (administrative approach)
- Obligations according the EU-Georgia Association Agreement:

- Directive 2000/60/EC establishing a framework for Community action in the field of water policy
- Directive 2007/60/EC on the assessment and management of flood risks
- Directive 91/271/EEC on urban waste water treatment
- Directive 91/676/EC concerning the protection of waters against pollution caused by nitrates from agricultural sources

Process of the preparation of the new Legislation

- Started in 2011 under the National Policy Dialogue in IWRM in Georgia
- 2012 – the Concept of the new Law approved by the NPD Steering Committee
- 2013 - first draft of the "Law in Water Resources Management" (support of the international experts from Finland)
- 2014 – 2015 – consultations with stakeholders, revision by international experts (UNECE), public hearings
- 2015 – comments from the Governmental Administration
- 2017 - Regulation Impact Assessment (ongoing), submission to the Parliament of Georgia

Institutional Setting



Key Principles of the new Law

Institutional Setup for Integrated Water Resources Management

- Intersectional Committee for Protection and Use of Water Resources
- Water Resources Management Service of the Ministry of Environment and Natural Resources Protection
- Water Basin Services
- Water Basin Councils

Water Management unit

- River basin/ river basin district

Water classification according to EU approach

- Water quality status
- Water use

Key Principles of the new Law

Water monitoring according to EU standards

- Hydromorphological
- Biomonitoring

Introduction of water use permits

- Special permits for water abstraction and water discharge

Polluter pays principle

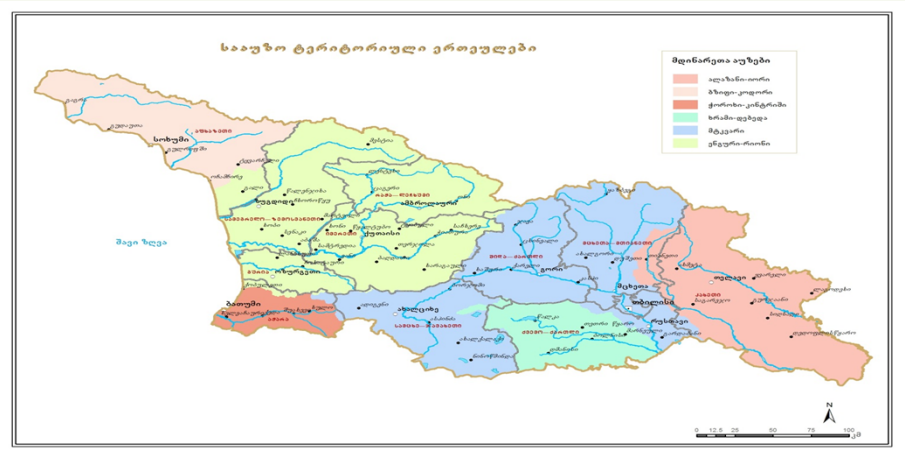
Participatory decision-making

Secondary Bylaws

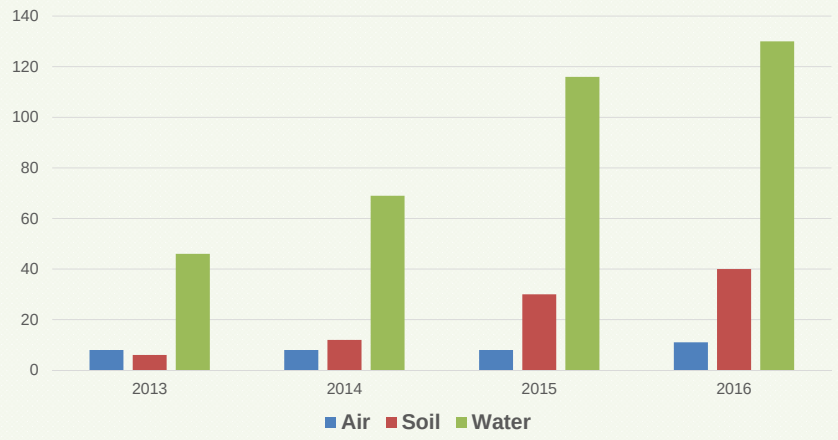
6 by-laws has been drafted with support of UNECE and EU project “Environmental Protection of the International River Basins” (EPIRB):

- ❑ On identification and delineation of river basins
- ❑ On rules for identification and delineation of water bodies
- ❑ On the rules on composition and functioning of River Basin Councils
- ❑ On the approval of the procedure of the development, consideration and endorsement of river basin management plans
- ❑ On the rules for planning and implementation of water resources monitoring
- ❑ On Calculation of Maximum Admissible Discharge (MAD) Norms of Pollutants Discharged With Wastewater Into Surface Water Bodies

Delineation of the River Basins



Monitoring Points



Points Water Monitoring Points

158 Points

85 – in West Georgia
73 – in East Georgia

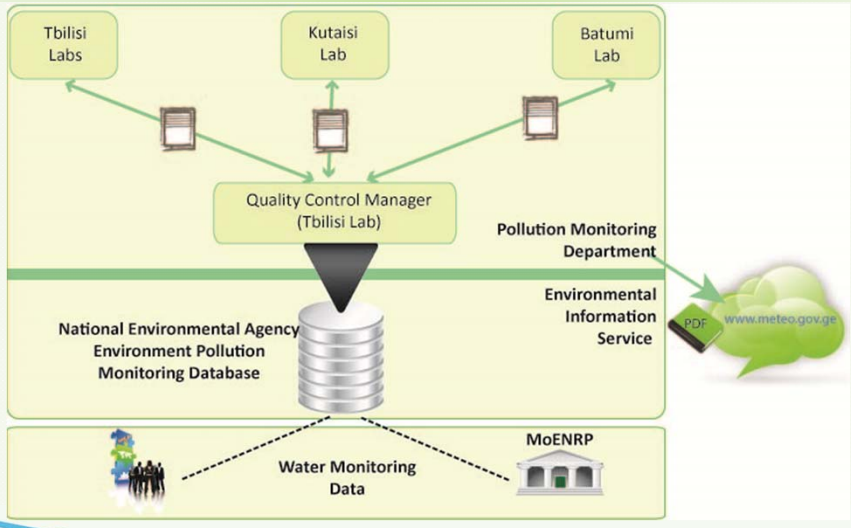
QA/QC

Sampling

Analytical Methods

Microbiological Laboratory

Water Monitoring



Monthly Informative Bulletin "State of Environment of Georgia"

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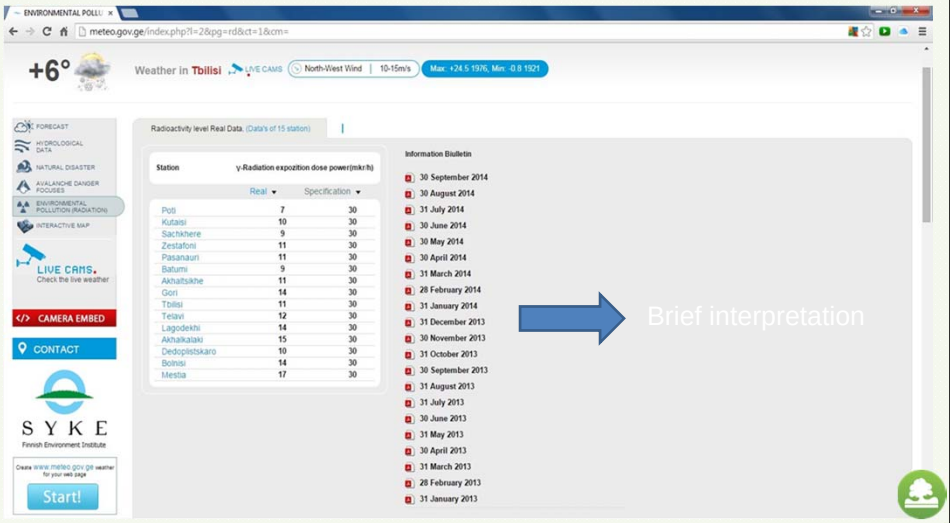
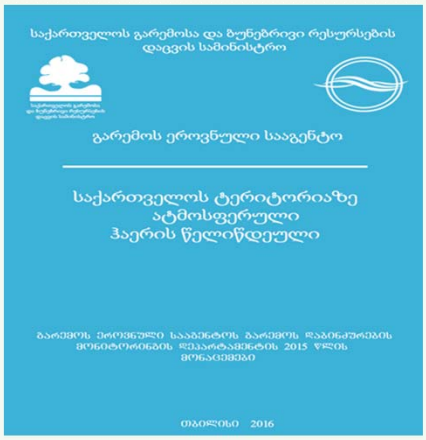


Reporting

www.nea.gov.ge

www.meteo.gov.ge



UNSD/UNEP PILOT QUESTIONNAIRE 2017 ON WATER QUALITY (Rivers)

WATER QUALITY

Name of River: Mtkvari **Sampling frequenc Minimum:** 56 /year
Number of monitoring locatio 12 **Maximum** 144 /year
Mean distance to mouth or downstream frontier (km): 993 **Mean sampling depth (m):** 0.3

Table WQ1: Water Quality of a selected river

• Unhide to view/edit previous years

Line	Category	Unit	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
1	Dissolved Oxygen (DO)	mg/l O2	9.11	8.4	10.42	9.32	9.82	8.7	8.93	9.12	8.71	7.26	8.27	8.49	8.87	8.35	9.04	8.92
2	Electrical Conductivity (EC)	µS/cm	200	541.29	418.95	314.7	320.17	322.9	354.1	301.82	327.06	325.62	359.66	339.58	333.56	275.38	288.51	300.41
3	Total Oxidised Nitrogen (TON)	mg/l NO_3+NO_2-N	1.36	1	0.416	0.648	0.548	0.488	0.916	0.589	1.065	1.103	2.097	2.114	1.52	1.083	0.749	0.849
4	Orthophosphate (OP)	mg/l PO_4-P	0.029	0.011	0.008	0.0135	0.008	0.008	0.072	0.071	0.0738	0.0944	0.1227	0.1295	0.0796	0.0571	0.0201	0.048
5	pH	-	6.55	8.03	8.33	8.02	8.07	8.14	8.03	8.11	8.24	8.22	8.32	8.51	8.1	8.05	8.08	8.33
6	Biochemical Oxygen Demand (BOD5)	mg/l O_2	2.42	2.58	2.96	1.9	2.24	2.21	2.23	2.72	2.52	1.87	2.43	2.11	1.91	1.82	1.68	1.89
7	Faecal Coliforms (FC)	MPN/100ml*																
8	Other, specify	.....																

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Note:

- ***MPN/100ml: Most Probable Number per 100 ml.**
- **If the requested data are not available, please leave the cell blank. If the requested variable is not applicable (the phenomenon is not relevant) to the country or the value is less than half the unit of measurement, the cell should be filled with "0".**
- Please provide in the Footnotes Section below information on the source and data collection methodology for the values provided, such as estimation methods (if any), and the types of the original data sources used (e.g., surveys or administrative records)
- **Data can also be provided for years 1990 and 1995-2000. Select column E to column T, right-click, and select "Unhide".**

UNSD/UNEP PILOT QUESTIONNAIRE 2017 ON WATER QUALITY (Rivers)

WATER QUALITY

Name of River: Mtkvari
Name of monitoring location: Mtkvari Tbilisi (Zahesi)
Distance to mouth or downstream frontier (km): 900
Sampling frequenc Minimum: 3 /year
Maximum 12 /year
Sampling depth (m) 0.3

Table WQ1: Water Quality of a selected river's selected monitoring location

• Unhide to view/edit previous years

Line	Category	Unit	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
1	Dissolved Oxygen (DO)	mg/l O2	9.75	7.81	10.04	9.21	9.46	8.96	8.95	8.7	8.45	7.27	8.31	8.24	8.9	8.38	8.8	8.82
2	Electrical Conductivity (EC)	µS/cm	200	465	420	307	345	356.2	292.5	309.1	336.3	324.9	345	326.6	328.6	277.2	287.04	323.25
3	Total Oxidised Nitrogen (TON)	mg/l $NO_3 + NO_2$-N	1.208	0.726	0.416	0.55	0.53	0.454	0.917	0.502	0.81	1.057	2.541	2.026	1.217	1.065	0.672	0.699
4	Orthophosphate (OP)	mg/l PO_4-P	0.022	0.008	0.006	0.012	0.007	0.006	0.065	0.097	0.051	0.06	0.061	0.053	0.049	0.041	0.045	0.023
5	pH	-	6.46	8.03	8.4	8.05	8.15	8.19	8.05	8.14	8.22	8.35	8.36	8.51	8.22	8.2	8.07	8.32
6	Biochemical Oxygen Demand (BOD5)	mg/l O_2	1.53	2.46	2.99	1.57	2.05	2.2	1.94	2.78	1.7	1.56	2.04	1.35	1.92	1.75	1.31	1.79
7	Faecal Coliforms (FC)	MPN/100ml*																
8	Other, specify	.....																

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UNSD/UNEP PILOT QUESTIONNAIRE 2017 ON WATER QUALITY (Groundwater)

WATER QUALITY

Name of groundwater body:
Name of monitoring location: Gurjaani, village Kalauri
Surface area (km^2):
Mean depth (m):
Maximum depth (m):
Sampling depth (m):
Sampling frequenc Minimum: /year
Maximum /year
Type of stratificatic
Inflow (km^3):
Residence time (years):

Table WQ3: Water Quality of a selected groundwater body's selected monitoring location

• Unhide to view/edit previous years

Line	Category	Unit	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
1	Electrical conductivity	µS/cm														488	393	505
2	Nitrate	mg/l NO_3-N														0.457	0.324	0.572
3	pH	-														7.14	7.91	7.48
4	Orthophosphate (OP)	mg/l PO_4-P														0.014	0.016	0.028
5	Faecal coliform	MPN/100ml*														N/D	N/D	N/D
6	Other, specify	.....																

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Note:

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Footnotes

UNSD/UNEP PILOT QUESTIONNAIRE 2017 ON WATER QUALITY (Lakes)

WATER QUALITY

Name of Lake: Paliastomi
Number of monitoring locatio 1(Maltakva(2015-2016))
Surface area (km²): 18.2
Mean depth (m): 2.1
Maximum depth (m): 3.2
Mean sampling depth (m): 0.5

Sampling frequency Minimum: 2 /year
Maximum 7 /year
Type of stratification:
Inflow (km³):
Residence time (years):

Table WQ2: Water Quality of a selected lake

• Unhide to view/edit previous years

Line	Category	Unit	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
1	Dissolved oxygen (DO)	mg/l O_2	10.12		7.96		8.91		12.06	11.14	10.82	8.99	9.6	10.03	9.51	10	8.9	10.4
2	Electrical conductivity (EC)	µS/cm	2000						855.3	13619.5	3741.5	14164.9	3493.2	1379.3	1482.7	985	1469.2	9260
3	Total oxidised nitrogen (TON)	mg/l NO_3 + NO_2-N	0.806				1.279		0.3	0.094	0.229	0.067	0.11	0.046	0.026	0.009	0.49	0.122
4	Orthophosphate (OP)	mg/l PO_4-P	0.007				0.055		0.016	0.004	0.009	0.002	0.006	0.009	0.004	0.002	0.009	0.003
5	pH	-	7.97		7.77		7.52		7.89	8.3	8.38	8.59	8	8.7	8.32	8.44	8.1	8.24
6	Chlorophyll-a (Chl-a)	mg/l Chl-a	920.6				6493.44		862.67	2673.8	1873.55	6303.03	2806.23	2798.8	2446.13	1716.65	1224.16	2318.8
7	Faecal Coliforms (FC)	MPN/100ml*																
8	Other, specify	.....																

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Footnotes

Code	Footnote text
	In 2001-2014 sampling was taking place on Paliastomi location. From 2015 it takes place on Maltakva location.

UNSD/UNEP PILOT QUESTIONNAIRE 2017 ON WATER QUALITY

CHALLENGES

Averaging of all Georgian rivers qualitative data is not recommended because the dynamics of the natural resources and geographical environment interdependence is different, accordingly river chemical and biological quality indicators is different as well.

Challenges and possible solutions

- ✓ Water quality monitoring points and measured parameters are not sufficient
- ✓ Absence of web-based environmental data management and reporting systems
  - Outdated databases
- ✓ Insufficient quality control system
- ✓ Data reliability
- ✓ Lack of relevant trained staff
- ✓ Sharing of experience and good practice
- ✓ Monitoring data systematization and analysis using modern technologies

www.moe.gov.ge

Thank you

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