



Preliminary version

**WATER SECTOR CONVERGENCE PLAN
FOR GEORGIA**



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1. INTRODUCTION.....	4
2. METHODOLOGY.....	5
3. CURRENT SITUATION.....	7
3.1 THE GEOGRAPHY.....	7
3.2 THE WATER-RELATED PROBLEMS	7
3.3 THE LEGAL FRAMEWORK	8
3.4 THE INSTITUTIONAL FRAMEWORK	10
3.5 RELEVANT INTERNATIONAL PROJECTS	13
4. THE WATER FRAMEWORK DIRECTIVE (2000/60/EC).....	15
4.1 KEY PROVISIONS, INCLUDING GUIDING PRINCIPLES AND POLICIES	15
4.2 RESULTS OF THE LEGAL ANALYSIS	16
4.3 MEASURES NEEDED TO IMPLEMENT THE WATER FRAMEWORK DIRECTIVE REQUIREMENTS IN GEORGIA OVER TIME	17
4.3.1 River Basin Delineation	17
4.3.2 Identification of Competent Authorities and Administrative Arrangements.....	18
4.3.3 Analysis of Characteristics.....	21
4.3.4 Economic Analysis	25
4.3.5 Protected Areas.....	26
4.3.6 Monitoring of water status	27
4.3.7 Recovery of costs for water services	31
4.3.8 The combined approach for point and diffuse sources.....	32
4.3.9 Programme of measures.....	33
4.3.10 River basin management plans	34
4.3.11 Public participation in river basin management planning	34
4.4 RESOURCES NEEDED FOR IMPLEMENTATION, INCLUDING CAPACITY BUILDING ASSISTANCE & INVESTMENTS	35
5. THE FLOOD RISKS DIRECTIVE (2007/60/EC)	36
5.1 KEY PROVISIONS, INCLUDING GUIDING PRINCIPLES AND POLICIES	36
5.2 RESULTS OF THE LEGAL ANALYSIS	36
5.3 MEASURES NEEDED TO IMPLEMENT THE FLOOD RISKS DIRECTIVE REQUIREMENTS IN GEORGIA OVER TIME	36
5.3.1 Undertake preliminary flood risk assessment for each river basin or unit of management.....	36
5.3.2 Prepare flood hazard maps and flood risk maps for all river basins.....	38
5.3.3 Establish flood risk management plans at the level of the river basin district, or unit of management	39
5.4 RESOURCES NEEDED FOR IMPLEMENTATION, INCLUDING CAPACITY BUILDING ASSISTANCE & INVESTMENTS	40
6. THE URBAN WASTEWATER TREATMENT DIRECTIVE (91/271/EEC).....	41
6.1 KEY PROVISIONS, INCLUDING GUIDING PRINCIPLES AND POLICIES	41
6.2 RESULTS OF THE LEGAL ANALYSIS	42
6.3 REGULATORY MEASURES NEEDED TO IMPLEMENT THE UWWT DIRECTIVE IN GEORGIA	42
6.3.1 Establish a control system for discharges of wastewater into the environment, including permitting, monitoring and enforcement provisions covering both municipal wastewater discharges and industrial wastewater discharges	42
6.3.2 Establish a control system for industrial discharges into wastewater collection systems.....	44
6.3.3 Set wastewater discharge standards	45
6.3.4 Determine which areas are “sensitive” within the meaning of the Directive where additional measures should be needed (alternatively, set environmental surface water quality standards).....	45
6.3.5 Provide for the gradual tightening of standards through the use of “temporary” permit conditions or derogations	46
6.3.6 Set in place controls (prior regulation and/or specific authorization) over the use (disposal) of sewage sludge arising from wastewater treatment.....	46
6.3.7 Establish a system of monitoring of discharged wastewater, relevant receiving waters and procedures for disposal of sludge and of managing the data received	47
6.4 TECHNICAL MEASURES NEEDED TO IMPLEMENT THE UWWT DIRECTIVE IN GEORGIA	48

6.4.1	Collection systems.....	48
6.4.2	Wastewater treatment plants.....	49
6.5	RESOURCES NEEDED FOR IMPLEMENTATION, INCLUDING CAPACITY BUILDING ASSISTANCE & INVESTMENTS.....	50
7.	THE BATHING WATER DIRECTIVE (2006/7/EC).....	51
7.1	KEY PROVISIONS, INCLUDING GUIDING PRINCIPLES AND POLICIES	51
7.2	RESULTS OF THE LEGAL ANALYSIS	52
7.3	MEASURES NEEDED TO IMPLEMENT THE BATHING WATER DIRECTIVE REQUIREMENTS IN GEORGIA	52
7.3.1	Determining what is a bathing water.....	52
7.3.2.	Setting bathing water quality standards	52
7.3.3.	Monitoring of bathing water.....	53
7.3.4.	Assessment and classification of bathing water.....	54
7.3.5.	Management of bathing water quality	54
7.3.6.	Bathing water profiles	55
7.3.7.	Measures to be taken in exceptional circumstances	55
7.3.8.	Information to the public	56
7.3.9.	Cooperation on transboundary waters	56
7.4	RESOURCES NEEDED FOR IMPLEMENTATION, INCLUDING CAPACITY BUILDING ASSISTANCE & INVESTMENTS.....	57
8.	INTEGRATED ACTION PLAN AND TIMETABLE	58
	INSTITUTIONS IN GEORGIA INVOLVED IN WATER MANAGEMENT	61
	LIST OF ACRONYMS	68
	REFERENCES.....	69

1. Introduction

The Government of Georgia has made a commitment to bring its laws and practices closer to those of the European Community, including the water protection/management requirements. This process is known as “convergence”. The objective of the process is to support Georgia in its goal of developing economically and socially, while maintaining a high level of environmental protection.

The EC legislation in the field of water is aimed at achieving an integrated approach to water management. This integrated approach is the key to cost effective and institutionally efficient implementation of the measures needed to ensure adequate quantities and quality of a nation’s water resources so as to achieve sustainability for the future.

Sustainable management and protection of water resources are also important elements of the European Neighbourhood Policy (ENP), which was created in 2003/2004 and is now well established as the principal instrument for cooperation with the neighbour countries. It is a collective EU response to the aspirations of its Eastern and Southern neighbours to jointly promote prosperity, stability and security.

Georgia, as an ENP partner country, is expected to benefit considerably from full implementation of the National ENP Action Plan, including from enhanced convergence with the EU approaches.

In environmental terms, convergence to the EU’s water legislation may create the following benefits:

- more sustainable use of water, and more efficient and effective management at the river basin level;
- reduced flood risks and preventive measures;
- protected and well managed groundwaters;
- reduced pollution and improved treatment of wastewater;
- benefits for human health in relation to drinking and bathing water, benefits for ecosystems, improved conditions for economic activities (e.g. tourism);
- instruments to address water scarcity;
- water pricing as a tool to raise funds and steer consumer behaviour;
- ownership among stakeholders as result of public participation.

The goal of this convergence plan, or road map, is to plot how Georgia can make the transition towards an integrated system of river basin management planning as well as actual implementation of the measures required to protect Georgia’s water resources. It has been prepared as part of the legal component of the assistance provided to Georgia in the context of the EU-funded Environmental Collaboration for the Black Sea (ECBSea) project.

In parallel, the ECBSea project’s legal component has prepared a Concept Paper for a new Water Law, which will – if adopted – constitute a significant step on the part of Georgia towards convergence with the EU water sector requirements. The two documents should therefore be considered together.

2. Methodology

The EC water sector legislation comprises hundreds of pages of text and many of the requirements require new administrative arrangements and significant financial investment in water sector infrastructure. In recognition of the difficulties in implementing the requirements, the water sector legislation typically gives Member States a reasonable number of years for taking the practical steps needed to meet the legal requirements.

In developing this convergence plan, it was recognized that Georgia also needs to take a practical approach and to set priorities based on its needs and available human and financial resources. The first step in preparing this road map therefore was to select the most important water sector requirements for priority attention.

Of the EU requirements relevant for environmental protection, the Water Framework Directive (2000/60/EC) is considered the highest priority directive since it sets forth a number of key elements for overall water resource management. Three other Directives were also considered important in the Georgian context:

- Flood Risks Directive (2007/60/EC)
- Bathing Water Directive (2006/7/EC)
- Urban Wastewater Treatment Directive (91/271/EC)

These four directives relate to each other and are in some cases inter-dependent. For example, compliance with the Urban Wastewater Treatment Directive will in many cases contribute to compliance with the standards of the Bathing Water Directive.

There are other water sector Directives and policies also considered important for Georgia's process of convergence, as follows:¹

- Marine Strategy Framework Directive (2008/56/EC)
- Groundwater Protection Directive (2006/118/EC)
- Fish Life Directive (2006/44/EC)
- Priority substances in the field of water policy (Decision 2455/2001/EC, amending the Water Framework Directive)
- Nitrates Directive (91/676/EEC)
- Communication on Integrated Coastal Zone Management (COM(2000) 547 final)
- Communication on water scarcity and droughts in the EU (COM(2007) 414 final)

These other requirements should be included in Georgia's plans for water sector convergence at a later date, as resources permit.

After selection of the four priority directives, gap analyses were carried out of the current legal and institutional structures in place for water resource management, in order to identify the key policy changes required to work towards convergence. In the course of the legal gap analysis, tables of

¹ It should be noted that this road map has been prepared for the Ministry of Environmental Protection and Natural Resources and therefore it does not cover the requirements of the Drinking Water Directive, since this is in the competence of the Ministry of Labour, Health and Social Affairs (which sets drinking water quality standards) and the Ministry of Agriculture (which controls drinking water quality and safety parameters, through the National Service for Food Safety, Veterinary and Plant Protection.)

concordance were prepared so as to reveal any gaps or inconsistencies in Georgia's current water sector legal framework.

The institutional gap analysis considered the various ministries with competences related to water management, as well as the roles of the autonomous republics and local self-governance bodies. In addition to analysis of the legal bases for their roles, extensive interviews were carried out with relevant officials, in order to get a more detailed view of actual administrative practices.

This process resulted in a list of actions required to carry out the key policy, legal, and administrative changes for this initial stage of convergence.

Information was also gathered concerning the current status of water sector infrastructure as well as the additional resources needed to achieve convergence (e.g., investments needed for water supply as well as for wastewater collection and treatment infrastructure). This included information on plans and programmes for obtaining the necessary resources, including current and proposed technical assistance and financial support from outside sources, such as IFIs and donors.

On the basis of the information gathered and subsequent analysis, a timetable for carrying out the priority actions was developed. This action plan and timetable, together with the information on the EU requirements and the rationales provided for the selected actions, comprises the "road map" for convergence.

3. Current situation

3.1 *The geography*

In overall terms, the territory of Georgia is rich in water resources. However, these resources are not distributed equally over the territory. The populations of eastern regions of Georgia frequently experience severe water shortages, notably the severe drought of 2000 while the western regions are subject to risks of flooding, due to the abundance of rainfall. In almost all regions of Georgia, moreover, access to safe drinking water is still a problem.

The territory of Georgia can be divided into two main river basin groups:

- The Black Sea basin, in the west of the country, with the main rivers, from north to south, being the Inguri, Rioni and Chorokhi.
- The Caspian Sea basin, in the east of the country, with the main rivers, from north to south, being the Alazani, Iori and Kura rivers. These rivers rise in Georgia, Armenia and Turkey and flow into Azerbaijan in Lake Adzhinour, then flow further through Azerbaijan until entering the Caspian Sea.

The total actual renewable water resources from these rivers and from renewable groundwater resources are estimated at 63,330 million m³/year, compared to the total annual withdrawal, which in the year 2005 was 1,621 million m³.²

3.2 *The water-related problems*

Despite Georgia's overall abundance of water, access to safe drinking water is still a problem almost in all regions. Virtually all water supply systems suffer severe anthropogenic pressure. They are contaminated by industrial, communal, domestic and agricultural wastewater, agricultural chemical discharges and industrial and domestic waste from populated areas.

Moreover, the sanitary and technical condition of existing water supply pipelines is unsatisfactory. No major rehabilitation or repair works were carried out in the period between 1987 and 2004. Over 60% of trunk and distribution pipe networks need to be replaced. Drinking water treatment facilities are often technically unfit, and lack adequate supplies of filter materials, installations and chemical agents used for water preparation. 69% of existing water pipelines appear to operate without water decontamination installations, 28% without sanitary protection zones, and 23% without necessary raw water treatment facilities.

Surveys of the quality of drinking water conducted in 2000-2002 showed that the quality of drinking water supplies failed to meet state standards. There is thus a threat of intestinal infection and epidemic outbreaks.

Wastewater collection systems and treatment facilities are also in poor condition. Only the wastewater treatment facility for Tbilisi is operable.

² Agricultural water withdrawal accounted for 1,055 million m³ and water withdrawal for domestic purposes for 358 million m³. Industrial water withdrawal was estimated at 208 million m³.

From 2004, the newly elected government in Georgia considerably intensified its efforts to optimize the management of potable water resources and increase the funding of municipal infrastructure, both from state budgetary resources and international donor assistance.

In Tbilisi, extensive reconstruction and rehabilitation works were carried out between 2005 and 2007. All major drinking water quality monitoring laboratories have been refurbished and equipped with modern computerized systems. Most central water pipelines have been rehabilitated and the number of emergency shut-downs, as well as the scale of water losses, has decreased significantly.

Extensive rehabilitation projects are also underway outside of the capital. With co-financing from international donors and several development banks, work is underway to rehabilitate the water network of Kutaisi – the second largest city in Georgia. Work is also being carried out to rehabilitate networks in Poti (45,000 inhabitants) in order to provide the city with 24-hour safe drinking water within three to four years, and full rehabilitation of the Batumi water infrastructure is planned to be completed by the end of 2009.

Nonetheless, considerable problems with drinking water supply systems and waste water treatment systems remain.

Georgia's abundant water resources are also a source of hydropower. In 1995 hydropower supplied 89 percent of Georgia's electricity. The largest dam for hydropower is the Inguri dam. A massive hydropower project currently under discussion would place 76 dams along the Rioni river, in order to produce hydroelectric power for sale to Turkey. It will be important to assess the potential environmental, social and economic impacts before proceeding with such a huge project.

Water resources management is also a key strategic issue in terms of political stability and security. Through impacts such as droughts, water scarcity and soil degradation, improper water resource practices and policies could exacerbate already existing tensions leading to greater instability. Already now, there are examples of water related problems in the conflict areas, such as Tskhinvali region.

Improved water resource management could bring additional opportunities for the political stability of the whole South Caucasus region through closer international cooperation in the sustainable use of transboundary water resources, namely Kura-Aras River basin³. There are several international organizations such as UNDP, GEF, USAID and TACIS which since 2002 have been successfully involved in the region to help with Kura-Aras shared water resources joint management and protection.

3.3 *The legal framework*

There are more than 15 major laws in Georgia that have significant influence over the protection and management of water resources and associated environmental concerns. But, mainly, the water

³ The reason that the South Caucasus countries - Armenia, Azerbaijan and Georgia are still being collided with the issue of the Kura-Aras River basin is because of problems of pollution. The basin is heavily contaminated by chemical, industrial, biological, agricultural and radioactive pollutants. The failure of wastewater treatment plants plays a major role in this situation. The concentrations of contaminants in the Kura-Aras reach levels that are much higher than standards in any of the three countries or internationally as well. Azerbaijan, the downstream nation, and lacking groundwater resources like Georgia or Armenia, depends on the Kura-Aras for the majority of its agricultural, industrial and household use. As the water flows into Azerbaijan polluted, the Azeris complain about the contamination that takes place upstream in the other nations.

resources management system in Georgia is currently governed by the Law on Licenses and Permits of 2005 and the Water Law of 1997.

However, the entire legislative framework for water resources management and protection in Georgia is now undergoing a major overhaul triggered by adoption in June 2005 of the Law on Licenses and Permits. All related laws must be redrawn or amended in line with this framework law. At the time of the writing, a new draft environmental code (which would replace the present sectoral environmental laws) is being drafted by the Ministry of Environmental Protection and Natural Resources (MEPNR). Its completion is expected in 2010. In parallel, the new framework law on water is also planned for redrafting.

This reform significantly reduced the regulatory authority of the MEPNR and made the water resources management system rather unclear. In particular, the frequent changes to the environmental permitting system in Georgia is confusing to both the regulator and the regulated entities. Consequently, Georgia's present water resources management legislation represents a confusing mixture of contradictory provisions effecting the state and quality of waters. This situation has been sourced due to the following circumstances:

- The Water Law of 1997 mainly provides for protection and use of surface inland waters and practically leaves out of legal regulation groundwater and coastal waters
- Georgia's legislation has continued its further evolution since adoption in 1997 of the Water Law of 1997, however, practically no effort has been done to insure consistency of the latest water linked legislation to basic principles and provisions of the Water Law of 1997
- The main legislative change was brought in Georgia's environmental law with the Tax Code of Georgia of 2004 and Law on Licenses and Permits of 2005⁴. According to the Tax Code taxes for environmental pollution (including water pollution) were abolished from January 1, 2005. The Law on Licenses and Permits radically reduced the number of activities that were classified as environmentally sensitive and in need of management and oversight. Initial version of the law had considered permitting system for surface water abstraction⁵ and discharges⁶, but shortly after the adoption, permitting for surface water abstraction was eliminated, while permitting system for wastewater discharges postponed until 2010. As a final point, permitting system for wastewater discharges was eliminated⁷ in December of 2007. Despite the above mentioned fundamental changes, the Water Law of 1997 has not been amended to bring it to conformity to the Tax Code and the Law on Licenses and Permits as well as to significant environmental and other sectoral laws⁸ that have been adopted since 2004.

The above mentioned makes the Water Law of 1997 very unpredictable, with weak legal linkage to other sectors of law and fails to provide sufficient notice of applicable requirements, making it difficult to evaluate compliance. In addition, current legislation practically does not provide for

⁴ Prior to the promulgation of the Law on Licenses and Permits, the issuance of water licenses (for surface water abstraction and wastewater discharges) was in the competence of the MEPNR under the Water Law of 1997.

⁵ Paragraph 4 (*Permit for Surface Water Abstraction*), Article 24 (*Types of Permits*) – Law of Georgia “On Licenses and Permits” of 2005.

⁶ Paragraph 5 (*Permit for Wastewater discharges from Surface Waters*), Article 24 (*Types of Permits*) – Law of Georgia “On Licenses and Permits” of 2005.

⁷ Amendment N5606 of 14.12.2007 to the Law of Georgia “On Licenses and Permits” of 2005.

⁸ e.g. Laws of Georgia “On State Control for Environment Protection (*State Environmental Control*)” (2005), “On Environmental Impact Permit” (2007) and “On Ecological Expertise” (2007).

comprehensive and clear regulation of such important and divergent topics as water resources management; pollution prevention tools; ownership, possession and use rights with regard to water bodies; water cadastre; integration of water protection requirements and restrictions into land use and spatial development; jurisdiction of regional⁹ and local self-governing¹⁰ bodies over the waters etc.

On a whole, Georgia's water related legislation is inconsistent, contradictory and fragmented through the wide range of legal acts, of which the most important ones are listed below:

- Law of Georgia “On Environmental Protection” (1996) ⇒ provides for establishment of environmental quality (including water quality) norms (*standards*)
- Law of Georgia “On Mineral Deposits” (1996) ⇒ considers groundwater as part of mineral deposits and regulates all aspects of groundwater use and to certain extant groundwater protection as well
- Law of Georgia “On Land Melioration” (1997) ⇒ regulates waters and water bodies used for melioration (agricultural) purposes
- Law of Georgia “On System of Protected Areas” (1996) ⇒ provides legal ground for establishment of protected area categories (including marine protected areas and water bodies within terrestrial protected areas)
- Laws of Georgia “On Health Protection” (1997) and “On Public Health” (2007) ⇒ provide for establishment of sanitary-hygienic requirements, norms and rules with regard to waters and water quality
- Marine Code of Georgia (1997) and Law of Georgia “On Marine Space (*Ocean Space*)” (1998) ⇒ provide for pollution prevention and control measures of coastal and territorial waters
- Law of Georgia “On Regulation and Engineering Protection of the Sea shores, Reservoir and River Banks” (2000) ⇒ regulates engineering protection for sea shores and river/reservoir banks against abrasion, floods etc
- Law of Georgia “On Recognition of Ownership Rights on Land Plots being under the Usage of Natural Persons and Legal Persons of Private Law” (2007) ⇒ regulates legalization of ownership rights on land plots (including water bodies/water lands) which are being used by natural and legal persons in unlawful way
- Laws of Georgia “On Conservation of Soils and Reclamation and Improvement of Soil Fertility” (2003), “On State Control for Environment Protection (*State Environmental Control*)” (2005), “On Environmental Impact Permit” (2007) and “On Ecological Expertise” (2007) ⇒ provide for legal streamlining in a number of water related important aspects (e.g. EIA etc)
- Organic Law of Georgia “On Self-governance” (2006) ⇒ provide for creation of certain rights of local authorities (municipalities) in water related sphere

3.4 The institutional framework

The State water resources of Georgia include rivers, lakes, natural and artificial reservoirs, canals, ponds, underground water, glaciers, wetlands etc.¹¹ They are managed by National institutions, institutions of Autonomous Republics (AR), and Local Self-Governance units.

⁹ Autonomous Republics of Adjara and Abkhazia.

¹⁰ It's remarkable to mention that Organic Law of Georgia “On Self-governance” of 2006, on one hand, stipulates for the right of self-governance bodies (municipalities) to own “waters of local importance” (article 47, paragraph “d”), but on other hand, provides that self-governance bodies shall not be able to own “water lands” (article 47, sub-paragraph “g.z”).

¹¹ The Law of Georgia on Water of 1997, Article 7.

In general, the protection and management as well as control and monitoring of water resources is within the competence of the Ministry of Environment Protection and Natural Resources (MEPNR). However, the MEPNR does not deal with all types of water regulatory issues. The issuance of licenses for use of underground water has been transmitted to the Ministry of Economic Development, while control of drinking water quality is the responsibility of the Ministry of Agriculture. The table on the following page lists the competences of the various agencies with responsibilities related to governance of Georgia's water resources. More details on the institutional framework with respect to water resources are provided in an annex.

For the most part, water management is highly centralized, as regional/local institutions have very limited competences. Still, local self-governance units (SGU) are responsible for supervising measures for water protection and rational use of water on their territories, controlling water protection and water use etc. At the same time, authorities of the Autonomous Republics of Georgia are responsible for protection of water and control of water use on the territory of their republics.

The competences of Autonomous Republics and Local Self-Governances are not defined very clearly and overlap in many terms. In general, responsibilities/competences in the water sector are redistributed among different institutions on national and local levels. At the same time, responsibilities are not prescribed clearly and there are overlapping in many cases.

Functions / Competences	MEPNR	Regional bodies MEPNR	Ministry of Labour & Social Affairs	Ministry of Health	Ministry of Economic Development	Ministry of Agriculture	Ministry of Infrastructure & Regional Development	Ministry of Energy	Authorities of Finances	Local Self-Governance
State policy on protection and use of water										
Development of state economic policy										
Implementation of Regional Policy										
Development of state policy on energy, e.g. hydropower										
Policies for tourism & development of resorts										
State policy and programs on land reclamation										
State fishery policy										
Management of envt protection and use of natural resources										
Management of state water resources of national importance										
Managing state surface water resources on territory of AR										
Managing water resources of local importance on territory of local SGU										
Protection & use of water on territory of the AR										
Protection & use of water on territory of local SGU										
Prevent unauthorized use of water resources on territory of AR										
Prevent unauthorized use of water resources on territory of local SGU										
Issuance of permit on impact on environment										
Issuance of licenses for use of underground waters										
State control in the field of envt protection										
State control & monitoring of drinking water quality										
Establishment envtl quality norms for surface waters, groundwater and coastal waters										
Defining quality standards for drinking water										
Establishment of emission limits for harmful substances to environment										
Development and assertion of quotas for use of natural resources										
Establishment of sanitary protection of surface & underground waters										
Establishment of management schemes for water protection & use & hydro-economic balances										
Participation in elaboration of water management schemes										
State environmental monitoring system										
State registry of water										
State cadastre of water										
State inventory of water use										
Checking accuracy of state inventory of pollution emissions/discharges										
Development & administration of taxes & fees										
Support for development of water systems										
Financing restoration of water objects affected by natural disasters										
Planning & implementation of stormwater drains										
Planning & implementing water supply & sanitation activities										
Planning activities for remediation of negative impacts of floods										
Preventing &/or mitigating emergency ecological situations										
Defining direction of development of water supply & wastewater removal										

3.5 *Relevant international projects*

The Georgian government has and/or is currently receiving assistance from a number of international donors in the area of water management, water governance, and infrastructure development.

A number of projects carried out in the early part of this decade focused on various elements of river basin management, including:

Kura River Transboundary River Management: This EU-Tacis project, implemented in 2001-2003, was focusing on water quality monitoring issues. The project supported specialists in Georgia, Armenia and Azerbaijan to carry out initial characterisations of the Kura-Araks River.

Water Management in the South Caucasus: was a regional, USAID funded project, mainly focusing on: monitoring and data exchange among riparian countries; integrated river basin planning for two transboundary pilot sub-basins; developing institutional framework for addressing national legislative and water policy issues. The program was implemented during September 2000 – September 2004. Along the implementation of the project 4 hydrological stations and 2 regional meteorological stations in Georgia was rehabilitated and fully equipped; national hydrometeorological office was supported by modern equipment and training and data management tools; web based data exchange mechanism for hydrological and meteorological information was established.

South Caucasus Water Program: was another project launched by USAID, as a follow up to preceding activities. The overall objective of this project was to increase regional cooperation for the sustainable and effective management of shared water resources. The project covered following components: strengthening the institutional capacity for transboundary basin management; developing scientific and analytical capacity and promoting use of sound science for water management; strengthening civil society participation in water resource management. The project resulted in following major outcomes: GIS/database and Water Object Coding systems in Georgia and Azerbaijan was developed; river and catchments identifiers among the three South Caucasus counties was harmonized based on regional water objects coding system; support for setting regional MIKE Basin models¹² for the Debed, Khrami, Alazani rivers was provided; tailor-making guidelines of data protocols for managing water quantity data was developed; strategic water monitoring plan for transboundary rivers of the South Caucasus was developed; joint water quality monitoring expeditions were carried out etc. The project lasted from September 2005 to May 2008.

NATO Science for Peace Program – South Caucasus River Monitoring this NATO/OSCE supported project, implemented in 2002-2008, aimed to improve water quality sampling and analysis techniques. Specifically, the objectives were: to increase technical capabilities (monitoring, analytical and communications) among the partner countries; cooperatively establish standard sampling, analysis and data management techniques for all partner countries; establish data, GIS and model sharing system accessible to all partners via internet; establish social framework (e.g. annual international meetings) for whole-watershed management.

Reducing Transboundary Degradation in the Kura-Aras basin was a multi-component regional project implemented by UNDP-GEF in 2003-2007. The overall objective of the project was to ensure that the quality and quantity of water resources of the basin meets the short and long-term requirements of the ecosystem and of the communities using the ecosystem. The specific objectives of the project were: to foster regional co-operation; to increase national and regional capacity; to address

¹² The MIKE BASIN model provides a means to develop a graphical and numerical representation of water supply and demand that can help resolve conflicts and lead to an efficient use of water resources

water quality and quantity problems; to promote changes in the economic sectors causing pollution, water shortages and habitat degradation.

UNDP/GEF component of the project, funded by Global Environmental Facility, was focused on undertaking Stakeholder Analysis, producing Trans-boundary Diagnostic Analysis, Strategic Action Programme and Ecological Quality Objectives.

UNDP/SIDA component, funded by the Swedish International Development Cooperation Agency, focused on following key technical and policy issues: identifying institutional needs for transboundary management of the basin; building national capacities for Integrated River Basin Planning and Management; developing Kura-Aras National Action Plans for three South Caucasus Countries.

ENVSEC supported Groundwater component – Sustainable Management of Aquifers in the South Caucasus Region, aimed to identify major national transboundary aquifer systems within the region, assess their resources, and identify and define a pilot project to demonstrate sound management of a transboundary aquifer.

Another ENVSEC supported component – Fostering Dialogue between Riparian States for Development and Establishment of Initial Legal and Institutional Frameworks for Increased Cooperation and Joint Management of the Kura-Aras River Basin, focused on exploring possible options for development and establishment of legal and institutional frameworks for the joint management of the natural resources of the basin. Specifically, the project aimed to assist countries to develop a preliminary legal and institutional framework for coordination of regional action for the protection of the Kura-Aras basin environment.

Trans-boundary cooperation for hazard prevention in the Kura-River Basin: a project implemented by German Government in 2003-2006. The main goal of the project was the improvement of cross-national cooperation, in particular with regard to increasing environmental security and effective water management in the Kura river basin among the countries of Armenia, Azerbaijan and Georgia. The technical goal of the project was the transfer of knowledge to the South Caucasus states for the development of cross-national cooperation for incident planning in the Kura river basin, in particular with regards to: installation-related watercourse protection and cross-border incident management. Through the implementation of the project was developed the international Kura Warning and Alarm Plan. Three International Main Warning Centers were established in Tbilisi, Baku and Yerevan. An example survey of the potential for incidents was carried out in the participating countries in a series of industrial plants etc.

Financing Strategy for the Urban Water Supply and Sanitation Sector in Georgia: This was a OECD funded project including two directions or components: the first one dealing with elaboration of the financing strategy for the urban water and wastewater (W&WW) sector in Georgia, the second, focusing on the assessment of affordability of water and wastewater services for the population in Georgia. The project was carried out under the general guidance of the steering committee consisting of representatives from the Ministry of Finance, the Ministry of Economic Development, the Ministry of Environment Protection and Natural Resources, Gruzvodocanal LLC and other W&WW utilities with the participation of local experts.

In this project, the OECD/EAP Task Force secretariat cooperated with the Georgian Government to assess the financial implications of achieving the Millennium Development Goals; to help the Government of Georgia to set realistic targets for the rehabilitation and development of urban water supply and sanitation infrastructure and services; and to identify options to bridge the financial gap between the expenditure needed for achieving policy objectives and the financing available. It should be noted that the study only addresses urban infrastructure. The project was carried out in 2005. A similar study was undertaken in 2000.

On March 2007 another project was launched in order to update the Financing Strategy for urban water supply and sanitation (WWS) and to include rural WSS and to establish a total overview of the WSS sector in Georgia and develop an environmental financing strategy. This was a Tacis financed Project: “Promote achieving the Millennium Development Goals on WSS in Georgia through

extending the Financing Strategy for WSS to Rural Areas and Facilitating Related National Policy Dialogue".

Western EECCA Water Governance: This EU-supported project covers six ENP countries: Belarus, Moldova, Ukraine, Armenia, Azerbaijan and Georgia. The assistance provided to Georgia under this project has two main objectives: (1) to support development of water quality standards and a classification system for water bodies based on those standards, and (2) to support development of a system for setting emission limit values for individual facilities that takes account of the water quality objectives for the receiving waters. This project started in April 2008 and ends in March 2010.

Transboundary River Management Phase II for the Kura river basin: This is a EU funded project focusing on support of development of a common monitoring and information management systems to improve transboundary cooperation in the Kura River basin (Armenia, Georgia, Azerbaijan); and enhance capacities of environmental authorities and monitoring establishments engaged in long-term integrated water resources management in the Kura River basin. The long-term aim of the project is to improve water quality in the Kura River basin through transboundary cooperation and adoption of the river basin management approach. Among the project outputs will be: assessment of baseline situation and review of water status based on data available; identification gaps in existing information in terms of WFD requirements; preparing joint monitoring programme; preparing monitoring programme in identified hot-spots; trainings in monitoring according to EU best practices; development of common GIS database platform established to facilitate information management and data exchange between the project countries; preparing draft basin and sub-basin management plans for the selected pilot river basins in each project country using the EU WFD methodology; proposals developed for the future international projects to help to address priority IWRM problems in the project countries; trainings of the beneficiary staff, including provision of necessary guidelines on national languages. Duration of the project is June 2008 – December 2010.

Development of Environmental Monitoring and Management Systems in Georgia (DEMMS): This project was funded by the government of Finland. The project was aimed to strengthen environmental monitoring and environmental management systems in Georgia. Among the important outputs of the project are: study and evaluation of the current monitoring systems in Georgia; development of a framework of the strategy and action plan for water monitoring, specification of goals, purposes and objectives of the monitoring system; renovation of seven hydro-meteorological stations located in the western part of Georgia along the River Rioni and its tributaries; installing automatic water level meters with GSM data transfer on seven hydrological stations; carrying out environmental monitoring training. The project was implemented in the period: October 2007-December 2008.

Integrated Water Management for Georgia: is an upcoming, major GEF-funded project to be carried out under the auspices of the UNDP. It will focus on preparation of a national integrated water management plan for Georgia – in essence, a series of river basin management plans corresponding to the river basin management systems that will be designated within Georgia.

4. The Water Framework Directive (2000/60/EC)

4.1 *Key provisions, including guiding principles and policies*

Directive 2000/60/EC concerning the establishment of a framework for Community action in the field of water policy ("Water Framework Directive") establishes a protection regime for all waters, including inland surface waters, transitional waters, coastal waters and groundwater.

The key objective of the directive is to **achieve good water status for all waters by 2015**. Other objectives include:

- to prevent further deterioration of, protect and enhance the status of water resources;
- to promote sustainable water use based on long term protection of water resources;
- to enhance protection and improvement of the aquatic environment through specific measures for the progressive reduction of discharges, emissions and losses of priority substances and the cessation or phasing-out of discharges, emissions and losses of the priority hazardous substances;
- to ensure the progressive reduction of pollution of groundwater and prevent its further pollution;
- to contribute to mitigating the effects of floods and droughts

The Water Framework Directive requires Member States to take the following actions:

- identify the individual river basins lying within their national territory and assign them to individual River Basin Districts (RBDs);
- identify competent authorities for each RBD;
- characterise river basin districts in terms of pressures, impacts and economics of water uses, including a register of protected areas lying within the river basin district;
- make operational monitoring networks;
- based on sound monitoring and analysis of the characteristics of the river basin, identify a programme of measures for achieving the environmental objectives of the Water Framework Directive cost-effectively;
- develop and publish river basin management plans for each RBD, including programmes of measures taking into account the results of the analyses and studies carried out;
- encourage active involvement of all interested parties, in particular with regards to river basin management plans
- implement water pricing policies that enhance the sustainability of water resources;
- implement programmes of measures and achieve the environmental objectives by 2015

4.2 Results of the legal analysis

The Georgian legislation in principle does not correspond to the most part of the requirements under the Water Framework Directive (WFD). Therefore preference should be given to transposition of directive's provisions into the new framework water law of Georgia. With this regard, special attention has to be paid to the convergence of the following topics:

- Introduction of permitting/licensing system for abstraction of surface waters and wastewater discharges
- Groundwater use and protection rules
- Establishment of integrated river basin management (Identification of river basins, river basin districts and their status; Organizational and administrative provisions governing river basin management; Integrated river basin management plans and their legal status (binding force of approved plans) and related issues
- Public participation in planning and management
- Protection of water resources (Water pollution control)

- Water quality requirements (Water status). Classification of water bodies according to water quality (assignment of water bodies to water quality classes); Setting of minimum quality requirements of waters - water quality objectives (environmental objectives/ecological objectives/water status/environmental status/ecological status); Water quality planning
- Pollution control. Pollution prevention tool (Permitting / licencing system for wastewater discharges : conditions for discharge permits, duration, revision, termination, registration); Combined method for pollution control; Water quality standards (WQS) / Environmental Quality Standards (EQS); Emission Limit Values (ELV); Best available technology (BAT) approach; Dangerous and priority substances; Classification of pollution sources and inventory

4.3 Measures needed to implement the Water Framework Directive requirements in Georgia over time

4.3.1 River Basin Delineation

Article 3 of the Water Framework Directive requires identifying the individual river basins lying within the national territory. Small basins can be assigned to individual River Basin Districts, by means of combining them with larger river basins or joining them with neighbouring small basins. A river basin, covering the territory of more than one Member State shall be assigned to an international river basin district.

Presently, there are no actual prerequisites for introducing river basin management in Georgia. Water is managed within administrative boundaries. However, shifting to river basin management is among the priorities of the MEPNR.

4.3.1.1 Delineation of National Basins

Georgia has two major river basins, one flowing into the Black Sea, and another into the Caspian Sea. Each of them can be divided in a number of sub-basins. According to initial considerations 5 major river basins (including one in Abkhazia, which is outside the effective control of the Georgian Government currently) might be regarded as management units: Alazani-Iori, Mtkvari, Enguri-Rioni, Tchorokhi-Kintrishi and Western-Central Abkhazia.

The Department of Hydrometeorology under the National Environment Agency already has basic information on major basins and sub-basins in Georgia, some of which is already on GIS maps. To date some 181 sub-basins have been identified. However, official delineation of river basins has not been conducted.

Responsibility: MEPNR, NEA

Dates: October-December 2009

4.3.1.2 Delineation of International Basins

Three international Basins fall within the territory of Georgia:

- Transboundary basin Kura-Araks, occupying the greater part of the South Caucasus, with total area of the basin 188 000 km².
- Transboundary basin Krami-Debed with the total area of 8340 km².

- Transboundary basin on Chorokhi river

Several Bilateral Agreements in the field of environment protection was concluded between Georgia and other two South Caucasus countries – Armenia and Azerbaijan in late 90-ies, including agreements on development and implementation of a joint monitoring and assessment of the Kura River basin, and agreements on cooperation in the field of the hydrometeorological services.

However, up to now, there have been no official binding agreements between countries on transboundary river management. The international “Convention on Utilization and Protection of Transboundary Watercourses and International Lakes” (Helsinki Convention, 1992), concerning management and protection of trans-boundary water bodies has been ratified only by Azerbaijan, but not Georgia and Armenia.

There have been some efforts within a framework of international projects to promote transboundary cooperation and to establish transboundary river basin commissions in the South Caucasus. Nevertheless, lack of political support and ever changing relations in this region did not make possible to get this further.

Responsibility: MEPNR, NEA

Dates: October-December 2009

4.3.2 Identification of Competent Authorities and Administrative Arrangements

According to Article 3 of the Directive, Member States shall ensure the appropriate administrative arrangements for the application of the rules of this Directive, including identification of the appropriate competent authority for each river Basin.

The Government of Georgia does not consider the idea of establishing new RBM institutions as economically viable at this stage, which makes necessary to discuss other possible alternatives, focusing on already existing institutions, namely:

- Local self-governance units
- Regional bodies of the MEPNR
- Regional bodies of the MEPNR together with local self-governance units

According to the first alternative, RBM functions are assigned to the local self-governance bodies. Municipalities falling within the area of a certain river basin, may join forces and some, stronger municipalities can take a leading role. Advantage of this model is higher level of decentralization. In addition, this model gives possibility to implement RMB on a smaller scale, sub-basin levels. Local self-governance institutions already have legal rights and responsibilities to manage water of local importance. However, they have rather limited administrative capacity and limited competences. Besides, coordination between different municipalities as well as between municipalities and the national institutions might be a challenge. Out of these considerations, at this point, we regard this model less realistic.

The second option considers the MEPNR as a central body responsible for river basin management implementation, which coordinate integrated management on a basis of a river basin unit. The MEPNR will implement its responsibilities through its territorial bodies, namely, the structural units – river basin centers, created on the basis of the territorial bodies. As to Adjara Autonomous Republic,

within its administrative borders similar functions will be implemented by Environment Protection and Natural Resources body of the Adjara AR.

There are 6 territorial bodies of the MEPNR in Georgia:

1. Samegrelo-Zemo Svaneti (Zugdidi)
2. Western Central (Kutaisi)
3. Samtskhe-Javakheti (Akhaltzikhe)
4. Eastern Central (Gori)
5. Kvemo Kartli (Rustavi)
6. Kakheti (Telavi)

Providing that, 4 major river basins: Alazani-Iori, Mtkvari, Rioni-Enguri and Chorokhi-Kintrishi represent basic management units, the RBM centers can be as follow:

- RBM Centre under Adjara AR EPNR body (location: Batumi) – Tchorokhi-Kintrishi basin
- RBM Centre under Western Central territorial body of the MEPRN (location: Kutaisi) – Enguri-Rioni basin
- RBM Centre under Kakheti territorial body of the MEPRN (location: Telavi) – Alazani-Iori basin
- Mtkvari RBM Centre under MEPRN (location: Tbilisi) – Mtkvari basin

Within the Mtkvari basin fall three territorial bodies of the Ministry: Eastern Central, Kvemo Kartli and Samtskhe Javakheti, which are located correspondingly in Gori, Rustavi and Akhaltsikhe. For better coordination, the best might be to locate Mtkvari RBM centre in the Capital, Tbilisi. Presently, Tbilisi does not fall within of any of the territorial bodies of the MEPNR. However, it has been already considered to establish a territorial body in the Capital.

So that we are trying to adjust river basin management to the existing institutions, operating according to administrative boundaries, it is essential to ensure optimal redistribution of competences between national, regional and local institutions, and ensure good coordination between them (the MEPNR, NEA, territorial bodies of the Ministry, Inspectorate of Environment Protection (IEP) and the local self-governance) in order to guarantee information flow and harmonized action for effective river basin management. Such coordination role should be assigned to the RBM centers under the territorial bodies of the MEPNR.

Functions of RBM Centers should be as follow:

- Develop and coordinate implementation of RBM plans and programme of measures;
- Establish data flow regime with NEA, in order to receive updated monitoring and other information regularly;
- Ensure tight coordination with the regional bodies of the Inspectorate of Environment Protection;
- Ensure coordination with local self-governance units;
- Ensure information flow with the MEPNR;
- Ensure coordination with other national institutions: Ministry of Economic Development, Ministry of Labour, Health and Social Affairs, Ministry of Regional Development and Infrastructure, Ministry of Agriculture etc.
- Ensure stakeholder involvement and coordination;

- Chair river basin councils;
- Participate in the National RBM Advisory Board (Governmental Commission)

In overall, the competences/responsibilities of territorial bodies of the MEPNR should be strengthened as resources will allow. They can start providing administrative assistance in environmental permitting procedures to the MEPNR. In the future RBM centers can take a responsibility for issuing water permits. As far as technical and personnel capacity of territorial bodies will increase, they can provide sampling for water monitoring; or assist a regional body of Inspectorate, for instance, during surveillance of permitting conditions etc.

National Environmental Agency (NEA) is a key institution responsible for water monitoring, hydrological observation, assessment and prognoses of flood risks etc. Presently, water monitoring is undertaken in three laboratories under NEA: Batumi, Kutaisi and Tbilisi laboratories. Each of these laboratories can be serving to a particular river basin unit:

- Batumi laboratory – Tchorokhi-Kintrishi basin
- Kutaisi laboratory – Enguri-Rioni basin
- Tbilisi laboratory – Mtkvari and Alazani-Iori basins

Inspectorate of Environment Protection (IEP) is responsible for state environmental control and surveillance of Implementation of EIA and permit conditions. There are 9 regional bureaus of the Inspectorate throughout the country. Therefore, each river basin authority has to coordinate with more than one regional bureaus of the IEP, namely:

- Tchorokhi-Kintrishi RB Centre – Adjara bureau of the Inspection
- Enguri-Rioni RB Centre – Western Central bureau (Kutaisi), Samegrelo-Zemo Svaneti bureau (Zugdidi) and Upper Abkhazia bureau (Kodori)
- Mtkvari RB Centre – Eastern Central bureau (Mtskheta), Samtskhe-Javakheti bureau (Akhaltsikhe), Kvemo Kartli bureau (Rustavi)
- Alazani-Iori RB Centre – Kakheti bureau (Telavi)

In order to take into consideration local needs, especially as the terrain, natural and climatic conditions are very diverse in Georgia, it is crucial to have a good coordination with local self-governances, which has to take actual steps regarding certain issues, for instance such as floods.

In addition, RBM Centers should ensure coordination with all MEPNR territorial bodies involved.

In order to ensure intersectoral coordination on national level, national advisory board – **State RBM Commission (Governmental Commission)** has to be established by the Government of Georgia. Members of the Commission should be the Ministry of Environment Protection and Natural Resources (MEPRN), Ministry of Economic Development (MED), Ministry of Agriculture (MA), Ministry of Labour, Health and Social Affairs (MLHSA), Ministry of Regional Development and Infrastructure (MRDI) and RBM Centers.

River Basin Councils on a basin level should be established by the MEPRN. River basin council should include representatives from: local self-governance units, water user/fishermen/etc. associations, industries, NGOs etc. The council should be chaired by the RBM Centre representative under the MEPRN territorial body.

Responsibility: MEPNR, territorial bodies of the MEPNR with coordination to other

involved institutions
Dates: October-December 2009

4.3.2.1 Ensure coordination of activities for international River Basin Districts

Article 3 of the Directive requires that Member States concerned shall together ensure coordination of international river basins. For this purpose member states may use existing structures stemming from international agreements. Or, where a river basin district extends beyond the territory of the Community, the Member State/States concerned shall ensure coordination with the relevant non-member States in order to achieve objectives of the Directive throughout the river basin.

There have been a number of international projects concerning integrated management of transboundary Kura-Aras river basin. They have addressed wide range of issues: development of regional cooperation; joint monitoring and data exchange; development of common information management systems; strengthening the institutional capacity for transboundary basin management; developing integrated river basin planning etc. The outputs of these projects, and already established cooperation mechanisms should be used in order to achieve these objectives.

Responsibility: MEPNR
Dates: 2010-2011

4.3.3 Analysis of Characteristics

Article 5 of the Directive requires from Member States to undertake:

- an analysis of characteristics,
- a review of the impact of human activity on the status of surface waters and on groundwater, and
- an economic analysis of water use

for each river basin district or for the portion of an international river basin district falling within its territory.

WFD provides the technical specifications set out in Annexes II and III according which these analyses are to be undertaken. The analysis and reviews must be reviewed and if necessary updated according to the set time frame.

4.3.3.1 Surface Waters

a) Characterization of surface water types

Member States shall identify the location and boundaries of surface water and assign them one of the following categories: rivers, lakes, transitional waters, coastal waters, artificial surface water bodies or heavily modified water bodies. For each category of surface water further differentiation is to be carried out using system 'A' or system 'B'. Both systems are based on natural abiotic characteristics, and require at least geographical data, including geology and altitude, and size of the water body.

- System 'A' implies differentiation of the surface water bodies according to the ecoregions, given by the WFD (Annex XI, map A) and further differentiation by surface water types according to

following parameters: altitude (for rivers and lakes), size typology (rivers and lakes), depth typology (lakes and coastal waters), geology (rivers and lakes), salinity (coastal waters, transitional waters), tidal range (transitional waters).

- System 'B' suggests obligatory factors: altitude (rivers, lakes), latitude, longitude, depth (lakes,) geology (rivers, lakes), size (rivers, lakes), tidal range (transitional waters, coastal waters), salinity (transitional waters, coastal waters); and optional factors which specify physical and chemical factors that determine the characteristics of each type of the surface body as well as biological population structure and composition.

Classification suggested by the present Georgian legislation does not provide categorization of water bodies in accordance with the WFD. Moreover, there are no such notions as transitional waters or heavily modified water bodies.

Methodology for categorization of water bodies as suggested by the WFD has to be developed and initial categorization has to be conducted on the basis of data already held by the Department of Hydrometeorology. Additional research has to be carried out if needed.

Responsibility: MEPNR, NEA

Dates: January-March 2010

b) Further characterization, establishment of reference conditions

According to WFD requirements, for each surface water body type, type-specific hydromorphological, physicochemical, and biological reference conditions have to be established, representing the values of the hydromorphological, physicochemical and biological quality elements (specified in point 1.1 Annex V of the WFD) for that type of surface body at high ecological status as defined in the relevant table in section 1.2 of Annex V. For heavily modified or artificial surface water bodies references to high ecological status shall be construed as references to maximum ecological potential.

Establishment of reference conditions provides a baseline, against which the effects of past and present human activities upon each water body can be measured. Reference conditions enable the effects of human activity on aquatic ecosystems to be distinguished from natural 'background' variations.

Thus, according to WFD, the level of human impact on aquatic ecosystems is to be defined in terms of the condition of a set of 'quality elements'.

Steps to be undertaken:

- Quality element for the classification of ecological status of the surface waters, such as: biological elements; hydromorphological elements supporting the biological elements; chemical and physicochemical elements supporting the biological elements; and specific pollutants have to be established for all types of the surface water bodies.
- For each surface body type-specific hydromorphological, physicochemical, and biological conditions has to be established, representing the values of these quality elements for given surface water body type at high ecological status.

Data on hydrological observations has been collected by the Department of Hydrometeorology (under the National Environmental Agency) for several decades, has to be assessed and completed if necessary. It is notable, that Division of Hydrology of the Hydrometeorology Department has already developed a comprehensive GIS system for Aragvi river basin, which is an important basin in terms of hydropower generation and drinking water supply.

Gaps in hydromorphological, chemical and physicochemical data held by the Department of Hydrometeorology will need to be identified and additional research undertaken. Note that there is no data on biological composition of the water bodies. Additional research will be required to identify specific pollutants. In order to fill these gaps training of the personnel will be needed.

Responsibility: MEPNR, NEA

Dates: Characterization of surface water types – January-March 2010
Establishing quality elements for characterization – April-September 2010
Classification of Each Surface water body – 2011-2012

c) *Identification of Pressures*

Member States have to collect and maintain information on the type and magnitude of the significant anthropogenic pressures to which the surface water bodies in each river basin district are liable to be subject. This means estimation and identification of:

- significant point source pollution
- significant diffuse source pollution
- significant water abstraction
- the impact of significant water flow regulation
- significant morphological alterations to water bodies
- other significant anthropogenic impacts on the status of surface waters
- land use patterns

Estimation and identification of significant point and diffuse sources of pollution from urban, industrial, agricultural and other activities should be undertaken, in particular, with regards to the Indicative List of the Main Pollutants given in Annex VIII of the WFD. Estimation and identification of water abstraction should include significant water abstraction for urban, industrial, agricultural and other uses, including seasonal variations and total annual demand, and of loss of water in distribution systems.

Information on point source pollution held by the MEPNR should be assessed and completed. It should be noted that only a little part of the elements from the Indicative List of Pollutants referred by the WFD is measured to date in Georgia.

In addition, outcomes of implemented international projects should be assessed and used. For instance, within the framework of projects: Development of Environmental Monitoring and Management Systems in Georgia (DEMMS) and Transboundary River Management Phase II for the Kura river basin, the situation analysis and assessment of pressures on Rioni river basin and Kura-Araks river basin correspondingly, were conducted. This information should be processed and used where applicable.

Unfortunately there is lack of data on diffuse sources of pollution. All major sources of diffuse pollution should be identified and estimated.

Information on water use – water abstraction and discharge into water has to be submitted to the Division of Water Resources Management of the MEPRN by water users in a form of annual

statistical information. This information is believed to correspond to the real situation by 90%.¹³. The Division of Water Resources Management has developed a database on water use by administrative areas, river basins, industrial activities etc. The database should be assessed and if necessary completed.

Under the USAID project „South Caucasus Water Programme” have been developed databases for water use permits; water quality and quantity; and actual water use. Databases contain information on water quality for 2000-2007; data on actual water use for 2000-2007; data on water quantity for 1987 (for 70 stations) and for 1960-1990 for Khrami and Alazani stations. Databases on water use permits contain information on 150 water extract permits and 100 water discharge permits. Since 2008 water permits have been abolished.

In addition, within a framework of the project, a centralized National Water Cadastre Information System tabular database was developed to all water resources data from different data sources and agencies. The following information is stored in the main database of National Water Cadastre:

- General information on: river basins; water resources, water object coding; hydrological stations; water extract locations; water discharge locations; and water users.
- Quantitative data on: water levels; annual water flow; monthly water flow; water pollution; water extract; water discharge; water use by type.

National Water Cadastre Information System tabular database is linked to and visualized by National Water Cadastre Information System.

Furthermore, water object coding system was developed. The water object coding System assigns unique identifiers to hydrology features so that spatial data can be linked to the many databases that comprise the cadastre system. Through these linkages, users can quickly identify water use permits, water intake and discharge locations, etc., that are within the basin of each river segment. All basins, rivers, lakes and major canals are digitized and coded. It is possible to automatically assign codes to river streams, which enables to update coding in the future.

Estimation and identification of the impact of significant water flow regulation, if any, should be undertaken, including water transfer and diversion, on overall flow characteristics and water balances; further, significant morphological alterations to water bodies should be identified; other significant anthropogenic impacts on the status of surface waters should be estimated and identified. Land use patterns, particularly, main urban, industrial and agricultural areas, fisheries and forests should be identified and estimated.

It is desirable to have this information in databases linked to a geographical information system.

Responsibility: MEPNR

Dates: October 2010 – December 2012

d) Assessment of Impacts

Member States shall carry out an assessment of the susceptibility of the surface water status of bodies to the identified pressures. It has to be estimated whether the surface water bodies within the river basin district will fail to meet the environmental quality objectives set by the Directive.

¹³ Marina Makarova, Head of Service of Water Resources Management, Department of Integrated Environmental Management, MEPNR, Personal interview, April 10, 2009

Responsibility: MEPNR

Dates: October 2010 – December 2012

4.3.3.2 *Groundwaters*

Member States have to carry out an initial characterisation of all groundwater bodies, such as: the location and boundaries; the pressures which they are liable to be subject to etc. Following to this, further characterisation has to carry out for those groundwater bodies or groups of bodies which have been identified as being at risk. This should include information on the impact of human activity, and, where relevant, information on geological and hydrogeological characteristics, superficial deposits and soils in the catchment from which the groundwater body receives its recharge, stratification characteristics etc.

Further, review of the impact of human activity on groundwaters should be undertaken for those groundwaters, which cross the boundary between two or more Member States, or are at risk according to initial characterisation.

The data on groundwaters is extremely scarce in Georgia. Responsible body for groundwater resources used to be the State Department of Geology, which kept mineral resources database, including that for groundwater resources. However, the Department was abolished, and since 2007 this responsibility has been transmitted to the Division of Geology under the Department of Integrated Environmental Management of the MEPNR. Groundwater observation activities have not been carried out for a long time, so even a technical status of observation stations is not fully known by now¹⁴.

Initial characterisation of groundwaters has to be undertaken on the basis of historical data and additional research, when needed. For groundwaters identified as being at risk, further characterisation should be carried out as requires WFD.

Responsibility: MEPNR

Dates: January 2010 – 2011

4.3.4 *Economic Analysis*

Member States have to undertake the economic analysis of water use, in order to:

- make the relevant calculations necessary for recovery of the costs of water services, taking into account long term forecasts of supply and demand for water in the river basin district and, where necessary: estimates of the volume, prices and costs associated with water services, and estimates of relevant investments
- make judgments about the most cost-effective combination of measures with regard to water uses to be included in the programme of measures

Within the framework of the project “Financing Strategy for the Urban Water Supply and Sanitation Sector in Georgia”, OECD/EAP Task Force secretariat cooperated with the Georgian government: to assess the financial implications of achieving the Millennium Development Goals; to help the Government of Georgia to set realistic targets for the rehabilitation and development of urban water supply and sanitation infrastructure and services; and to identify options to bridge the financial gap

¹⁴ Vakhtang Geladze, Division of Hydrology, Department of Hydrometeorology, National Environmental Agency, personal interview, 17.07.09

between the expenditure needed for achieving policy objectives and the finance available. The project focused on elaboration of the financing strategy for the urban W&WW sector in Georgia, and at the same time on the assessment of affordability of W&WW services for the population of Georgia. The study was undertaken in 2000 and in 2005. According to the (2005) study results, current financial resources are insufficient to prevent further deterioration of the existing infrastructure and services. Provided that water tariffs are increased in line with household income growth, the stabilization of both, infrastructure and services at their 2003 level in the 20 cities and towns in Georgia, would require additional annual finance, amounting to GEL 29.2 million in 2006 (USD 16.2 million), then gradually decreasing to GEL 2 million by 2023 (USD 1.1 million).

In 2007 another similar project was launched with the aim to update Financing Strategy for urban water W&WW and to include rural W&WW. The Project was planned to be finalized in May 2008.

USAID project “The Water Utility Sector Reform Program in Georgia” suggests gradually implementing of adjustment of pricing policies in order to recover water service costs. According to the project, the single most important measure would be to implement universal metering of production and consumption. Another measure is to develop simple tariff structures that are understandable for consumers and that provide incentives for utilities to reduce the presently high levels of Non Revenue Water. At the same time, protection of poor population should be considered. Based on unit costs of recently rehabilitation projects in five cities (Kobuleti, Batumi, Kutaisi, Borjomi and Bakurani), the consultants of the project, have estimated that Investment needs, on a per capita basis, for urban population¹⁵ (total population number 1,087 000) will amount to 903 mln USD, from which for water supply 338 mln USD, and for waste water collection 565 mln USD.

The need for start-up capital to allow reformed utilities to operate within a productive work environment, including adequate software and hardware, vehicles, tools etc., is estimated at about 0.5 million GEL per existing utility or some GEL 25 million to be invested in the next five years (GEL 5 million per year).

Responsibility: MEPNR, MED, MRDI

Dates: 2011-2013

4.3.5 *Protected Areas*

Article 6 of the WRD requires from Member States to establish a register or registers of all areas lying within each river basin district which have been designated as requiring special protection under specific Community legislation for the protection of their surface water and groundwater or for the conservation of habitats and species directly depending on water.

The summary of the register required as part of the river basin management plan shall include maps indicating the location of each protected area and a description of the Community, national or local legislation under which they have been designated.

The register should include:

4.3.5.1 *Drinking water zones*

All bodies of water used for the abstraction of water intended for human consumption providing more than 10 m³ a day as an average or serving more than 50 persons, and those bodies of water intended for such future use (as defined in the Article 7) are to be identified.

¹⁵ not included Abkhazia, Tbilisi and Rustavi

Responsibility: MEPNR, MLHSA, MA

Dates: December 2010

4.3.5.2 Economic Uses

Areas for the protection of economically significant aquatic species should be designated.

Responsibility: MEPNR, APA, MA

Dates: December 2010

4.3.5.3 Recreational Waters

Bodies of water designated as recreational waters should be identified, including areas that would be designated as bathing waters under the EU Bathing Waters Directive 2006/7/EC.

Responsibility: MEPNR, MLHSA

Dates: December 2010

4.3.5.4 Nutrient Sensitive Waters

Nutrient-sensitive areas, including areas designated as vulnerable zones under the Nitrates Directive 91/676/EEC and areas designated as sensitive areas under Urban Waste Water Treatment Directive 91/271/EEC, should also be identified.

Responsibility: MEPNR, MLHSA

Dates: December 2011

4.3.5.5 Nature Protection

Finally, areas designated for the protection of habitats or species where the maintenance or improvement of the status of water is an important factor in their protection, including relevant Natura 2000 sites designated under the Habitats Directive 92/43/EEC and the Birds Directive 79/409/EEC, should also be identified.

Responsibility: MEPNR, APA

Dates: October 2009

4.3.6 Monitoring of water status

Under Article 8 of the WFD, Member States shall establish programmes for the monitoring of water status in order to establish a coherent and comprehensive overview of water status within each river basin district. Programme for monitoring shall cover:

- for surface waters – the volume and level or rate of flow to the extent relevant for ecological and chemical status and ecological potential; the ecological and chemical status and ecological potential

- for groundwaters – monitoring of the chemical and quantitative status
- for protected areas the above programmes shall be supplemented by those specifications contained in Community legislation under which the individual protected areas have been established.

Such monitoring must be in accordance with the requirements set in Annex V, which includes: surveillance monitoring, operational monitoring and investigative monitoring,

The WFD sets frequencies and standards for monitoring of each component of all quality elements (biological, hydromorphological, physico-chemical) and establishes additional monitoring requirements for protected areas.

4.3.6.1 Surface water

a) Surveillance monitoring

Surveillance monitoring, which is the assessment of long-term changes in natural conditions and the assessment of long term changes resulting from widespread anthropogenic activity, is to be carried out for sufficient surface water bodies to provide an assessment of the overall surface water status within each catchment or subcatchment within the river basin district. Surveillance monitoring is to be carried out for biological quality elements, hydromorphological quality elements; physico-chemical quality elements; priority list pollutants and other pollutants discharged in significant quantities in the river basin or sub-basin.

Chemical monitoring and hydrological observation is carried out with rather limited capacity presently in Georgia. Hydrological parameters are monitored and studied by the Department of Hydrometeorology of the NEA. Chemical elements are monitored by the Department of Environment Pollution Monitoring of the NEA.

Only 20 hydrological stations, out of 140-160 functioning in 1940-1970, are operational today. The stations are poorly equipped. The only hydrological element that is measured is water level.¹⁶ Apart from this, 7 hydrological stations located in the western part of Georgia has been rehabilitated and equipped with automatic water level meters and with GSM data transfer within the framework of the **DEMMS** project.

As concerns physico-chemical quality elements, surveillance monitoring is carried out on 22 rivers in Georgia, at 43 sections once per month, in comparison to 72 rivers that used to be monitored until 90-ies. There are three laboratories operating in Kutaisi, Tbilisi and Batumi (Black Sea monitoring centre). Monitoring is carried out for 33 elements, mainly inorganic. All three laboratories were equipped within the framework of the **DEMMS** project with new laboratory equipment and filed meters. As indicated in the final report of the project, at least Batumi and Tbilisi laboratories are now equipped even for the very demanding laboratory analytics. However, all three laboratories suffer from lack of human resources, lack of training and lack of laboratory reagents, so that sales network of reagents is missing. In addition, the National Environmental Agency in the context of the TACIS programme recently received new, modern analytical equipment for measuring organic substances and

¹⁶ Mr Jemal Dolidze, Deputy head of Department of Hydrometeorology, National Environmental Agency, Personal Interview, April 27, 2009

hydrobiological elements.¹⁷ However, due to lack of special training, monitoring of organic substances as well as hydrobiological elements is still problematic.

Steps to be undertaken:

- establish surveillance monitoring programmes in accordance with the WFD
- make an assessment of existing monitoring system, and identify the sufficient water bodies for monitoring, in order to provide an assessment of the overall surface water status within each catchment or subcatchments, within the river basin district
- select proper monitoring points, for instance, where the rate of water flow is significant within the river basin district as a whole; the volume of water present is significant within the river basin district; significant bodies of water cross a national border of a neighbouring country etc.
- set up surveillance monitoring system for each monitoring site for biological quality elements; hydromorphological quality elements, physico-chemical quality elements, priority list pollutants and other pollutants discharged in significant quantities in the river basin or sub-basin

Existing hydromorphological and physico-chemical monitoring system must be assessed and improved, in order to fulfil WFD requirements. In order to undertake monitoring of organic substances and hydrobiological elements, special training of the personnel will be required.¹⁸

Responsibility: MEPNR, NEA
Dates: December 2010

b) Operational monitoring

Operational monitoring is to be undertaken in order to establish the status of those bodies identified as being at risk or failing to meet their environmental objectives, and to assess any changes in the status of such bodies resulting from the programmes of measures. Operational monitoring is to be carried out for biological quality elements or elements most sensitive to the pressures to which the water bodies are subject, all priority substances discharged and other pollutants discharged in significant quantities; hydromorphological quality element most sensitive to the pressure identified.

There is no formalized procedure for operational monitoring in Georgia. In extreme cases, such as for instance, excess discharges of harmful substances into the water bodies, the Inspectorate of Environment Protection – sub-agency structure of the MEPNR – involves the National Environmental Agency in order to take samples and undertake analysis of water from the area at risk.

Steps to be undertaken:

- establish the status of water bodies, identified as being at risk, or failing to meet their environmental objectives
- assess any changes in the status of such bodies
- for bodies at risk, from point source pressures, sufficient monitoring points must be established in order to assess the magnitude and impact of the point source
- for bodies at risk, from diffuse source pressures, sufficient monitoring points must be established within a selection of the bodies, in order to assess the magnitude and impact of the diffuse source pressures

¹⁷ Marina Arabidze, Head of Department of Environment Pollution Monitoring, National Environmental Agency, personal interview, April 29, 2009

¹⁸ Ibid.

- design monitoring system for biological quality elements, most sensitive to the pressures identified; priority substances discharged, and other pollutants, discharged in significant quantities; hydromorphological quality elements, most sensitive to the pressure identified

Responsibility: MEPNR, NEA
Dates: December 2010

c) *Investigative monitoring*

Investigative monitoring is to be carried out where the reason for any exceedances is unknown, where surveillance monitoring indicates that the objectives set for a body of water are not likely to be achieved and operational monitoring has not already been established, in order to ascertain the causes of a water body or water bodies failing to achieve the environmental objectives, or to ascertain the magnitude and impacts of accidental pollution, is to inform the establishment of a programme of measures for the achievement for the environmental objectives and specific measures to remedy the effects of accidental pollution.

Responsibility: MEPNR, NEA
Dates: December 2010

d) *Ecological status classification*

On the basis of monitoring results, Member States must estimate the values of the biological quality elements specified for each surface water category and define their ecological status (ecological potential for artificial and heavily modified bodies). In order to ensure comparability of the monitoring systems, the results of the monitoring systems from each Member State should be expressed as ecological quality ratios, which represent the relationship between the values of the biological parameters observed for a given body of surface water and the values for these parameters for given water body type at high ecological status, that is the reference conditions applicable to the given body. The ratio is expressed as a numerical value between zero and one. Values close to one represent high ecological status, values close to zero – bad ecological status. Ecological quality ratio scale for each surface water category has to be divided into five classes, ranging from high to bad ecological status, by assigning numerical value to each of the boundaries between the classes. The value for the boundary between the classes of high and poor status, and the value for the boundary between good and moderate status must be established through intercalibration.

Member States have to provide a map for each river basin district illustrating the classification of the ecological status for each body of water expressed in colour codes.

Member States shall also provide a map for each river basin district illustrating chemical status for each body of water, colour-coded in a similar way.

Presently, there is no prerequisite for ecological status classification in Georgia. Ecological status classification and intercalibration has to be undertaken after establishing the reference conditions for each surface body type and gathering monitoring data. As mentioned there are gaps in hydromorphological, chemical and physico-chemical data. Especially problematic is biological data.

Responsibility: MEPNR, NEA
Dates: 2011-2012

4.3.6.2 Groundwater

Surveillance monitoring of groundwaters has to be undertaken in order to supplement and validate the impact assessment and provide information on long term trends resulting both, from changes of natural conditions and anthropogenic activity.

Steps to be undertaken:

- sufficient monitoring sites have to be identified for bodies identified being at risk, bodies with cross a neighbouring country boundary
- monitoring has to be undertaken according to the core parameters defined in point 2.4.2 of Annex V.

Operational monitoring has to be undertaken between surveillance monitoring programmes in order to establish the chemical status of all groundwater bodies or groups of bodies determined being at risk and identify any long term trend of increase of concentration of any pollutant, caused by anthropogenic impacts. Member States have to provide a map of colour-coded groundwater chemical status.

During Soviet times about 500 groundwater stations were monitored by the State Department of Geology. However, presently groundwater is not monitored.

Responsibility: MEPNR, NEA

Dates: April 2010

4.3.7 Recovery of costs for water services

Article 9 of the Directive requires Member States to take account of the principle of recovery of the costs of water services, including environmental and resource costs, having regard to the economic analysis conducted according to Annex III, and in accordance in particular with the polluter pays principle.

Member States are to ensure that:

- water-pricing policies provide adequate incentives for users to use water resources efficiently
- different water uses (at least industry, households, and agriculture) contribute to the costs of water services, based on the economic analysis conducted according to Annex III and taking into account the polluter pays principle

Polluter pays principle is not applicable presently in Georgia. Pollution taxes as well as fees for use of surface water resources have been abolished. Cost-recovery of water services is not ensured.

Within the framework of the project “Financing Strategy for the Urban Water Supply and Sanitation Sector in Georgia” (2005), a study has been undertaken to assess financial needs and affordability for the rehabilitation and development of urban water supply and sanitation infrastructure services. According to the study, current financial resources are insufficient to prevent further deterioration of the existing infrastructure and services. Provided that water tariffs are increased in line with household income growth, the stabilization of both, infrastructure and services at their 2003 level in the 20 cities and towns in Georgia, would require additional annual finance, amounting to GEL 29.2 million in 2006 (USD 16.2 million), then gradually decreasing to GEL 2 million by 2023 (USD 1.1 million).

In the past use of water resources used to be regulated through numerous licenses. With the new Law on Licenses and Permits in 2005, most of those licenses have been abolished and only the licenses for fishery, use of fossils including groundwater, and use of entrails of the earth were left. In addition, two kinds of permits were established by the same law: permit for abstraction of water from surface water bodies and permit for discharge into surface water bodies. However, in 2006, those two permits were abolished, thus leaving the water sector without any effective regulation mechanisms.

Steps to be undertaken:

- assessment of existing costs in the water services sector and evaluation of present cost recovery
- developing water pricing policies ensuring rational use of water
- developing polluter pays mechanisms in order to ensure that water users contribute to the recovery of costs of water services

Responsibility: MEPNR, MED, MOF, MA, GNEWRC (Georgian National Energy and Water Supply Regulatory Commission)

Dates: April 2010

4.3.8 *The combined approach for point and diffuse sources*

Article 10 requires from Member States to apply combined approach for controlling all discharges into surface waters. For this member states must ensure the establishment and implementation of the emission controls based on best available techniques; or the relevant emission limit values; or in the case of diffuse impacts the controls including best environmental practices set out in the Council Directive 2008/1/EC concerning integrated pollution prevention and control, Council Directive 91/271/EEC concerning urban waste-water treatment, Council Directive 91/676/EEC of 12 December 1991 concerning the protection of waters against pollution caused by nitrates from agricultural sources and other relevant Community legislation.

The Ministry of Labour, Health and the Social Affairs of Georgia establishes quality norms for water for human consumption, surface water, groundwater and coastal waters. On the basis of these quality norms the Ministry of Environment Protection and Natural Resources approves emission limits for harmful substances as well as limits for pollution with micro-organisms for each pollution source separately, depending on their technological features, location, and background situation of the environment, so that total concentration of harmful substances and micro-organisms do not exceed maximum allowable limits in a certain area.

The only instrument for controlling point source pollution in Georgia is permit for impact on the environment. Environmental Impact Assessment (EIA), which is an essential part of the permitting process, has to take into consideration all emission limit values. However, presently, environmental permit system is rather weak in Georgia. Especially problematic is implementation EIA and permit conditions, which makes whole EIA process rather formal. At the same time, there is no mechanisms for controlling diffuse sources of pollution.

Steps to be undertaken:

- review and assess existing quality standards and emission limits with regards to compliance with WFD and upgrade them if necessary
- develop effective mechanisms for controlling point and diffuse sources of pollution

Responsibility: MEPNR, MOF, MA

Dates: September 2010

4.3.9 Programme of measures

In order to achieve the objectives of the directive, Article 11 of the WFD requires from Member States to establish a programme of measures for each river basin district, taking account of the results of the analyses of characteristics of river basins. Each programme of measures has to include the “basic” measures and, where necessary, “supplementary” measures.

4.3.9.1 Basic measures

Those are minimum requirements to be complied with. They should cover:

- measures required to implement Community legislation for the protection of water, such as: The Urban Waste Water Treatment Directive (91/271/EEC); The Nitrates Directive (91/676/EEC); The Integrated Pollution Prevention and Control Directive (2008/1/EC); The Bathing Water Directive (2006/7/EC); The Environmental Impact Assessment Directive (85/337/EEC) and others listed in Annex VI, part A of the WFD
- measures for ensured recovery of the costs of water services, including environmental and resources costs
- measures to promote an efficient and sustainable water use
- measures to safeguard water quality in order to reduce the level of purification treatment required for the production of drinking water;
- controls over the abstraction of surface water and groundwater, and impoundment of surface water, including a register or registers of water abstractions and a requirement of prior authorisation for abstraction and impoundment;
- controls over the point and diffuse source discharges using mechanisms such as a prohibition on the entry of pollutants into water, or prior authorisation, or registration based on general binding rules, laying down emission controls for the pollutants;
- measures to ensure that the hydromorphological conditions of the bodies of water are consistent with the achievement of the required ecological status or good ecological potential for bodies of water designated as artificial or heavily modified;
- measures for prohibition of direct discharges of pollutants into groundwater;
- measures to eliminate pollution of surface waters by those substances specified in the list of priority substances;
- any measures required to prevent significant losses of pollutants from technical installations, and to prevent and/or to reduce the impact of accidental pollution incidents for example as a result of floods, including through systems to detect or give warning of such events including, in the case of accidents which could not reasonably have been foreseen, all appropriate measures to reduce the risk to aquatic ecosystems.

Supplementary measures include: legislative, administrative, economic and fiscal instruments; emission controls; abstraction controls; environmental agreements; codes of good practice and others indicated in Annex VI, part B.

Responsibility: MEPNR, MLDSA, MA, MED, MOF, MRDI

Dates: 2013-2017

4.3.10 River basin management plans

Article 13 of the WFD requires Member States to produce river basin management plans for each river basin district. RBM plans have to include:

- a general description of the characteristics of the river basin district as required under Article 5 and Annex II, including:
 - for surface waters:
 - mapping of the location and boundaries of water bodies
 - mapping of the ecoregions and surface water body types within the river basin
 - identification of reference conditions for the surface water body types
 - for groundwaters:
 - mapping of the location and boundaries of groundwater bodies;
- a summary of significant pressures and impact of human activity on the status of surface water and groundwater, including:
 - estimation of point source pollution
 - estimation of diffuse source pollution, including a summary of land use
 - estimation of pressures on the quantitative status of water including abstractions
 - analysis of other impacts of human activity on the status of water
- identification and mapping of protected areas as required by Article 6 and Annex IV;
- a map of the monitoring networks established for the purposes of Article 8 and Annex V, and a presentation in map form of the results of the monitoring programmes carried out under those provisions for the status of:
 - surface water (ecological and chemical)
 - groundwater (chemical and quantitative)
 - protected areas
- a list of the environmental objectives established under Article 4 for surface waters, groundwaters and protected areas
- a summary of the economic analysis of water use as required by Article 5 and Annex III;
- a summary of the programme or programmes of measures adopted under Article 11
- a summary of the public information and consultation measures taken, their results and the changes to the plan made as a consequence
- a list of competent authorities in accordance with Annex I
- the contact points and procedures for obtaining the background documentation and information

Responsibility: MEPNR

Dates: 2013-2017

4.3.11 Public participation in river basin management planning

WFD requires from member states to encourage the active involvement of all interested parties in the implementation of this Directive. In particular, to ensure the participation of the general public including water users in the establishment and updating of river basin management plans: a) at least three years before the period to which the plan refers, a timetable and work programme for the production of the plan, including a statement of the consultation measures to be taken has to be published and made available for comments to public; b) an interim overview of the significant water

management issues identified in the river basin, should be published at least two years before the beginning of the period to which the plan refers; (c) draft copies of the river basin management plan should be made available to public at least one year before the beginning of the period to which the plan refers. On request, access shall be given to background documents and information used for the development of the draft river basin management plan.

At least six months should be allowed to comment in writing on those documents in order to ensure active involvement and consultation.

Responsibility: MEPNR

Dates: 2012-2017

4.4 Resources needed for implementation, including capacity building assistance & investments

Accurately defined and calculated resources needed for implementation of WFD basic requirements, including potential financial sources have to be identified during the RBM plans development process.

5. The Flood Risks Directive (2007/60/EC)

5.1 Key provisions, including guiding principles and policies

Directive 2007/60/EC of the European Parliament and of the Council of 23 October 2007 concerning the assessment and management of flood risks (“Flood Risks Directive”) establishes a common framework for assessing and reducing the risk that floods pose to human health, the environment, property and economic activity. The Directive covers all types of floods, both, along rivers and in coastal areas, including also urban floods and sewer floods.

The Flood Risks Directive requires that prevention and management measures are organised by river basin districts, and thus it is closely linked to the Water Framework Directive. In particular, the Directive requires that:

- preliminary assessment of flood risks is carried out,
- maps of areas at risk of floods are prepared, and
- flood management plans are established for each river basin district or part of a district at risk of floods.

5.2 Results of the legal analysis

Water Law of 1997 stipulates for general breakdown of responsibilities with regard to flood risk management. Also, it provides for promulgation by the MEPNR of methodology for development of flood management plans. However this methodology has never been adopted by the MEPNR. As a result no single flood management plan has been prepared so far. The law does not provide for detailed guidance on content of the methodology. Therefore, all the flood related provisions of the Water Law of 1997 still remain unworkable.

Theoretically, transposition of Flood Risks Directive requirements is possible into the existing Water Law of 1997 while new framework water law is being developed.

5.3 Measures needed to implement the Flood Risks Directive requirements in Georgia over time

5.3.1 Undertake preliminary flood risk assessment for each river basin or unit of management

Article 4 of the Floods Directive requires that preliminary flood risk assessment be carried out for each river basin district, or unit of management.

“Preliminary assessment” involves gathering information on the boundaries of river basins in the district concerned, the floods that have occurred in the past, the likelihood of future floods and the estimated consequences of such floods. On the basis of the assessment, river basins (and sub-basins) should be categorised according to whether or not they have a significant potential flood risk.

The assessment shall include at least the following:

- maps of the river basin district at the appropriate scale including the borders of the river basins, sub-basins and, where existing, coastal areas, showing topography and land use;

- a description of the floods which have occurred in the past and which had significant adverse impacts on human health, the environment, cultural heritage and economic activity and for which the likelihood of similar future events is still relevant, including their flood extent and conveyance routes and an assessment of the adverse impacts they have entailed; and
- a description of the significant floods which have occurred in the past, where significant adverse consequences of similar future events might be envisaged;

The assessment should also include an assessment of the potential adverse consequences of future floods for human health, the environment, cultural heritage and economic activity, taking into account as far as possible issues such as the topography, the position of watercourses and their general hydrological and geomorphological characteristics, including floodplains as natural retention areas, the effectiveness of existing manmade flood defense infrastructures, the position of populated areas, areas of economic activity and long-term developments including impacts of climate change on the occurrence of floods.

The responsible body for recording and gathering information on floods in Georgia, forecasting likelihood of future floods and analysing flood risks and possible consequences is the Department of Hydrometeorology of the National Environmental Agency. The Department is responsible for carrying out observations on glaciers, snow cover, avalanches, floods and other hydrometeorological processes; preparing short, medium and long term forecasts; and spreading information on possible hydrometeorological hazards. The Department should also participate in the assessment of damages and mitigation measures. The Department is responsible for zoning the territory of Georgia according to frequency and intensity of hydrometeorological hazards, as well as for creating and regularly updating an electronic data base on the basis of information gathered through many years.¹⁹

The Department holds information on the floods which have occurred in Georgia during 1916-1996, namely, the water flow cadastre of floods having occurred during this period. Division of Registration and Mitigation of Expected Hazardous Hydrometeorological Processes, under the Department of Hydrometeorology, processes and analyses these data and provides information on flood probability and their forecasted frequency throughout the country, according the regions.²⁰ On the basis of historical data and more limited present observations, the Division develops flood hazard maps in GIS format that will contain detailed information about floods, landslides and other natural hazards as well as detailed profiles for areas sensitive to natural hazards. At this point, this GIS database covers two regions of Georgia.²¹

The Department of Hydrometeorology is clearly the key agency for carrying out the preliminary flood risk assessment required under the Directive, since it holds most of the information on hydrometeorological processes and the longitudinal records needed for this step. But there may be gaps in the information gathered to date, and therefore an assessment should be carried out to ensure that the data currently being gathered and put on the GIS system for floods and other natural hazards is sufficient for compliance with the Flood Risks Directive, especially as, current observation data is rather limited (only about 20 stations from 182 operating in the past are operational today).²² In

¹⁹ Statute of the National Environmental Agency, approved by the Ordinance #611, of August 29, 2008, of the Minister of Environment Protection Natural Resources of Georgia

²⁰ Ramaz Meskhia, Head of Division of Registration and Mitigation of Expected Hazardous Hydrometeorological Processes, Department of Hydrometeorology, National Environmental Agency. Personal interview, 17.07.2009

²¹ Merab Bakhsholiani, Division of Registration and Mitigation of Expected Hazardous Hydrometeorological Processes, Department of Hydrometeorology, National Environmental Agency. Personal interview, 27.04.2009

²² Merab Bakhsholiani, Division of Registration and Mitigation of Expected Hazardous Hydrometeorological Processes, Department of Hydrometeorology, National Environmental Agency. Personal interview, 27.04.2009

addition, there is not much information about damage caused by floods, which makes difficult to make an assessment of the potential adverse consequences of future floods.²³

A full assessment of the potential adverse consequences of future floods may require the participation of other stakeholder agencies, including the Ministry of Economic Development and Local Self-Governance bodies concerned.

Responsibility: NEA in consultation with other stakeholder ministries and bodies

Dates: December 2009 for the assessment of the completeness of the information being gathered

December 2010 for carrying out the preliminary assessment

5.3.2. *Prepare flood hazard maps and flood risk maps for all river basins*

According to Article 6 of the Directive, flood hazard maps and flood risk maps should be prepared at the level of the river basin district, or management unit.

“Flood hazard maps” are to indicate the geographical areas which could be flooded according to the following scenarios: (1) floods with a low probability; (2) floods with a medium probability; (3) floods with a high probability. For each scenario the flood hazard maps should show the extent of flooding; water depths or water level; and the flow velocity or relevant water flow.

“Flood risk maps” should identify all areas at risk of flooding and indicate the probability (high, medium or low) of flooding for each of those areas. They should also show the potential damages that could occur under each flood scenario: the indicative number of inhabitants potentially affected, including their properties; the types of economic activity of the area potentially affected; any environmental damage, etc.

The GIS system for floods and other natural hazards currently being developed by the Department of Hydrometeorology should ease Georgia’s task of preparing flood hazard maps and flood risk maps. An assessment should be carried out to ensure that the data currently being gathered and put on the GIS system is sufficient for preparing flood hazard maps according to the three scenarios (low, medium, or high probability).

The assessment should then also consider what additional information will be needed to prepare the flood risk maps, along with which public bodies hold the required data. Much of this information should already be available from the preliminary assessment carried out during the first stage of implementation.

Since the flood hazard maps, flood risk maps, and flood risk management plans should be prepared for all river basins, it will clearly be necessary to coordinate all of these steps with the institutions that will form Georgia’s administrative structure for river basin management.

Responsibility: Department of Hydrometeorology (NEA), in consultation with other stakeholder ministries and bodies

²³ Ramaz Meskhia, Head of Division of Registration and Mitigation of Expected Hazardous Hydrometeorological Processes, Department of Hydrometeorology, National Environmental Agency. Personal interview, 17.07.2009

Dates: December 2009 for the assessment of the completeness of the information being gathered for the GIS system, and the feasibility of using the GIS system for preparing the flood hazard maps and flood risk maps
2010 for preparing the flood hazard maps
2011 for preparing the flood risk maps

5.3.3. Establish flood risk management plans at the level of the river basin district, or unit of management

According to Article 7 of the Directive, on the basis of the flood risk maps and the flood hazard maps, flood risk management plans must be prepared and implemented for each river basin district. The “flood risk management plans” must establish appropriate levels of protection for each river basin, sub-basin and stretch of coastline and “management measures” must be established to achieve those levels of protection.

The flood risk management measures must focus on reducing the probability of flooding and the potential consequences of flooding. They must cover prevention²⁴, protection²⁵ and preparedness²⁶. They must also take account of such aspects as water management, soil management, spatial planning, land use, and nature conservation.

Department of Hydrometeorology of the NEA is responsible for forecasting whether there is a high probability of floods in a given time. The probability of flooding is assessed based on observation of snow melting (each year an expedition to observe snow melting is sent on 20-25 routes) along with water level in rivers. It should be noted that only 20 hydrological stations are operational presently. During heavy showers flood is forecasted 1-2 days in advance.²⁷

Department of Hydrometeorology prepares different periodical bulletins including information on weather forecast and water level. Short bulletins are prepared on a daily basis. Long periodical forecast contain information of weather forecast for a month, and river water level for a season. All the bulletins are sent daily to: President Administration; Cabinet of Ministers; Parliament; Department of Emergency Situations of the Ministry of Internal Affairs; Ministry of Environment Protection and Natural Resources of Georgia; Ministry of Agriculture of Georgia; Tbilisi City Hall; Governors; and Media. In case there is a strong risk of a flood, this is highlighted in red in the everyday information bulletin. In such cases, bulletin is delivered by a courier to each mentioned State Agency. In addition, the agency alerts governors/local self-governments on flood danger, by e-mails and phone calls. Department of Emergency Situations alerts its regional representatives.

Emergency and Mitigation measures are implemented by local self-governance units and local representatives of Department of Emergency Situations. Those include: emergency population warning; evacuation, if needed; mobilizing needed technique in order to reduce flood risk and damage to property.

²⁴ Prevention of flood risk involves measures reducing susceptibility of watersheds and floodplains to flood damage, such as for instance, planning, land acquisition, river channel maintenance, wetlands protection etc.

²⁵ Protection would include restrictions on construction in flood plain areas, embankments along rivers to retain flood waters in river channels, upstream reservoirs, and so on.

²⁶ Preparedness includes systems for forecasting whether there is a probability of floods in a given time and for alerting relevant authorities so that they can take appropriate response measures to protect the population, etc.

²⁷ Merab Bakhsholiani, Division for registration and mitigation for expected hazardous hydro meteorological processes, Department of Hydrometeorology, National Environmental Agency. Personal interview, 27.04.2009

Investigating and planning of prevention and protection from floods is among the responsibilities of the Department of Coast Protection under the NEA.

Responsibility: Department of Hydrometeorology (NEA), in consultation with other stakeholder ministries and bodies

Dates: 2011-2012

5.4 Resources needed for implementation, including capacity building assistance & investments

In order to improve observation activities, optimal number of hydrological stations should be identified and equipped.

In the framework of the project “Development of Environmental Monitoring and Management Systems in Georgia” already has been made some assessment of the current monitoring systems in Georgia, which can be used.

6. The Urban Wastewater Treatment Directive (91/271/EEC)

6.1 *Key provisions, including guiding principles and policies*

Council Directive 91/271/EEC of 21 May 1991 concerning urban waste water treatment (“UWWT Directive”) covers the collection, treatment and discharge of urban waste water and the treatment and discharge of waste water from certain industrial sectors. The objective of the Directive is to protect the environment from the adverse effects of the nutrients discharged via untreated municipal sewage discharges. Member States are required to identify so-called “sensitive areas” – inter alia, waters which are eutrophic or likely to become eutrophic if protective measures are not taken.

The Directive, which was adopted in 1991, requires that areas with concentrated populations and/or economic activities (“agglomerations”) are provided with collecting systems for urban waste water, meeting requirements of the directive:

- by 31 December 1998 for all agglomerations with a population equivalent²⁸ (p.e.) of more than 10 000, discharging into receiving waters which are considered ‘sensitive areas’;
- by 31 December 2000 for all agglomerations with a p.e. of more than 15 000;
- by 31 December 2005 for for all agglomerations with a p.e. of between 2 000 and 15 000.

Where the establishment of a collecting system is not justified either because it would produce no environmental benefit or because it would involve excessive cost, individual systems or other appropriate systems which achieve the same level of environmental protection must be used.

Member States shall ensure that urban waste water entering collecting systems shall before discharge be subject to secondary (biological) treatment or an equivalent treatment as follows:

- by 31 December 2000 for all discharges from agglomerations of more than 15 000 p.e.;
- by 31 December 2005 for all discharges from agglomerations of between 10 000 and 15 000 p.e.;
- by 31 December 2005 for discharges to fresh-water and estuaries from agglomerations of between 2 000 and 10 000 p.e.

Industrial waste water entering collecting systems, and the disposal of waste water and sludge from urban waste water treatment plants, must be subject to regulations and/or specific authorisations issued by the competent authorities. Sludge arising from waste water treatment should be re-used and safely disposed, subject to general rules or registration or authorisation.

This Directive is particularly relevant to Georgia in light of its international obligations under the Bucharest Convention, i.e., to reduce the discharge of nutrients and other pollutants into the Black Sea, as well as its tourism industry. In addition, the main stem of the Kura River is affected by the wastewater discharges from the cities of Borjomi, Gori, Tbilisi and Rustavi.

However, Georgia has much to do to meet these requirements. Sewage collection systems exist in only 41 towns and urban centres, and on average only 70% of the urban population is served by collection systems. At present only one municipal wastewater treatment plant (Gardabani) is

²⁸ 1 p.e. (population equivalent) means the organic biodegradable load having a five-day biochemical oxygen demand (BOD5) of 60 g of oxygen per day;

operational, and pretreatment of industrial wastewater is rare. According to the National Centre for Disease Control, significant numbers of water samples contain bacteria. Inadequate sewage treatment thus endangers the health of the population, damages the environment, and threatens the important tourism industry.

6.2 Results of the legal analysis

There are no any special provisions concerning the urban waste water treatment, except that of general and uncertain requirements under the Water Law of 1997 and some minor and regulations (sanitary-hygienic norms and rules and hygienic requirements) approved in non systematic way by the Ministry of Labor, Social Affairs and Health.

Transposition of the Directive's requirements, in principle, is possible into the existing Water Law of 1997 while new framework water law is being developed.

6.3 Regulatory measures needed to implement the UWWT Directive in Georgia

The UWWT Directive is one of the most cost intensive pieces of European legislation in the environmental sector. The financial difficulties in meeting the requirements are illustrated by the fact that many of the countries which have recently joined the European Union were unable to meet the requirements upon accession to the Union and therefore were granted lengthy transitional periods, and are receiving substantial support from EU funds.

Georgia is undertaking "convergence", rather than full approximation and there is no obligation to transpose all of the Directive's requirements. Nonetheless, convergence requires introduction of a number of regulatory measures covering the main elements of the Directive. It also implies setting in place the main technical requirements of the Directive over time, as water sector reforms are carried out and resources for water sector investment become available.

This section focuses on the minimum regulatory measures required for convergence. The following section considers what is already being done in Georgia to improve wastewater collection and treatment, as well as proposals that have been made for additional consideration.

6.3.1 Establish a control system for discharges of wastewater into the environment, including permitting, monitoring and enforcement provisions covering both municipal wastewater discharges and industrial wastewater discharges

The establishment of a control system for discharges of wastewater into the environment is also an obligation under the Water Framework Directive. This obligation requires the application of a permitting system. At this point, Georgia has a system for permitting of wastewater treatment plants based on impact to the environment. However, this system is difficult to implement in practice, and a more effective system of permits covering wastewater discharges should be considered.²⁹

There is no special permitting system for use of water resources in Georgia. There used to be two kinds of permits: permit for abstraction of water from surface water bodies and permit for discharge

²⁹ As Georgia's process of convergence continues, it could introduce an integrated permitting regime that would deal with all aspects of the operation of a wastewater treatment plant. Such a system could be similar to the system of integrated permitting of large installations provided for in Directive 96/61/EC on Integrated Pollution Prevention and Control.

into surface water bodies, which were abolished in 2007. At this point in Georgia is applied a permitting system for impact on the environment which claims to incorporate and take account of all major impacts, including discharges into the water. The permit for impact on the environment applies to activities considered to have a significant adverse impact on the environment. List of these activities, subject to permitting and consequently requiring environmental impact assessment procedure, is defined by the law. According to this law, wastewater treatment plants (with the volume of 1000 m³ and more per day) and major wastewater collectors require a permit for impact on environment.³⁰ However, permitting system is rather weak in Georgia. Enforcement and implementation of environmental impact assessment requirements and permit conditions is practically not happening, which makes all this procedure rather formal. In addition, the permitting system does not cover major industrial sectors responsible for the nutrient-containing wastewater discharges. This raises concern that existing environmental permit system needs a serious upgrade.

Moreover, existing environmental permitting system simply could not substitute former water permitting system. For instance, presently decision is made based on overall impact of the activity on the environment. Theoretically, even if water experts do not give consent on implementation of a project, but majority of experts do, decision will be made in favor of the project.

Introduction of an effective permitting system for wastewater discharges should aim to ensure a minimal administrative burden on all parties, including the permit holders (the water service companies operating the UWWT plants as well as operators of industrial plants discharging biodegradable industrial wastewater) and the competent authorities issuing the permit. Establishment of integrated permitting system covering urban wastewater discharges would require the following measures:

- Designation of a point of contact for making a permit application (the “one stop shop” model, or “permitting unit”) (presumably the Regional Centres of the MEPNR).
- Development of permit application and permit assessment procedures
- Training of staff at the permitting unit in addressing all aspects of permitting for water, if required
- An electronic register of permits
- The standard duration for a permit (to be coordinated with the duration of the River Basin Management Planning cycle)
- A permit review schedule to spread the process of permit review evenly over time

The permits for wastewater discharge should address the quantity and quality of wastewater which may be discharged. The permits should also specify discharge monitoring requirements for discharges of different sizes and for periodic monitoring of treated sewage sludge quality.

In addition to the requirements for discharges from UWWT plants, the Directive also requires that biodegradable industrial wastewater from specified industrial sectors respect regulatory conditions before discharge to receiving waters. The industrial sectors covered are:

1. Milk-processing
2. Manufacture of fruit and vegetable products
3. Manufacture and bottling of soft drinks
4. Potato-processing
5. Meat industry
6. Breweries

³⁰ The law of Georgia on Permit for Impact on the Environment, December 14, 2007, Article 4

7. Production of alcohol and alcoholic beverages
8. Manufacture of animal feed from plant products
9. Manufacture of gelatine and of glue from hides, skin and bones
10. Malt-houses
11. Fish-processing industry

In practical terms, the Directive requires that the nutrient-containing wastewater from these industries must also be controlled (i.e., subject to wastewater treatment) so as to reduce environmental impact.

It is notable that present permitting system of Georgia does not cover food processing industries. So, none of the industries listed above, contributing to major nutrient-caused pollution, is subject to permitting. This additionally emphasizes that present permitting system needs a significant upgrade.

Industries, do not covered by a permitting system, are subject to technical regulations, which specify standards for wastewater discharge for such industries. Those standards are similar to all industries, so they do not take account of the number of industries in the area and the sensitivity of receiving water bodies. It is notable, that former permit for discharges into surface water implied to establish emission limits for each pollution source separately, depending on their technological features, location, and background situation of the environment, so that total concentration of harmful substances and micro-organisms do not exceed maximum allowable limits in a certain area.

Responsibility: MEPNR

Dates: 2011

6.3.2 *Establish a control system for industrial discharges into wastewater collection systems*

Because some industrial discharges may contain pollutants that could harm people and the environment and/or impede UWW purification processes, the Directive requires that the discharge of all industrial wastewater entering collecting systems and wastewater treatment plants be subject to prior regulations and/or specific authorization (permit) from the appropriate public body. The Directive's Annex IC further specifies that industrial wastewater entering collecting systems and wastewater treatment plants should be pre-treated as required to:

- protect the health of staff working in collecting systems and at UWWT plants;
- ensure that collecting systems and UWWT plants are not damaged by the industrial discharge;
- ensure that the operation of the UWWT plant and treatment of the sludge is not impeded;
- ensure that subsequent discharges from the UWWT plant do not harm the environment; and
- ensure that sewage sludge can be disposed of in an environmentally acceptable manner.

Controls need to be introduced to implement this requirement. Because the Directive's definition of "industrial wastewater" is quite broad,³¹ it could be interpreted to require introduction of a permit system for every non-household discharge to a sewer. This would however be a considerable drain on scarce administrative resources. An alternative approach could be to set generally binding rules for non-hazardous commercial discharges (such as cafes or restaurants) and then a permit system for all large commercial and industrial discharges to collection systems.

³¹ 'Industrial waste water' means any waste water which is discharged from premises used for carrying on any trade or industry, other than domestic waste water and run-off rain water.

Some countries have assigned competence for authorizing discharges to collection systems to the water service company responsible for operation of the sewage collection and wastewater treatment system, because the water service company is most likely to have the necessary detailed information needed for control. The MEPNR, together with other relevant ministries, will need to determine where responsibility for this should lie.

Responsibility: MEPNR

Dates: 2012

6.3.3 *Set wastewater discharge standards*

The Directive requires the setting of wastewater discharge standards for three parameters: biochemical oxygen demand (BOD), chemical oxygen demand (COD) and total suspended solids. The standards can be in terms of concentration values (emission limit values) or percentage of reduction.

Responsibility: MEPNR

Dates: 2010

6.3.4 *Determine which areas are “sensitive” within the meaning of the Directive where additional measures should be needed (alternatively, set environmental surface water quality standards)*

The Directive requires Member States to identify sensitive areas according to the criteria laid down in the Directive’s Annex II. A water body must be considered as a sensitive area if it falls into one of the following groups:

- (a) natural freshwater lakes, other freshwater bodies, estuaries and coastal waters which are found to be eutrophic or which in the future may become eutrophic if protection action is not taken;
- (b) surface freshwaters intended for drinking water abstraction which could contain nitrate concentrations exceeding Community standards for surface water intended for this purpose;
- (c) areas where additional treatment may be needed to meet other EU Directives (e.g., those setting ambient water quality standards)

A country may decide to identify individual sensitive areas or to regard the whole of its territory as a sensitive area (Article 5 (8)).

Georgian legislation sets environmental quality standards for its surface water resources, which, in some respect, obviates the need for “sensitive areas” designation under the UWWT Directive. However, in any case, the purpose of the sensitive areas provision is to combat eutrophication by imposing stricter discharge standards on wastewater treatment plants in those areas. This is an example of the “combined approach” under the Water Framework Directive, where emission limit values are in part determined by the quality of the receiving water body and the objectives to be achieved for that water body.

Under the UWWT Directive, UWWT plants discharging to sensitive areas must carry out more stringent treatment – in particular, tertiary nutrient removal. Installation of tertiary treatment is quite expensive and not realistic at this point, given the need for so many other investments just to achieve primary (mechanical) and secondary (biological) treatment of urban wastewater.

The river basin management planning process under the Water Framework Directive and definition of objectives for specific water bodies could be used to address eutrophication problems. In due course and as the economic potential to include tertiary treatment for wastewater discharges increases, the sensitive area provisions can be enforced. In the meantime, it could be prudent to make practical provision for the inclusion or later introduction of nutrient removal in all future wastewater treatment plant projects for agglomerations over a certain population equivalent. This would ensure allocation of space at the site of the wastewater treatment plant for the construction of nutrient removal facilities and make the introduction of nutrient removal easier in the future. These provisions could be incorporated into technical guidance for water service operators and into the permit as noted above.

Responsibility: MEPNR

Dates: 2010

6.3.5 Provide for the gradual tightening of standards through the use of “temporary” permit conditions or derogations

Only one of Georgia’s wastewater treatment plants is operative today (however, it carries out only primary, mechanical treatment), and thus almost all wastewater discharges do not meet the EU standards. It will take many years to secure the necessary investments for rehabilitation of existing plants, not to mention the construction of new plants where additional coverage is needed. It will be important to ensure that investments are undertaken in priority order, and that this is reflected in the legal permit. This can be done through the inclusion of short, medium and long term targets in the permit. These time targets could be coordinated with the time periods established for the river basin management planning process and subsequent updates.

Responsibility: MEPNR

Dates: 2013

6.3.6 Set in place controls (prior regulation and/or specific authorization) over the use (disposal) of sewage sludge arising from wastewater treatment

The Directive requires that the disposal of sludge from urban wastewater treatment plants is subject to prior regulations and/or specific authorisations by the competent authority. Moreover, sewage sludge is to be re-used whenever appropriate and, if disposed, in such a way as to minimize adverse effects on the environment.

Because of the current condition of wastewater treatment infrastructure in Georgia, a relatively small amount of sludge is now produced in comparison with former periods. However, as the investments in treatment infrastructure are made, an increasing amount of sludge will be produced.

The re-use of sludge for agricultural purposes is the most efficient means of maintaining the nutrient and carbon cycles. However, such use needs to be regulated in order to ensure that there is no risk of infection or pathogen transmission to humans and livestock. As an alternative to use in agriculture, sludge may be incinerated or disposed of to landfill, although European Union legislation (Landfill Directive 1999/31/EC) is gradually phasing out this latter option.

Presently there are no special regulations on sewage sludge in Georgia. Moreover, entire waste sector is poorly regulated, so that the law on waste is not yet adopted. For industries, requiring permit for

impact on environment, waste is a part of environmental impact assessment. However, as was already mentioned, this system needs significant improvement.

Minimum steps for convergence with this requirement would include:

- Development of a sludge management policy and strategy
- Inclusion in wastewater treatment plant permits of a requirement to undertake sludge monitoring
- Setting of standards for use of sludge in agriculture (in accordance with Sewage Sludge Directive 86/278/EEC)
- Regulating the crop types and areas of land on which sewage sludge can be used as a soil conditioner (e.g. not on direct food crops such as vegetables, not in the immediate vicinity of water courses)
- Establishing guidelines for agricultural uses including timing, application (e.g. ploughing into the soil), quantities
- Establishing a permit system for regulating disposal in coordination with the system for the regulation of the disposal of solid waste

Responsibility: MEPNR

Dates: 2013

6.3.7 Establish a system of monitoring of discharged wastewater, relevant receiving waters and procedures for disposal of sludge and of managing the data received

In addition to permits setting conditions for wastewater discharges, an effective control system will also require monitoring and inspection so as to ensure compliance. The Directive requires that competent authorities or appropriate bodies are to monitor (1) discharged wastewater; (2) relevant receiving waters;³² and (3) amounts and composition of sludge disposed of to surface waters.

With respect to monitoring of discharged wastewater, the Directive's Annex ID has detailed requirements concerning the number of samples to be taken at which intervals throughout the year. Monitoring of receiving waters would ideally be connected with the monitoring to be set in place in accordance with the convergence plan for the Water Framework Directive.

The process of monitoring is closely linked to that of inspection. The State Inspectorate is required to inspect wastewater treatment plants to see if they are operating in accordance with their environmental impact permits.

Presently in Georgia Department of Environment Pollution Monitoring of the National Environmental Agency carries out surveillance monitoring of physico-chemical quality elements of surface waters. Though, monitoring is undertaken with rather limited capacity (only 22 rivers are monitored presently, in comparison with 72 rivers used to be monitored until 90-ies). This does not imply monitoring and control of point source discharges. Even though, formally, the Department is responsible for investigating and monitoring environment pollution sources and emissions and studying efficiency of

³² By relevant receiving waters, the Directive means 'cases where it can be expected that the receiving environment will be significantly affected.'

emission reduction equipment,³³ there is no formalized procedure for monitoring of point and diffuse sources of pollution.

Control of point source pollution is a part of the enforcement of environmental impact assessment and permitting conditions, which is within the competences of the Inspectorate of Environment Protection, the sub-agency organization of the MEPNR. However, the Inspectorate has limited legal capacity for implementing these responsibilities. Due to inconsistencies in legislation, the Inspectorate can enter the private enterprise only on the basis of a judicial order. While, a judicial order is issued only in case controlling body presents substantiated and grounded suspicion about violating legal requirements by entrepreneur.³⁴ This means that the Inspectorate can not perform surveillance of implementation of EIA and permitting conditions on a regular basis, even though this is required by the Law on Licenses and Permits.³⁵ In addition, the Inspectorate does not have capacity to take/analyze samples. Usually this is performed by the Department of Environment Pollution Monitoring, which gets involved in the process when needed, on the basis of the Ordinance of the Minister of Environment Protection and Natural Resources.

Responsibility: MEPNR and Inspectorate of Environment Protection
 Dates: 2011

6.4 Technical measures needed to implement the UWWT Directive in Georgia

6.4.1 Collection systems

Rehabilitation and modernization of Georgia’s wastewater collection systems and treatment plants is important not only for convergence with the EU standards, but for the protection of human health and the environment.

The Directive requires that all agglomerations over 2000 in population have collection systems in place. In Georgia, 70% of the urban population is served by wastewater collection systems, though not all of the population is covered. As the table below shows, while 90% of the population in Tbilisi is served by collection systems, the coverage drops considerably in Georgia’s smaller towns.

Area	Percentage
National average	70
Tbilisi	90
Large towns	45
Small towns	30

Source: USAID, Georgia Water Utility Sector Reform Program (Sept 2008 report)

Since Soviet times, there has been very little investment in maintenance and rehabilitation of existing collection systems. Therefore, many of them are in poor condition and in need of rehabilitation. Some donors have provided financing for rehabilitation of collection systems but to date these projects have focused on larger cities or Black Sea resort towns.

³³ Statute of the National Environmental Agency, approved by the Ordinance #161, of August 29, 2008, of the Minister of Environment Protection Natural Resources of Georgia

³⁴ The Law of Georgia on Control of Entrepreneurial Activity, June 8, 2001, Article 3

³⁵ The Law of Georgia on Licenses and Permits, June 24, 2005, Article 33

In general, the poor state of wastewater collection and treatment is attributed to a combination of lack of public financing, lack of modern management tools such as metering and failure of tariff systems to achieve full cost recovery.

Various donors, including the World Bank and the OECD through its Environmental Action Programme (EAP) have been working with Georgian decision makers on how to reform municipal water services in order to make them more efficient and financially sustainable. For example, a USAID-funded project to provide technical and advisory assistance to the Georgian Government for development of an overall water utility reform plan made a number of recommendations aimed at improving the financial viability of the water services sector.³⁶ These recommendations included: implementation of universal metering of water consumption (in addition to reducing production costs, this would reduce costly wastewater collection, treatment and disposal costs); tariff structures aimed at full cost recovery (with life-line tariffs for low-income families); and implementation of modern commercial systems in water service utilities.

In May 2009 the Government established a new Ministry of Regional Development and Infrastructure, at the same time abolishing a previously existing high level Commission on Water Supply and Sanitation. This new Ministry has set up a “Water Agency” as a subsidiary agency, with the objective of promoting water systems.

This new Ministry could bring a new momentum to the effort to finance and modernize the water services sector in general, and not only water systems. Among the competences of the Ministry is planning and coordination of development of water supply and waste water collection/treatment systems.

Responsibility: MRDI, MEPNR, local SGUs, Municipal Development Fund

Dates: 2009-2025

6.4.2 *Wastewater treatment plants*

As of 2009, in all of Georgia, only Tbilisi is served by an operational municipal wastewater treatment plant, and this provides only primary (mechanical) treatment. At least 29 other cities and towns were served at one point in time by municipal wastewater treatment plants constructed during Soviet times. However, none of these are in service today due to lack of parts or maintenance.

Planning and coordination of development of wastewater treatment plants is among competence of the Ministry of Regional Development and Infrastructure. The section above has already described the problems that have led to the failure of this aspect of water services, including lack of financing, modern management tools and failure to achieve full cost recovery via tariffs.

Clearly the rehabilitation of existing wastewater treatment plants and the construction of new treatment plants are linked to the rehabilitation and extension of municipal wastewater collection systems. The section below describes some of the efforts of donors to date to help Georgian cities to meet this challenge.

Responsibility: MRDI, MEPNR, local SGUs, Municipal Development Fund

³⁶ USAID, *Georgia Water Utility Sector Reform Program: First Report*. September 2008

Dates: 2009-2025

6.5 Resources needed for implementation, including capacity building assistance & investments

A 2007 report by OECD estimated Georgia's investment needs for rehabilitating existing water mains and sewerage in 20 cities and towns and construction of new infrastructure to provide sustainable access to safe water via in-house water taps to all urban consumers as requiring a total investment of GEL 418 million from 2006 to 2015 (GEL 42 million a year).³⁷ Constructing additional urban wastewater treatment in coastal zone areas would cost another GEL 27 million over the same period, or a total of GEL 45 million per year. This would require more than 4% of public budgets for 10 years, which seemed unrealistic. Moreover, the estimates did not include investments needed to expand water and wastewater services and wastewater treatment to urban populations not yet connected to such services, let alone the needs in rural areas.

A number of donors have been active in financing water and wastewater systems in Georgia, including the Millennium Challenge Fund (rehabilitation of the systems of Borjomi, Bakuriani, Kutaisi, Kobuleti and Gori) and KfW (rehabilitation of water services in Batumi). In 2009 the European Bank for Reconstruction and Development was in the process of financing costs of rehabilitation of water services infrastructure in Kutaisi and Poti.

In particular there is a need for a national master plan on how to finance and construct the remaining wastewater collection systems and treatment plants needed in Georgia. The new Ministry for Regional Development & Infrastructure could coordinate this effort.

³⁷ OECD, *Georgia Water Resources*, 2007

7. The Bathing Water Directive (2006/7/EC)

7.1 Key provisions, including guiding principles and policies

Directive 2006/7/EC concerns the management of bathing water quality. Its objective is to preserve, protect and improve the quality of the environment and to protect human health. This Directive has particular relevance for Georgia, given the economic importance of its tourism industry on the Black Sea coast.

The Bathing Water Directive is tightly linked to the Water Framework Directive and the Urban Wastewater Treatment Directive. The Water Framework Directive requires implementing the necessary measures for protecting, enhancing and restoring all bodies of surface water and to prevent deterioration of their status. The Directive aims to achieve good surface water status at the latest 15 years after the date of entry into force of this Directive. The Urban Wastewater Treatment Directive aims to protect the environment from the adverse effects of the nutrient-rich municipal sewage discharges and discharge of wastewater from certain industrial sectors. Consequently, achievement of the objectives of the Bathing Water Directive depends, to a great extent, on bringing into force of both of these two Directives.

The Directive lays down provisions for the classification, monitoring, management of bathing water quality and the provision of information to the public on bathing water quality. It applies to all surface water that can be used for bathing except for swimming pools and spa pools, confined waters subject to treatment or used for therapeutic purposes and confined waters artificially separated from surface water and groundwater.

Member States are required to identify all bathing waters and define the length of the bathing season annually. They are then required to monitor each bathing water by taking samples and then analysing them, according to a strict monitoring calendar. The samples are to be analysed for two indicator microbiological parameters (*intestinal enterococci* and *escherichia coli*).

At the end of each bathing season, Member States should assess their bathing waters on the basis of the information gathered and then classify the bathing waters according to whether the quality is considered 'poor', 'sufficient', 'good' or 'excellent'. Category 'sufficient' is the minimum quality threshold that all Member States should attain by the end of the 2015 season at the latest. Where water is classified as 'poor', Member States should take certain management measures, in particular prohibition or advice against bathing, providing information to the public, and taking measures to prevent, reduce or eliminate the causes of pollution. Member States must also establish bathing water profiles for each bathing water, describing the area concerned, any sources of pollution, and the location of the water monitoring points.

The list of bathing waters, information relating to the classification and description of the bathing waters and their possible pollution should be actively disseminated and made promptly available to the public. Information should be available during the bathing season in an easily accessible place in the area near each bathing waters.

7.2 *Results of the legal analysis*

There are no special norms for bathing water quality. Ministry of Labour, Health and Social Affairs of Georgia sets environmental quality norms for water for surface water, groundwater and coastal water in general.

Transposition of the Directive's requirements might be reasonable into the existing Water Law of 1997 while new framework water law is being developed.

7.3 *Measures needed to implement the Bathing Water Directive requirements in Georgia*

7.3.1 *Determining what is a bathing water*

The Directive applies to any element of surface water where a large number of people are expected to bathe, and where the competent authority has not imposed a permanent bathing prohibition or issued permanent advice against bathing. It does not apply to swimming pools, spa pools, confined waters subject to treatment or used for therapeutic purposes, or artificially created confined waters.

Article 3 requires annual identification of all bathing waters, including the length of the bathing season. Public participation in this process is to be encouraged (Article 11).

The annual list of bathing waters must be available each year before the start of the bathing season.

There is no formalized procedure to identify bathing water bodies in Georgia. Surface water bodies, being used for bathing are practically subject to the same regulations as all other surface bodies.

Responsibility: MEPRN, territorial bodies of the MEPNR, Local self-governance, MLHSA

Dates: 2009

7.3.2 *Setting bathing water quality standards*

The standards for bathing water quality set forth in the Directive's Annex I utilize indicator parameters for predicting microbiological health risk, in particular intestinal enterococci (cfu/100 ml) and escherichia coli (cfu/100 ml).

For inland waters

	A	B	C	D	E
	Parameter	Excellent quality	Good quality	Sufficient	Reference methods of analysis
1	Intestinal enterococci (cfu/100 ml)	200 (*)	400 (*)	330 (**)	ISO 7899-1 or ISO 7899-2
2	Escherichia coli (cfu/100 ml)	500 (*)	1 000 (*)	900 (**)	ISO 9308-3 or ISO 9308-1

(*) Based upon a 95-percentile evaluation. See Annex II.

(**) Based upon a 90-percentile evaluation. See Annex II.

For coastal waters and transitional waters

	A	B	C	D	E
	Parameter	Excellent quality	Good quality	Sufficient	Reference methods of analysis
1	Intestinal enterococci (cfu/100 ml)	100 (*)	200 (*)	185 (**)	ISO 7899-1 or ISO 7899-2
2	Escherichia coli (cfu/100 ml)	250 (*)	500 (*)	500 (**)	ISO 9308-3 or ISO 9308-1

(*) Based upon a 95-percentile evaluation. See Annex II.

(**) Based upon a 90-percentile evaluation. See Annex II.

A significant number of water samples tested by the National Center for Disease Control were found to contain bacteria, indicating that there is cause for concern. This is strongly linked to lack of wastewater treatment. Polluted wastewater from communal and industrial sector is a major source of pollution of surface water bodies in Georgia.

Responsibility: MLHSA

Dates: 2010

7.3.3 *Monitoring of bathing water*

The Directive requires monitoring of each bathing water site using the microbiological indicator parameters above. A monitoring calendar is to be established before the start of each bathing season, specifying when samples are to be taken. Samples must then be taken within four days of the date set in the monitoring calendar. At least four samples are to be taken each bathing season, including one sample shortly before the start of the season and other samples taken at intervals never exceeding one month. In the event of short-term pollution, an additional sample needs to be taken to confirm that the incident has ended, but it must be excluded from the set of bathing water quality data.

The monitoring point must be the location within the bathing water where most bathers are expected or, alternatively, where the greatest risk of pollution is expected.

The Directive also requires monitoring for potential cyanobacterial proliferation, macro-algae and/or marine phytoplankton proliferations, and visual inspections for pollution such as tarry residues, glass, plastic, rubber or any other waste.

Some monitoring of bathing water quality is carried out in Georgia, e.g., three lakes in the Tbilisi region are tested by the National Environmental Agency from May through October, and the Black

Sea Monitoring Centre in Batumi also has a laboratory for testing coastal waters used for bathing. Some local self-governance units on the Black Sea coast may also be carrying out monitoring, to ensure the safety of their beaches for the local populations and tourists.

It is notable that, in overall, only 22 rivers, from 72, used to be monitored until 1990-ies are monitored presently. There is no monitoring on lakes despite many of them are very popular recreational sites.

Responsibility: NEA

Dates: 2010

7.3.4 Assessment and classification of bathing water

Member States should assess their bathing waters after the end of each bathing season on the basis of the information gathered during that season and the three preceding bathing seasons. The assessment may cover a shorter period in some cases, in particular if the area has just been identified as bathing water or if important recent changes are likely to have changed the water quality.

At the end of each bathing season, on the basis of the bathing water data collected via the periodic monitoring described above, the competent authorities should then assess each bathing water and classify it according to whether the bathing water is ‘excellent’, ‘good’, ‘sufficient’ or ‘poor’ in quality.

Responsibility: NEA

Dates: 2011-2012

7.3.5 Management of bathing water quality

By 2015, Member States are required to ensure that all bathing waters are at least ‘sufficient’. They are also required to take “such realistic and proportionate measures as they consider appropriate” in increase the number of bathing waters classified as ‘excellent’ or ‘good’.

For bathing waters classified as ‘poor’, i.e., with microbacterial concentrations greater than the limits considered ‘sufficient’, the Member States must take adequate management measures, including:

- a bathing prohibition or advice against bathing, in order to prevent bathers’ exposure;
- identification of the causes and reasons for the failure to achieve ‘sufficient’ quality status;
- adequate measures to prevent, reduce, or eliminate the causes of pollution;
- a clear and simple warning sign to alert the public, informing them of the causes of the pollution and the measures taken.

Responsibility: MEPRN in coordination with other relevant institutions

Dates: 2012

7.3.6 *Bathing water profiles*

As part of the management of bathing water quality, bathing water profiles are to be established for each bathing water. The bathing water profile may cover a single bathing water or more than one contiguous bathing water. It is to consist of:

- a description of the physical, geographical and hydrological characteristics of the bathing water, and of other surface waters in the catchment area of the bathing water concerned that could be a source of pollution relevant to the quality of the bathing water (the Directive specifically links this step to the Water Framework Directive)
- identification and assessment of causes of pollution that might affect bathing waters and impair bathers' health;
- an assessment of the potential for proliferation of cyanobacteria;
- an assessment of the potential for proliferation of macro-algae and/or phytoplankton;
- the location of the monitoring point.

The information in the first two bullets is to be provided on a detailed map “whenever practicable”.

If the assessment of potential causes of pollution shows that there is a risk of short-term pollution, the bathing water profile must also provide information on:

- the anticipated nature, frequency and duration of expected short-term pollution,
- details of any remaining causes of pollution, including management measures taken and the time schedule for their elimination,
- management measures taken during short-term pollution and the identity and contact details of bodies responsible for taking such action.

These bathing water profiles must be reviewed regularly to assess whether any of the above aspects have changed. The frequency of the review depends on the nature and severity of the pollution, e.g., every two years if classified as ‘poor’ and every four years if classified as ‘good’.

Responsibility: MEPRN in cooperation with MLHSA and other relevant institutions

Dates: 2012

7.3.7 *Measures to be taken in exceptional circumstances*

The Directive requires Member States to take timely and adequate management measures when they are aware of unexpected situations that have, or could reasonably be expected to have, an adverse impact on bathing water quality and on bathers’ health. Measures must include information to the public and, if necessary, a temporary bathing prohibition.

Responsibility: MEPRN, MIA, SGU, Governors

Dates: 2011

7.3.8 *Information to the public*

The Directive pays special attention to the need to inform the public about the quality of bathing waters, in light of the importance of protecting human health. It specifies that certain information must be actively disseminated and promptly made available during the bathing season in an easily accessible place in the area near each bathing water. This information includes:

- (a) the current bathing water classification and any bathing prohibition or advice against bathing by means of a clear and simple sign or symbol;
- (b) a general description of the bathing water in nontechnical language, based on the bathing water profile;
- (c) in the case of bathing waters subject to short-term pollution:
 - notification that the bathing water is subject to short-term pollution,
 - an indication of the number of days on which bathing was prohibited or advised against during the preceding bathing season because of such pollution, and
 - a warning whenever such pollution is predicted or present,
- (d) information on the nature and expected duration of abnormal situations during such events;
- (e) whenever bathing is prohibited or advised against, a notice advising the public and giving reasons;
- (f) whenever a permanent bathing prohibition or permanent advice against bathing is introduced, the fact that the area concerned is no longer a bathing water and the reasons for its declassification; and
- (g) an indication of sources of more complete information.

In addition, authorities are to use appropriate media and technologies, including the Internet, to disseminate actively and promptly the information above, as well as additional information in several languages, when appropriate (e.g., to inform tourists :

- (a) a list of bathing waters;
- (b) the classification of each bathing water over the last three years and its bathing water profile, including the results of monitoring since the last classification;
- (c) in the case of bathing waters classified as being ‘poor’, information on the causes of pollution and measures taken with a view to preventing bathers' exposure to pollution and to tackle its causes as referred to in Article 5(4); and
- (d) in the case of bathing waters subject to short-term pollution, general information on:
 - conditions likely to lead to short-term pollution,
 - the likelihood of such pollution and its likely duration,
 - the causes of the pollution and measures taken with a view to preventing bathers' exposure to pollution and to tackle its causes.

Responsibility: MEPNR, SGU

Dates: 2010

7.3.9 *Cooperation on transboundary waters*

The Directive requires appropriate exchange of information and joint action to control any transboundary impacts on bathing water.

Responsibility: MEPNR

Dates: 2011-2012

7.4 Resources needed for implementation, including capacity building assistance & investments

Presently, microbiological monitoring is undertaken in two out of three laboratories of NEA: Batumi and Tbilisi. In those laboratories the main concern is training of the personnel.

As concerns to the third, Kutaisi laboratory, it needs to be equipped in order to start undertaking microbiological monitoring. The costs for the upgrade of this laboratory can be roughly estimated as 20 000 EUR, based on expenditures spent on upgrade of other two laboratories.

8. Integrated Action Plan and Timetable

Water Framework Directive

		Technical assistance	2009	2010				2011	2012	2013	2014	2015	2016	2017
			Oct/Dec	Jan/Mar	Apr/Jun	Jul/Sept	Oct/Dec							
4.3.1	River basin delineation													
4.3.1.1	National													
4.3.1.2	International													
4.3.2	Identification of competent authorities													
4.3.2.1	Coordination for international RBDs													
4.3.3	Analysis of characteristics													
4.3.3.1.a	Characterisation of surface water types													
4.3.3.1.b	Quality elements for classifying ecological status													
	Classification of each surface water body													
4.3.3.1.c	Identification of pressures on surface water bodies													
4.3.3.1.d	Assessment of impacts & susceptibility of WBs													
4.3.3.2	Characterisation of groundwater bodies													
4.3.4	Economic analysis of water use													
4.3.5	Register of protected areas													
4.3.6	Monitoring of water status													
4.3.6.1	Surface waters													
4.3.6.1.a	Surveillance monitoring													
4.3.6.1.b	Operational monitoring													
4.3.6.1.c	Investigative monitoring													
4.3.6.1.d	Ecological status classification													
4.3.6.2	Groundwaters													
4.3.7	Recovery of costs of water services													
4.3.8	Combined approach for point & diffuse sources													
4.3.9	Programme of measures													
4.3.9.1	Basic measures													
4.3.10	River basin management plans													
4.3.11	Public participation in river basin management planning													

Flood Risks Directive

		Technical assistance	2009	2010				2011	2012	2013	2014	2015
			Oct/Dec	Jan/Mar	Apr/Jun	Jul/Sept	Oct/Dec					
5.3.1	Preliminary flood risk assessment											
	Processing historical information											
	Description of floods having occurred in the past											
	Assessment of likelihood of future floods											
	Estimation of consequences of future floods											
	Categorization of basins and sub-basins in terms of flood probability											
5.3.2	Development of flood hazard maps, and flood risk maps											
	Assessment of the completeness of the information being gathered for the GIS system											
	Development of flood hazard maps											
	Development of flood risk maps											
5.3.3	Establishment of flood management plans											

Urban Wastewater Treatment Directive

		Technical assistance	2009	2010				2011	2012	2013	2014	2015	2016	2017	2025
			Oct/Dec	Jan/Mar	Apr/Jun	Jul/Sept	Oct/Dec								
6.3.1	Control system for discharges of WW into envt														
	Permitting (use temporary permit conditions)														
	Monitoring & enforcement														
6.3.2	Controls over discharges of industrial WW into sewers														
6.3.3	Wastewater discharge standards														
6.3.4	Determination of "sensitive" areas or surface water QS														
6.3.5	Gradual tightening of standards (end of derogations)														
6.3.6	Controls over disposal of sewage sludge														
6.3.7	Monitoring of discharged WW & receiving waters														
	Monitoring of sludge disposal														
6.4.1	Rehabilitation &/or construction of collection systems														
6.4.2	Rehabilitation &/or construct WW treatment systems														

Bathing Water Directive

		2009		2010				2011	2012	2013	2014	2015
		Technical assistance	Oct/Dec	Jan/Mar	Apr/Jun	Jul/Sept	Oct/Dec					
7.3.1	Determining what is bathing water											
7.3.2	Setting bathing water quality standards											
7.3.3	Monitoring of bathing water											
7.3.4	Assessment and classification of bathing water											
7.3.5	Management of bathing water quality											
7.3.6	Establishment of Bathing water profiles											
7.3.7	Development of a plan for measures to be taken in exceptional circumstances											
7.3.8	Development of mechanisms for public information											
7.3.9	Cooperation on transboundary waters											

Institutions in Georgia involved in Water Management

The state water resources of Georgia are managed by National institutions, institutions of Autonomous Republics, and Local Self-Governance bodies. Generally, state protection and management as well as state control and monitoring of water is implemented by the Ministry of Environment Protection and Natural Resources of Georgia. However, the MEPNR does not handle all types of water bodies: issuance of licenses for use of underground water has been transferred to the Ministry of Economic Development of Georgia. Control of drinking water quality is the responsibility of Ministry of Agriculture of Georgia. Water management in Georgia is highly centralized, as regional/local institutions have very limited competences. Still, local self-governance bodies are responsible for supervising measures for water protection and rational use of water on their territories, controlling water protection and water use, etc. At the same time, authorities of the Autonomous Republics of Georgia are responsible for protection of water and control of water use on the territory of their republics. Competences of Autonomous Republics and Local Self-Governance bodies are not defined very clearly and overlap in many areas. In general, responsibilities/competences in the water sector are redistributed among different institutions on national and local levels. At the same time, responsibilities are not prescribed clearly and there are overlaps in many cases.

Ministry of Environment Protection and Natural Resources of Georgia

The Ministry of Environment Protection and Natural Resources of Georgia is a key institution on national level involved in water resources management. MEPNR is responsible for state management and protection of water, as well as for implementing state control on water and establishment of water monitoring system³⁸. The MEPNR develops state policy on protection and use of water; establishes maximum permissible thresholds for pollutants in discharged waters; defines rules for protection of water from pollutants; conducts state inventory of water use; controls the compliance with water protection and water use rules;³⁹ issues permits for impact on the environment.⁴⁰

The Department of Integrated Environmental Management of the MEPNR consists of several units, including Service of Water Resources Management and Service of Land Management. The Department is responsible for registering and managing water consumption, creating state water cadastre, hydro-economic balances, coordinating development of complex schemes for consumption and protection of water, establishing maximum permissible thresholds for pollutants in effluent waters, participating in policy making and implementation of land resources management.⁴¹

The National Environmental Agency is a legal entity of public law under the MEPNR. The Agency consists of several structural units including: Department of Geological Hazards and Geological Environment Management, Department of the Coastline Protection, Department of Spatial Information, Department of Hydrometeorology and Department of Environment Pollution Monitoring. The National Environmental Agency is responsible for preparing and distribution of information regarding environment conditions on the territory of Georgia, in river basins, water reservoirs, in territorial waters of the Black Sea, on the continental shelf etc.; preparation and distribution of relevant

³⁸ The Law of Georgia on Environmental Protection, 1996, Article 13

³⁹ The Law of Georgia on Water, 1997

⁴⁰ The Law of Georgia on Permit for Impact on the Environment, 2007

⁴¹ Statute of the Ministry of Environment Protection and Natural Resources of Georgia, approved by Resolution No 50 of the Georgian Government, 12 June, 2004, Tbilisi

normative or/and information documents regarding hydrology, agro-meteorology, climate, hydrological resources, geodynamic processes and background conditions of environmental pollution; recording and registering all types of completed and on-going industrial and scientific geological works on the territory of Georgia, in territorial waters, on the continental shelf and a special economic zone etc. Department of Environment Pollution Monitoring is responsible for regular monitoring of background environment pollution, including surface and ground water pollution and providing information concerning environment pollution conditions to public authorities, national industries and interested individuals.⁴²

Inspection of Environment Protection is a sub-agency organization of the MEPNR. The main tasks of the Inspection are to carry out the state control in the field of environment protection, to expose and suppress illegal use of natural resources and environment pollution, to control implementing conditions of licenses/permits issued by Ministry, to expose and prevent administrative law violations in the field of environment protection, to implement monitoring of law enforcement, to create data base of regulation units, to analyze reports of implementing licenses/permits conditions represented by regulation units, to plan and coordinate environment protection state control.⁴³ The inspectorate has 9 territorial bodies.

Territorial bodies of the MEPNR represent the MEPNR in the administrative units of Georgia. There are 6 territorial bodies of the MEPNR on the territory of Georgia. Under their responsibility is preventing emergency ecological situations and developing mitigation measures; state control on registering of water and water consumption; participating in land management related issues etc.⁴⁴

Ministry of Labour, Health and Social Affairs of Georgia

The Ministry of Labor, Health and Social Affairs of Georgia is responsible for ensuring safe environment for public health. Particularly, the Ministry develops environmental quality norms for air, water, soil, noise, vibration and electromagnetic radiation.⁴⁵ Ordinance of the Minister of Labour, Health and Social Affairs of Georgia No 279/N on environmental quality norms determines quality standards for the water of centralized and non-centralised and surface water supply systems, rules and norms of sanitary protection of surface water and springs underground waters and coastal sea waters. On December 17, 2007 the Ministry issued new ordinance on technical regulation of drinking water, providing renewed standards for drinking water quality, approximated to WHO standards.

Ministry of Regional Development and Infrastructure of Georgia

Newly established Ministry of Regional Development and Infrastructure of Georgia is responsible for implementation of regional policy. Among water related competences of the Ministry are: coordination and supporting of developing water systems in Georgia; coordination of regional programmes funded by national and international sources and overseeing their implementation within

⁴² Statute of legal entity of public Law “The National Environmental Agency”, approved by Resolution No 611 of the Minister of Environment Protection and Natural Resources of Georgia, 29 August, 2008

⁴³ Statute of Inspection of Environment Protection of the MEPNR, approved by Ordinance No 277 of Minister of Environment Protection and Natural Resources of Georgia, August 29, 2005

⁴⁴ Statute of the Territorial Bodies of the Ministry of Environment Protection and Natural Resources of Georgia, approved by Resolution No439 of Minister, November 9, 2005

⁴⁵ The Law of Georgia on Public Health, 27.06.2007, Article 22

their competences; supporting and coordination of international, including transboundary collaboration of Georgian regions and local self-governance units.⁴⁶

Agency of Regional Development for Ensuring Water Supply Systems is a legal entity of public law under the Ministry of Regional Development and Infrastructure. The Agency was established in April 21, 2009 with the Presidential Ordinance⁴⁷. The aim of establishment of the Agency is to support development of water systems in Georgian regions and to ensure sustainable use of water resources.

The objectives and competences of the Agency are: improving water provision and planning corresponding measures; participating in coordination of rehabilitation of water systems; participating in implementation and coordination of planning of drinking water supply systems; supporting fund raising for development of the water sector; supporting international cooperation relating to development of the water supply sector and participating in corresponding programmes; tight collaboration with the general public; coordinating cooperation between state agencies and NGOs; participating in organizing of scientific researches; implementing intersectoral cooperation with regards to development of water systems.⁴⁸

Ministry of Economic Development of Georgia

The Ministry of Economic Development of Georgia develops and implements objectives of economic development of the country. Among the main spheres of its activity are: economic policy, investments, tourism, management of state property, urban development etc. The Ministry analyses economic conditions of the country and develops economic policy in order to ensure sustainable economic development of the country; reviews programs to be financed by state budget and donor organizations and coordinates their implementation together with the Ministry of Finances; develops and implements policy for management of state property and privatization policy; develops and implements policy for management of industries, established by state owned shares; develops and implements policies for tourism and development of resorts; manages state property on behalf of the state; issues licenses for natural resources consumption (among them licenses for use of mineral resources, including underground waters) and establishes quotas for natural resources consumption together with the Ministry of Environment Protection and Natural Resources of Georgia; defines directions of development of infrastructure engineering, including water supply and wastewater removal and land reclamation systems and coordination their implementation together with other institutions.⁴⁹

Ministry of Agriculture of Georgia

The Ministry of Agriculture of Georgia develops state policy on agriculture and controls its implementation. The Ministry controls drinking water quality and safety parameters in terms of its compliance with legally established requirements, and conducts selective laboratory control of drinking water.⁵⁰ Namely, National Service for Food Safety, Veterinary and Plant Protection of the

⁴⁶ Statute of the Ministry of Regional Development and Infrastructure approved by establishment of the Georgian Government #10, January 30, 2009

⁴⁷ Ordinance #192 of the President of Georgia, April 21, 2009, on establishment of a legal entity of public law – Agency of Regional Development for Ensuring Water Supply Systems

⁴⁸ Statute of a legal entity of public law, Agency of Regional Development for Ensuring Water Supply Systems, approved by Ordinance #6/n of the Minister of Regional Development and Infrastructure of Georgia, May 6, 2009

⁴⁹ Statute of the Ministry of Economic Development of Georgia, approved by Resolution No77 of the Georgian Government, September 10, 2004

⁵⁰ The Law of Georgia on Public Health, 27.06.2007, Article 23, Article 33

Ministry of Agriculture is responsible for carrying out monitoring, supervision and state control over drinking water safety parameters and compliance with established drinking water quality standards.⁵¹

The Ministry implements state control in the field of land reclamation. Namely, it defines state policy, develops state programs and implements technical policy in this sphere; supports establishment of reclamation associations and implements state control over them;⁵² participates in development of state fishery policy.⁵³

Ministry of Finances of Georgia

The Ministry of Finances of Georgia manages financial system of the country and regulates financial-budgetary policy; develops and implements state financial programs; develops package of legislative documents in the sphere of fees. Tax Inspectorate under the Ministry of Finances is responsible for administering taxes and fees, including fees for water resources consumption.⁵⁴

Municipal Development Fund of Georgia

The Municipal Development Fund of Georgia is a legal entity of public law, the objective of which is to support strengthening institutional and financial capacity of local government units, investing financial resources in local infrastructure and services, improving on sustainable basis the primary economic and social services for the local communities, developing renewable energy (midget power plants and geothermal) sources, rehabilitating irrigation and drainage systems etc. In order to implement its responsibilities, the fund mobilizes financial resources from the international organizations, donor agencies and foreign countries, central and local governments and other organizations. Among the responsibilities of the fund are:

- rehabilitation irrigation and drainage systems
- rehabilitation of flood damaged irrigation and bank protection infrastructure
- promotion of creation and development of Land Reclamation Associations
- managing the fund for renewable energy sources (midget power plants and geothermal plants)

The Fund is accountable to the Government of Georgia, Supervisory Board of the Fund and Ministry of Finance of Georgia.⁵⁵

Ministry of Energy of Georgia

The Ministry of Energy of Georgia develops major directions of the state policy and implements the state policy in the energy sector.⁵⁶ Among objectives of the Ministry are: to utilize energy resources of

⁵¹ Statute of the National Service of Food Safety, Veterinary and Plant Protection of the Ministry of Agriculture of Georgia, approved by Resolution No2-44 of Minister of Agriculture of Georgia, March 14, 2006

⁵² The Law of Georgia on Land Reclamation, October 17, 1997, Article 12

⁵³ Statute of the Ministry of Agriculture of Georgia, approved by Resolution No26 of the Georgian Government, February 18, 2009

⁵⁴ Statute of the Ministry of Finances of Georgia, approved by Resolution No39 of the Georgian Government, May 21, 2004

⁵⁵ Statute of a legal entity of public law Georgian Municipal Development Fund, approved by the Establishment of the Georgian Government #118, July 23, 2005

⁵⁶ Statute of the Ministry of Energy of Georgia, approved by Resolution No71 of the Georgian Government, April 1, 2006

the country at a highest possible level; to meet all domestic demands for electricity by country's own hydro-resources; to build/rehabilitate new hydropower plants of all capacities; to build/rehabilitate infrastructure.⁵⁷

Georgian National Commission for Energy and Water Supply Regulation

Georgian National Commission for Energy and Water Supply Regulation is a legal entity of public law, which is independent from any state institutions. Among other responsibilities of the Commission is to define water supply tariffs. Department of Water Supply of the Commission develops normative-technical documentation in the water supply sector, receives and analyses information from water suppliers etc.⁵⁸

Autonomous Republics of Georgia

Authorities of the Autonomous Republics of Georgia, within their competences, are responsible for: protection of water and control of water use on the territory of their republics; managing of the state resource base of surface waters of national importance located on their territories; participation in development of complex schemes for water protection and water use and hydro-economic balances; supervising measures for water protection and rational use of water on their territories; conducting a state inventory of water and carrying out state registry of water use etc.⁵⁹

Local Self-Governance Institutions

Local Self-Government Bodies are responsible for supervising measures for water protection and rational use of water on their territories; controlling water protection and water use; participation in development of complex schemes for water protection and water use and hydro-economic balances; conducting a state inventory of water and carrying out registry of water use etc.⁶⁰

According to the Law of Georgia on Local Self-Governance, among the exclusive responsibilities of local self-government bodies are:

- Management and disposal of the land resources under the ownership of the self-governing unit
- Land use planning
- Management of forest and water resources of local importance
- Planning and implementing drainage services or organizing municipal purchase on their implementation.⁶¹

Among the responsibilities of the representative body of local-self government (the Sakrebulo) are: defining rules for management of forest and water resources under the ownership of the self-governing unit; land use planning; land zoning and demarcation/alteration of borders of local self-government unit; assertion of priorities of social-economic development of the self-government unit, municipal

⁵⁷ Resolution of the Parliament of Georgia on "Major Directions of the State Policy in the Energy Sector of Georgia"

⁵⁸ Statute of Georgian National Commission for Energy and Water Supply Regulation, approved by Resolution No 4 of the Georgian National Commission for Energy and Water Supply Regulation, February 4, 2008

⁵⁹ The Law of Georgia on Water, 1997, Article 11

⁶⁰ The Law of Georgia on Water, 1997, Article 12

⁶¹ The Organic Law of Georgia on Local Self-Government, December 16, 2005, Article 16

programs and plans and other.⁶² Forest and water resources of local importance are under the ownership of local self-government unit.⁶³

Water Service Companies

Companies providing water supply and sewerage services used to be state owned. However, some of them have been already privatized, for ex., “Rustavskalkanali” Ltd, “Mtskhetatskalkanali” Ltd, “Saqtskalkanali” Ltd and “Tbilisi Water” Ltd.⁶⁴ Remaining service companies, under the state ownership, has been united in two major companies: West and East regional companies. The third is Adjara company, serving Adjara Autonomous Republic.

Land Reclamation Associations are legal entities of public law based on membership of individuals (corporations of public law), established by the Act of the Ministry of Agriculture of Georgia on the basis of application of founders of association. The aim of establishment of land reclamation associations is to improve water management and land reclamation services. A member of Land Reclamation Association can be natural or legal body, which possesses land (owner, leaseholder, etc.) on the territory covered by services of the association. In order to establish Land Reclamation Association it is necessary to have written consent of not less than 51% of land owners on the territory covered by association services. Founders of association have equal rights. Governing body of association is a board meeting of the members of association.⁶⁵

Association receives water through irrigation systems and distributes among land owners (members and non-members of the association), registers water use, receives service fees and pays water supply organizations (primary water users).⁶⁶ There are two types of Land Reclamation Associations, depending on water supply system: Association of Water Users and Association of Drainage Users.⁶⁷

There are already 106 land reclamation associations in different regions of Georgia, which covers in total 95840 ha land area and unites 70601 members.

Pasture Irrigation Associations are established for carrying out pasture irrigation services and unite individuals interested in such services.⁶⁸

Other stakeholders:

Different Rural Associations

Fishermen Associations

Scientific-Research and higher education institutions:

- National Centre for Disease Control and Public Health
- Scientific Research Institute for Sanitation and Hygiene
- Georgian Water Management Institute of the Ministry of Education and Science of Georgia
- Technical University of Georgia
- “Tbiltskalgeo” – Scientific Research Institute for Water Supply and Hydro-Technical Constructions

⁶² The Organic Law of Georgia on Local Self-Government, December 16, 2005, Article 22

⁶³ The Organic Law of Georgia on Local Self-Government, December 16, 2005, Article 47

⁶⁴ The Ordinance of the Georgian Government No325, May 14 2008

⁶⁵ The Law of Georgia on Land Reclamation, October 17, 1997, Article 12¹

⁶⁶ The Law of Georgia on Land Reclamation, October 17, 1997, Article 12²

⁶⁷ The Law of Georgia on Land Reclamation, October 17, 1997, Article 5

⁶⁸ The Law of Georgia on Land Reclamation, October 17, 1997, Article 5

- Institute for Hydrometeorology
- Institute for Hydrogeology and Engineering Geology
- Georgian Eco-Centre for Protection from Floods

Industries

NGOs

Donors

Community

List of Acronyms

AR	Autonomous Republics
APA	Agency of Protected Areas
BOD	Biological Oxygen Demand
COD	Chemical Oxygen Demand
COM	Communication
EAP Force	Task The Task Force for the Implementation of the Environmental Action Programme for Central and Eastern Europe
EC	European Commission
EEC	European Community
EECCA	Eastern Europe, Caucasus and Central Asia
EIA	Environmental Impact Assessment
ENP	European Neighbourhood Policy
ENVSEC	Environment and Security Initiative
EU	European Union
ECBSea	Environmental Collaboration for the Black Sea
IEP	Inspectorate of Environment Protection
GEF	Global Environmental Facility
GIS	Geographic Information System
GSM	Global System for Mobile communications
IFIs	International Financial Institutions
LLC	Limited Liability Company
MA	Ministry of Agriculture of Georgia
MED	Ministry of Economic Development of Georgia
MEPNR	Ministry of Environment Protection and Natural Resources of Georgia
MRDI	Ministry of Regional Development and Infrastructure of Georgia
NATO	North Atlantic Treaty Organization
NEA	National Environmental Agency of Georgia
OECD	Organisation for Economic Co-operation and Development
OSCE	Organization for Security and Co-operation in Europe
RBD	River Basin District
RBM	River Basin Management
SIDA	Swedish International Development Cooperation Agency
SGU	Self Governance Unit
TACIS	Technical Aid to the Commonwealth of Independent States
UNDP	United Nations Development Programme
USAID	United States Agency for International Development
WFD	Water Framework Directive
WWS	Water Supply and Sanitation
W&WW	Water and Waste Water

References

List of Legislation

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- Law of Georgia “On Regulation and Engineering Protection of the Sea Shores, Reservoir and River Banks” (2000)
- Administrative Offences Code (1984)
- Law of Georgia “On Soil” (1994)
- Law of Georgia “On Plant Protection” (1994)
- Law of Georgia “On Mineral Deposits” (1996)
- Law of Georgia “On Environmental Protection” (1996)
- Law of Georgia “On System of Protected Areas” (1996)
- Law of Georgia “On Wildlife” (1996)
- Law of Georgia “On Land Melioration” (1997)
- Law of Georgia “On Electrical Energy and Natural Gas” (1997)
- Law of Georgia “On Marine Space (*Ocean Space*)” (1998)
- Forest Code of Georgia (1999)
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- Law of Georgia “On Fees for Use of Natural Resources” (2004)
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