EU4Environment in Eastern Partner Countries:
Water Resources and Environmental Data (ENI/2021/425-550)

IMPLEMENTING SURFACE WATER ABSTRACTION CHARGES IN GEORGIA

Funded by the European Union

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ABOUT THIS REPORT

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ABOUT EU4ENVIRONMENT – WATER RESOURCES AND ENVIRONMENTAL DATA

This Programme aims at improving people's wellbeing in EU's Eastern Partner Countries and enabling their green transformation in line with the European Green Deal and the Sustainable Development Goals (SDGs). The programme's activities are clustered around two specific objectives: 1) support a more sustainable use of water resources and 2) improve the use of sound environmental data and their availability for policy-makers and citizens. It ensures continuity of the Shared Environmental Information System Phase II and the EU Water Initiative Plus for Eastern Partnership programmes.

The programme is implemented by five Partner organisations: Environment Agency Austria (UBA), Austrian Development Agency (ADA), International Office for Water (OiEau) (France), Organisation for Economic Co-operation and Development (OECD), United Nations Economic Commission for Europe (UNECE). The programme is principally funded by the European Union and co-funded by the Austrian Development Cooperation and the French Artois-Picardie Water Agency based on a budget of EUR 12,75 million (EUR 12 million EU contribution). The implementation period is 2021-2024.

https://eu4waterdata.eu

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List of abbreviations

ADA..... Austrian Development Agency
AA ..... EU-Georgia Association Agreement
CBA ..... Cost-Benefit Analysis
EIUC ..... Environmental Improvement Unit Charge
EU ..... European Union
GNERC..... Georgian National Energy and Water Supply Regulatory Commission
GoG..... Government of Georgia
ICRC ..... Independent Competition and Regulatory Commission
MEPA ..... Ministry of Environmental Protection and Agriculture of Georgia
NEA ..... National Environmental Agency

NRW..... Natural Resources Body for Wales
OECD..... Organisation for Economic Cooperation and Development
OiEau ..... International Office for Water, France (IOW)
RBMP ..... River Basin Management Plans
RIA ..... Regulatory Impact Assessment
SDG ..... Sustainable Development Goal
SUC ..... Standard Unit Charge
UN..... United Nations
UBA..... Umweltbundesamt GmbH, Environment Agency Austria
WAC..... Water Abstraction Charge
WAF ..... Water Abstraction Fee
WFD ..... Water Framework Directive

Executive Summary

Managing water resources effectively is crucial for Georgia to achieve its sustainable development goals and support vital economic sectors including agriculture and power generation. This report looks at the introduction of water abstraction charges in Georgia as a tool for mobilising domestic finance for sustainable water management.

Georgia's law on Water Resources Management mandates the introduction of surface water abstraction charges…

In 2023, Georgia adopted the **new *Law of Georgia on Water Resources Management***, in line with the EU-Georgia Association Agreement commitments and strategic visions.[1]The new law, which meets the requirements of the EU Water Framework Directive, establishes an **integrated water resources management system, emphasising the principles of river basin management**. It sets targets and standards for water quality, introduces monitoring and enforcement mechanisms, requires public participation and introduces a permit system for water abstraction.

Appropriate pricing mechanisms, such as water abstraction charges (WAC), are essential for efficient and sustainable water management. WAC should reflect the true cost of water resources and serve environmental and financial purposes. Water pricing practices vary around the world, reflecting the severity of water scarcity and different water uses. Common structures include volumetric charges, fixed charges, two-tier systems and progressive charges.

…but Georgia needs to develop an effective approach

The implementation of surface water abstraction charges involves a number of decision-making, analytical, awareness raising and legal steps that need to be taken in order to arrive at a robust, evidence-based decision. In order to decide for the best-suited approach in Georgia, this report identifies a 7-step process designed to engage stakeholders and create a transparent decision-making process. These steps are as follows:

1. **Selection of user base on which to set water charges**

   To mitigate the problem of cross-subsidisation of water abstraction between different types of users, it is recommended to define water charges at the sectoral level. It also allows for the creation of more effective incentive mechanisms to promote efficient water use In addition, this approach can also differentiate between consumptive and non-consumptive uses if the quantitative impact assessment indicates a need.

2. **Define the jurisdiction of water charges**

   Setting water charges at the river basin level will allow for a better integration into the overall river basin management process and to better take into account the local needs and challenges of river basins.

[1] The *Law of Georgia on Licences and Permits* and the *Law of Georgia on Energy and Water Supply* also play a role next to the *Law of Georgia on Water Resources Management*.

3. Set Determine a methodology for setting water charges

The cost-based approach is recommended as it is methodologically clearer, supports the development of river basin management activities, and is easier to communicate to all stakeholders.

4. Calculation of water charges based on selected methodology

After a methodology is chosen, specific levels of abstraction charges can be calculated and applied. However, due to data availability constraints, several actions are recommended to be taken:

a) Establish a register of water users and collect their existing information.
b) Complete the water accounts at river basin level to make assumptions about water use characteristics.
c) Respect existing river basin priorities when setting charges and analyse existing river basin management plans to determine the costs of managing the basin.
d) Develop a model for updating water charges in the future. A transparent model allows for a standardised approach across different river basins and increases acceptance by stakeholders.
e) Incorporate inflationary processes into the calculations to prevent a decrease in available resources over time.

5. Impact assessment of water charges and modification

It is recommended to carry out a Regulatory Impact Assessment as a decision-making framework for water charges. Two key considerations for a successful analysis are defining several policy options before conducting the impact assessment and ensuring the availability of high-quality data and existing public sector information to facilitate the modelling process.

6. Raise awareness among water users

Awareness-raising among water users is crucial alongside decision-making and policy analysis. Involving users throughout ensures that decisions are clear, and acceptance is high. Awareness campaigns should highlight benefits such as improved water management and resource monitoring. Demonstrating how water charges support these objectives is essential, especially in the context of budget constraints. Stakeholders beyond water users should also be involved, highlighting the benefits of better water management. Analysis can be used to reinforce the need for charges in this process.

7. Legislation of water charges in the parliament and setting up e-governance systems

The last step in the process of setting water tariffs is the legal drafting and adoption of water tariffs by the Parliament through amendments to the Law of Georgia on Natural Resource Charges. It is suggested that the legal drafting should be done after all the assessments have been completed. This will create a better process and ensure that decision-makers are not biased towards an already drafted version of the legislation.

Finally, before the legislative process begins, it will be important for the Ministry of Environmental Protection and Agriculture, the Revenue Service and the Department of Environmental Supervision to coordinate the exchange of information between the parties to ensure proper enforcement and monitoring.

Water charges are best implemented at the catchment and sectoral level, so the establishment of an e-governance system for real-time information exchange will greatly improve the implementation of surface water charges. Experience in implementing such reforms shows that information sharing is often a major constraint.

1. Introduction

Water resource management is considered one of the key aspects in achieving sustainable development worldwide, and its importance is particularly pronounced in the context of Georgia. Water resources play an important role in supporting various strategically important sectors in the country, including agriculture and energy. The management of these resources requires a coherent and comprehensive policy framework to ensure equitable and efficient use.

The Government of Georgia's (GoG) approach to water resources management is characterised by the absence of a single policy document. Instead, several strategic documents outline the vision for water resources management, including the Development Strategy of Georgia, the Fourth National Environmental Action Programme and the Agricultural Development Strategy of Georgia. These strategic documents emphasise, among other things, the importance of infrastructure development in ensuring access to clean water and effective sanitation, which are essential for the well-being of the Georgian population. Despite multiple efforts, issues such as inadequate infrastructure in high-mountainous settlements, inefficient water usage in agriculture, and the absence of cross-border river management agreements remain persistent in Georgia.

On top of the national-level policies and strategic documents, Georgia is part of several international agreements. One of the most important international commitments that GoG aims to fulfil refers to the obligations made under the **EU-Georgia Association Agreement (AA)** requirements, that entered into force in 2016. Through the AA, the GoG committed to harmonise its domestic laws with EU directives and implementing global standards, particularly in areas related to environmental protection and water management. This includes a more systematic use of economic instruments, including water pricing, to cover the costs of water services and the development of river basin management plans.

This report focuses on one specific aspect of water resource management in Georgia: the **re-introduction of surface water charges**. Fees for the abstractive and non-abstractive use of water resources were introduced in Georgia in 1994. Later, in 2004, charges for the use of natural resources were removed from the newly adopted Tax Code and replaced by fees for the use of natural resources, regulated by the Law on Fees for the Use of Natural Resources (2004). However, the recently adopted new Law on Water Resource Management necessitates the re-introduction of the surface water abstraction charges no later than September 2027. The introduction of surface water abstraction charges can provide incentives for responsible water use, contribute to environmental protection and provide financial resources for water management activities. Based on previous studies and recommendations, this report aims to assess and propose strategic recommendations and methodological approaches for the introduction of surface water charges and to provide a concrete roadmap for the implementation of surface water charges in Georgia.

2. Policy Context

Water resource management represents one of the critical components for achieving sustainable development. In the context of Georgia, it assumes even greater significance due to its rich and diverse hydrological features and its role in supporting various sectors including agriculture and energy (Ministry of Environmental Protection and Agriculture of Georgia, 2019).

To ensure equitable and efficient utilisation of water resources, the existence of a coherent and comprehensive policy for water resource management is essential. However, the approach of the GoG to manage water resources does not revolve around one unified policy document. Rather, several strategic documents outline GoG's vision for water resource management (OECD, 2021).

The **Development Strategy of Georgia (Vision 2030)** stands as a pivotal strategic document, encompassing several key objectives of the country's development. Among them, the development of water supply, drainage and wastewater management systems represents one of the key priorities (Government of Georgia, 2022). According to the strategy, in terms of infrastructural development, **proper functioning of water supply and sewerage systems has given one of the key priorities.** The goal of the GoG is to ensure that each household receives uninterrupted access to the water supply, as well as ensure an efficient functioning of the water sewerage systems in all urban settlements of the country. In this process, the GoG emphasizes the importance of moving towards an integrated river basin management model. According to the strategy, this model will support not only integrated management of the water systems but also the improvement of water supply and sewerage systems, as well as efficient allocation of water resources among the different water users. Notably, GoG had identified the same strategic goals regarding water system management based on the **Socio-Economic Development Strategy of Georgia 2020**, which was elaborated back in 2014 (Government of Georgia, 2014). This indicates the slow transition that has been taking place towards implementing the principles of sustainable water resource management and integrated river basin management.

Another important document, that identifies the environmental priorities of Georgia (for 2022-2026) is the **Fourth National Environmental Action Programme.** This programme aims to improve the state of the environment, as well as environmental governance in the country. Protection of the water resources represents one of the key sectoral priorities of the action plan (closely connected to the United Nations (UN) SDG 6 – 'clean water and sanitation for all'). The main objectives are to implement an integrated water management system, ensure that the quality of water complies with the European Union (EU) level standards, specifically to the EU Water Framework Directive (WFD) and support efficient and rational usage of water resources.

The GoG has also developed a **Regional Development Programme of Georgia 2018-2021**, which was a medium-term government document setting out main goals for Georgia's regional development and determining priorities and measures for the period 2018–2021. One of the objectives of the program was to:

> "Increase population quality of life through supply of uninterrupted spring potable water and increase of waste management infrastructure The Measure will be implemented on the entire territory of the country, except for Adjara AR and Tbilisi"
>
> *Ministry of Regional Development and Infrastructure, 2018*

Considering existing water supply characteristics described in baseline data below, this goal will definitely result in larger abstraction both from underground and surface water bodies.

The document also states that the achievement of this objective is essential to ensure the mitigation of the negative environmental impact on the Black Sea. This environmental footprint is increasing due to the observed growing number of tourists and locals and their extended demand for water consumption especially in Kakheti, Imereti, Mtskheta-Mtianeti, Samtskhe-Javakheti, Samegrelo Zemo-Svaneti and Guria regions (Ministry of Regional Development and Infrastructure, 2018). Based on the Consolidated Report on Implementation of the Regional Development Programme of Georgia for the year 2020, the target was to implement 58 water supply projects and six wastewater projects. Out of these objectives, only four water supply projects were implemented in 2020. According to the Ministry of Regional Development and Infrastructure of Georgia, the Covid-19 pandemic-related restrictions have significantly hindered the achievement of the strategic objectives. On the positive side, the goals were achieved in terms of modernisation and development of the water and wastewater network, including the construction and rehabilitation of wastewater treatment plants (Ministry of Regional Development and Infrastructure of Georgia, 2023). It should also be noted that improved access to water in some regions may lead to reduced environmental pressure on water bodies, as the development of water networks will improve the monitoring and management of abstraction in place of the existing sporadic practices.

The GoG has also developed the **Integrated Development Program of Pilot Regions in Georgia 2020-2022** which set similar targets as the above-discussed Regional Development Program with regard to water management. However, the annual monitoring report for 2022 does not report any update regarding the achievement of these strategic objectives (Ministry of Regional Development and Infrastructure of Georgia, 2023).

Furthermore, according to the **Strategy for Development of High Mountain Settlements of Georgia (2019-2023)**, the inhabitants of high-mountainous settlements endure challenging living conditions, with some lacking access to clean drinking water, and both water supply and sewerage systems being non-operational (Ministry of Regional Development and Infrastructure, 2019). To overcome this challenge, the strategy sets access to utility and communication services as one of the key objectives, which includes ensuring access to potable and irrigation water for all households living in high-mountainous settlements (Ministry of Regional Development and Infrastructure, 2019).

The Agriculture and Rural Development Strategy of Georgia (2021-2027) does not set any objectives directly related to water resource management. However, one of the key strategic objectives of agricultural development is to increase the competitiveness of the agricultural sector of Georgia. Achievement of this objective is not possible without improved irrigation water supply. Moreover, the degradation of water resources due to its inefficient usage and high pollution levels caused by agricultural and non-agricultural activities, together with poor drinking water supply and sewerage systems in rural areas are perceived as one of the main threats to the Georgian Agricultural Development (Ministry of Environmental Protection and Agriculture, 2019).

The Irrigation Strategy of Georgia (2017-2025) identifies water management-related challenges, particularly the operation of facilities to effectively deliver water resources for irrigation as one of the fundamental challenges that confront the provision of irrigation services (Georgian Amelioration, 2016). To ensure the efficient functioning of the irrigation systems, there are several strategic goals identified in the irrigation strategy that can also affect the efficient usage of water resources. This includes:

Investment in the rehabilitation of the irrigation systems together with the system modernisation. A basic component of the scheme modernisation is expected to be the installation of water measurement structures and devices that can support more efficient water utilisation.

Another part of the irrigation system modernisation refers to the further development and spread of drip irrigation technologies at the farm level, which will also contribute to reduced and rational usage of water resources.

Moreover, the strategy also aims to reform the current irrigation tariffs, which will create incentives for efficient water utilisation among the service recipients (Georgian Amelioration, 2016).

Together with national-level strategic documents, the GoG also takes obligations referring to water management via international treaties, such as the Bucharest Convention on the Protection of the Black Sea against Pollution signed back in 1992 and, the International Convention for the Prevention of Pollution from Ships (MARPOL 1972) and Ballast Water Convention (2017). However, Georgia does not have cross-border river management agreements with its neighbouring countries, including Tukey, Armenia and Azerbaijan.

One of the most important international commitments that GoG aims to fulfil refers to the obligations made under the AA requirements, that entered into force in 2016. Through the AA, the GoG pledged to harmonise its domestic laws with EU directives and implement global standards, particularly in areas related to environmental protection and water management.

The AA outlines specific timelines for Georgia to align itself with EU directives pertaining to water quality and resource management, including the marine environment. All these provisions must be put into action by 2026, which will signify a decade since the AA's commencement. Among these directives, the WFD holds the utmost importance in terms of water regulation protection. Its primary goals are to ensure the sustainable socio-economic management of resources, safeguard water quantity and quality, and encourage responsible and sustainable water utilisation (OECD, 2021).

Table 1 provides an overview of the EU directives on water quality and resource management and the timeframes for their implementation in Georgia.

Table 1. EU Directives on Water Quality and Resource Management relevant to the Georgian context

Directive	Provision	Timeframe From Entry into Force in 2016
Water Framework Directive	Adoption of national legislation and designation of competent authority/authorities	Within 4 years (2020)
	Identification of river basin districts and establishment of administrative arrangements for international rivers, lakes and coastal waters	Within 4 years (2020)
	Analysis of the characteristics of river basin districts	Within 5 years (2021)
	Establishment of programmes for monitoring water quality	Within 6 years for surface water (2022) and within 8 years for groundwater (2024)

Directive	Provision	Timeframe From Entry into Force in 2016
	Preparation of river basin management plans, consultations with the public and publication of these plans	Within 10 years (2026)
Floods Directive	Adoption of national legislation and designation of competent authority/ies	Within 4 years (2020)
	Undertaking preliminary flood assessment	Within 5 year (2021)
	Preparation of flood hazard maps and flood risk maps	Within 7 years (2023)
	Establishment of flood risk management	Within 9 years (2025)
Urban Waste Water Directive	Adoption of national legislation and designation of competent authority/ies	Within 4 years (2020)
	Assessment of the status of urban wastewater collection and treatment	Within 6 years (2022)
	Identification of sensitive areas and agglomerations	Within 7 years (2023)
	Preparation of technical and investment programmes for urban wastewater collection and treatment	Within 8 years (2024)
Drinking Water Directive	Adoption of national legislation and designation of competent authority/ies	Within 4 years (2020)
	Establishment of standards for drinking water	Within 4 years (2020)
	Establishment of monitoring system	Within 7 years (2023)
	Establishment of a mechanism to provide information to consumers	Within 7 years (2023)

Nitrates Directive	Adoption of national legislation and designation of competent authority/ies	Within 4 years (2020)
	Establishment of monitoring programmes	Within 5 years for surface water (2021) Within 8 years for groundwater (2024)
	Identification of polluted waters or waters at risk and designation of nitrate-vulnerable zones	Within 5 years for surface water (2021) Within 8 years for groundwater (2024)
	Establishment of action plans and codes of good agricultural practices for nitrate-vulnerable zones	Within 7 years (2023)
Marine Strategy Framework Directive	Adoption of national legislation and designation of competent authority/ies	Within 3 years (2019)
	Development of a marine strategy in cooperation with relevant EU member state(s) (and non-EU member states in alignment with the Black Sea Convention)	Within 8 years (2024)
	Initial assessment of marine waters, determination of good environmental status and establishment of environmental targets and indicators	Within 5 years (2021)
	Establishment of a monitoring programme for ongoing assessment and regular updating of targets	Within 7 years (2023)
	Preparation of a programme of measures to achieve good environmental status	Within 8 years (2024)

Source: Table created by ORI based on (OECD, 2021)

In addition to the key strategic documents that shape the vision for water resource management policy, it's crucial to grasp the primary entities driving policy formulation within the country. The recently enacted Water Resource Management Law outlines the main institutions accountable for water resource management in Georgia as demonstrated in Table 2.

Table 2. Main actors contributing to water resource management in Georgia

Institution	Responsibilities and Competencies
Ministry of Environmental Protection and Agriculture of Georgia	• Develop and implement national-level policies for water resource management • Develop river basin management systems • Issue permits for special water use • Monitor water resource protection and usage across the whole country • Organize monitoring systems for water quality, quantity and hydro morphological characteristic • Create databases for water resource usage and ensure accessibility of the information regarding water resources • Ensure development of the river basin management plans and ensure public participation in this process • Coordinate and monitor the implementation of river basin management plans • Identify and evaluate the risks of flooding as well as prepare and develop risk mitigation measures • Identify zones polluted by nitrates or at risk of pollution • Develop surface water quality standards • Ensure the state-level control of drinking water • Create yearly water accounts • Define the level of the concentration of nitrates in the surface and underground water quality monitoring programmes • Other authorities defined under the Georgian legislation
	• Define the quality standards of the drinking water

Institution	Responsibilities and Competencies
Ministry of IDPs from the occupied territories of Georgia, Ministry of Labour, Health and Social Protection of Georgia	• Develop recommendations and present these recommendations to the relevant municipalities regarding limiting or prohibiting water usage on certain water bodies • Create sanitary protection zones for the water bodies that are used for drinking water supply, as well as define the list of activities that are allowed under those zones
Ministry of Infrastructure and Regional Development of Georgia	• Ensure implementations of state-level activities regarding the water supply and sewerage system development
Ministry of Justice of Georgia	• Register the water resources of Georgia under the national registry
Ministry of Economy and Sustainable Development of Georgia	• Participate in the development and implementation of water resource management policies under its competencies (such as economic policy, sustainable development, managing of mine resources, energy, climate change, renewable energy)
Georgian National Energy and Water Supply Regulatory Commission	• Exercising the relevant powers derived from the Law of Georgia on Energy and Water Supply and the Law of Georgia on Water User Organizations and other legislative acts. • Set tariffs for water supply, regulate water utilities, including approval of allowable investment projects.
Local Municipalities	• Implement relevant activities regarding water supply, including participating in the development of investment programmes and projects needed for wastewater treatment and collection and adopting the projects for developing protection zones of drinking water • Inform local citizens about the existing regimes within the drinking water supply protection zones • Manage water resources of local importance
Governments of the Autonomous Republics of Georgia	• Participate in the management of water resources located under the territory of autonomous republics

Source: Table created by ORI based on the Law on Water Resource Management of Georgia

3. Legal gap analysis

Georgia has a number of laws and regulations governing water resources, which have been enacted since the late 1990s. Up until recently, the primary law defining the basic objectives and principles of water policy, emphasising aspects such as protection, rational use, prioritisation of drinking water supply and management of harmful impacts, was the 1997 Law on Water. However, following the obligations under the AA and in line with the strategic visions for the management of water resources, Georgia has recently adopted the new **Law of Georgia on Water Resources Management (May 2023)**. Although this law is a cornerstone of Georgian water management legislation, other laws also regulate water use and protection. (i.e., the Law of Georgia on Licenses and Permits a Law of Georgia on Fees for the Use of Natural Resources and the Law of Georgia on Energy and Water Supply).

This section provides an overview of the current legal framework for managing (surface) water management in Georgia, analysing existing legal gaps and the changes that are deemed to be necessary to achieve efficient water allocation and utilisation.

3.1. Georgia's commitments under the EU Association Agreement

In June 2014, the EU and Georgia signed an Association Agreement, which entered into force In July 2016. This agreement includes commitments by the GoG to adopt EU directives, including those relating to water resource management to guide its environmental regulatory framework.

The Association Agreement includes EU directives relating to the regulation of the water sector, which should be transposed into Georgian legislation within the specified timeframe. These directives are as follows:

- Water Framework Directive[2]
- Urban Waste Water Directive[3]
- Drinking Water Directive[4]
- Nitrates Directive[5]
- EU Floods Directive[6]

[2] Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy as amended by Decision No 2455/2001/EC

[3] Directive 91/271/EEC of 21 May 1991 concerning urban waste water treatment as amended by Directive 98/15/EC and Regulation (EC) No 1882/2003

[4] Directive 98/83/EC of 3 November 1998 on quality of water intended for human consumption as amended by Regulation (EC) No 1882/2003

[5] Directive 91/676/EC of 12 December 1991 concerning the protection of waters against pollution caused by nitrates from agricultural sources as amended by Regulation (EC) No 1882/2003

[6] Directive 2007/60/EC of the European Parliament and of the Council of 23 October 2007 on the assessment and management of flood risks

- Marine Strategy Framework Directive[7]

These directives require member states to adopt national legislation in compliance with their provisions and to designate competent authorities responsible for the implementation processes. Following the EU's decision to grant Georgia candidate status in December 2023, the need to align with EU legislation and standards has become increasingly important and relevant.

The cornerstone of water management regulation in the EU is the 'Directive 2000/60/EC of the European Parliament and the Council' - the Water Framework Directive, adopted on 23 October 2000. This Directive aims to ensure sustainable socio-economic management of water resources, to safeguard both the quantity and quality of water and to promote sustainable water use. The WFD calls the Member States to:

- **Integrating water resources management into other sectors**, such as agriculture, energy and industry, requires the implementation of measures to reduce water pollution and improve the ecological status of water bodies. These efforts include measures to reduce diffuse pollution from agricultural activities, to reduce the release of pollutants from wastewater treatment plants and to prevent the deterioration of groundwater quality.
- Implement measures **to improve the ecological status of water bodies** and prevent the deterioration of ecosystems and the habitats they support.

To achieve these objectives, the WFD sets out a number of key provisions and mechanisms, which are summarised in Table 3.

Table 3. Key provisions of WFD

Key Mechanism/Requirement	Definition
River Basin Management Plans (RBMP)	The WFD requires all Member States to develop and implement RBMPs. RBMPs must identify the **measures necessary to achieve good ecological and chemical status of water bodies.** These may include measures relating to agriculture, urban wastewater treatment, industrial discharges and non-point sources of pollution such as diffuse land run-off. RBMPs must be updated every six years.
Monitoring and Evaluation	The WFD requires regular monitoring and assessment of the status of water bodies to provide a comprehensive understanding of the state of the aquatic environment and to identify priority areas for action.

[7] Directive 2008/56/EC of the European Parliament and of the Council of 17 June 2008 establishing a framework for community action in the field of marine environmental policy

Key Mechanism/Requirement	Definition
Economic Instruments	The WFD allows the use of economic instruments, such as taxes, charges or tradable permit systems, to promote the sustainable use of water resources and the reduction of water pollution.
Stakeholder Involvement	The WFD emphasises the importance of stakeholder involvement in water management decision-making and promotes public participation and consultation in the development of water management measures.

3.2. Overview of legislation governing groundwater and surface water abstraction

The legal framework for water management in Georgia consists of several important laws and regulations.

The Law of Georgia on Licences and Permits (adopted in 2005) regulates the areas covered by licences and permits, defines a comprehensive list of types of licences/permits, including in the water sector, and sets out the procedures for issuing, amending and revoking them. The law stipulates two types of licenses:

- License to use - A type of licence granting a person the right to use national resources. A licence of use shall be issued by auction. The holder of the licence may divide it and/or transfer it, in whole or in part, to another person, including by inheritance.
- License to operate - A licence to operate shall relate to a subject and shall be issued only if the applicant for the licence fulfils the conditions set out in this Law. An operating licence may not be transferred by inheritance or in any other form.

Based on the law of Georgia on Licences and Permits, the only relevant licences for the water sector are:

- The **mineral extraction licence** (licence to use), which regulates the extraction of underground fresh water.[8] Such a groundwater extraction licence can be issued for a maximum of 25 years. In addition, a licence is not required only if the groundwater is located on private land and is used solely for domestic purposes. a mineral resources extraction license can be given directly to the water supply license holder to extract groundwater to provide consumers with drinking water.
- The **water supply licence** (licence to operate).

There are no surface water abstraction and discharge permits/licences in the country (subject to reform and full enforcement from 2026). The **Law of Georgia on Fees for the Use of Natural Resources** (adopted

[8] According to the Law of Georgia on Subsoil (adopted in 1996) groundwater is treated as a mineral resource.

in 2004) establishes the user-pays principle[9], including for the extraction of surface and groundwater. The law states that the fees for the use of natural resources shall be paid by the persons whose activity related to the use of natural resources is **subject to licensing under Georgian legislation**. This provision implies that the set of fees can only be applied to groundwater abstraction and that they are not valid for surface water abstraction due to the current legislative setup. This can be seen as a major conflict of laws and a flaw in the existing legislation.

The law determines the amount of the charge for the use of water resources according to the groups of water bodies, which is provided in Table 4. Moreover, the law provides for fees for the extraction of groundwater for mineral water production and lists the mineral waters existing in Georgia, with fees ranging from 0.04 GEL/m^3 to 30 GEL/m^3.

Table 4. Fee to use water resources based on the group of water bodies

GROUPS OF WATER BODIES INCLUDING NAMING THE TYPES OF WATER BODIES	AMOUNT OF FEE PER CUBIC METER IN GEL
Group I: From to rivers, lakes and other water reservoir of the Caspian Sea Basin	0.01
Group II: From rivers, lakes and other water reservoir of the Black Sea Basin	0.005
Group III: Black Sea water	0.003

Source: Law of Georgia on Fees for the Use of Natural Resources

The **Resolution №137** of the GoG of 8 August 2005 on the **Rules and Regulations of Issuing Permits for Water Extraction from and Discharge into Surface Water Bodies** was developed on the basis of Article 40 of the Law of Georgia "On Licences and Permits". The purpose of the Resolution is to establish the rules and conditions for issuing permits for water abstraction from and discharge into surface water bodies. One of the main provisions relates to the duration of the licences:

- A **permit for the abstraction of water** from a surface water body is issued: for life - for the centralised supply of drinking and domestic water to the population; short-term permit - up to 5 years; long-term permit - for a period of up to 25 years.
- **Permit to discharge water** into the surface water body is issued for a period of up to 5 years.

Technically, the resolution is still in force, but it cannot be applied in practice in view of the provisions of the Law of Georgia on Licences and Permits, according to which such licences or permits no longer exist.

The **Environmental Assessment Code of Georgia (Adopted In 2017)** is another legal act that covers vital issues related to strategic documents and public or private activities, which may have significant effects

[9] "User pays principle" is the principle that all costs associated with the use of a resource should be included in the prices of the goods and services (including government services) that result from the use

on the environment, including water resources, human life and/or health. The Code precisely defines the list of activities for which the environmental impact assessment should be prepared and distinguishes competencies among the institutions involved in the environmental assessment process. The Code **abolished the permit system** in connection with environmental impact permits. However, the environmental decision remains a mandatory precondition for carrying out activities that are subject to an environmental impact assessment. If the implementation of the activities requires a licence/permit provided for by Georgian legislation that is subject to an environmental decision and/or requires the completion of a stage of a licence/permit, the licence/permit may enter into force and/or the relevant stage of such licence/permit may be completed only after the environmental decision has been taken.

The technical regulations for water abstraction from surface waters require that any natural or legal person not subject to an environmental impact assessment must prepare a draft **technical condition for such abstraction.** This draft must be approved by authorised personnel from both the Ministry of the Environment and the Ministry of Agriculture. These technical conditions are valid for a maximum of five years. In addition, the technical regulation outlines the circumstances under which they can be revoked. For example, if an inspection reveals discrepancies between the information provided by the water user and the actual situation - such as changes in the water abstraction point or an increase in the volume of water abstracted - these conditions can be revoked. However, the technical regulation does not address the potential responsibilities of the water user in such situations. This highlights a lack of enforcement and functionality, resulting in a lack of appropriate regulation.

The Law of Georgia on Energy and Water Supply, adopted in December 2019, envisages the regulation of energy, natural gas and water supply. Although the title of the law includes "water supply", the law mainly deals with detailed regulations related to energy and natural gas. The Act does not regulate issues related to the abstraction of water from water bodies but aims to ensure the **safe, reliable and efficient operation of water supply systems and related services** for all users of the system. Therefore, the Law provides for the rights and obligations of the licensee of the water supply system and establishes the liability for the violation of the conditions prescribed by this Law and the Law of Georgia on Licences and Permits.

The Law of Georgia on Spatial Planning, Architectural and Construction Code (adopted in 2018) provides that spatial and urban planning shall be carried out in accordance with the principle of environmental protection, including the preservation, protection and recovery of water. Due to the need for spatial planning, the master plan includes areas for water supply and sewerage systems. In addition, the Spatial Plan of Georgia shall include water bodies and water catchment areas.

The Code of Administrative Offences of Georgia (adopted in 1984) provides for liability for violation of obligations prescribed by all relevant laws and subordinate legal acts in the water sector. In particular, the Code establishes rules for violation of water protection, including in protected areas; it also establishes obligations for violation of water use rules, for violation of rules and illegal use of drinking water and sewage systems. Various types of fines can be imposed on an offender for violation of these provisions.

3.3. New Water Law

To follow the EU-Georgia Association Agreement requirements, in May 2023 the Parliament of Georgia adopted the new **Law of Georgia on Water Resources Management** after extensive discussions over five years. The new law fully complies with the WFD requirements and establishes an integrated water resources management system by providing the principle of river basin management.

The new water law establishes a comprehensive framework for ensuring the optimal quantity and quality of both groundwater and surface waters. It introduces a classification system, sets targets and standards for water quality, and outlines measures to prevent water pollution. In addition, the law establishes a robust monitoring and enforcement system and mandates public participation in water resource management decisions.

It also establishes a permitting system for water withdrawals and introduces fees for water use requiring the development of a new methodology specifically **for setting fees related to surface water withdrawals**. This legislation marks the first phase of a broader water management reform initiative, with subsequent steps, including the adoption and implementation of secondary legislation, recognised as critical but challenging endeavours.

The new law also designates responsible agencies and fulfils the requirements of relevant provisions of the Water Framework Directive. The summary of the responsibilities of each relevant agency is provided in Table 5.

Table 5. Competencies of relevant authorities defined under the new law of Water Resource Management

Agency relevant to water resource management	Competencies defined under the new law of water resource management
MEPA	Development and implementation of national-level water resource management policies
	Develop River Basin Management units
	Issue permits for special water use
	Implement a unified control mechanism across the country to protect and monitor water resources
	Organize the monitoring of the quality, quantity and hydro morphological conditions of water resources
	Organize water use accounting system
	Ensure the development of river basin management plans and the involvement of relevant stakeholders in this process
	Coordinate and monitor the implementation of the river basin management plans
	Organize early warning systems for flooding risks.
	Ensure state-level control of the quality of water

	Other duties and responsibilities defined by the Georgian legislation, related to ensuring good quality conditions of water resources
Ministry of Internally Displaced Persons from the Occupied Territories, Health, Labour and Social Affairs of Georgia	Development of drinking water quality standards and submission for approval to the GoG
	Providing recommendations to municipalities on restricting or prohibiting shared water use on a specific water body
	Creation of a sanitary protection zone for drinking water supply facilities, determination of boundaries, separation of zones and the list of activities allowed within them, and development of rules for the implementation of activities
Ministry of Regional Development and Infrastructure of Georgia	Implement and develop water supply and wastewater systems
Ministry of Justice of Georgia	Registration of the State Water Fund of Georgia in the public land register
Ministry of Economy and Sustainable Development of Georgia	Participate in the development and implementation of the water resource management policy under its competencies
Local Municipalities	Implement technical activities to ensure water supply
	To familiarise the population with the sanitary protection zone of drinking water supply facilities and the boundaries of its zones, as well as the regulations operating within this zone;
	Manager local level importance water resources
Authorities of the Autonomous Republics of Georgia	Participation in the management of water resources in the territory of the Autonomous Republics of Georgia in accordance with the rules established by the legislation of Georgia.

Source: Table created by the authors based on the new Law of Water Resource Management

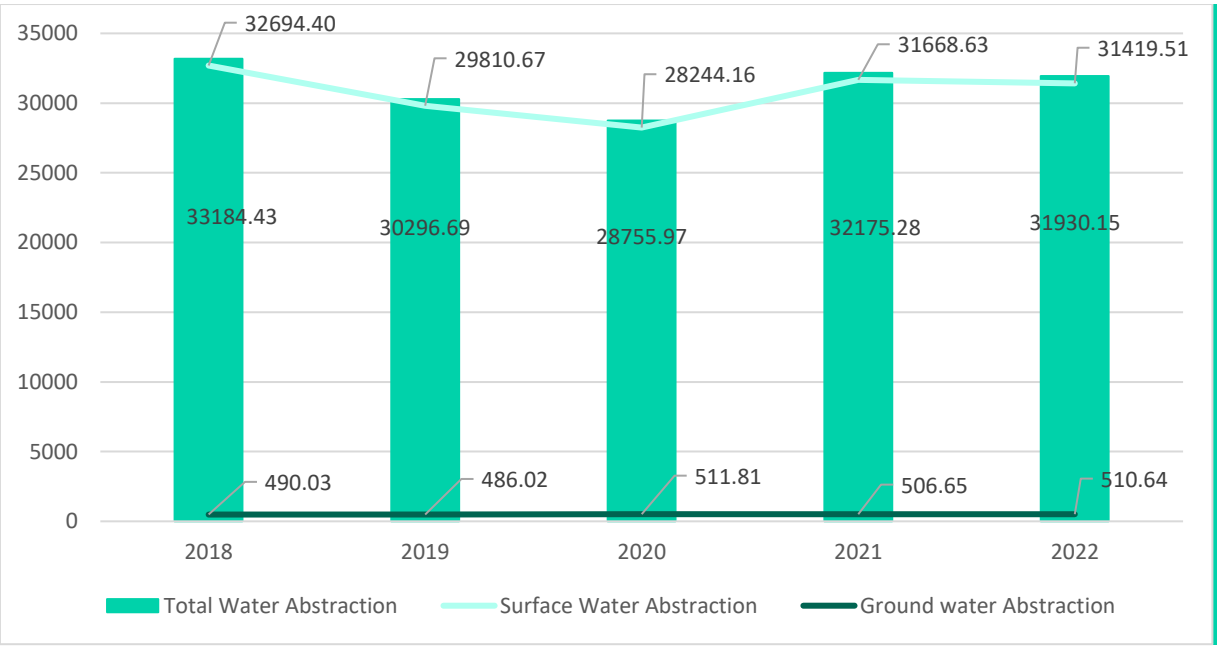
More details about the provisions of the new Law on Water Resource Management of Georgia are provided in Annex 1. Provisions of the New Water Law.

4. Baseline Scenario

To set optimal water abstraction charges that strike a balance between ensuring efficient water use and minimising market disruption, a thorough understanding of water abstraction patterns is essential. This requires comprehensively examining water abstraction practices across different sectors and regions. This section presents a detailed overview of water abstraction trends and losses in Georgia over the last five years, using data from the National Environmental Agency (NEA). It is important to note, however, that the data provided do not fully reflect actual abstraction levels due to the lack of meters installed at abstraction sites. Instead, the data are mainly based on the permits issued for the specific volume of water abstracted. Consequently, the available data is not trustworthy, rather it demonstrates overall tendencies of water use in Georgia.

Over the last five years, total water abstraction has remained relatively stable. Compared to the 2018 figures, the total water abstraction in 2022 showed only a 4% decrease, amounting to 31,930.15 million m^3 abstracted in 2022, compared to 33,184.43 million m^3 abstracted in 2018. It is noteworthy that within these five years, the lowest level of water abstraction was recorded in 2020, amounting to 28,244 million m^3. Importantly, surface water abstraction accounts for the vast majority of total abstraction at consistently around 98% throughout these years as can be seen in Figure 1. Furthermore, the small deviations in the total abstractions might be due to accounting errors, the overall tendency in abstraction is fairly stable.

Figure 1. Total water abstraction in Georgia



Source: Figure created by ORI based on NEA data

Regarding the purpose of water abstractions, hydropower emerges as the largest sector accounting for 92% of total water abstractions and 93% of surface water abstractions in 2022. However, the nature of water abstraction for hydropower differs significantly from other forms of water use as it is non-consumptive. The water used for hydropower generation is predominantly returned to the water source,

thus preserving its availability for subsequent abstraction needs. Therefore, aggregation of all water abstraction activities could be tantamount to treating two different categories of water abstraction - consumptive and non-consumptive - as if they were identical. Table 6 represents water abstraction for hydropower production purposes over the last five years:

Table 6. Water abstraction for hydropower production purposes

Purpose of Water Abstraction	2018	2019	2020	2021	2022
Total water abstraction for hydropower production	30,739.08	27,715.60	26,304.27	29,525.77	29,294.42
Share of hydropower production of total water abstraction	92.63%	91.48%	91.47%	91.77%	91.75%

Source: Table created by ORI based on the NEA data

After hydropower, irrigation is the second largest consumer of water resources, accounting for 97.7% of total surface water abstraction, excluding water used for hydropower. Table 7 provides an overview of water abstraction by purpose, excluding hydropower.

Table 7. Surface water abstraction by sectors

Purpose of Surface Water Abstraction	2018	2019	2020	2021	2022
Irrigation	1,774.13	1,867.73	1,686.28	2,073.87	2,076.53
Agriculture (excluding irrigation)	-	8.79	120.14	0.18	-
Fishery	17.59	16.46	11.62	19.22	16.64
Industry (excluding hydropower)	16.40	22.88	19.04	13.86	14.47
Water supply	144.52	176.74	99.81	32.69	15.51
Other	3.00	2.71	3.30	3.23	2.13
Total (Excluding hydropower)	1,955.64	2,095.31	1,940.19	2,143.05	2,125.28

Source: Table created by ORI based on the NEA data

It is worth noting that the majority of sectors rely mainly on surface water for their water abstraction needs. For example, both the irrigation and fishery sectors rely exclusively on surface water for their water abstraction. Within the industrial sector (excluding hydropower), groundwater abstraction has consistently remained below 33% of total industrial water abstraction over the past five years. However, the main consumer of groundwater is the drinking water supply sector. In 2022, only 3% of the total

water abstracted for water supply purposes came from surface water, with 97% coming from groundwater sources. However, it must be noted, that since there has been a drastic decrease in the share of surface water use in water supply, this might be the effect of misreporting. Moreover, among other sectors, drinking water supply is the most dependent on groundwater abstraction. For example, in 2022 98.9% of groundwater abstraction was used to meet the needs of the drinking water supply sector. Table 8 summarises the share of surface water abstraction from total water abstraction for each sector.

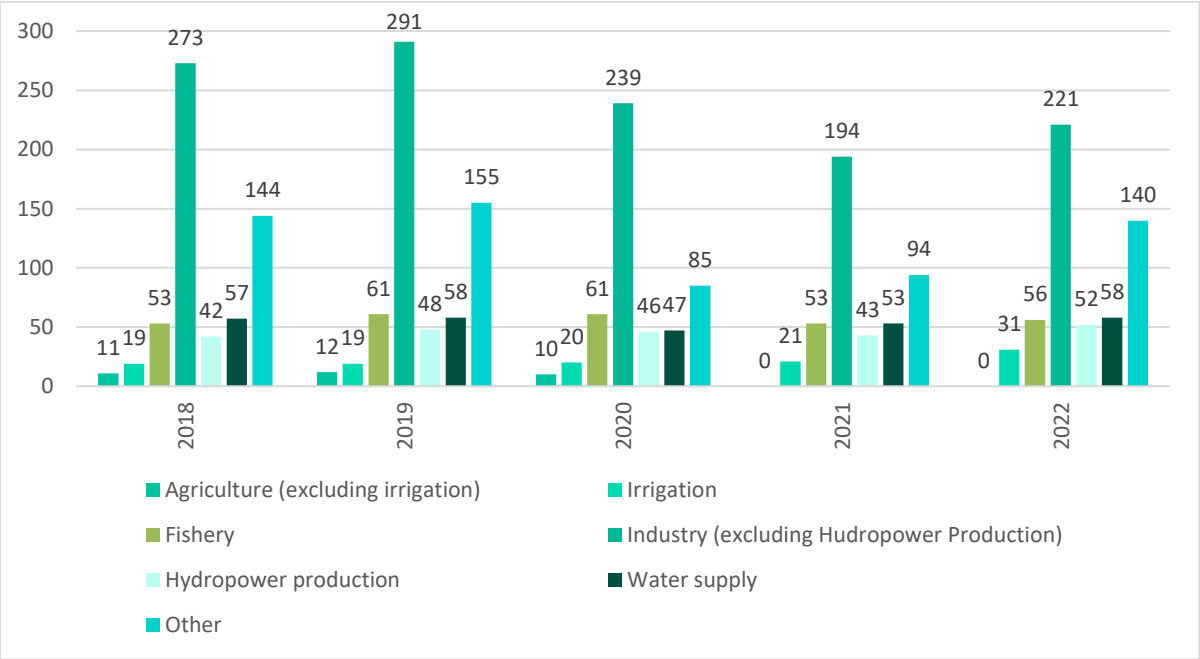
Table 8. Share of surface water abstraction in total water abstraction by sectors

Purpose of Water Abstraction	2018	2019	2020	2021	2022
Irrigation	100.00%	100.00%	100.00%	100.00%	100.00%
Agriculture (excluding irrigation)	0.00%	97.67%	99.83%	100.00%	0.00%
Fishery	100.00%	100.00%	100.00%	100.00%	100.00%
Industry (excluding hydropower)	66.53%	84.18%	83.95%	77.95%	76.93%
Hydropower production	100.00%	100.00%	100.00%	100.00%	100.00%
Water supply	23.19%	26.97%	16.46%	6.12%	2.98%
Other	53.29%	50.75%	72.85%	76.90%	68.71%
Total	98.52%	98.40%	98.22%	98.43%	98.40%

Source: Table created by ORI based on NEA data

The number of water users has remained relatively stable over the last five years, ranging between 508 and 644 water users. The highest number of water users is usually registered in the industrial sector (excluding hydropower production). Figure 2 shows the number of water users by sector over the years.

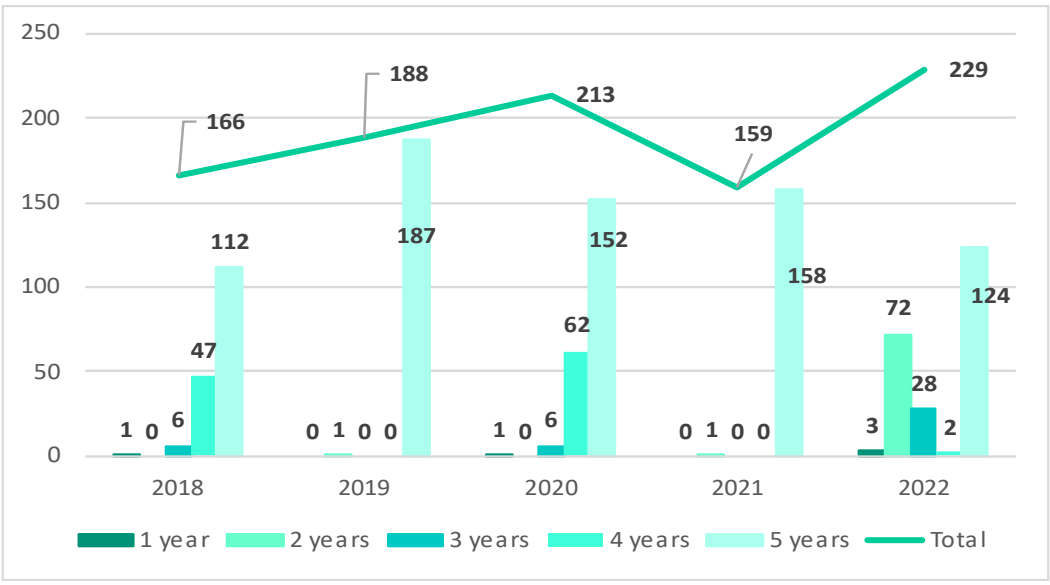
Figure 2. Number of water users by sectors



Source: Figure created by ORI based on NEA data

Furthermore, as discussed in the legal analysis section 3. , the NEA also issues technical water abstraction permits to individual water abstractors, who are exempt from environmental impact assessments. While the majority of these permits are valid for 5 years, there are cases where permits have been issued for shorter periods. However, there is no consistent pattern for such cases as can be seen in Figure 3.

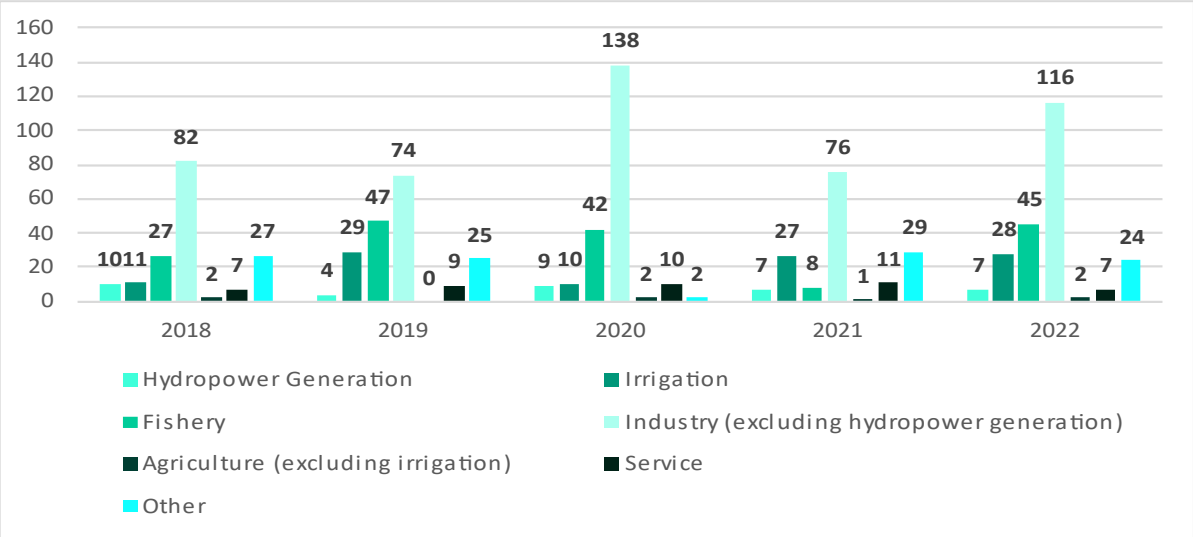
Figure 3. Technical water abstraction permits issued by NEA



Source: Figure created by ORI based on NEA data

Typically, the majority of these technical permits for water abstraction are issued for industrial purposes (excluding hydropower), which include activities such as construction, road building, mining, and similar activities. Figure 4 provides an overview of the number of technical permits issued according to the intended purpose of water abstraction.

Figure 4. Technical water abstraction permits issued by NEA by the purpose of water abstraction



Source: Figure created by ORI based on NEA data

In terms of water abstractions by region, Imereti has consistently stood out as the largest abstractor among Georgia's regions over the past five years. The percentage of water abstracted from the Imereti region has fluctuated slightly over this period, ranging from 45% to 50%. On the contrary, Shida Kartli and Guria remain the regions with the lowest water abstraction rates in Georgia. Table 9 below provides a summary of surface water abstraction by region and their respective contributions to total surface water abstraction in the country.

Table 9. Share of surface water abstraction in total abstraction in the country

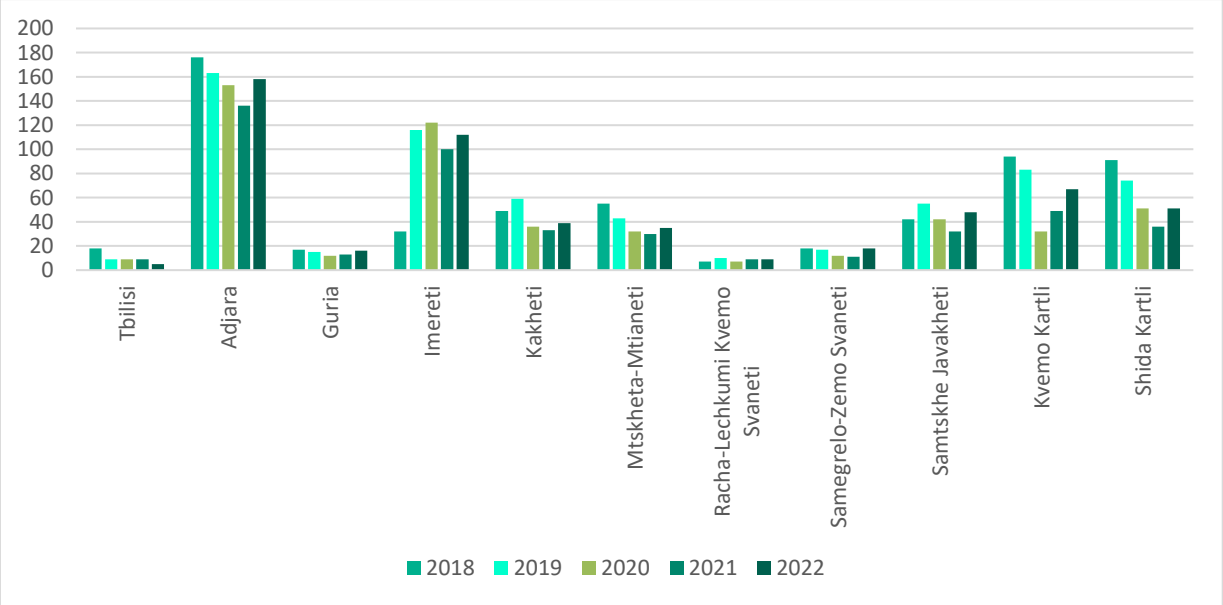
Region	2018	2019	2020	2021	2022
Tbilisi	11.93%	12.58%	12%	11.70%	12.01%
Adjara	3.69%	3.69%	4%	3.86%	3.71%
Guria	0.62%	0.65%	1%	0.65%	0.80%
Imereti	48.71%	48.08%	45%	50.51%	47.26%
Kakheti	3.65%	3.09%	3%	2.84%	2.54%
Mtskheta-Mtianeti	15.62%	15.32%	18%	17.26%	19.89%

Racha-Lechkumi Kvemo Svaneti	4.37%	4.13%	4%	4.50%	4.06%
Samegrelo-Zemo Svaneti	0.63%	0.97%	1%	1.11%	1.15%
Samtskhe Javakheti	5.20%	5.33%	6%	3.51%	4.79%
Kvemo Kartli	4.22%	5.01%	5%	3.31%	3.06%
Shida Kartli	1.35%	1.14%	1%	0.76%	0.74%

Source: Table created by ORI based on the NEA data

Although the Imereti region has consistently been the largest water abstractor region in the country, the number of registered water users has consistently been higher in the Adjara region, with Imereti following closely behind, except for the year 2018, when the second highest number of registered water users was recorded in the Kvemo Kartli region. Furthermore, while Tbilisi is the third largest abstractor in terms of water volume, the number **of registered water users did not exceed 18 in 2018** as shown in Figure 5.

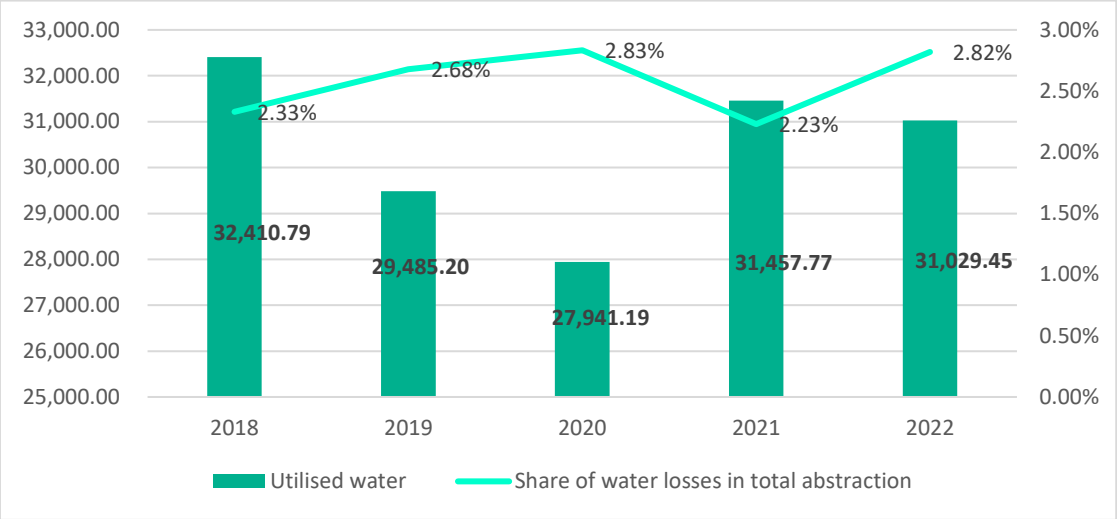
Figure 5. Number of registered water users by regions



Source: Figure created by ORI based on the NEA

Importantly the volume of abstracted water differs from the volume of the utilised water due to the existing leakages in the system as demonstrated in Figure 6. The volume of water losses has been gradually increasing over the years, fluctuating between 2 to 3 per cent of the total water abstraction.

Figure 6. Utilised water and water losses



Source: Figure created by ORI based on the NEA data

Analysing the desegregated data by sector, the drinking water supply sector has the highest level of water losses. This is followed by the irrigation sector, indicating significant inefficiencies and linkages within the systems of these respective sectors. Table 10 provides a summary of water losses by sector and their respective proportions of total abstraction for each sector.

Table 10.Volume of water losses by sectors and share of water losses in total abstraction by sector

Sector	2018		2019		2020		2021		2022	
	Volume	Share	Volume	Share	Volume	Share	Volume	Share	Volume	Share
Irrigation	448.19	25.26%	459.26	24.59%	376.2	22.31%	451.38	21.8%	640.11	31%
Agriculture (excluding irrigation)	0	0.00%	8	88.89%	119.34	99.17%	0.18	100.0%	0.18	100%
Fishery	0	0.00%	0	0.00%	0	0.00%	0	0.0%	0	0%
Industry (excluding Hydropower Production)	1.01	4.10%	1.93	7.10%	1.09	4.81%	0.89	5.0%	0.89	5%
Hydropower production	0.1	0.00%	2	0.01%	3.49	0.01%	2	0.0%	0	0%
Water supply	323.75	51.96%	340	51.88%	314.51	51.88%	263.06	49.2%	259.53	50%

Source: Table created by ORI based on NEA data

5. Overview of water abstraction charges

5.1. Objectives

Careful management, planning and protection are essential to preserve water resources, which are vital, complex and fragile assets. Unlike many other natural resources, the renewability of water resources is highly dependent on ecological conditions. When there is sufficient rainfall and natural recharge, both surface and groundwater sources can be considered renewable (Pradinaud et al., 2019). However, influences such as climate change and excessive abstraction can render them non-renewable (Pradinaud et al., 2019).

SDG 6 – "Clean water and sanitation for all", aims to achieve universal access to safe and affordable water resources and sanitation services by 2030. To achieve these goals, it is essential to reduce pollution, minimise the release of hazardous chemicals and materials, treat wastewater, improve water use efficiency and ensure sustainable abstraction. Policy responses, including water pricing, are key to achieving these goals.

The literature on the topic defines two primary dimensions of water management:

1. Water as a **natural resource integral to the ecosystem**, involving water abstraction, allocation among competing users (e.g. agriculture, industry and drinking water) and protection of water bodies.
2. Water as a **key element of water services**, which generally require significant infrastructure, including investment, operation and management, to deliver water services to end users (Meran et al., 2021).

Setting an appropriate price for the use of water resources is essential to ensure efficient and sustainable water management. Pricing mechanisms can influence the demand for water and its use, thereby contributing to responsible and sustainable resource management. One of the economic instruments applicable for successful water resource management is water abstraction charges (WAC). The European Environment Agency defines WAC as the amount of money levied for the direct abstraction of ground or surface water. WAC is generally considered to be an environmental resource charge, rather than a charge designed to fully recover the investment costs of water facilities. Ideally, WAC should follow the principle of full (opportunity) cost pricing of water abstraction, thereby promoting incentives for sustainable use of this critical resource. Determining the water abstraction charges and structure that reflects the actual value of water and thus contributes to the long-term sustainable management of water resources can be challenging. However, defining the appropriate water charges is crucial for both, the effectiveness of and the integrity of the water management systems. The WFD states that it is important to ensure that the charges send accurate signals about the true costs of water resources when defining WAC.

The purpose of setting up WAC might differ across the countries considering the specific country context. However, in theory, it can serve two main purposes: environmental and financial. When the primary objective of a surface water abstraction charge is **environmental**, it is designed to address the negative externalities associated with water abstraction. This means that the charge is levied to compensate for the negative environmental impacts caused by the abstraction of surface water. Such charges often act as a mechanism to internalise the external costs of water abstraction, which can include habitat destruction, degradation of aquatic ecosystems and adverse impacts on water quality. By reflecting these negative externalities in the charge, the aim is to incentivise water users to adopt more sustainable and responsible practices. In essence, this approach aims to provide a financial incentive to reduce water

abstraction or to adopt technologies and practices that minimise the associated environmental damage. This in turn contributes to the overall protection and maintenance of aquatic ecosystems and the wider environment (Lago et al., 2015). On the contrary, when the primary purpose of WAC is **financial**, the aim is to cover the costs of water management activities such as monitoring water abstraction, enforcement of environmental regulations and provision of clean water. In such a case, WAC is designed to generate revenue and recover the costs of water management. The potential for cost recovery is often untapped, with only one-third of countries implementing cost recovery for water supply and sanitation services. Some countries are gradually extending cost recovery to different water uses, including hydropower, navigation, flood protection and self-supply for agriculture and industry. However, the contribution of some water uses to the cost recovery of water services remains low or non-existent (Meran et al., 2021).

Furthermore, the concept of double dividends from environmental taxation suggests that the WAC can play a dual role. It can act both as a mechanism to incentivise environmentally responsible and sustainable behaviour, as well as become a source of revenue for the government if WAC is appropriately structured to minimise or eliminate market distortions ((Patuelli et al., 2005) and (Ekins et al., 2011)).

5.2. Global practices for the application of water charges

Determining water abstraction charges that reflect the true value of water and contribute to long-term sustainable water resource management can be challenging but is essential for effective and integrity-enhancing water management systems.

Water abstraction charges vary by category, use, and often by location, reflecting the scarcity of water resources (OECD, 2018). A review of international practice shows that countries typically set different levels of WAC for different uses, including drinking water, irrigation, industrial use and hydropower generation. In some cases, certain industries are exempt from WACs, as is the case in Armenia's hydropower sector as elaborated below. Many governments prioritise affordable water, especially for drinking purposes, setting charges below the cost-recovery level to meet basic needs. In such cases, the calculation of abstraction charges is driven by political considerations rather than the economic value of water (Meran et al., 2021). In addition, tariff structures may differ according to the water sources (i.e., lakes and tributaries of rivers). Furthermore, the abstraction of a small amount of water from bodies with a positive water balance could also be exempt from taxation (OECD, 2018).

According to the existing literature, the structure of WAC typically varies both between countries and within different sectors. The most commonly applied WAC structures can be categorised into four commonly used models:

1. **Volumetric charges** – the most commonly applied structure of water abstraction charges, when abstractors pay based on the per volume of water, abstracted and users pay a unitary rate per cubic meter of abstracted water (OECD, 2010). In the case of volumetric charges, setting up a measuring device is required, which itself is associated with high investment costs.
2. **Fixed charges** – some countries also apply fixed charges for water abstraction. Under this structure, charges are uniform across abstractors or are linked to certain characteristics of the abstractor (Leflaive & Hjort, 2020). For example, abstractors pay a fixed rate per hectare for agricultural water abstraction or per megawatt-hour of energy produced (OECD, 2010). However, fixed charges usually cannot promote efficient utilisation of water resources among consumers.
3. **Two-tier system** – is increasingly common, especially among OECD countries. This system involves two components: 1) a recurring fixed charge that consumers have to pay regularly regardless of the amount of water they use. This component of the charge is often used to cover

the fixed costs of water management; and 2) a volumetric charge above a certain threshold, based on the volume of water abstracted (OECD, 2010).

4. **Progressive charges** – WAC can also be structured as progressive taxes, with rates that rise in proportion to the amount of water abstracted. In such cases, it is possible to establish a pre-defined schedule of charges for different industries, and once certain usage thresholds are exceeded, additional charges are imposed on water users (Li et al., 2011).

Table 11 summarises the main characteristics of each type of WAC structure, their advantages and bottlenecks.

Table 11.WAC structures and their characteristics

WAC Structure	Requirements	Advantages	Disadvantages
Volumetric	Setting up a metering system	Provides incentives for efficient water use and reduction of water losses.	Additional administrative resources for monitoring. High investment cost of the metering system.
Fixed	Requires accurate data on abstractor and/or purpose of abstraction	Does not require a metering system.	Does not provide incentives for efficient water use.
Two-tier	Requires metering and monitoring	Recovery of fixed costs.	Costly to monitor due to additional complexity.
Progressive	Requires metering	Incentivises water use efficiency. Guarantees that water for basic needs is accessible at low cost.	Poor consumers might end up in higher price blocks due to the absence of efficient water facilities or in the case of households living together with large families.

Source: Table created by ORI based on OECD (2010)

There are several methodological approaches to determining the extent of WAC on a global scale. In this section a comprehensive overview of the existing methodologies used to define WAC is provided.

5.2.1. Australia Independent Competition and Regulatory Commission methodology

In Australia imposing WAC serves two main purposes: 1) to signal the true cost of water to consumers, thereby encouraging efficient water use and investment in water-saving technologies; and 2) to recover costs not covered by regulators, thereby ensuring that costs are appropriately recovered without cross-subsidisation.

The methodological approach to define WAC in Australia was defined by the Independent Competition and Regulatory Commission (ICRC). While defining the methodology four main criteria of the methodological approach were considered:

- **Transparency** – The WAC methodology should be publicly available, and open to scrutiny, and the public can see how agreements were reached regarding its level
- **Reliability** – The calculation of WAC should be based on the readily available data and the method of calculation should be repeatable.
- **Flexibility** – The WAC should be flexible and easily adjustable on an annual basis to reflect changes in any of the underlying factors.
- **Legality** – The determination of the WAC and the collection of the WAC from consumers of water should not go beyond the powers of the regulatory body (ICRC, 2019).

To define the WAC ICRC considered several factors, including the water management costs that should be covered by WAC:

- **Water supply cost** – Examples include the costs of biodiversity and environmental monitoring, environment protection, water utility regulation, health monitoring and regulation, and water policy and administration, which is spread across a number of Government departments. As for the capital costs associated with water management, they should be allocated across several years (on average three years) in the calculation of WAC.
- **Scarcity Value of Water (flow cost) -** When there is a scarcity value of water, the government should be able to recover this cost in WAC. Based on the ICRC approach, for the scarcity value of water, market trading prices for water were used as an approximate value.
- **Environmental Cost -** Measuring environmental costs for the WAC is the most challenging. Three factors need to be considered when including such costs: the risk of double counting due to interrelated environmental impacts, the difficulty of measuring certain environmental costs, and the need for relevance to the provision of water services.

Notably, while deciding which costs to include in the calculation of WAC, ICRC suggests that the cost should pass reasonability and measurability tests. The **reasonability test** implies that the costs considered for WAC calculations must be associated with providing water and water-related services. At the same time, the **measurability test** states that the costs must be easily measurable.

Based on the criterion discussed above, WAC was formulated based on the following formula in Australia:

$$WAC_t = \frac{SC_t + (LW_{ti1} * FC_t)}{TW_{t-1}} \qquad (1)$$

Where:

- **WAC_t** is the WAC charged in year *t* on all potable water per kiloliter of water
- **SC_t** is water supply costs in year *t*
- **LW_t** is the amount of water not returned to the system in year *t* measured in kiloliters
- **FC_t** is expected flow costs in year *t* measured in dollars per kiloliter
- **TW_t** total water abstracted in year t measured in kilolitres.

The formula (1) above applies only in the case of potable water, when the water is reused compared to the potable water, the following formula is applied:

$$WAC_t = \frac{SC_t + \left[\left(LW_{t-1} - \frac{RW_{t-1}}{k}\right) * FC_t\right]}{TW_{t-1}} \qquad (2)$$

Where RW_t is the reused water in year t measured in kilolitres and K stands as a proxy for the environmental benefit for the reuse of water where k = 1 means no environmental benefit and as k becomes larger the environmental benefit increases.

5.2.2. Wales water abstraction charges scheme – a methodological approach

In Wales, water abstraction charges are set on an annual basis and are administered by the Natural Resources Body for Wales (NRW). The abstraction charges are based on the abstraction licenses under the Act to Abstract Water. The annual charge of water abstraction is not payable in the cases of:

- Direct use in the production of electricity or any other form of energy by generating plant or equipment with a capacity not exceeding five megawatts;
- Abstracting from inland waters certified by NRW or its predecessors as having an average chloride content of more than 8,000 milligrams per litre;
- Holding a temporary licence;
- Holding a transfer licence (Natural Resources Wales, 2023).

The annual water abstraction charge consists of two main components:

1. The **Standard Charge** is a component of the abstraction charge which allows NRW to recover its water abstraction management and regulation costs, which is proportional of the impact of the water abstraction license on the water body.
2. The **Compensation Charge** adds an amount to the standard fee to cover compensation costs associated with the revocation or variation of licences (Natural Resources Wales, 2023).

According to the NRW, the annual water abstraction charge is calculated based on the following formula:

$$\text{Annual Charge} = \text{Standard Charge} + \text{Compensation Charge} \qquad (3)$$

which can be deconstructed in the following way:

$$\text{Annual Charge} = V*A*B*C*SUC + [V*B*C*D*EIUC] \qquad (4)$$

Where:

V is annual licensed value (in thousand cubic meters)

A is a source factor. The NRW water abstraction scheme identifies three types of sources: 1) Unsupported sources which are not included in any of the other categories; 2) supported sources, which include 13 rivers in Wales and abstraction direct from reservoir storage allocated under an agreement to NRW; 3) tidal sources, which includes those parts of inland waters downstream of the normal tidal limit as marked on the 1:25,000 Ordnance Survey map.

B is a season factor. According to the methodology, the season factor has three categories, that are determined based on the period of the year during which the water is abstracted.

C stands for a loss factor. The loss factor relates to four different categories of authorised water use under the licence. These range from a factor of 1.0 for *high loss* to a factor of 0.003 for *very low loss*.

D stands for adjusted source factor. For the calculation of the Compensation Charge element of the Annual Charge, the Scheme will only differentiate between tidal and non-tidal sources. The adjusted source factor from tidal sources is 0.2, while for non-tidal sources it is 1.0.

SUC refers to the standard unit charge. SUC is determined for each year of operation for each charging unit of Wales. The Standard Unit Charge is expressed in pounds sterling per thousand cubic meters. Specifically, for Wales (excluding the Severn catchment) it is determined to be GBP 17.31/1000m^3 and for the Severn catchment, it is defined as GBP 14.95/1000m^3.

EIUC is the Environmental Improvement Unit Charge. The EIUC is the second element of the Annual Charge, which adds to the Standard Charge an amount to cover compensation costs associated with the revocation or variation of licence. The minimum annual charge is defined to be GBP25.

5.2.3. Hungary methodological approach for surface water abstraction charges

In Hungary, the Ministry of Rural Development (hereinafter: the Ministry) is among other things responsible for the management of water, the environment and nature conservation. The Ministry's role is to coordinate water management policy and regulation and to implement both multilateral and bilateral international cooperation in this field. The Ministry is also responsible for managing and overseeing the implementation of the EU Water Framework Directive in the country. Specific water-related activities are coordinated by the Deputy Secretary of State for Water. These responsibilities include water resource management, river basin management and the protection of surface and groundwater bodies. In addition, the Ministry carries out water management activities with the support of the 12 Regional Directorates for Environment and Water Management. The regional directorates are coordinated at the central level by the Central Directorate for Water and Environment (Ungvari & Mohai, 2014).

In terms of regulation, the water sector is regulated by the Ministry of the Environment and Water Management. The Ministry supervises and regulates the activities of the National Water Authority, the 12 Regional Water Authorities and the Chief Environmental Inspectorate (Ungvari and Mohai, 2014).

In Hungary, water abstraction activity is from any surface water body. The regional water authorities as responsible for observing water abstraction plans, giving final permission for operations and collecting water abstraction charges (EurEau, 2018). The water abstraction fee is collected by the regional water authorities and passed to the central budget (Ungvari and Mohai, 2014).

In Hungary the water abstraction charge/Water Abstraction Fee (WAF) rate depends on multiple factors and is calculated based on the following formula:

$$WAF=V*B*M*G \qquad (5)$$

In this formula V – refers to the volume of water used or planned to be used

- **B** – is the base fee
- **M** - is the measurement parameter, which is equal to 1 if the volume of water is measured and equal to 2 otherwise
- **G** - is a factor that depends on the type of water use and the water body from which water is abstracted, as well as the water management situation in the given region. The value of G might vary from HUF 0.001-10 per m^3 of water. The lowest level of the multiplication factor is applied to the abstraction of surface water for hydroelectric power generation,

while the highest level is set for medicinal water for undefined use ((Ungvari and Mohai, 2014); (Yu et al., 2014)).

5.3. Bringing about change: examples from other jurisdictions on introducing or changing tariffs

Effective water resource management depends on the establishment and application of efficient water pricing mechanisms. To understand these mechanisms, international experiences with water abstraction charges are reviewed, including tariff structures and sector-specific charges. More detailed information about the water management arrangement in below discussed countries (Armenia, Estonia, and Germany) as well as in the case of the Netherlands (where they do not apply surface water abstraction charges) is provided in Annex 2. Water resource management in selected countries

5.3.1. Case of Armenia

The Water Code of Armenia (2022) highlights the importance of defining water abstraction charges. According to the code, the short-term objective of setting the charges should encompass costs related to managing water abstraction, supply and treatment. However, the current levels of water abstraction charges do not guarantee the cost recovery principle. Moreover, the Water Resource Fee Strategy of Armenia defines that in the medium- and long-term water abstraction charges should also incentivise efficient water use among its abstractors. Additionally, the objective of the water sector reform is to guarantee the fairness of the system. This implies that all groups of water users should be charged in a fair and equitable manner, using rates that closely reflect the environmental impacts and actual costs of both water abstraction and pollution discharge (EUWI Plus, 2022).

Certain sectors in Armenia are subject of exemptions from water abstraction charges, including:

- The hydropower sector, which is exempt from charges for non-consumptive water use.
- Water abstraction for irrigation purposes is free of charge if it is taken from surface water bodies (except Lake Sevan) or if it is unfit for drinking and taken from groundwater bodies.
- Until recently, fish farms were not subject to a nominal water abstraction charge (*Water Code of the Republic of Armenia*, 2024).

Table 12 summarises existing water abstraction charges in Armenia, based on the purpose of water abstraction. Notably, Armenia applies different levels of abstraction charges for the abstractions from Lake Sevan and other surface water bodies. This is mainly due to its environmental and socio-economic significance in Armenia, as well as because since the 1930s the level of Lake Sevan has fallen dramatically due to excessive water use resulting in serious environmental and ecological problems, including deterioration of water quality, destruction of natural habitats, and loss of biodiversity (Yu et al., 2014).

Table 12. Water abstraction charges in Armenia (per cubic meter)

Purpose of Water Abstraction	Surface Water (excluding Lake Sevan)			Surface Water (from Lake Sevan)		
	AMD	GEL	EUR	AMD	GEL	EUR

Fisheries (on 5% of total abstracted water)	1	0.007	0.003	1.5	0.01	0.004
Industrial	0.5	0.004	0.0012	1.5	0.01	0.004
Drinking water – household (except local self-governance authorities and water supply companies)	0.5	0.004	0.0012	1.5	0.01	0.004
Drinking Water (Supply companies)	0.025	0.0002	0.00006	1.5	0.01	0.004
Irrigation	0	0	0	0.2	0.0013	0.0005

Source: Ministry of Nature Protection of Armenia
Note: At AMD to GEL conversion rate of 0.007 and EUR to GEL conversion rate of 2.8422.

5.3.2. Case of Estonia

The Environmental Charges Act of Estonia sets out the rules for water abstraction charges. According to the Act, the water abstraction charge is levied for the privilege of abstracting water from a water body or aquifer in accordance with the prescribed water abstraction process. Water abstraction is metered by users and reported quarterly. Tariffs vary considerably depending on the type of water used, with preferential tariffs for some uses. For example, agricultural irrigation (including greenhouses), fish farming and hydropower are exempt from the tax. The revenue from the abstraction tax is shared between the state and local government budgets (OECD, 2017).

The Estonian Government sets the rate of water abstraction charges per cubic meter of water abstracted, as shown in Table 13. The different tariff levels are determined on the basis of factors such as the nature of the water body or aquifer and the extent and method of water abstraction, to ensure that these aspects are taken into account when setting the rates of water abstraction charges.

Table 13. Water abstraction charges in Estonia per 1000 cubic meters

Type of Water Abstraction	Minimum Amount of Tariff		Maximum Amount of Tariff	
	EUR	GEL	EUR	GEL
Surface Water	14.65	41.64	38.34	108.97
Surface Water as cooling Water	1.55	4.41	7.66	21.77
Water from the Quaternary Period Aquifer	30.65	87.11	70.30	199.81
Water from the Devonian To Ordovician-Cambrian Period Aquifers	40.90	116.27	95.86	272.46
Water from the Cambrian-Vendian Period Aquifers	44.70	127.05	102.25	290.62
Potable Quality Water Abstraction from the Cambrian-Vendian Period Aquifers for Technological Purposes, Except for Production of Foodstuffs	82.40	234.20	191.7	544.85
Mineral Water Used for Drinking	1,469	4,175.22	2,300.81	6,539.36
Mineral Water for Therapeutic Baths	146.90	417.52	230.08	653.94
Water Pumped out of Quarries	9.58	27.23	63.91	181.65
Water Pumped out of Mines	25.56	72.65	77.84	221.24

Source: Environmental Charges Act
Note: At EUR/GEL conversion rate of 2.8422

5.3.3. Case of Germany

Water abstraction charges were first introduced in Baden-Württemberg, Germany in 1988. The policy objectives behind the introduction of these charges represent a mix of incentives and a financing function of the charges, as the federal government on the one hand supports the rational use of water and on the other hand actively invests in the protection of water quality.

Specifically, the policy objectives for water abstraction charges in the State are as follows:

- Despite the existing abundance of water in the state, water resources should be considered a valuable resource by its users due to the existing threat of reduced water availability shortly due to climate change impacts on water resource availability.
- Creating incentives for water users to efficiently use water resources.
- The water abstraction charge should reduce the economic advantage enjoyed by those who benefit from water abstraction compared with those who do not (D. M. Lago, 2011).

Water abstraction charges were introduced in 1988 on the basis of amendments to the Federal Water Act. Subsequent amendments were made in 1998 and 2010 (coming into force in 2011) as can be seen in Table 14. As a result of these amendments, the State offers certain exemptions from water abstraction charges:

- Water abstractions below 4,000m^3/year
- The abstractions below the minimum threshold of EUR 100
- Water abstraction for cooling buildings
- Water abstraction for irrigation purposes
- Water abstraction for groundwater remediation
- Water incentive industries can apply for reductions of up to 90% in the abstraction charge if they can show that the charge was affecting their competitiveness. This meant proving that pre-tax profits had fallen by 5% as a direct result of the water charge.

To increase investment incentives, up to 75% of surface water abstraction charges could be offset by investment expenditure. These investments should focus on measures that reduce thermal pollution, improve water ecology or facilitate the substitution of surface water for groundwater (D. M. Lago, 2011).

Table 14. Surface water abstraction charges in Baden-Württemberg

Surface Water Abstraction	Original Charge in 1988 (€/m^3)		Revised Charges in 1998 (€/m^3)		Revised Charges in 2011 (€/m^3)	
	EUR	GEL	EUR	GEL	EUR	GEL
Public Water Supply	0.0256	0.0728	0.0511	0.1452	0.051	0.1450
Cooling	0.0051	0.0145	0.0102	0.0289	0.010	0.028
Irrigation	0.0026	0.0074	0.0051	0.0145	-	-
Other (Including production of fisheries)	0.0103	0.0293	0.0205	0.5827	0.010	0.028

Source: Table created by ORI based on (D. M. Lago, 2011).
Note: At EUR to GEL conversion rate of 2.8422

6. Recommendations for reforming surface water abstraction charges

Implementation of surface water abstraction charges involves several decision-making, analytical, awareness-raising and legal stages, that must be taken to make a robust, evidence-based decision. To facilitate this process, based on the extensive literature review and stakeholder consultation process, the project team has identified a 7-step process, which is designed to involve stakeholders and make the whole decision-making process transparent. These steps are as follows:

Step 1 – Define water charges at the sectoral level
Step 2 – Define the jurisdiction of water charges at river basin level
Step 3 – Set water charges based on the cost-based approach
Step 4 – Calculation of water charges based on selected methodology
Step 5 – Impact assessment of water charges and modification
Step 6 – Raise awareness among water users
Step 7 – Legislation of water charges in the parliament and setting up e-governance systems.

The purpose of this chapter is to carefully review these decision-making steps, providing insights into the critical stages of each of these steps, as well as underlining opportunities and challenges. It is important to keep in mind the holistic approach, aligned with the EU Water Framework Directive's comprehensive approach to water resource management, covering both surface and groundwater sources. Although groundwater management is conducted separately, the proposed decision steps are tailored to ensure the integration of river basin management practices. Each implementation step is discussed below.

Step 1 – Selection of users on which to set water charges

The first decision-making step in implementing surface water charges is to decide on the group of water users for whom the water abstraction charges will be set. There could be a number of ways and bases for dividing the users for whom water abstraction charges will be set. The two main ways observed in existing practices identified in the review of policy literature are to group users in two ways: (I) consumptive and non-consumptive users, or (II) on a sectoral level.

From an implementation perspective, it is important to clearly define the pool of surface water users that will be assigned to one group or the other. A clear definition of groups is important for several reasons: (i) a holistic definition that includes water users is essential to ensure that the incentives created by the economic instrument are correctly allocated to the types of uses; (ii) incorrect exceptions or unclear definitions can create policy ambiguity that complicates the implementation process of water charges; (iii) if some surface water users are not clearly assigned to one or another group in the long term, there will be a need to regulate them, as their monitoring will create costs within the basin management process.

Option 1 – Make Decisions Based on Consumptive vs. Non-Consumptive Use

To set water charges in Georgian river basins, based on the literature review, the following definitions for the consumptive and non-consumptive uses are suggested:

“The **consumptive use** is the abstraction of water from the river basin without returning the same, or marginally changed the quality of water to the basin.”

An example of consumptive use will be the withdrawal of water by the industry for its production purposes. Given this definition, the use of surface water by the mining industry to wash the extracted mineral resources will be a consumptive use, even though the water may be returned to the basin in the same volume (or in a slightly different volume) after undergoing a certain process.

"The **non-consumptive use** is the abstraction of water from the river basin and returning it with the same or marginally altered quality to the river basin after it passes a certain process".

An example of non-consumptive use of water is hydropower generation, where water is taken from the water body, run through turbines, and returned to the water body.

Setting the water charges with this simplistic practice will have its merits and drawbacks that are summarised in Table 15.

Table 15. Challenges and opportunities of charging water abstraction according to consumptive vs non-consumptive use.

Opportunities	Challenges
Easy monitoring and administration – With the simple definition of the group of users, it will be easier to monitor water use and payment of abstraction fees. Since each water abstraction permit holder will be in one of two groups, it will be easier to administer fees and monitor payments. It may also limit the ability of abstractors to avoid paying the correct rate for their particular use.	**Lack of flexibility to manage water user efficiency -** The simplistic approach to defining water user groups allows less flexibility to manage the externalities created within different types of use. It provides fewer opportunities to incentivise water use efficiency within a particular sector or type of water use.
Non-discriminatory use of the homogeneous product - For consumptive users, the main difference will be in the amount of water they extract, so setting the same rate for consumptive users will not discriminate between similar industries based on their use characteristics. For example, water abstraction for irrigation and fisheries will have the same rate, especially considering that both sectors produce water for food production.	**Possible subsidisation of larger water users by smaller water users** - Consumption by sectors with higher abstraction could be cross-subsidised by smaller users if the incentive mechanism is set to limit abstraction. In this case, smaller users may have to pay disproportionately higher charges. The consequence of this approach will be less acceptance of the charge by smaller abstractors.
Simpler methodology and greater acceptance by water users - The simple approach to defining users ensures that any environmental or institutional costs to be recovered through water charges are allocated proportionately within each group. As a result, no additional calculations are required to allocate environmental or institutional costs to each group. This simplification of any methodology for setting charges will create less scope for licence holders to question the legitimacy of the charges.	

OPTION 2 – MAKE DECISIONS BASED ON SECTORAL LEVEL

Setting water charges at the sectoral level allows the allocation of consumptive and non-consumptive uses within the defined sectors. Sectors can be defined in many ways and with varying levels of detail, but it is important to maintain the relative simplicity of the earlier approach of selecting water users to set water charges, while also allowing charges to be set taking into account sectoral characteristics. A characterisation of sectors is proposed that is in line with international approaches to prioritising water use and grouping together similar types of abstraction. The proposed definition of sectors is **Water Utilities** -water suppliers providing municipal water supply to the settlements, these could be those regulated by the Georgian National Energy and Water Supply Regulatory Commission (GNERC), as well as small-scale water suppliers on the settlement level.[10]

1. **Irrigation and Agriculture** – Irrigation and agriculture have the same purpose of water abstraction, so it is better to unify these two similar uses to ensure that incentives for agricultural water are common. Furthermore, these uses will have similar monitoring and management challenges for water abstraction.
2. **Fisheries** – Fisheries are potentially large water abstractors from river basins with specific water use characteristics in terms of monitoring and fee management.
3. **Hydropower** – Hydropower is the only non-consumptive use. Moreover, it is the largest water abstractor according to the existing balance, so its separate treatment is essential to ensure that the review of water charges does not significantly affect the electricity market. It should also be noted that, as hydropower is subject to licensing, the majority of power plants larger than 2 MW installed capacity pay the abstraction charge even under the existing regime.
4. **Industry / Manufacturing –** Any industry not included in the other above-discussed categories, including tourism, manufacturing, mining, construction and other industries.

Setting the water charges on a sectoral basis will have its merits and drawbacks which are summarised in Table 16.

[10] Although to the best of our knowledge there are no decentralised water suppliers in Georgia and all of them are regulated by GNERC.

Table 16. Challenges and opportunities of setting abstraction charges on a sectoral level

Opportunities	Challenges
Greater ability to incentivise efficient water use - Setting water abstraction charges at a sectoral level allows existing practices within broader sectors to be taken into account and facilitates the setting of charges that effectively incentivise efficient water use.	**Lower acceptance level from users with higher tariffs -** The definition of these sectoral levels could lead to low acceptance by water users from sectors with higher abstraction charges. This could create challenges in the adoption process, for which the government will need to provide clear definitions and arguments for the decision of sectoral groups.
Better data collection possibilities - Setting charges at a sectoral level will allow for better data collection and reporting. This will provide the basis for establishing better-defined water accounts data, analysing the characteristics of water abstraction in sectors and improving charging policy in the long term.	**Harder monitoring and administration** – As Georgia currently does not have a register of water users, monitoring and managing water users could be a challenge. However, the introduction of water user permits will facilitate the establishment of the register. In addition, on a sectoral (or sub-sectoral) basis, monitoring abstraction volumes could be challenging and determining the correct amount to be paid could be complicated.
Greater flexibility to manage priority uses – The approach will allow greater flexibility in managing water use priorities. Better monitoring and the setting of charges based on priority sectors will allow for changes in specific cases where water or agricultural security becomes an issue in the country. Charges can also support the prioritisation of supply through indirect incentives.	

RECOMMENDATION:

Based on the above discussion of the opportunities and challenges of each of the proposed options for grouping water users, it is recommended to develop the methodology and calculations **at the sectoral level.** The main reasons behind this recommendation are as follows:

- Sectoral level allocation limits the issue of cross-subsidisation of water abstraction between different types of uses.
- It also allows the design of better incentive mechanisms for efficient water use and prioritisation of abstraction.
- In addition, the approach will allow better insights to be gained at the impact assessment stage.

The decision can always be reversed to consumptive and non-consumptive uses if the quantitative impact assessment shows otherwise.

Step 2 – Defining the jurisdiction of water charges

The definition of water charging jurisdiction will have a significant impact on the effectiveness of water pricing in influencing efficient water use. Given the existing legislation and institutional set-up of the sector, there are three options for the jurisdiction to which water charges can be applied. These are (I) national level, (II) sea basin level and (III) river basin level. Defining the jurisdiction at each of these levels has its advantages and disadvantages, and each approach is briefly discussed below.

Option I: Defining Jurisdiction at the National Level

The charges set at the national level will be the same for all waste dischargers based on their sectoral grouping. The common national charges will provide a similar set of incentives for all water abstractors. This will require a slight modification of the Natural Resource Charges Act to set common charges for different sectors of surface water use. Setting charges at the national level presents the following opportunities and challenges presented in Table 17.

Table 17. Opportunities and challenges to define jurisdiction at the national level

Opportunities	Challenges
Easy monitoring and administration – Having the same charges for each sector at the national level will facilitate the administration and monitoring of water use payments. In this case, the Revenue Service will not need to track the location of water users and abstraction points. Tracking of payments will be easier both for the MEPA, which enforces the charge and for the Revenue Service. The only information required will be the volume of abstraction for which the charge applies.	**Lower incentives to solve water use problems at the catchment level** - The main problem with setting water charges at the national level is that they will be limited in their ability to incentivise efficient water use. It is impossible to take into account the local challenges and characteristics of water abstraction in different basins by setting charges at the national level.
Homogeneous impact on the competitiveness of similar water users geographically - This type of charge will have a homogenous impact on water abstractors in the same sectoral grouping, regardless of their location. Consequently, the impact on the sector to which the charge is applied is likely to be homogeneous, with no geographical distortion of competitiveness.	

Option II: Defining Jurisdiction at the Sea Basin Level

The existing law on natural resource charges has defined surface water abstraction based on the allocation of water bodies to sea basins. This creates another dimension of water bodies that are characterised differently from the river basin approach. However, setting charges at sea basin level does

not require any major changes to the legislation other than the level of charges. Setting water charges at sea basin level presents the following opportunities and challenges presented in Table 18.

Table 18. Opportunities and challenges to define jurisdiction at the sea basin level

Opportunities	Challenges
Increased ability to incentivise efficient water use at the sea basin level - Setting charges at the sea basin level will allow the structure of charges to be better aligned with the local priorities of the sea basin as defined in the management plans. It will also provide a better opportunity to incentivise efficient water use at the local level.	**Limiting incentives for efficient water use -** The main challenge will be to limit the impact on incentives for efficient water use in sea basins, as the sea basin level is still a very general definition of the local characteristics of water bodies. It will be difficult to unify the priorities defined in the river basin management plans in such a way that water charges can be used for their effective implementation.
Opportunity to incentivise efficient water use in vulnerable areas - Compared to national level charges, this approach creates a better opportunity to incentivise efficient water use in vulnerable areas in Eastern Georgia (Caspian Sea Basin). However, the approach will have limited impact as it will still not be able to capture the needs of the specific river basin.	**Non-homogeneous approach between similar users in different locations -** in this case, water charges set for different economic sectors will have a non-homogeneous impact on abstractors located in different sea basins. This could put some abstractors in an uncompetitive situation.

OPTION III: DEFINING JURISDICTION AT THE RIVER BASIN LEVEL

Water charges can be set at the river basin level. In this case, the law on charges for the use of natural resources will have to be amended to cover the river basins of the country and the relevant sectors. This will be more complex to adopt the legal changes and to manage payments from abstractors. However, this approach will provide a better opportunity for charges to incentivise the needs of each river basin and the priorities set in the river basin management plans. Setting water charges at the river basin level presents the following opportunities and challenges presented in Table 19.

Table 19. Opportunities and challenges to define jurisdiction at the river basin level

Opportunities	Challenges
Increased ability to incentivise efficient water use at the river basin level - Setting charges at the river basin level will allow the structure of charges to be better aligned with the local priorities of the river basin as defined in the management plans. It will also provide a better opportunity to incentivise efficient water use at the local level.	**Harder to monitor and administer -** Where charges are set at the catchment level, MEPA and the Inland Revenue will need to track both the location and sector of abstraction in order to calculate the correct amount payable. This could easily be integrated into the electronic system in conjunction with the abstraction permit system.

	However, more complex monitoring and administration may remain a challenge.
A methodologically simpler basis for setting charges - Given the institutional set-up created with the adoption of the EU WFD, water charges set at the river basin level will be better aligned with other regulations. It will also be methodologically simpler, as decentralisation of water management is the priority of the integrated river basin management approach.	**Non-homogeneous impact on the competitiveness of similar water users geographically -** The impact on the competitiveness of the same sector will be non-homogeneous based on the river basin, as different charges will apply.

RECOMMENDATION:

It is important to align the responsibility for water charges with the existing institutional set-up of the water management sector. Therefore, it is suggested to set water **charges at the river basin level, which will better support efficient water use, and allows for a better integration into the overall river basin management process and an easier methodological definition**. In addition, setting charges at the river basin level will better serve to incentivise efficient water use and take into account the local challenges of river basins.

Step 3 - Decision on methodological approach for setting water charges

- Based on the review of the previous policy studies and international experience in setting surface water abstraction charges, three different methodological options are proposed for setting water charges. These options are as follows: Basing surface water charges on the groundwater abstraction charges that already exist in legislation
- Using the methodological approach used in Wales
- Adopting a cost-based methodology for calculating water charges.

It should be noted that regardless of the method chosen for setting abstraction charges in Georgia, it will be crucial either to create a regime for updating charges after fixed baselines have been set or to introduce periodic legislative amendments. This takes into account the fact that fixed charges are regressive in nature and the amount paid loses purchasing power over time. Each of these policy options is feasible in Georgia, given existing data and information constraints.

OPTION I: BASED ON GROUNDWATER ABSTRACTION CHARGES

Charges based on groundwater abstraction fees have already been proposed in the earlier study carried out by ACTeon in 2021. The qualitative and some quantitative impacts of these abstraction charges are analysed. However, there is a need for further quantitative analysis to assess the impact on abstractors and their competitiveness. A simpler method is to base the abstraction charges on the existing groundwater charges. However, as shown in the ACTeon study, this approach results in charges that are insufficient to cover water management costs if the charges are lower than the groundwater abstraction charges. Furthermore, the impact of applying this methodology on the incentives for groundwater abstraction is not sufficiently assessed. The opportunities and challenges of applying the methodology are presented in Table 20.

Table 20. Opportunities and challenges to define methodology based on groundwater charges

Opportunities	Challenges
Easy to adopt and calculate and easy to implement - the methodology is easy to adopt and does not involve complex calculations. As a result, it will be easy to implement.	**No methodological basis** - The main challenge is that the approach of using groundwater charges as a basis does not have a robust methodological approach. It will be difficult to explain to key stakeholders and to convince abstractors that they are paying the right rate.
	Lack of incentives for efficient development of river basin activities - The approach will also create very limited incentives for efficient water use in river basins. It will also result in charges that are not in line with the activities set out in the river basin management plans and the priorities identified in these documents.

OPTION II: WALES WATER ABSTRACTION CHARGES SCHEME

As discussed in section 5.2.2, the abstraction charge system in Wales has a specific methodological approach. It gives the government flexibility to set charges that reflect priorities in river basins and incentivise efficient use. It should also be noted that this methodological approach can be used given the existing legal framework of fixed charges set out in the Natural Resources Charges Act. However, the adoption of this methodology will be associated with the need for additional research to correctly define the parameters for the calculation or to make assumptions about these parameters. The opportunities and challenges of adopting this methodology are discussed in Table 21.

Table 21. Opportunities and challenges to define methodology based on Wales methodology

Opportunities	Challenges
Strong methodological basis - The approach has a strong methodological basis that has been implemented in other jurisdictions. In addition, the methodology is not very complicated, which would make it more feasible to implement in Georgia given the data and information requirements.	**Possible difficulty in defining the parameters for the calculation -** A major constraint in setting the charges using the proposed methodology will be the identification of the parameters in the methodology. Given the existing data limitations, this will have to be done either through additional research or assumptions made at the policy level. This could complicate the calculation process. These assumptions may lead to complications in explaining the basis for setting these charges to stakeholders (abstractors), which may complicate the adoption process.
Flexibility to take into account different factors affecting the resource - The methodology takes into account different factors affecting surface water resources and can be applied at the river basin level. It has sufficient flexibility to set	

Opportunities	Challenges
charges based on priorities identified at the river basin level	

OPTION III: COST-BASED APPROACH

One of the ways to have both a robust methodological approach for setting surface water charges and sufficient incentives for efficient water use is to apply the cost-based approach. In this methodological approach, the government has to define the pool of costs generated in the river basin to be allocated to each type of sectoral user. The costs can be both explicit, associated with the operation of river basin management institutions, and implicit, associated with the ecosystem costs created by water abstraction. The identified costs can then be allocated to each sector based on the defined share and estimated abstraction volumes, by calculating a unit charge for water abstraction in each sector. In the long term, when all river basin management plans are approved, this methodology can be used to propose water charges at the river basin level with the active participation of abstractors. This methodological approach presents opportunities and challenges discussed in Table 22.

Table 22. Opportunities and challenges to define methodology based on cost-based approach

Opportunities	Challenges
Incentivises efficient river basin management - The cost-based approach can provide incentives for efficient river basin management as it will be linked to the costs of managing the river basin. It will also incentivise abstractors to limit the costs they generate in the course of their activities.	**Possible difficulty in correctly defining all costs -** the cost-based approach will be associated with possible challenges in identifying and correctly allocating costs. Although the explicit costs may be easy to identify, the implicit costs to water ecosystems will be difficult to identify. Furthermore, due to data availability challenges, it may be difficult to allocate costs between sectors. However, in the long term, as more data on water users becomes available, it will be much easier and simpler to apply.
Strong methodological basis - The cost-based approach creates a strong methodological basis that can be easily explained to the river basin stakeholders (abstractors) and has a clear rationale for compensating for the costs incurred in the course of abstraction.	
Relatively simple to calculate and implement - Compared to the Wales Water Charges Scheme, the approach is simpler to calculate and implement. It will involve fewer assumptions and more accessible river basin data.	

RECOMMENDATION:

The basis for water charges is to remunerate the use of natural resources. The cost-based approach is therefore recommended, as it is methodologically clearer, supports the development of river basin management activities and is easier to communicate to all key stakeholders. The development of the cost-based approach calculation tool for each river basin in Excel will create an easier metric to observe

the level of remuneration of imposed costs and create a more robust and transparent approach to setting abstraction charges.

Step 4 - Calculation of water charges based on selected methodology

After selecting a methodological approach for setting surface water charges, the next important step is to apply and calculate specific levels of abstraction charges. Given the existing constraints on data availability, several actions were identified that need to be taken in order to apply any of the previously proposed methodologies:

- **Action 1** - Establish a **register of water users** and collect their existing information.
- **Action 2** - Complete the **water accounts at the river basin level** to be able to make assumptions about water use characteristics.
- **Action 3** - Ensure that **river basin priorities** are taken into account when setting charges. Analyse existing river basin management plans and drafts to determine the cost of managing the basin.
- **Action 4** - Create a **model that can be used to update water charges in the future**. The Excel-based model can be created to ensure transparency and a common approach between different river basins.
- **Action 5** - **Include inflationary processes in the calculations** to ensure that available resources do not decrease over the years. This can be done either by increasing the defined charge levels by the target inflation of 3% per annum over the next 6 to 10 years or by using the estimated GDP deflator level to better reflect the inflation of government funds for future years

Step 5 – Impact assessment of water charges and modification

The adoption of new water charges and calculation methodologies requires a comprehensive qualitative and quantitative impact assessment, which will accompany the legislative changes as an annex to the Explanatory Memorandum. This impact assessment can be carried out using two analytical approaches: (I) cost-benefit analysis; and (II) regulatory impact assessment. Conducting this analysis is essential for evidence-based, transparent decision-making.

OPTION I: COST-BENEFIT ANALYSIS

Conducting a cost-benefit analysis will provide a quantitative assessment of the policy options described in the earlier steps of the reform. The policy options can be grouped in such a way to create a mix of interventions, to identify the impact of the full range of options. The cost-benefit analysis (CBA) results will provide the main indicators and impacts on the economy, such as the present value of net benefits and the benefit-cost ratio, to assess the effectiveness of the reform for the economy. However, the CBA will be more focused on providing these key metrics and may lack analysis beyond quantitative impacts. The following opportunities and challenges are associated with the implementation of CBA are discussed in Table 23.

Table 23. Challenges and opportunities to implement CBA

Opportunities	Challenges
Easier and faster to implement	Lacks qualitative impact assessment
Straightforward decision-making logic	Focuses primarily on an NPV for the reform
Easier to communicate with stakeholders	Could potentially lead to a negative NPV of the reform

OPTION II: REGULATORY IMPACT ASSESSMENT

As an alternative to cost-benefit analysis, a regulatory impact assessment (RIA) may be carried out in accordance with the Government Methodology on RIA (Ordinance No. 35 of 17 January 2020). The RIA methodology incorporates cost-benefit analysis, making it a more comprehensive type of impact assessment. In addition, the RIA will also provide a comprehensive qualitative impact assessment, which can provide a broader picture of the impact of adopting policy alternatives. Considering the scope of the water pricing reform, it should be noted that an in-depth RIA will be required in accordance with the provisions of the GoG RIA methodology. The implementation of RIA is associated with the following opportunities and challenges are discussed in Table 24.

Table 24. Challenges and Opportunities to Implement RIA

Opportunities	Challenges
Already part of the legislative process	Harder to implement
More in-depth analysis of the problem and greater opportunity to structurally solve issues	Requires more time and resources
Incorporates cost-benefit analysis	
Involves stakeholder consultations, supporting awareness-raising	

RECOMMENDATION:

Considering the existing practice and attitude of stakeholders about the policy impact assessments, it is recommended to implement the RIA as a framework for decision-making on water charges. It can provide a more holistic analysis with a comparison of several different options. Furthermore, in case of either analysis, there are two vital points to be considered:

- Before impact assessment is conducted several policy options have to be defined
- For the high-quality impact assessment data and existing public sector information must be available for the analysts to ensure the best modelling process

Step 6 - Raise awareness among water users

Alongside the decision-making process and policy impact analysis, it will be essential **to raise awareness among water users** to ensure a good understanding of the objectives of the reform. The RIA process can significantly support these efforts. It will also be important to **involve water users** at each stage of the decision-making process to ensure a clear understanding of the reasons behind each decision. Awareness raising and frequent stakeholder consultations can also support the data collection process by providing information on water use and technical characteristics of abstraction. This information is not fully available from the existing practice of obtaining technical conditions.

The awareness campaign needs to focus on **demonstrating the benefits of more cooperative and better water management and resource monitoring for all water users**. Existing budgetary constraints on the development of the water monitoring network need to be explained and how water charges will support the development of this network highlighted. It is important to take a holistic approach and reach out beyond existing water users to include business associations and civil society organisations to demonstrate the benefits of better water management to abstractors. The results of RIA or CBA (i.e. quantitative impact assessment) can be used in the discussion process to demonstrate the benefits of better water management and the need to set charges in this process.

Step 7 - Legislation of water charges in the parliament and setting up e-governance systems

The final step in the process of setting water tariffs is the legal drafting and adoption of water tariffs by the Parliament through amendments to the Law of Georgia on Natural Resource Charges. Several aspects should be considered in this process. It is suggested that the legal drafting should be done after all the assessments have been completed. This creates a better process and ensures that decision-makers are not biased towards an already drafted version of the legislation. In addition, the results of previous impact assessments can be presented as an annex to the explanatory memorandum to Parliament to support evidence-based decision-making. As the reform does not involve a complete overhaul of the water resource charging system, the necessary changes can be made by redrafting the existing law.

Finally, before the legislative process begins, it will be important for MEPA, the Revenue Service and the Department of Environmental Supervision to coordinate the exchange of information between the parties to ensure proper enforcement and monitoring. The authors recommend to implement water charges at the catchment and sectoral level, thus setting up an e-governance system for real-time information exchange will greatly correct the implementation of surface water charges. Experience in implementing such reforms shows that information sharing is often a major constraint.

7. Timeline of reform implementation

Based on the earlier analysis and explanation of steps a hypothetical timeline of the reform is presented in Table 25.

Table 25. Implementation timeline of the reform

Year 1				Year 2				Year 3			
Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
STEP 1 – User selection											
STEP 2 – Jurisdiction											
STEP 3 – Methodology											
	STEP 4 - Calculation of Water Charges Based on Selected Methodology										
			STEP 5 - Impact Assessment of Water Charges and Modification								
					STEP 6 - Awareness Raising Among Water Users						
							STEP 7 - Legal Drafting, Legislation of Water Charges in the Parliament and setting up e-governance systems				

The first three steps presented in the table are decision steps that can be taken simultaneously. Decisions on these steps only serve as an example and may be revised during the impact assessment phase.

The next step is preparatory work to develop the methodology for water abstraction charges and it is expected that with the existing data constraints, this work will take one year and could be completed by Quarter 1 of the second year. The next step, which could start in parallel with the completion of the methodology for surface water abstraction charges is the implementation of the impact assessment - RIA or CBA. This step could start by the end of Year 1 and will take until the end of Year 2. The timeline for

the RIA implementation is at least three months but considering the complexity of this process and data limitations, the adequate time frame for the impact assessment will be at least six months to a year.

Stakeholder awareness-raising activities will start with the consultations carried out as part of the impact assessment process. However, this step will have to be taken up to the adoption of the reform, as it will require a multi-layer consultation with business organisations and decision-makers in Parliament.

The final step of the legal drafting and consultations for information exchange between institutions should start after the final draft of the impact assessment is prepared and the best course of action is identified. The legal adoption of the changes could happen towards the end of Year 3 to ensure, that all stakeholders are ready to start implementing the law from the beginning of Year 4.

8. Annexes

Annex 1. Provisions of the New Water Law

Innovative Approach to Water Resources Management

The new law aims to establish a robust and streamlined framework and create a legal basis for managing water resources. It seeks to adhere to the principles of integrated water resource management and ensure a holistic approach. The new law allows and obliges the executive authorities (e.g., the GoG, the line ministries, regulatory authority, public and private water supply providers) to carry out necessary actions in line with the following principles:

- Implement a unified state policy for the protection and sustainable utilisation of water resources.
- Create a safe environment for human health and life.

The new principles and approaches introduced by the new law should be covered by the secondary legal acts such as resolutions, decrees, and orders. The adoption of these secondary legal acts represents one of the most challenging steps introduced by the law. The bylaws ensuring the proper enforcement of the new water law shall be adopted and then implemented at different governance levels, including central government and line ministries, local self-government bodies and independent entities. Notably, the engagement of the private sector in this process is essential.

According to the new law, the following major steps must be taken before 2026:

- **Establishment of the river basins**[11] **-** The new law introduces a decentralised approach to the management of water resources. In particular, it empowers the population and all stakeholders to plan and manage water resources. To serve this purpose and to involve all institutions equally in the management of water resources, the new law has introduced river basin management. This is closely related to the issue of water abstraction and the fees to be paid for it.
- **Preparation of the river basin management plans -** for each river basin the river basin management plans should be prepared, which will be updated every 6 years.
- **Creation of the River Basin Management Coordination Councils/committees -** River Basin Management Coordination Councils/Committees will be advisory bodies under the MEPA, whose purpose is to ensure the cooperation of state agencies and private entities for the protection and sustainable use of water resources in the respective river basin area. They shall be composed of employees of the MEPA, including its local territorial bodies, representatives of relevant municipalities, as well as organizations carrying out such activities in the territory of the respective river basin district including companies carrying out water supply activities, and companies generating hydroelectric power, representatives having a significant influence on the state of water resources, major water users, associations of water users (if any), and

[11] Initial plan is to form seven river basins: 1. Bzifi-Kodori 2. Rioni 3. Enguri-Khobistkali 4. Chorokhi-Adjaristskali 5. Mtkvari 6. Khrami-Debeda 7. Alazani-Iori

representatives of other interested organizations. The Minister of MEPA approves the composition of the River Basin Management Advisory and Coordination Councils.

Notably, implementation of each of these steps requires the adoption of different bylaws that are listed in Table A 1 at the end of this annex.

The law also defines that after the establishment of river basins, the interests of various water users carrying out activities within the basin should be taken into account; The issues related to surface and underground water should be controlled, monitored and reported. Lastly, all parties (physical and/or legal persons) should be involved in the planning and decision-making process.

In addition to introducing river basin management approaches, the new law requires revisions in several key areas, including water quality, water abstraction, permitting and monitoring procedures, environmental protection measures, and the implementation of water user charges for resource protection, among others.

Given the novelty and recent introduction of these issues in Georgia, effective communication of the concept of novelty to stakeholders within the sector is paramount. At the same time, the drafting of the necessary legislation can proceed. However, without adequate awareness among public and private entities, including the general population, of the goals, objectives, and actions associated with these changes, enforcement becomes much more difficult and the likelihood of failure increases. Such reforms are uncommon in Georgia's water sector, especially given the lingering influence of Soviet-era legal and behavioural norms.

NEW REQUIREMENTS RELEVANT TO WATER ABSTRACTION

While the existing legal framework does not provide for a unified approach to water abstraction, integrated water resources management establishes certain obligations for the legislative and executive bodies, as well as for the actors involved in the sector.

The law introduces the definition of water use, which is defined in the following way:

"Use of water resources for drinking, household, economic and other activities, which is expressed in the taking, collection, processing and/or distribution of surface water or underground water with or without technical means; also, discharge of wastewater into the surface water body".

The water use can be categorised into two types: common water use and special water use. While the conditions for each type of use vary, certain key principles and requirements remain consistent in both cases.

Common water use (surface and underground water), which is free of charge, is defined in the following way:

a) For non-commercial purposes, including the satisfaction of personal needs (drinking, domestic, recreational, health and other similar needs), without the use of such a structure and/or equipment that significantly affects the condition of the water body from which the water abstraction is planned and/or the water protection zone.
b) For fire extinguishing and emergency rescue operations.

Special water use of surface water is the use of water utilising such a structure and/or equipment that significantly affects the condition of the water body from which water is to be taken.[12]
Based on the new water law, special water use on the surface water body is carried out based on the following special water use permits:

- Permission to draw water from a surface water body
- Permission to discharge water into a surface water body
- Combined permit for water use with a surface water body.

For the special water use, the law implies special payment obligations:

- For the implementation of the "polluter pays" principle[13], the environmental and water resource usage costs will be considered when setting the fee for the use of natural resources.
- In the case of taking water from a surface water body in the form of special water use, the water user pays a fee for the use of natural resources, the amount of which and the manner of payment will be determined by the Law of Georgia on Fees for the Use of Natural Resources.
- For any activities falling in the scope of this new law, new permitting requirements and accordingly the payment of the respective fees are mandatory.

However, some exemptions are already in place for the transitional period until 2026. These exemptions are as follows:

- Any person to whom an environmental decision has been issued before the implementation of the special water use permit system provided for by the new law shall use special water under the conditions established by the environmental decision.
- In the event of a change in the conditions of water intake and/or discharge and/or water withdrawal from a surface water body, without changing the production technology of the activity and/or operating conditions, the operator of the activity must obtain a special water use permit in accordance with the procedure established by the new law.
- If the person carrying out the activity changes the conditions of water intake and/or water discharge and/or needs to withdraw water from a surface water body, which results in a change in the production technology and/or operating conditions of the activity, the person carrying out

[12] The following are considered to have a significant impact on the state of the water body: a) water withdrawal from surface water bodies in the amount of more than 15 m3 per day (except for the case provided for by subparagraph "b" of the first paragraph of Article 15 of this law); b) discharge of any amount of wastewater containing polluting substances into the surface water body.

[13] The "polluter pays" principle is enshrined in Article 191(2) of the Treaty on the Functioning of the EU. The principle implies that polluters should pay for the pollution they cause, creating an incentive to avoid damaging the environment at its source and holding polluters accountable. Its effective implementation is essential for the effectiveness of environmental policy, economic efficiency, and a fair transition that minimises social inequalities caused by environmental impacts and policies.

the activity is obliged to undergo the procedure for reviewing the activity in accordance with the Environmental Impact Assessment Act.

- A person who, on the basis of the Resolution of the GoG "On Approval of Environmental Technical Regulations", has agreed on the technical conditions for abstraction of water from a surface water body and uses water in accordance with the agreed technical conditions, does not require a special water use permit defined by this Law to meet the technical conditions for abstraction of water from a surface water body prior to the expiration of the agreement. In the event of a change in the agreed technical conditions for the extraction of water from a surface water body, the person carrying out the activity shall obtain a special water use permit in accordance with the rules established by this Law.
- A person whose activities are not subject to an environmental impact assessment and who discharges wastewater containing polluting substances into a surface water body is required to obtain a special water use permit by September 1, 2027.

TARIFF SETTING POLICY AND ITS IMPLICATIONS ON THE WATER USER CHARGES

The introduction of water charges both for the ground and surface water does not fall in the competencies of the GNERC directly, however, GNERC tariff setting policy can be a guarantor and at the same time trigger of fulfilment and breaching the new law and its secondary legal acts.

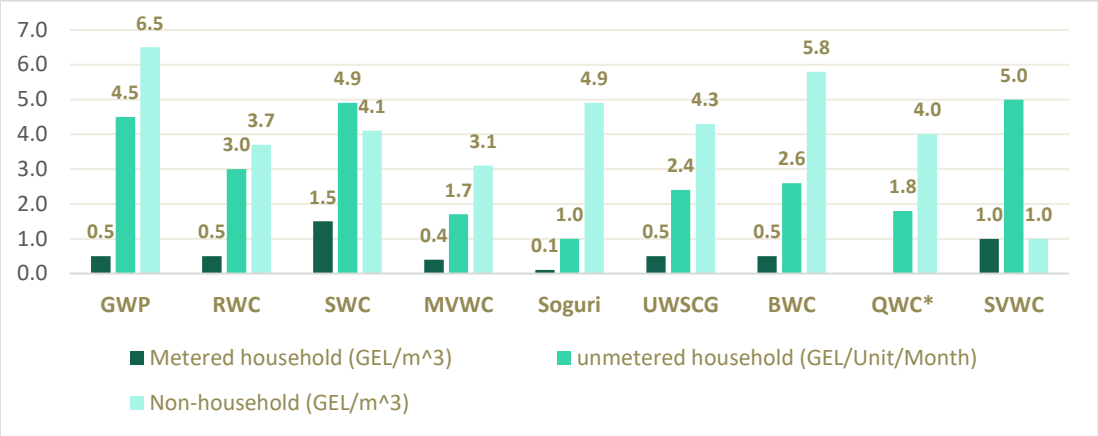
GNERC is the sole institution responsible for setting water and wastewater tariffs for residential and commercial customers. The methodology approved by GNERC, which is still in effect, is based on the principles of full cost recovery[14]. Planned investments for the regulatory period are included in the tariff and corrected based on actual figures at the end of the regulatory period; uniform volumetric tariffs for metered customers). The tariff is determined based on the licensee's application for the 3-year regulation period. All costs (expenses) incurred by the licensee during this period are taken into account when calculating and setting the new tariff. These costs include the fees paid for water abstraction.

The existing rate structure uses a cross-subsidy approach: commercial rates are increased to offset reduced rates for residential customers as can be seen in Figure A 1. This arrangement is the result of policy considerations aimed at making water affordable. However, this arrangement does not respect the "polluter pays" principle.[15]

[14] Revenue Cap approach with CPI-X for OPEX; WACC (14.99 % ex. Level); OPEX is calculated based on the base year data using CPI/Xfactor (Incentive-based regulation).

[15] in case of capital city Tbilisi commercial customers pay 13 times higher tariffs in comparison to the household customers

Figure A 1. Water use tariffs for commercial and residential customers



Source: GNERC Annual Report 2022

To address this issue, GNERC plans to gradually introduce accurate price signals to customers through a revised tariff system. This system will include unique variable tariff components tailored to each customer type, in addition to a fixed component that varies by pipe size. The transition will include increasing block rates for metered customers and decreasing block rates for unmetered customers. Alternatively, a minimal level of cross-subsidisation (e.g. not more than twice the cost) may be temporarily maintained in favour of human consumption. These adjustments are currently being prepared.

The overall objective of this tariff restructuring is to eliminate cross-subsidies among customers and to align the tariff methodology with the principles of cost-reflectivity for all customer categories. If the water tariff reform is not implemented or a special regime is not established, the imposition of charges on companies for surface and groundwater abstraction could exacerbate cross-subsidies.

Table A 1. Primary and secondary legal acts to be adopted or revised

SUBJECT	ADOPTION OF A NEW SECONDARY LEGAL ACT/IMPLEMENTATION OF MEASURES	AMENDMENT TO THE EXISTING PRIMARY OR SECONDARY LEGAL ACT	RESPONSIBLE INSTITUTION	REMARK
ESTABLISHMENT OF THE RIVER BASINS	Resolution of the Government of Georgia on identification and demarcation of water bodies Resolution of the Government of Georgia on approving the		Government of Georgia	To be adopted by September 1st 2026

SUBJECT	ADOPTION OF A NEW SECONDARY LEGAL ACT/IMPLEMENTATION OF MEASURES	AMENDMENT TO THE EXISTING PRIMARY OR SECONDARY LEGAL ACT	RESPONSIBLE INSTITUTION	REMARK
	borders of river basins/basin areas			
RIVER BASIN MANAGEMENT UNIT	Resolution of the Government of Georgia creation of River Basin Management Unit responsible for each river basin		Government of Georgia	To be adopted by September 1st 2026
THE RIVER BASIN MANAGEMENT PLANS	Resolution of the Government of Georgia for adoption of the River Basin Management Plans; Resolution of the Government of Georgia assigning the respective Ministry responsible for the preparation of the plans		Government of Georgia	To be adopted by September 1st 2026
THE RIVER BASIN MANAGEMENT COORDINATION COUNCILS/COMMITTEES	Resolution of the Government of Georgia to create the special council/committee to review the River Basin Management Plan, give recommendations and issue the initial assessment/conclusion		Government of Georgia Ministry of Environmental Protection and Agriculture	To be adopted by September 1st 2026

SUBJECT	ADOPTION OF A NEW SECONDARY LEGAL ACT/IMPLEMENTATION OF MEASURES	AMENDMENT TO THE EXISTING PRIMARY OR SECONDARY LEGAL ACT	RESPONSIBLE INSTITUTION	REMARK
	Alternatively - the Order of the respective Ministry create the special council/committee to review the River Basin Management Plan, give recommendations and issue the initial assessment/conclusion			
QUALITY OF WATER INTENDED FOR HUMAN CONSUMPTION	Resolution of the Government of Georgia on approving the technical regulation on the quality of water intended for human consumption		Government of Georgia	To be adopted by September 1st 2026
PLANNING, IMPLEMENTATION AND MONITORING OF WATER RESOUCES MANAGEMENT	Resolution of the Government of Georgia on approving the rule of planning and implementation of monitoring of water resources		Government of Georgia	To be adopted by September 1st 2026
FLOOD MANAGEMENT	Resolution of the Government of Georgia on assessment of areas at risk of potential floods		Government of Georgia	To be adopted by September 1st 2026
WATER PROTECTION ZONES	Resolution of the Government of Georgia on approving the technical regulations for water protection zones		Government of Georgia	To be adopted by September 1st 2026
DRINKING WATER SANITARY PROTECTION ZONES	Resolution of the Government of Georgia on establishing the sanitary protection zone		Government of Georgia	To be adopted by September 1st 2026

SUBJECT	ADOPTION OF A NEW SECONDARY LEGAL ACT/IMPLEMENTATION OF MEASURES	AMENDMENT TO THE EXISTING PRIMARY OR SECONDARY LEGAL ACT	RESPONSIBLE INSTITUTION	REMARK
	of drinking water supply facilities and approving the rules for carrying out activities within it			
SURFACE WATER QUALITY STANDARDS	Resolution of the Government of Georgia on approval of surface water quality standards		Government of Georgia	To be adopted by September 1st 2026
DISCHARGE OF URBAN AND INDUSTRIAL WASTEWATER INTO SURFACE WATER BODIES	Resolution of the Government of Georgia on approving the technical regulation for the conditions for dis of urban and industrial wastewater into surface water bodies		Government of Georgia	To be adopted by September 1st 2026
DISCHARGING AND RECEIVING WASTEWATER INTO THE WATER (SEWAGE) SYSTEM AND THE NORMS	Resolution of the Government of Georgia on approving the technical regulation for the conditions for discharging and receiving wastewater into the water (sewage) system and the maximum allowable norms of polluting substances		Government of Georgia	To be adopted by September 1st 2026

SUBJECT	ADOPTION OF A NEW SECONDARY LEGAL ACT/IMPLEMENTATION OF MEASURES	AMENDMENT TO THE EXISTING PRIMARY OR SECONDARY LEGAL ACT	RESPONSIBLE INSTITUTION	REMARK
SPECIAL PERMIT FOR USAGE OF SURFACE WATER	Resolution of the Government of Georgia on approving the procedure and conditions for issuing a special water use permit for surface water bodies	Law of Georgia on Licensees and Permits Rules and Regulations of issuing permits on Water abstraction from and Water discharge into surface water bodies	Government of Georgia Parliament of Georgia	To be adopted by September 1st 2026
SPECIAL PERMIT FOR USAGE OF GROUNDWATER		Revision of the Law of Georgia on Subsoil	Parliament of Georgia	To be adopted by September 1st 2026
REGULATION OF WELLS FOR THE EXTRACTION OF UNDERGROUND FRESH DRINKING WATER	Resolution of the Government of Georgia on approving the technical regulation for regulation of wells for the extraction of underground fresh drinking water	Revision of the Law of Georgia on Subsoil	Government of Georgia	To be adopted by September 1st 2026
REPORT ON THE STATE OF WATER INTENDED FOR HUMAN CONSUMPTION	Order of the Ministry of Environmental Protection and Agriculture on the contents of the report on the state of water		Ministry of Environmental Protection and Agriculture	To be adopted by September 1st 2026

SUBJECT	ADOPTION OF A NEW SECONDARY LEGAL ACT/IMPLEMENTATION OF MEASURES	AMENDMENT TO THE EXISTING PRIMARY OR SECONDARY LEGAL ACT	RESPONSIBLE INSTITUTION	REMARK
	intended for human consumption			
METHODOLOGIES FOR WATER RESOURCES MANAGEMENT	Order of the Ministry of Environmental Protection and Agriculture on approval of relevant methodologies regulating the field of water resources management		Ministry of Environmental Protection and Agriculture	To be adopted by September 1st 2026
ZONES POLLUTED BY NITRATES OR AT RISK OF POLLUTION ON SURFACE WATERS AND DETERMINATION OF ZONES VULNERABLE TO NITRATES	Order of the Ministry of Environmental Protection and Agriculture on identification of zones polluted by nitrates or at risk of pollution on surface waters and determination of zones vulnerable to nitrates. Note: it can be prepared without order, depending on the content to be discussed and confirmed later		Ministry of Environmental Protection and Agriculture	To be adopted by September 1st 2026

SUBJECT	ADOPTION OF A NEW SECONDARY LEGAL ACT/IMPLEMENTATION OF MEASURES	AMENDMENT TO THE EXISTING PRIMARY OR SECONDARY LEGAL ACT	RESPONSIBLE INSTITUTION	REMARK
GOOD AGRICULTURAL PRACTICE RULES	Order of the Ministry of Environmental Protection and Agriculture on defining the rules of the good agricultural practice for nitrate-vulnerable zones and development of appropriate action plans		Ministry of Environmental Protection and Agriculture	To be adopted by September 1st 2026
STATE ACCOUNTING FOR WATER USE	Order of the Ministry of Environmental Protection and Agriculture on approving the rules for conducting state accounting of water use		Ministry of Environmental Protection and Agriculture	To be adopted by September 1st 2026
CONTAMINATION OF GROUNDWATER AND NITRATE-VULNERABLE ZONES	Order of the Ministry of Environmental Protection and Agriculture on identification of groundwater contaminated with nitrates or at risk of contamination and determination of nitrate-vulnerable zones		Ministry of Environmental Protection and Agriculture	To be adopted by September 1st 2026

SUBJECT	ADOPTION OF A NEW SECONDARY LEGAL ACT/IMPLEMENTATION OF MEASURES	AMENDMENT TO THE EXISTING PRIMARY OR SECONDARY LEGAL ACT	RESPONSIBLE INSTITUTION	REMARK
SENSITIVE AREAS AND AGGLOMERATIONS AT RISK OF BEING AFFECTED BY URBAN WASTEWATER	Order of the Ministry of Environmental Protection and Agriculture on identification of sensitive areas and agglomerations at risk of being affected by urban wastewater		Ministry of Environmental Protection and Agriculture	To be adopted by September 1st 2026
WATER (SEWERAGE) SYSTEMS IN GEORGIA	Order of the Ministry of Regional Development and Infrastructure on description of water (sewerage) systems in the cities and villages		Ministry of Regional Development and Infrastructure	To be prepared by September 1st 2027
MEASURES TO IMPROVE THE CONDITION OF WATER (SEWERAGE) SYSTEMS IN GEORGIA	Order of the Ministry of Regional Development and Infrastructure on approving the complex measures to improve the condition of water (sewerage) systems in the cities and villages, to protect water resources from pollution by sewage effluents		Ministry of Regional Development and Infrastructure	To be prepared by September 1st 2027

SUBJECT	ADOPTION OF A NEW SECONDARY LEGAL ACT/IMPLEMENTATION OF MEASURES	AMENDMENT TO THE EXISTING PRIMARY OR SECONDARY LEGAL ACT	RESPONSIBLE INSTITUTION	REMARK
RECRUITMENT OF HUMAN RESOURCES	One of the measures to be implemented by each responsible institution is to hire the required experts for the enforcement of the new law and the bylaws (including provision of the capacity building programs).		Government of Georgia Ministry of Environmental Protection and Agriculture Ministry of Regional Development and Infrastructure Any entities responsible for the enforcement of the new water law	Law of Georgia on Public Service and the Resolution of the Government of Georgia on the procedures for conducting the public service competition shall be revised To be implemented from January 1st 2026
WATER USAGE CHARGES		Law of Georgia on Fees for the Use of Natural Resources	Parliament of Georgia	To be adopted by September 1st 2026
INTRODUCTION OF NEW PERMITS FOR WATER ABSTRACTION		Law of Georgia on Licenses and Permits	Parliament of Georgia	Based on the new water law provisions, the new permits shall be added to the scope of the Law of Georgia on

SUBJECT	ADOPTION OF A NEW SECONDARY LEGAL ACT/IMPLEMENTATION OF MEASURES	AMENDMENT TO THE EXISTING PRIMARY OR SECONDARY LEGAL ACT	RESPONSIBLE INSTITUTION	REMARK
				Licenses and Permits To be revised by September 1st 2026
TARIFF SETTING METHODOLOGY		Water Tariff Setting Methodology	Georgian National Energy and Water Supply Commission	To be revised/adopted by September 1st 2026
CHARGES/PENALTIES FOR VIOLATION OF THE REQUIREMENT OF WATER ABSTRACTION/DISCHARGE		Administrative Offence Code of Georgia	Parliament of Georgia	To be revised by September 1st 2026

Annex 2. Water resource management in selected countries

WATER RESOURCE MANAGEMENT IN ARMENIA

The Republic of Armenia began its efforts to reform the water resources management sector in 1999-2000 with the support of the World Bank's Integrated Water Resources Management Project. This initiative resulted in several significant achievements. It assessed Armenia's water resources, proposed structural changes to improve water resources management, and developed a framework for monitoring the balance between water supply and demand. It also introduced the concept of river basin management by incorporating annual and long-term planning mechanisms into water resource management (UNECE, 2014).

Under these reforms, one of the most important milestones was the adoption of the New Water Code of Armenia in 2022. The Water Code states that water resources in Armenia are recognised as state property. The document outlines a system in which the use and allocation of water resources are governed by economic mechanisms, including the issuance and enforcement of water use permits based on monitoring data integrated into a computerised national water cadastre (UNECE, 2014).

The Water Code also emphasises the importance of watershed-based principles in water resource management and promotes greater public awareness and participation. It establishes a well-rounded approach to water resources management in Armenia and delineates the roles and responsibilities of regulatory, management and operational entities in the water sector. In addition, the Water Code led to

the creation of several new government agencies tasked with fulfilling these various responsibilities (National Assembly of the Republic of Armenia, 2002).

In 2005, the Republic of Armenia implemented the "Fundamental Provisions of National Water Policy" through legislation. This law outlines a comprehensive, forward-looking strategy for the sustainable use and protection of water resources and water infrastructure. Subsequently, the "Law on the National Water Programme of the Republic of Armenia" was adopted in 2006. This law is designed with the overall objective of formulating strategies to meet the needs of both the population and the economy. It aims to ensure environmental sustainability, establish and manage a strategic water reserve and protect the country's water resources (EU Water Initiative, 2022).

In order to effectively implement Armenia's new Water Code, a comprehensive set of more than 120 regulations and by-laws has been adopted since 2002. These regulations cover various aspects such as the protocols for issuing water use permits, river basin management, enhancing transparency and public participation in decision-making processes, ensuring easy access to information, establishing a state water cadastre, creating systems for monitoring water resources, managing shared water resources across borders, introducing updated standards for surface water quality, and the framework for a model river basin management plan, among others (UNECE, 2004).

WATER RESOURCE MANAGEMENT IN ESTONIA

Estonian environmental policy, including water management, is guided by the National Environmental Strategy and the National Environmental Action Plan. These frameworks define the main policy objectives and set out the action plans to achieve these objectives (Benhard, 2001).

EU legislation currently provides a protective framework that sets standards for water bodies in all Member States and targets specific sources of pollution. In Estonia, the primary legislation protecting water resources and regulating the use of public waters[16] and waters intended for public use[17] is the Water Act.[18] Adopted in 1994, the Act has been amended more than 30 times, mainly to comply with EU directives.

To comply with the WFD requirements, Estonia has developed RBMPs for its three river basin districts, two of which are transboundary. The first RBMPs were ratified in 2010 and are to be reviewed every six

[16] According to the Water Act, the following water bodies are considered as public water bodies: the internal sea; the territorial sea, Lake Peipus; Lake Võrtsjärv, Mullutu Bay, the Gulf of Suurlaht, Narva Reservoir, the Narva River, the Emajõgi River, the Nasva River, the Väike-Emajõgi River from Jõgeveste Bridge to Lake Võrtsjärv, the Kasari River from the mouth of the Vigala River to where this river enters the sea. All public water bodies belong to the state and cannot be used for commercial purposes.

[17] The list of publicly used water bodies shall be established by an order of the Government of the Republic. The list of publicly used water bodies shall not include: standing water bodies without any outflow that belong to a person in private law and are located within the boundaries of a single immovable property; standing water bodies without any outflow and with an area of less than five hectares that belong to a person in private law and are located within the boundaries of several immovable properties; watercourses with a catchment area of less than 25 square kilometres and reservoirs located thereon; standing water bodies or parts of standing water bodies that are located in the training area of the Defence Forces and the National Defence League; water bodies or parts thereof used for abstraction of drinking water; water bodies or parts thereof that are located in a mining claim or a mine service plot granted for the extraction of mineral resources; parts of water bodies where aquaculture is conducted

[18] https://www.riigiteataja.ee/en/eli/508102019001/consolide

years. These plans include regulations on agricultural practices, wastewater management and water use. The implementation of these plans is overseen by updated RBMP Action Plans, revised every two years, with coordination managed by the Environmental Board (Benhard, 2001).

Ensuring the provision of safe drinking water represents a key priority of Estonia's water policy. The supervision of drinking water policy is divided between the Ministry of Social Affairs and the Ministry of the Environment. The Ministry of the Environment leads the coordination of sanitation policy and is responsible for securing and maintaining the quality of both ground and surface water, which are essential as sources of drinking water. It oversees several government functions, including environmental and nature protection, maintenance of land and spatial databases, assessment and regulation of natural resources, recycling and conservation, radiation protection, environmental monitoring, as well as the organization of surveys and research in meteorology, geology, cartography, geodesy, ecology and marine studies. This ministry is primarily responsible for organizing and coordinating environmental policy (Permanent Mission of Estonia to the United Nations, 2017).

The Ministry of Social Affairs, on the other hand, focuses on protecting the health of the population and coordinating related activities. It drafts legislation aimed at ensuring a healthy human environment and develops strategies and policies to promote this objective. The Health Board, an auxiliary body of the Ministry of Social Affairs, is responsible for monitoring the quality of drinking water (Permanent Mission of Estonia to the United Nations, 2017).

WATER RESOURCE MANAGEMENT IN THE NETHERLANDS

The National Water Plan (2016-2021) represents the main policy document defining the main strategic dimensions of water resource management in the Netherlands at the central government level. It defines the main direction of the national water period over the 2016-2021 planning period, as well as a preview and the way forward by 2050. In addition, the National Water Plan guarantees the compliance of the national water policy with the EU WFD requirements (Ruimtelijkeplannen, 2015).

The main standards defined in the National Water Plan are laid down in the amendments to the Water Act of the Netherlands. While the Water Plan is only binding on the central government, the Water Act defines a water management framework for the modernisation of the Dutch water management system at different levels of government (Water Act, 2009). Specifically, according to the Water Act, different levels of government are responsible for water management:

- **Central government:** government authorities at the central level are responsible for defining water policies and measures at the national level. Moreover, the central government is responsible for flood control and management at the country level. This refers in particular to the Ministry of Infrastructure and the Environment, which is responsible for developing water policy and legislation at national level, and for overseeing the implementation of this policy by other responsible bodies.
- **Provinces:** The 12 provinces are responsible for translating national water policy into regional-level measures. Additionally, the provinces are responsible for controlling and protecting water quality at the regional level.
- **District water boards:** The 25 district water boards are responsible for defining water management plans regarding the water quality of the waters within their district. In addition, the district water boards are responsible for the regional flood management systems, that protect the country against, e.g., water from the canals.

- **Municipalities:** Municipalities usually are not responsible for managing surface water abstraction, while groundwater management in urban areas lies under municipal responsibilities. Furthermore, municipalities are responsible for the drainage of waste water and excess rainwater through the sewer systems (Water Act, 2009).

In the Netherlands, there are **no surface water abstraction charges** imposed. However, the government determines the 'priority sequence' of water users in the event of water shortages of extreme water conditions.[19] This sequence of propriety order is provided in Table A 2.

Table A 2. Primary and secondary legal acts to be adopted or revised

Category	Priority area
Safety and preventing irreversible damage	Stability of flood defence structures −Settling and subsidence of peat bogs and moorland −Nature dependent on soil conditions
Utilities	Drinking water Supply Power Supply
Small scale, high-quality uses	Temporary spraying of capital-intensive crops Process water
Miscellaneous uses and functions	Shipping Agriculture Nature, as long as no irreversible damage occurs Industry Water recreation Lake fishing

Source: Rijkswaterstaat and Association of Dutch Water Authorities, 2009

WATER RESOURCE MANAGEMENT IN GERMANY

Compared to the cases of the other countries examined above, Germany is a federal state based on the federal system. This means that government functions are divided between the federal government and the federal states. Based on the political arrangement of the country, the municipalities can act under their discretion to a certain extent in governing local issues.

In the water sector, the federal government has the right to enact general regulations on water resource management, i.e. to set the general legal framework for the sector. At the federal level, the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety is responsible for the management of water resources and oversees transboundary cooperation in the field of water resources management as part of environmental policy. (Winnegge and Maurer, 2002)

[19] Extreme water conditions refers to the extended drought. This triggers water use restrictions, reduction in allocations according to a pre-defined sequence of priority uses, and suspension of the allocation regime plan (Water Act, 2009).

Water management in most federal states is structured on three levels, similar to general administration:

- Level 1 - Supreme Water Authority: This level usually involves a ministry with a dedicated water resources department, often within the Ministry of the Environment. Functions include the control of water management and the supervision of administrative procedures at a higher level.
- Level 2 - Upper Water Authority: Typically overseen by regional governments, this level assumes responsibility for regional water management planning and key procedures required by water laws and administrative protocols.
- Level 3 - Lower Water Authority: Comprises rural counties, cities that are not part of a county, and technical authorities such as water resource agencies. Functions include the implementation of procedures set out in water legislation, such as permitting, licensing, technical advice and monitoring of water and wastewater discharges (Winnegge and Maurer, 2002).

Adopted in 2010, the Water Act is a main document that provides a legal framework for the management of surface and groundwater bodies, the control of water quality and the control of human intervention in water bodies. The Water Act is also a legal document that incorporates the requirements of the WFD and transposes them into the German context. In addition, ten RBMPs have been developed with objectives and institutional arrangements, including stakeholder involvement, to manage water resources at the local level (OECD, 2019). The Federal Water Act does not provide for water abstraction charges at the federal level, which means that certain states can decide whether or not to introduce such charges under their legislation. They are not limited in the design of these charges. Thus, the introduction of water abstraction charges in Baden-Württemberg required changes in legislation at the local level (Lago and Möller-Gulland, 2011).

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