

Dissemination of environmental information

Draft country maturity report: Georgia

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Note

The current draft report was built on publicly available information up to October 2018. This draft version will be reviewed during the year 2019. It is not intended to be a comprehensive analysis of environmental information, open data and e-government in the country but a collection of the main elements shaping the national environmental information landscape.

In particular, this report contains information obtained or derived from a variety of publicly available sources described within the report in more detail.

This draft report was produced by PricewaterhouseCoopers as part of the EEA service contract No. 3437/R0-ENIE/EEA.57335 for 'developing a roadmap and identify feasible and practical means for integrating environmental information in national e-governance/Open Data processes and platforms'. This action is done in the context of the ENI SEIS II East project 2016-2020.

It is expected that during the 2019 the draft report will be reviewed by the national authorities involved in the environmental information management, and use at national level and enriched with more specific, up to date information available.



List of Acronyms

Acronym	Meaning
AA	EU-Georgia Association Agreement
API	Application Programming Interface
DEA	Data Exchange Agency
DES	Department of Environmental Supervision
DSD	Division of Sustainable Development
EaP	Eastern Partnership
EEA	European Environment Agency
EGDI	E-government Development Index
ENI	European Neighbourhood Instrument
EPI	Environmental Performance Index
EU	European Union
GA	Green Alternative
GYLA	Georgian Young Lawyers Association
GODI	Global Open Data Index
HCI	Human Capital Index
HMIS	Health Management Information System
ICT	Information and Communication Technology
IDFI	Institute for Development of Freedom of Information
LEPL	Legal Entity of Public Law
MEPA	Ministry of Environmental Protection and Agriculture of Georgia
MOESD	Ministry of Economy and Sustainable Development
MOF	Ministry of Finance and the Customs Service
MOH	Ministry of Labour, Health and Social Affairs
MOIA	Ministry of Internal affairs
MOJ	Ministry of Justice
MRDI	Ministry of Regional Development and Infrastructure
NEA	National Environmental Agency
NGO	Non-governmental Organisation
NSDI	National Spatial Data Infrastructure
NSDI	National Spatial Data Infrastructure
NSO	National Statistical Office
ODIN	Open Data Inventory
OGP	Open Government Partnership



OSGF	Open Society Georgia Foundation
OSI	Online service Index
PAR	Public Administration Reform
PFMS	Public Finance Management System
POPs	Persistent Organic Pollutants
PRTR	Pollutant Release and Transfer Registers
REC Caucasus	Regional Environmental Centre for the Caucasus
SEIS East	Shared Environmental Information System principle and practices in the Eastern Partnership countries
TIG	Transparency International Georgia
TII	Telecommunication Infrastructure Index
UNECE	The United Nations Economic Commission for Europe
UNFCCC	United Nations Framework Convention on Climate Change



1 Executive summary

Georgia is now ranked 60th in the world in terms of e-government¹ (2018), and ranked 38th according to the Open Data Inventory (ODIN) score² (2017). Yet, the biggest progress for Georgia has been in the field of telecommunication, with a strong increase of internet penetration and use of internet³. In particular, Georgia now has around 80% of homes having an internet connection.

In regard with environmental information, Georgia has made a remarkable progress with the establishment of the Environmental Information and Education Centre, which is a central portal for the dissemination of environmental information. A key challenge for Georgia is now to leverage on e-government and Open Data initiatives and to foster collaboration between environmental information holders in order to improve environmental information sharing and dissemination.

E-government

The Data Exchange Agency is the main actor of e-governance in Georgia. It is responsible for e-governance development, creation and installation of the unified Georgian Governmental Gateway (3G) and its monitoring, and establishment of data exchange infrastructure. In practice, nonetheless, e-government responsibilities are spread among public authorities, and collaboration on e-governance is still not as effective as it could. This leads to a lot of difficulties to foster national initiatives such as interoperability.

In this context, the eGeorgia strategy 2014-2018, even though sound and available publicly, was not adopted by the Government. Its related strategic initiatives were not monitored as part of a global strategic engagement and left public institutions with the freedom of implementation. Consequently, it is difficult to assess the progress in the implementation of this strategy.

Nonetheless, Georgia achieved the implementation of a geoportal, an open data portal and a public service portal. These portals are still under development and do not share the same maturity level in terms of usability and availability of information/services. For instance, the official geoportal lacks usability and environmental data – these data are spread across several geoportals owned by different institutions. The public service portal, on the other hand, has great usability, but lacks public services.

In terms of international cooperation, Georgia has undertaken several steps to comply with the European legal framework and standards. This is the case for instance of the Resolution #262 of the Government of Georgia on the “Establishment of Governmental Commission on the Creation and Development of a National Spatial data Infrastructure in Georgia”, which foresees the integration of INSPIRE, and also the case of the Public administration reform roadmap 2020.

Open data

The legal framework shaping public information is defined by the Constitution of Georgia and the Decree of the Government of Georgia “About the Form of the Electronic Request of Information and Proactive Disclosure of Public Information”. In general, public institutions have to publish public information and also to answer requests for public information. In practice, though, very few public information is made available.

Georgia developed two Open Data portals, but only one is official. The two portals compete and hence might create confusion for public institutions and citizens. The Data Exchange Agency is responsible for the maintenance of the official Open Data portal⁴. The portal is easy to navigate but lacks good multilingual support,

¹ https://publicadministration.un.org/egovkb/Portals/egovkb/Documents/un/2018-Survey/E-Government%20Survey%202018_FINAL%20for%20web.pdf

² <http://odin.opendatawatch.com/Report/multiYearCountryProfile/GEO?years=3%2C4>

³ ITU, Georgia profile, 2018

⁴ data.gov.ge



and clear metadata. In addition, usage of the API for building applications connected to the portal remains unclear and poorly documented. This might undermine the economic potential of open data. Finally, the portal is not compatible with EU standards such as DCAT-AP and as such is not harvested by the European Open Data portal.

In terms of portal statistics, the portal has less than 200 datasets published - and less than 10 environmental datasets published - , which is very little. Most datasets are published in machine-readable format, which enables re-use of public information. Besides, the absence of licensing on the portal and the spread of public information might lead to issues where the same datasets are published on different platforms under different licences. In this context, at the moment, all public information published can be re-used at no cost and under no condition⁵.

Environmental information

Georgia ratified the Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters (Aarhus Convention) on 11 April 2000, and signed the Protocol on Pollutant Release and Transfer Registers to the Aarhus Convention (Protocol on PRTRs) on 21 May 2003, which has not been ratified yet. In that context, Georgia provided access to a wide range of environmental information in electronic form through numerous platforms such as the Ministry of Environment Protection and Agriculture website (mepa.gov.ge), GEOSTat (geostat.ge), National Environmental Agency website (nea.gov.ge and meteo.gov.ge), Environmental Information and Education Centre website (eiec.gov.ge), National Statistics Office of Georgia website⁶, and the Agency of Protected Areas web-site (apa.gov.ge). The Open Data portal also hosts environmental datasets, but in very limited number.

There is no comprehensive list of environmental reporting and data available across environment portals. Besides, there are no national environment indicators, and the usage of UNECE indicators is still limited (14 out of 49) and consequently, Indicators Base Assessment are not performed in Georgia. As such, there is a need for extending the list environmental indicators. To achieve this, Georgia will have to reform its environmental legal framework, environmental data monitoring and sharing processes, and finally adopt the technological solutions in place for the exchange of environmental information and the consolidation of statistics.

In order to facilitate the access to environmental reports, Laws, documentation, and to promote environmental issues, Georgia created the Environmental Information and Education Centre in 2015 (<http://eiec.gov.ge/>). The organisation also created a website for the dissemination of environmental information and is now – according to the Open Partnership⁷ – working on the creation of an “environmental-portal”. Nonetheless, to this date, reports are still published on various portals of various public authorities. These portals have a different level of maturity in terms of usability, availability of information and multilingual support.

In terms of national coordination, environmental information are gathered by the Ministry of Environmental Protection and Agriculture and its agencies. Sharing of environmental data is described in the annexes of the Decree #502⁸, and as such executed according to specific agreements between institutions. The creation of a national web platform to be used by institutions to exchange environmental information would facilitate sharing and re-use of environmental information, ensuring accessibility to public. It would also provide a good opportunity to review and standardise environmental information exchange through the establishment of metadata standards. It is to be noted that the Environmental Information and Education Centre is entitled to lead the process.

⁵ In exception with the ownership of the data which remains to the publisher.

⁶ <http://geostat.ge/index.php?lang=eng>

⁷ <https://www.opengovpartnership.org/commitment/05-environment-portal>

⁸ The annex of a Decree # 502 dated 18 August 2014 defines the list of data that is sold by National Environmental Agency.



Main challenges

The absence of a national digital strategy approved by the Government, along with a clear approved action plan and division of responsibilities undermines the monitoring and evaluation of the achievements in the area of e-government. In particular, responsibilities are spread across institutions and are sometimes overlapping. Consequently, the combination of the lack of clear responsibilities for e-governance actors with the absence of digital strategy might increase e-government costs whilst undermining public service quality. Addressing these challenges will require a fundamental review of the e-governance legal and organisational framework in Georgia.

Most public institutions' information systems have been designed at different times and are mostly not integrated and lack of interoperability. As such, the exchange of information between institutions is difficult, especially for environmental information. To address this issue, Georgia will have to reform its legal framework to define new information standards, and to implement these standards into the environmental information systems implemented.

Environmental data is still published on multiple portals by different public authorities without metadata description, and it is difficult to know which source is the most actual, reliable and accurate. Besides, the absence of standard metadata for environmental reports and data renders difficult finding information. Addressing this challenge will require strong coordination between public institutions hosting environmental information in order to define clear rules for publication.

The presence of two Open Data portals (one community based and one official) in Georgia might bring confusion for public institutions, the public and the international community. The selection of a single portal is essential for the engagement of public authorities and citizens. Besides, Georgia still has few datasets published, which can be partly explained by the lack of mechanisms for the enforcement of the actual legal framework and by the lack of engagement from public institutions into e-government and open data frameworks. As such, on one hand, it is required for Georgia to complement the actual legal framework to provide such mechanism. And, on the other hand, to undertake active promotion campaigns to raise awareness among public servants in order to ensure their engagement in the publication of public information. In addition, the absence of good translation for most websites / portals undermines international support and collaboration. In addition, Laws and official national reports are often not well translated and hence difficult to access. Last, the engagement of citizens in the usage of Open Data is crucial for unlocking its economic, social and environmental potential. In that sense, Georgia will have to build an open data ecosystem in which its technological potential can be unleashed.



2 Readiness of environmental information

2.1 E-government, Open Data and environmental information legal and institutional framework

This section contains a summary of the legal framework, public policy and institutional framework in terms of e-government, open data and environmental information.

2.1.1 National policy and legal framework

2.1.1.1 E-government

This section presents the main Laws and policies shaping the e-government landscape in Georgia.

Law of Georgia On the Creation of the Legal Entity of Public Law (LEPL) – Data Exchange Agency – 2009, updated in 2015⁹

The purpose of this Law is the establishment of the LEPL – Data Exchange Agency under the Ministry of Justice of Georgia, and the determination of the main principles of its functioning, organisational-legal setup, powers and main functional directions. The Data Exchange Agency is in charge of the development of e-governance in Georgia.

Law on electronic communication¹⁰

This Law lays down the legal and economic framework for activities carried out through electronic communication networks and facilities. It sets the principles for creating and regulating a competitive environment in this field, and determines the functions of the national regulatory authority (the Georgian National Communications Commission). It also sets the rights and obligations of natural and legal persons possessing or using electronic communication networks, and/or for the provisions of services via such networks and facilities.

Law on Information Security¹¹

The purpose of this Law is to facilitate an effective and efficient enforcement of information security, to provide information security rights and obligations to public and private sector, and to define state control mechanisms for the implementation of information security policy.

Law on Unified State Registry of Information¹²

The purpose of this Law is to facilitate the establishment of a unified state registry of registers, databases, services and information systems within the public sector of Georgia. This Law also 1) establishes the principle of technological neutrality in receipt, transmission and interoperability of information in the public sector, 2) regulates basic principles for establishment, use and alteration of registers, databases, services and information systems, and standardisation of rules on maintenance of registers, databases, services and information systems, and 3) defines the main directions of state information policy on registers, databases, services and information systems.

⁹ http://www.dea.gov.ge/uploads/DEA_Law_ENG.PDF

¹⁰ <https://matsne.gov.ge/en/document/download/29620/26/en/pdf>

¹¹ http://www.dea.gov.ge/uploads/GISA_ENG_FINAL_2015_ver.pdf

¹² http://www.dea.gov.ge/uploads/Law_on_Unified_State_Registry_of_Information.pdf



Public administration reform roadmap 2020 (PAR)¹³

The main objective of the document is to undertake specific actions to support the development of an efficient, transparent and accountable public administration system in which e-governance plays a central role. The current PAR roadmap of Georgia takes place in the context of the Georgia/EU agreement and aims to set up a comprehensive conceptual framework and associated tools for building a transparent, predictable, responsible, and efficient public administration, which would meet the society's demands and correspond to European standards.

A Digital Georgia - e-Georgia strategy and action plan 2014-2018¹⁴

The document "A Digital Georgia: e-Georgia strategy and action plan 2014-2018" provides a comprehensive framework for societal changes enabled by Information and Communication Technology (ICT). The vision for the e-Georgia strategy is defined¹⁵ as "Georgia will have a more efficient and effective public sector offering providing integrated, secure, and high quality e-services. These will improve usage and participation of citizens and in turn enable an ICT-driven and sustainable economic growth."

The thematic priorities are grouped in:

- Service areas:
 - e-services: to ensure the availability and usage of online services by government, businesses and citizens
 - e-participation and Open Government: to raise the awareness of, and trust in government, increasing the participation of citizens in the design, delivery and usage of e-services as well as the participation in policy making
 - e-health: to ensure efficient e-Health services and the development of a comprehensive Health Management Information System using international standards¹⁶
 - Public Finance Management System (PFMS): continuous development and improvement of e-procurement system, and development of e-auction system (a platform where government bodies sell goods to private and civic sector actors)
 - e-business:
 - To improve e-services for businesses on data reporting and application to permits
 - To streamline public tendering and public procurement processes
 - To set up an appropriate legal frameworks and standards for communication and data exchange between businesses and public administrations
- Future excellence:
 - ICT hub Georgia: the goal is to become a leading competitive and innovative business environment in the field of ICT in the Caucasus region through the definition areas for ICT investments, accumulating skills and knowledge, and attracting talents globally
- ICT enablers:

¹³ [http://gov.ge/files/425_49309_322150_15.07.21-PublicAdministrationReformRoadmap2020\(Final\)\(1\).pdf](http://gov.ge/files/425_49309_322150_15.07.21-PublicAdministrationReformRoadmap2020(Final)(1).pdf)

¹⁴ <http://www.dea.gov.ge/uploads/eGeorgia%20Strategy.pdf>

¹⁵ Due to issue with the original translation in the official digital strategy, this report contains an adapted sentence. Translation discrepancies can be seen as a major issue in the country, which jeopardises smooth international collaboration.

¹⁶ The national e-health strategy does not refer to the international standards to be used, which is a flaw in the digital and the national strategy. Rather, it states: « methods for data collection and analysis will be standardized to assure comparability of the collected information over time. For information standardization, the systems of national classifications will be regularly updated according to international standards."



- Infrastructure: improve internet access and basic services such as identification / authentication¹⁷
- E-security: strengthen cyber-security and ensure smooth functioning of the crucial national infrastructure
- Skills and e-inclusion: improve “e-Skills” of the general population and provision of modern ICT education
- Set up of a proper organisational structure and a legal framework to enable digitalisation of public services and ensure legal validity of electronic procedures
- Ensure proper interoperability framework among actors in the society
- Awareness: building awareness for e-services, and fostering investments in ICT infrastructure, security and back-end systems

Through the strategy is sound and extensive, depicting the as-is situation and main actions, it has not been adopted. Consequently, evaluating progress against these objectives is difficult to assess.

2.1.1.2 Open Data

Constitution of Georgia¹⁸

In accordance with the article 24 of the Constitution of Georgia on 24 August 1995 everyone should be free to receive and share information, and to express his opinion.

The Article 41 of the Constitution also states that every citizen of the Country should have the right to access public information and official documents stored in state institutions unless they contain state, professional or commercial secrets.

The Article 37 of the Constitution guarantees the right of every citizen to access complete, objective and timely information on the state of environment.

General Administrative Code of Georgia¹⁹

General Administrative Code of Georgia (article 2, section 1, para “L”) underlines that public information is: any information stored at public institutions, as well as any information received, processed, created or sent by a public institution or public servant within official activities.

Public Institutions have the obligation to proactively publish public information on electronic resources (General Administrative Code of Georgia, article 28, para.2). The Code applies to all public information, including environmental information.

Decree of the Government of Georgia “About the Form of the Electronic Request of Information and Proactive Disclosure of Public Information”²⁰

The Decree contains standards for the proactive disclosure of public information, including the list of information to be published proactively. It also defines the rules for electronic request of public information. In the context of this Decree, public institutions (including environmental institutions) provide on their website a procedure (or form) to request public information.

¹⁷ This relates to initiatives such as e-signature, e-id authentication, etc.

¹⁸ <https://matsne.gov.ge/en/document/view/30346?publication=35>

¹⁹ <https://matsne.gov.ge/en/document/view/16270?publication=26>, adopted in 1999

²⁰ https://www.right2info.org/resources/publications/laws-1/laws_georgia_electronic-request-and-proactive-publication-of-public-information-government-decree_2013_eng/view



Note: the list does not specify any environmental information to be disseminated through electronic means. Nonetheless, proactive availability of strategies, action plans, Laws and provided services - including those concerned with environmental protection - are listed among required information.

2.1.1.3 Environmental information

Law of Georgia on Environmental Protection²¹

This Law regulates the legal relations in the field of environmental protection between state bodies and natural and legal persons (regardless of their ownership, and organisational and legal form). It also regulates the use of natural resources including its territorial waters, airspace, continental shelf and economic zone.

The Law introduces the term environmental information in line with the Aarhus Convention. It also defines the environmental information system as a combination of (a) information collection (Article 26) and (b) monitoring systems (data collection, storage and analysis) (Article 27). The Law states that environmental monitoring results should be available to public (Article 27).

Finally, the Law states the requirement for the publication of a National Environment Report to be financed out of the State budget (Article 14). No platform is specified regarding its publication.

Decree # 502 dated 18 August 2014

The annex to the Decree # 502, made on 18th August 2014, defines the list of data that is sold by the National Environmental Agency. These data includes: geological data, environment pollution monitoring, hydrometeorological and hydrologic data, climate data and studies, and specific flora assessment²². The annex 15 of the same Decree also defines the list of data/information that can be obtained without any fee.

Data can be requested by anyone on the condition of signing a contract with the National Environmental Agency. The contract has to define the scope and volume of the work including the price of the service. The Article 2 of the Decree states that the Agency will execute the contract only after payment.

The Article 3 of the same decree mentions that costs related to access to information are not applicable for the Ministry of Environmental Protection and Agriculture, for the Ministry of Justice of Georgia, for the Prosecutor's office of Georgia, for the Ministry of Internal Affairs of Georgia, for the Ministry of Defence of Georgia, for some departments within Ministry of Finance of Georgia, for State Audit Office and for the Ministry of Economy and Sustainable Development of Georgia.

The Environmental Assessment Code²³

On June 1, 2017, the Parliament of Georgia adopted the Environmental Assessment Code²⁴, which complies with the EU Environmental Impact Assessment (EIA) and Strategic Environmental Assessment (SEA) directives and with the Convention on Environmental Impact Assessment in Transboundary Context (Espoo Convention)²⁵. This Code regulates matters related to strategic documents and public or private activities which may have significant impact on the environment, human life and/or health.

This code aims to:

- promote the protection of the environment, human life and/or health, cultural heritage and material assets, in the implementation of strategic documents or activities which may have significant impact on the environment, human life and/or health

²¹ <https://www.matsne.gov.ge/ka/document/download/33340/19/en/pdf>

²² For instance of Cyclamen or Galanthus woronowii, which are regional plants.

²³ <https://matsne.gov.ge/en/document/view/3691981?publication=2>

²⁴ The development of a digital platform for EIA/SEA procedure is not foreseen.

²⁵ Protocol on strategic environmental assessment and the Aarhus Convention on the access to environment information



- ensure, for the purpose of the promotion of the country's democratic development, the exercise of a fundamental human right to obtain timely complete and objective information on the state of the environment, guaranteed by the Constitution of Georgia, as well as ensure public participation in environmental decision-making
- consider the environmental, social and economic interests of the State and the public in decision-making on the implementation of strategic documents or activities which may have significant impact on the environment
- apply standards of best international practice in the implementation of environmental assessment procedures

Significant commitments include the introduction of an instrument for Strategic Environmental Assessment, the increase of the list of activities subject to environment impact assessment, the classification of risks and impact size, and the citizen's participation in every stage of decision making.

Decree No 400 17.06.2016 on the approval of the Social-Economic Development Strategy of Georgia 'Georgia 2020'²⁶

The third main principle of the Strategy is the rational use of natural resources, environmental safety and sustainability, and the prevention of natural disaster. In particular, the document aims to introduce modern models and innovative technologies for forest management.

Unfortunately, the document does not state anything precisely on environmental information. A recommendation would be to include in the document the development of environmental information systems to support environmental protection and support the Constitution.

Decree of the government of Georgia No 1124, 22 May 2018 on the approval of the 3rd National Environmental Action Programme of Georgia²⁷

The decree approved the 3rd National Environmental Action Programme of Georgia, which covers the period 2017-2021. It provides an as-is situation of the institution framework in place in Georgia and sets the path of the future.

The document is based on the Social-Economic Development Strategy of Georgia 'Georgia 2020' approved by the Government of Georgian (Decree N400 17/06/2014). It is to be noted that this document is also written in the context of:

- The EU - Georgia Association Agreement
- The UN Sustainable Development Goals and the international treaties Georgia is party to
- The National Policies and Strategic framework for Environmental Protection and Management.

Hence, this document reflects of the strong will of Georgia to comply with international treaties and agreements it is a party to.

Resolution #262 of the Government of Georgia on the "Establishment of Governmental Commission on Creation and Development of National Spatial data Infrastructure in Georgia"

The resolution mandates the National Agency of Public Registry of the Ministry of Justice to coordinate the NSDI development, to form the Secretariat to NSDI State Commission, and to establish and coordinated thematic working groups. Currently 6 groups are established: (1) legislation, (2) PR, (3) business model, (4) GIS, (5) IT and (6) education.

²⁶ <https://matsne.gov.ge/en/document/view/2373855?publication=0>

²⁷ <http://mepa.gov.ge/En/Files/ViewFile/1605>



More importantly, the Article 3 of the Resolution requires the NSDI of Georgia to comply with INSPIRE. The Article 4 entitles all line ministries (including Ministry of Environmental Protection and Agriculture) represented in the NSDI State Commission to ensure participation of their representatives along with representatives of their subordinated bodies and legal entities in the thematic working groups. The Ministries are further requested to provide legal, administrative and informative support for effective implementation of activities of the thematic working groups. The Commission and the working groups are responsible for formulating, promoting and overseeing the effective implementation of the state policy on the NSDI.

The list of major environment-related legislation

Table 1 - List of major environment-related legislation

No	Title of the document	Date
1.	Law on Living Genetically Modified Organisms	2014
2.	Waste Management Code ²⁸²⁹	2014
3.	Law on Fees for Use of Natural Resources	2004
4.	Law on Red List and Red Book of Georgia	2003
5.	Forest Code ³⁰	1999
6.	Law on Ambient Air Protection ³¹	1999
7.	Law on Pesticides and Agrochemicals	1998
8.	Law on Electricity and Natural Gas	1997
9.	Law on Water ³²	1997
10.	Law on Subsoil ³³	1996
11.	Law on Environmental Protection	1996
12.	Law on Environmental Impact permit ³⁴	1996
13.	Law on the System of Protected Areas	1996
14.	Law on the Fauna (sic about the animal world) ³⁵	1996
15.	Law on Soil Protection	1994

²⁸ <http://www.moe.gov.ge/res/docs/3388narchenebis-martvis-kodeqsi-2017.pdf>

²⁹ Law on radioactive waste: <http://www.moe.gov.ge/res/docs/2289radioaqtiurinarchenebisshesaxe.pdf>

³⁰ http://www.moe.gov.ge/res/docs/44825_tyis_kodeksi.pdf

³¹ http://www.moe.gov.ge/res/docs/27869_kanoni_atmosperuli_haeris_shesakheb.pdf

³² http://www.moe.gov.ge/res/docs/50978_kanoni_wylis_shesaxe.pdf

³³ Law of Georgia about the Earth (sic) : http://www.moe.gov.ge/res/docs/91366_kanoni_wiagis_shesakheb.pdf

³⁴ http://www.moe.gov.ge/res/docs/61843_kanoni_garemoze_zemokmedebis_shesakheb.pdf

³⁵ http://www.moe.gov.ge/res/docs/80707_kanoni_tskhovelta_samyaros_shesaxe.pdf



No	Title of the document	Date
16.	Law on Transit and Import of Waste within the territory of Georgia	1995
17.	Law on Ownership of the Agricultural Land	1996

2.1.2 Main international policies and agreements

The main policies and agreements are presented below.

2.1.2.1 Multilateral Environmental Agreements with public access to information and reporting obligations

Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters (Aarhus Convention)³⁶

Georgia ratified the Aarhus Convention on 11 April 2000. The Convention sets out obligations to provide effective public access to environmental information within its broad scope held by various public authorities, public participation in decision-making and access to justice in environmental matters.

The national legal framework (provisions under the General Administrative Code of Georgia, Law of Georgia on the State Secret, Law of Georgia on Civil Safety, Law of Georgia on Public Health, Law of Georgia on Environmental Protection) generally implements the requirements of the first pillar of the Aarhus Convention and in some cases is even stricter (e.g. public information should be issued immediately or within the 10 days of submitting of application - General Administrative Code of Georgia). The only exception is with regards to “encouraging operators whose activities have a significant impact on the environment to inform the public regularly of the environmental impact of their activities and products”: the national legislation contains no provision or norm corresponding to that paragraph. The most recent report on the implementation of the Convention stated that no violation of the provisions of the information pillar was observed³⁷.

Protocol on Pollutant Release and Transfer Registers to the Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters (Protocol on PRTRs)³⁸

PRTR is a national environmental database or inventory of potentially hazardous chemical substances released to air, water and soil and transferred off-site for treatment or disposal. As such, it allows the public authorities to track each release and transfer of a hazardous chemical substance consistently over time.

Georgia signed the UNECE Protocol on Pollutant Release and Transfer Registers to the Aarhus Convention on 21 May 2003, but has not yet ratified it. Hence the implementation of the provisions of the Protocol is not obligatory, including setting up the national reporting scheme. Nonetheless, some initiatives have been implemented that indirectly address the requirements of the Protocol. In particular, the website providing information on emissions to the atmospheric air and sources of those emissions is already in place (map.eMEPA.gov.ge, air.gov.ge) - and for water and wastes, the website is under construction.

In 2009-2011 the Caucasus Environmental NGOs Network (CENN) undertook a project that attempted to assess the capacities for introduction of national PRTR system and implementation of the requirements of the Protocol on PRTRs³⁹.

³⁶ <http://www.unece.org/env/pp/welcome.html>

³⁷ https://www.unece.org/ro/env/pp/reports_trc_implementation_2017.html

³⁸ <http://www.unece.org/env/pp/welcome.html>

³⁹ http://cenn.org/wssl/programs/Georgia_PRTR_Proposal_ENG.pdf



2.1.2.2 Other international forums promoting sharing and accessibility of environmental information

Eighth Environment for Europe Ministerial Conference Batumi, Georgia

The Eighth Environment for Europe Ministerial Conference (Batumi, Georgia, 8-10 June 2016) adopted the Ministerial Declaration inviting countries to continue their efforts and to further develop their national information systems to have shared environmental information system in place in the countries of Europe and Central Asia by 2021.

The United Nations Economic Commission for Europe (UNECE) together with its partners has been working with target countries to produce and share environmental data for 8 indicators:

- Emissions of pollutants into the atmospheric air
- Ambient air quality
- Consumption of ozone-depleting substances (ODS)
- Greenhouse gas (GHG) emissions
- Biochemical oxygen demand (BOD) and concentration of ammonium in rivers
- Nutrients in freshwater
- Protected areas
- Waste generation

Georgia is doing well with data production, however it still does not provides data for 2 indicators out of 8: Nutrients in freshwater and Waste generation.

Open Government Partnership Initiative⁴⁰

Georgia is part of the Open Government Partnership initiative since 2011. The Open Government Partnership is a multilateral initiative of national reformers, all determined to make their governments more responsive to the needs of citizens. Out of 24 commitments for 2016-2018, Georgia completed 15.

Major goals in Georgia's third action programme⁴¹ include developing a monitoring system for public officials' asset declarations, launching a new Budget Monitor portal by the State Audit Office, and adopting an Environmental Assessment Code.

3rd Environmental Performance Review of Georgia⁴²

United Nations Economic Commission for Europe published the third Environmental Performance Review of Georgia in February 2016, where it assesses the implementation of the recommendations contained in the second review. It covers policy-making, implementation and the financing of environmental policies and projects as well as related issues. The review also makes suggestions for strengthening efforts towards a comprehensive and systemic response to sustainable development challenges.

⁴⁰ <https://www.opengovpartnership.org/countries/georgia>

⁴¹ <http://mepa.gov.ge/En/Files/ViewFile/1605>

⁴² http://www.unece.org/fileadmin/DAM/env/epr/epr_studies/ECE_CEP_177.pdf



2.1.2.3 Cooperation with the EU

Declaration on cooperation on environment and climate change in the Eastern Partnership⁴³

In 2016, The European Union (EU) and Eastern Partnership (EaP) countries adopted the Declaration on Cooperation on Environment and Climate Change. The declaration aims to strengthen regional cooperation on environment, climate action and sustainable development in the Eastern Partnership framework, through implementing relevant international agreements such as 2030 Agenda for Sustainable Development and Paris Agreement on Climate Change, raising awareness among and cooperate with relevant stakeholders, supporting the involvement of civil society in decision-making, strategic planning and implementation, and results' monitoring of environmental policy, programmes and plans, and other commitments.

The second Eastern Partnership (EaP) ministerial meeting on Environment and Climate Change took place on 9th November 2018 in Luxembourg, co-organised by the European Commission and Austrian Presidency. The progresses of the countries was discussed. For Georgia, the last progresses are reflected in the country factsheet: https://eeas.europa.eu/sites/eeas/files/eap_factsheet_georgia_en_web.pdf.

EU/Georgia Association Agreement⁴⁴

In June 2016, an Association Agreement between EU and Georgia entered into force (signed in June, 2014). Among other matters, the Agreement defines areas for environmental cooperation and goals to be achieved within a clearly established timeframe. The Association Agreement addresses the following environmental issues:

- environmental governance and integration of environment into other policy areas
- air quality
- water quality and resource management including marine environment
- waste management
- nature protection
- industrial pollution and industrial hazards
- chemicals management
- climate action

The Ministry of Environmental Protection and Agriculture, in cooperation with the EU, has developed the Roadmap for the implementation of the EU-Georgia Association Agreement (AA) on environment and climate action. This roadmap enables the Ministry to adapt the legal framework and policy making to the requirements made by the environment and climate action chapters of the Association Agreement.

Georgia progressed well in relation to approximation to the EU waste legislation. Waste Management Code and number of sub-Laws⁴⁵ have been already enacted. A new Environmental Assessment Code is in force and the Law on Environmental Liability has been prepared. Georgia has also developed a new Forest Code, Law on Biodiversity, and Law on Water in compliance with EU-Georgia Association Agreement (draft Laws are still to

⁴³ Declaration on Cooperation on Environment and Climate Change in the Eastern Partnership, European Commission 2016.

⁴⁴ https://cdn1-eeas.fpfis.tech.ec.europa.eu/cdn/farfuture/VjycjKJ-ii28659I8FYZ8Phir2QqsOf2jZUoh4un5IE/mtime:1473773763/sites/eeas/files/association_agreement.pdf

⁴⁵ For instance: "on list of waste and classification of waste according to its types and properties", "on municipal waste collection and treatment" "on rules and conditions for registration of collection, transportation, pre-treatment and temporary storage of waste" "on collection and treatment of hazardous wastes" "on transport of waste".



be adopted). In addition, number of bylaws⁴⁶ were adopted/amended implementation of which impact the quality of ambient air. Georgia also became a party to the Paris Agreement, although implementation of the commitment depends on availability of external funding. It is to be noted that the legal framework on climate change is still missing⁴⁷.

The developed Laws have provisions ensuring accessibility to data and information in respective thematic areas. The Association Agreement also envisages harmonisation of national legislation with the directive on public access to environmental information. The Draft Governmental Decree on Approval of the Rule of Access to Environmental Information is supposed to ensure the continuous disclosure of environmental information to public.

EaP Connect Project⁴⁸

The project aims to link the National Research and Education Networks in the partner countries to the pan-European research and education network GÉANT, and connects over two million scientists, academics and students from 700 institutions across the region. The joint initiative of EU, Armenia, Azerbaijan, Belarus, Georgia, Moldova and Ukraine is an example of effort undertaken to foster the creation of digital economies and promote Open Data in the EU Neighbouring countries⁴⁹. The programme was launched in July 2015.

⁴⁶ For instance: "on petrol quality standards", "on quality standards of heavy fuel oil and gas oil" "on diesel norms, methods of analysis and activities for their implementation".

⁴⁷ <https://cdn4->

eeas.fpfis.tech.ec.europa.eu/cdn/farfuture/b8mg97TCfOIA1bYX0026FXkOsQMi4leVNEB23TDu8RY/mtime:1510243278/sites/eeas/files/association_implementation_report_on_georgia.pdf

⁴⁸ <https://www.eapconnect.eu/>

⁴⁹ EDP Analytical Report, Open Data in the European Union Neighbourhood, page 9



2.1.3 National standards and interoperability and quality control

2.1.3.1 Metadata standards

The following table presents a brief description of metadata standards for Open Data, Spatial data, environmental data and statistical data used in Georgia:

Table 2 - Metadata standards overview

Component	Metadata standards
Open Data	Georgia developed its own standard for the publication of Open Data. Its integration with the European Standard DCAT-AP would require either its full modification, either the development of scripts on the EU Open Data Portal.
Spatial data	<p>Spatial metadata are based on ISO 19110/19115/19119/19139 and being integrated with INSPIRE.</p> <p>In addition, Georgia develops regulations for collecting and generating spatial data for the following sets of data: administrative units, geographical names, transportation networks, hydrographic networks, protected areas, land covers, demography and statistical units, education units etc.⁵⁰ The process is led by National Agency of Public Register of the Ministry of Justice of Georgia.</p> <p>Draft Laws on National Spatial Data Infrastructure and respective by-laws regarding the metadata specifications and rules to create, update, store, find, receive and use sets of spatial data and related e-services have been developed⁵¹. The adoption of the legal framework is still pending.</p> <p>In general, the geoportal⁵² in Georgia does not have environmental information. Nonetheless, according to the presentation⁵³ "SDI Development in Georgia, Mari Khardziani Head of International Relations Unit National Agency of Public Registry, September 5th 2017", the geoportal will map environmental data about hydrology, land cadastre, soils, geology, agriculture & aquaculture facilities, energy resources, mineral resources, sea, meteorology, environment monitoring systems, species distribution, habitats and biotopes.</p>
Environmental data	There has been no progress on revising the environmental information standards since 2010. Ambient standards are Soviet standards transposed into the Georgian Law. Computer models used to derive emission standards for individual stationary sources are outdated. The development of general binding rules (technical regulations that may indicate emission standards for a specific sector) have stagnated. ⁵⁴
Statistical metadata	GEOstat does not publish any statistical metadata for the environment.

⁵⁰ <https://napr.gov.ge/p/464>

⁵¹ <http://nsdi.gov.ge/en/standards/detail/2>

⁵² Other national portals map geographic and environmental data. This could be multiplying the number of geographic portals.

Example: <http://air.gov.ge/en/>

⁵³ https://inspire.ec.europa.eu/sites/default/files/presentations/napr_sdi_development_in_georgia_mari_khardziani252c_georgia_0509_2017.pdf

⁵⁴ 3rd Environmental Performance Review of Georgia, UN, 2016



2.1.3.2 Interoperability

The Data Exchange Agency defines data standards and principles of interoperability of information systems. Its aim is to reach the compatibility of information standards of Georgia with international standards. The interoperability framework was set as a key action for Georgia in the eStrategy 2014-2018. Yet, the strategy was not adopted and hence it is difficult to assess the state of interoperability against the fixed objectives. Besides, the official website of the Data Exchange Agency does not publish any interoperability framework. In addition, there is no mention of the use of specific interoperability standards such the European Core Vocabularies:

- Core Person: captures the fundamental characteristics of a person, e.g. name, gender, date of birth, location
- Registered Organisation: captures the fundamental characteristics of a legal entity (e.g. its identifier, activities) which is created through a formal registration process, typically in a national or regional register
- Core Location: captures the fundamental characteristics of a location, represented as an address, a geographic name or geometry
- Core Public Service: captures the fundamental characteristics of a service offered by a public administration
- Core Criterion and Core Evidence: describe the principles and the means that a private entity must fulfil to become eligible or qualified to perform public services. A Criterion is a rule or a principle that is used to judge, evaluate or test something. An Evidence is a means to prove a Criterion
- Core Public Organisation: describes public organisations in the European Union

In that sense, the Republic of Moldova is adapting its national service passports to comply with the Core Public Service Vocabulary for the description of its public services. This approach could also fit Georgia in order to improve the metadata of public services.

Hence, interoperability of information systems are mostly restricted due to an insufficiently developed legal frameworks and the lack of standards. Furthermore, in practice, the generation of data of most national agencies is not in line with rules, norms, specifications and standards that effect data reliability, quality and interoperability – these do not follow any standards for data or metadata description. It is to be noted that metadata on environmental data are not generated.

In addition, in Georgia, one of the major issue is the split of e-governance responsibilities to Ministries. As such, achieving interoperability will not be possible as long as a central agency⁵⁵ does not have formal authority in this area.

It is therefore required to make an official inventory of the legal, organisational and technological instruments in place to exchange of data and cooperate. On this basis, it is required to 1) design clear responsibilities, 2) to build an independent interoperability framework with a detailed action plan for the development and/or adoption of interoperability standards, and 3) to integrate into this framework specificities linked to health, spatial and environmental data. In the end, all standards should be made available on the Data Exchange Agency website and translated in English/Russian; this is especially true to develop regional cooperation and enable efficient transboundary exchange of information.

⁵⁵ Centralisation of responsibilities does not prevent strong collaboration and involvement. In particular, specific Ministries could keep a part of the definition of the standard, within the area of their competences.



2.1.3.3 Quality control

Georgia is step-by-step integrating into its Law EU directive and international standards.

In particular, number of Laws on water and soil have been developed, which once adopted will introduce updated quality standards. In that regard, revised standards on air that are in compliance with provisions of corresponding EU directives have already been enacted. The Law also envisages accessibility to air pollution data by public.

Nonetheless, the analytical lab of the National Environment Agency, which performs water, air and soil analysis, follows the ISO 17025 standard⁵⁶. The standard sets requirements for the competence to carry out tests and/or calibrations, including sampling. It covers testing and calibration performed using standard methods, non-standard methods, and laboratory-developed methods.

⁵⁶ <https://www.iso.org/home/standards/popular-standards/isoiec-17025-testing-and-calibra.html>



2.1.4 Institutional framework for environmental information managements and stakeholders' involvement

The following diagram illustrates the main environmental information as well as the open data and e-governance stakeholders.

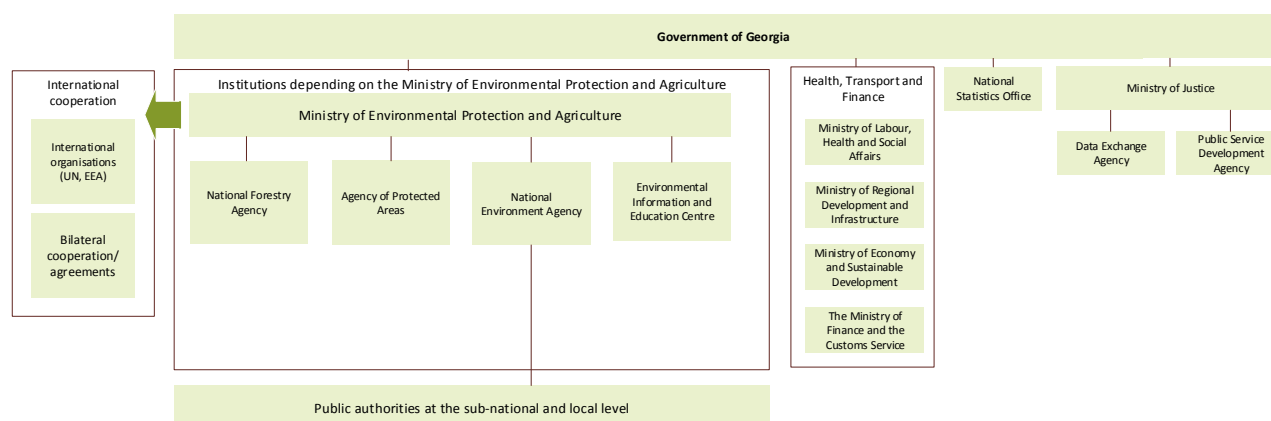


Figure 1 - Institutional framework for environmental information management in Georgia

The Ministry of Environment Protection and Agriculture of Georgia is the major institutional body within the Government of Georgia dealing with environmental information. Other ministries process, share and disseminate environmental information within the specific areas defined by their statutory mandates⁵⁷.

State control over environmental protection and the use of natural resources is being carried out by the Department of Environmental Supervision under the management of the Ministry of Environmental Protection and Agriculture through its Central Office and Territorial Bodies.

Ministry of Environmental Protection and Agriculture of Georgia (MEPA)⁵⁸ - <http://mepa.gov.ge>

The Ministry of Environmental Protection of Georgia is the main environmental authority in Georgia, which is responsible for national environmental information and statistics. It is also responsible for overall governance and policy making in the field of agriculture and environment.

It covers all aspects of pollution control and regulation of natural resources extraction, use and protection (except minerals, oil and gas for which the Ministry of Economy and Sustainable Development – more particularly State Agency of Oil and Gas – and the National Agency of Mines, are in charge).

The structure of the Ministry has seen many changes in the last years. In 2011, the former Ministry of Environment Protection and Natural Resources was significantly downscaled and part of its responsibilities was moved to other ministries. Later in 2013 the Ministry regained its former functions almost entirely, and re-established or established several new key units. In 2017, the Ministry of Environmental Protection and Agriculture was formed after the merger of Ministry of Environment and Natural Resources Protection and Ministry of Agriculture. In addition, The Ministry's Department of Environmental Supervision is the key body that is mandated to verify compliance with regulatory requirements.

Environmental information is shared proactively through the web-site of the ministry and in response to written requests. All major areas of public interest such as air monitoring data, information on public hearings,

⁵⁷ At this stage, there are some indications of overlaps in mandates and a lack of clear delineation of between the responsibilities of various institutional actors. These include, for example, spatial planning, land, water and waste management, and biodiversity protection. This requires further analysis in the Law.

⁵⁸ <http://mepa.gov.ge>

Environmental Impact Assessment and environmental decisions are timely uploaded on the website. Yet, some sections of the web-site are misleading and/or lacking relevant information.

The Ministry of Environmental Protection and Agriculture of Georgia publishes once every 4 years the “National Report on the State of the Environment of Georgia”. The document provides information regarding the quality of the environment, including an environmental impact analysis of the different economic sectors. It also gives the analysis of major environmental challenges and possible ways forward for overcoming those challenges. The report is also a policy tool. The last publicly available report in English dates from 2009⁵⁹, and the last version in Georgian dates from 2013⁶⁰. The report for 2014-2018 is still under preparation⁶¹.

National Environmental Agency (NEA) - <http://nea.gov.ge/en/about/about-us/2/>

The National Environmental Agency is a legal entity under the Ministry of Environment Protection and Agriculture of Georgia, which was set up as an Agency on 1 September 2008.

The National Environmental Agency is the only institution in Georgia having a legal mandate for carrying out regular hydrometeorological observations and monitoring for surface and ground waters, marine chemical and biological status, atmospheric air, as well as soil contamination, natural hazards monitoring etc.

The scope of activities of the agency is:

- development of systems to monitor meteorological, hydrological geological processes and qualitative conditions of atmospheric air, surface and underground waters, the Black Sea and soil
- dissemination of environmental monitoring data and processed information within the national and international including global networks
- preparation and dissemination of early warnings and notifications in the event of expected natural, hydrometeorological and geological disasters and adverse events, as well as in cases of forecasts on extreme environmental pollution for the purpose of ensuring of the state security and safety
- monitoring of unfavourable hydrometeorological and geological phenomena
- study of physical processes of climate change, participation in development of mitigation and adaptation measures for those possible adverse changes
- provision of meteorological services and support to civil aviation
- issuing of licenses on the use of natural resource (except for minerals, oil and gas) in accordance with the Law of Georgia on Licenses and Permits and other Laws

Environmental Information and Education Centre - <http://eiec.gov.ge/>

On February 5th 2015 the Ministry of Environment and Natural Resources Protection of Georgia Order No.175 defined the role and responsibilities of the Centre. The Article 2 of the Order⁶² sets out clearly its central role in terms of environmental information:

- Establishing and administering a common base of environmental information in relevant public institutions, academic, educational, non-governmental, private sector and international organisations through cooperation
- Collect information about environmental projects, create a publicly available database
- Introduction and operation of eco-marking systems and eco-standards
- Creation of electronic library of environmental literature
- At the request of the Ministry, assess the impact of the publication of environmental information

⁵⁹ http://moe.gov.ge/res/images/file-manager/shepasebiti_dokuemnti2007/2007-2009NationalReportoftheStateoftheEnvironmentofGeorgia.pdf

⁶⁰ <http%3A%2F%2Feiec.gov.ge%2FNavMenu%2FDocuments%2FNational-Reports.aspx>

⁶¹ <http://www.moe.gov.ge/en/news/2018-05-17-the-national-report-on-the-state-of>

⁶² <http://eiec.gov.ge/getfile/23c34834-5045-424b-9ba9-ad9687189d68/.aspx>



- Ensure availability of environmental information on its website and various media (i.e. media outlet)

The Centre also provides an electronic service for policy making⁶³. To this date, it is to be noted that although the Centre contains a big database of environmental documentation, it still contains few environmental reports.

The centre publicly asserts to support the education for a sustainable development, to support the public participation in decision-making process, and to support the collection and dissemination of environmental information. In this context, it publishes the “Education for sustainable development – Strategy and Action plan 2019-2023” setting the priorities in:

- Management and Coordination
- Preschool education
- General education
- High education and research
- Civil service
- Academic sector
- Awareness raising campaign

In 2018, the centre added an agricultural component to its sphere of activities.

National Forestry Agency - <http://forestry.gov.ge/>

The National Forestry Agency was established in 2010 under the Ministry of Environment and Natural Resources Protection of Georgia⁶⁴ with the purpose to manage state forests. The main objective of the agency is to lead the sustainable management and performance monitoring of the forest resources, including sustainable use of biological resources of the Forest Fund of Georgia.

The Agency is responsible for monitoring the State Forest Fund, conducting forest inventory, registering and publishing illegal logging (on its website), and registering timber use. The data are shared with the National Statistics Office.

Agency of Protected Areas⁶⁵ - <http://apa.gov.ge/en/>

The Legal Entity of Public Law Agency of Protected Areas was established under the Ministry of Environment and Natural Resources Protection of Georgia on February 1 2008. The Agency’s primary responsibility is to manage Georgia’s nature reserves, national parks, natural monuments, protected landscapes, biosphere reserves, world heritage sites and wetland sites of international importance.

The main tasks of the Agency of Protected Areas are:

- long-term protection of bio-geographic regions of Georgia in order to ensure continuous development of natural processes
- protection and restoration⁶⁶ of natural ecosystems, landscapes and living organisms
- protection of diversity of the gene pool of “Red Listed” and endangered wild animals and conservation of biodiversity

⁶³ The role of the e-service is described on this page: <http%3A%2F%2Fieic.gov.ge%2FService%2Fservice.aspx>. Nothing is related to environmental information sharing.

⁶⁴ Public Law of the Ministry of Environment and Natural Resources of Georgia Legal Entity - Approval of the Statute of the National Forestry Agency of Georgia - Order No. 50 of December 26, 2016

⁶⁵ Supporting legal framework available here : <http://apa.gov.ge/ge/sadjaro-informacia/chven-sesaxebsaagentos-saqmianobis-maregulirebeli-samartlebrivi-aqtebi.page>

⁶⁶ As officially written.



- maintaining unique and rare organic and inorganic natural formations
- protect territories that have been actively affected by erosion, mudslides, floods, avalanches, landslides, areas for surface and underground water formations, as well as areas affected by anthropogenic impact
- conservation and restoration of historical-cultural landscapes, and the landscapes characteristic to architectural and archaeological complexes
- supporting traditional agricultural activities and the protection, restoration and development of traditional arts to preserve Georgia's unique historical-cultural environment

National Statistics Office of Georgia - <http://www.geostat.ge/>

The National Statistics Office of Georgia is regulated by the Law on Official Statistics⁶⁷. A memorandum of understanding (MoU) was signed in 2013 to improve the data flow between environmental and statistical authorities and gather annual data on air, water, biodiversity, forests and violations of environmental legislation. The office is in charge of collection of environment related data such as:

- household water use per capita
- water supply (including population connected to water supply)
- population connected to waste water treatment
- fertilizer and pesticide consumption
- final energy consumption, total primary energy supply, energy intensity, renewable energy supply
- passenger transport demand, freight transport demand, composition of road motor vehicle fleet

The National Statistics Office of Georgia produces environmental reporting on the basis of information received from the Ministry of Environmental Protection and Agriculture of Georgia. It also published a comprehensive annual report containing yearly environmental statistics⁶⁸.

Ministry of Labour, Health and Social Affairs (MOH) - <https://www.moh.gov.ge/>

Develops and approves environmental quality standards, including those for drinking water, surface waters, groundwater and coastal waters.

Ministry of Economy and Sustainable Development (MEPASD) - <http://www.economy.ge>

The Ministry of Economy and Sustainable Development includes functions and units that aim to promote policy integration and coherence, and intragovernmental coordination. Through the Technical and Constructions Supervision Agency, the Ministry of Economy and Sustainable Development plays an important role in the procedure of Environmental Impact Assessment. The Ministry is also involved in spatial planning. The state policy on energy and energy efficiency are the core areas of the energy policy department under the Ministry.

Ministry of Regional Development and Infrastructure (MRDI) - <http://www.mrdi.gov.ge>

Responsible for the implementation of regional development policy, including coordination and support of the development of water supply and sanitation systems. It is also in charge of the construction, operation and closure of non-hazardous waste landfills, as well as the construction and management of waste transfer stations⁶⁹. The website does not provide any environmental information.

⁶⁷ http://www.geostat.ge/cms/site_images/latest%20Law%20of%20Georgi_2018.pdf

⁶⁸ Last available : http://www.geostat.ge/cms/site_images/files/english/agriculture/Environment_2017.pdf

⁶⁹ These stations are temporary stations used during the transport of wastes.



The Ministry of Finance and the Customs Service (MOF) - <https://mof.ge>

Responsible for the regulation of transboundary movement of waste, CITES species, and nuclear and radiological materials (together with the MEPA).

Municipal authorities

A 2014 Local Self-Government Code gives more powers and financial resources to municipal authorities. Following the Code's enactment, the number of actors at the subnational level increased; namely the number of cities having self-governing status is now 12 (from 5) and the number of self-governing municipalities is 71 (from 64 previously).

The municipalities have the power to manage local natural resources, including water and forest resources, and land resources owned by the municipality. Municipalities are in charge of municipal waste management. The role of local authorities in the provision of environmental services, notably water supply and sanitation, was strengthened. The municipalities - within their areas of responsibilities – have to provide water supply and sewerage services through appropriate licensed entities under private law (in the cases where the relevant official provider does not deliver the above services).

Aarhus Centre - <https://aarhus.osce.org/georgia>

In Georgia, the Aarhus Centre operates in Tbilisi. It is actively engaged in facilitating access to information regarding environmental issues; providing trainings on the Aarhus Convention; monitoring public participation during the Environmental Impact Assessment (EIA) process and providing legal counselling to citizens regarding environmental matters. The Aarhus Centre Georgia was established in 2005. Since 2013, the Aarhus Centre has been transformed into the Environmental Information and Education Centre.

REC Caucasus – <https://www.rec-caucasus.org>

The mission of the REC Caucasus is determined as “to assist in solving of environmental problems in the Caucasus region through the promotion of co-operation at national and regional level among NGOs, governments, business, local communities, and all other environmental stakeholders, in order to develop a free exchange of information, in line with the principles of the Aarhus Convention; offer assistance to all environmental NGOs and other stakeholders; and increase public participation in the decision-making process, thereby assisting the states of the Caucasus in the further development of a democratic civil society”. REC Caucasus has been established within the framework of the "Environment for Europe Process" based on the decision made at the Sofia Ministerial Conference in 1995. The founding document of REC Caucasus - its Charter - was signed in September 1999 by the governments of Azerbaijan, Armenia, Georgia and the European Union. In March 2000 REC Caucasus was officially registered as an independent, not-for-profit, non-advocacy foundation in Tbilisi, Georgia.

Non-governmental organisations

The NGOs have played an important monitoring role over the last decade. They develop reports on implementation of the national and international obligations e. g the alternative report on the implementation of the Aarhus Convention. They also support decision-making with policy analysis and development: for example, NGOs undertook the technical work in support of drafting the National Biodiversity Strategy and Action Plan 2014–2020 and the 2013 National Forest Concept for Georgia. Since 2007, about 100 Georgian NGOs have been part of a Green Office campaign.

Data Exchange Agency of the Ministry of Justice - <http://www.dea.gov.ge>



The Data Exchange Agency (DEA) was founded by the Order N228 December 22, 2009 by the Ministry of Justice of Georgia. The Agency started its operation on January 4, 2010. DEA's overall activity is divided into several directions. Each of them bears equal importance and strives to support the following fields: E-governance development, creation and installation of unified Georgian Governmental Gateway (3G) and its monitoring, establishment of data exchange infrastructure. Setting ICT standards for public sector entities and elaborating information security policies are the agency's another important responsibility. The DEA is also responsible for maintaining the national open data portal. There is no connection with the MEPA.

Public Service Development Agency of the Ministry of Justice - <https://sda.gov.ge>

The Public Service Development Agency is a legal entity of public law (LEPL) operating under the management of Ministry of Justice of Georgia. The Agency was established on the basis of LELP Civil Registry Agency in June 2012.

The Public Service Development Agency, on the one hand, performs the functions of the civil registry which include: maintaining a general register of population, registering civil acts, issuing identity documents, carrying out procedures concerning citizenship issues, working on migration issues, apostilling and legalising documents. And, on the other hand, the Agency's activity has expanded into a new area of supporting the development of public services. This implies assisting public entities to improve their services and create new ones, including generating ideas, diagnosing processes and identifying needs, drawing up recommendations on optimal ways of solving problems, devising and implementing plans of optimisation of processes, and assisting in continuous development.

KEY STAKEHOLDERS

Aarhus Centre - <https://aarhus.osce.org/georgia>

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Non-governmental organisations

The NGOs have played an important role in raising public awareness and monitoring the implementation of national and international obligations over the last decade. They develop reports on implementation of the national and international obligations. They also support decision-making with policy analysis and development: for example, NGOs undertook the technical work in support of drafting the National Biodiversity



Strategy and Action Plan 2014–2020 and the 2013 National Forest Concept for Georgia. Since 2007, about 100 Georgian NGOs have been part of a Green Office campaign.



2.2 Environmental data flow

The following diagram depicts the principle of data exchange between institutions:

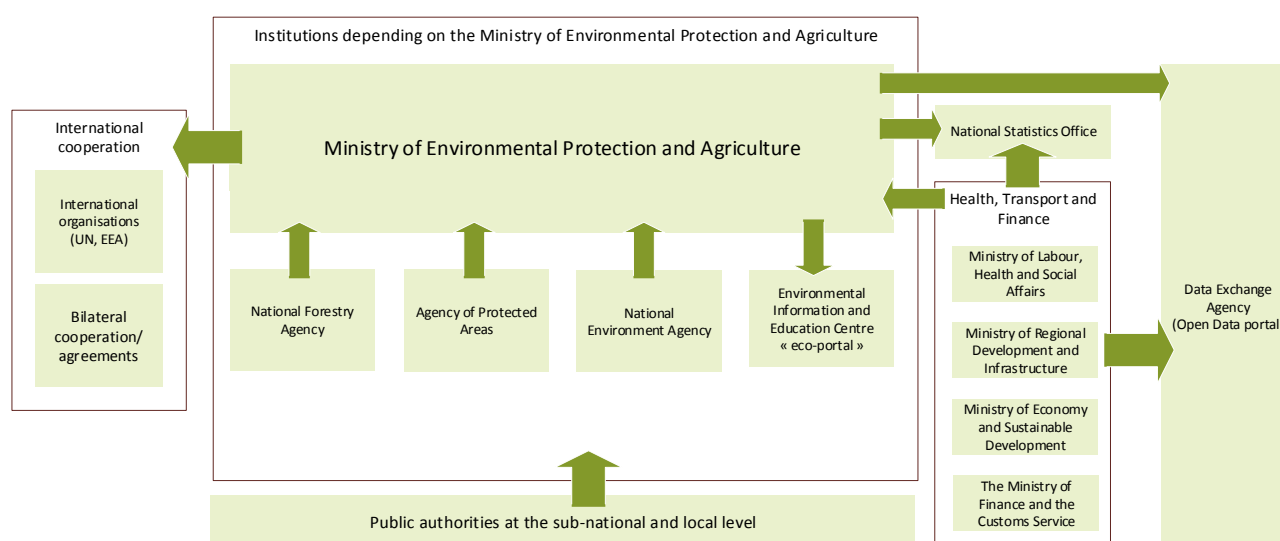


Figure 2 - Environmental data flow, Georgia

Environmental data and information, both in electronic and paper formats, is very fragmented and scattered among multiple state - and non-governmental - institutions of Georgia. The LEPL Environmental Information and Education Centre under the MEPA is in charge to collect the environmental information and make it available to multiple end-users.

For this purpose, the Centre has developed a web-based platform for collection, processing and dissemination of environmental data and information. At this stage the platform provides climate change, biodiversity and land management modules with relevant data and information. The data/information collected within the platform is shared to public through portal (eims.eiec.gov.ge). Both web-based platform and the portal are in the testing mode and are expected to be fully operational in 2019. Further diversification of the system through introduction of other areas (waste, water etc.) is also planned by 2021⁷⁰.

The major data flow in the fields of air protection, climate change, water resources and soil pollution is directed via National Environmental Agency (NEA), which is the main data producer and owner.

Forestry data comes from the National Forestry Agency, while data on biodiversity and protected areas are provided by the Agency of Protected Areas. Data on waste, emissions to the air and water are provided via electronic system by the entities having reporting obligations. Data on violations of the environmental legislation are produced by the Environmental Supervision Department and are available to the Ministry of Environmental Protection and Agriculture – nonetheless, the monitoring of violations also involves other government institutions, such as the Ministry of Health, Labour and Social Affairs, Statistics Office, Emergency Department of the Ministry of Internal Affairs, etc.

⁷⁰ Third National Action Programme of Georgia 2017-2021

Table 3 Collection and storage of environmental information: responsibility of the ministries and other agencies of Georgia

	MEPA	NEA	MOESD ⁷¹	Geostat	MOH ⁷²	MRDI ⁷³	MOF ⁷⁴	MOIA ⁷⁵
A. Air pollution and ozone depletion	■	■					■	
B. Climate change	■	■	■					
C. Water	■	■			■	■		
D. Biodiversity	■						■	
E. Land and soil	■	■						
F. Agriculture	■			■				
G. Energy	■			■				
H. Transport	■		■					
I. Domestic Waste & waste Hazardous	■					■	■	■
J. Environmental financing	■		■				■	

Abbreviations are listed in the abbreviation section of this document.

⁷¹ Ministry of Economy and Sustainable Development

⁷² Ministry of Labour, Health and Social Affairs

⁷³ Ministry of Regional Development and Infrastructure of Georgia

⁷⁴ Ministry of Finance of Georgia

⁷⁵ Ministry of Internal Affairs of Georgia



2.2.1 Environmental administrative information, statistics and assessment reports

2.2.1.1 Statistics and reports

Main environmental data collected in Georgia

The following table presents the summary of institutions by environmental thematic and environmental information owned.

Institution	Environmental Data
MEPA	Inventory of emissions of air pollutants from mobile and stationary sources ; data on violations of air quality standard and norms, ODS consumption - quantity and consumers ; data on permits for transboundary transportation of substances regulated by the Montreal Protocol ; Inventory of GHG emissions; information on adaptation and mitigation measures ; Water abstraction and discharge (water use) data, data on drinking water quality, data on violation of water quality standards and norms; Data on protected areas ⁷⁶ , status of biodiversity within the protected areas, biodiversity monitoring data, data on permits for trade in specimens of species, Data on GMO use in closed systems; data on agrobiodiversity; data on illegal use of natural resources; data on areas of conservation of emerald sites; data on areas of biodiversity importance; data on invasive species; Data on soil erosion, data on land degradation, data on soil fertility, data on violation of soil quality norms and standards; Data on land productivity, data on ameliorated areas, data on irrigation infrastructure and irrigated land, data on registered pesticides and agrochemicals; Data on registered entities that collect, transport, and store waste; data on types and quantity of generated wastes, data on animal wastes; data on permits for production of chemicals and construction of storage facilities for toxic and other hazardous substances; Data on expenditures on environmental protection from state budget and grants.
MOF	Data on ODS import; Data on illegal trade in specimens of species; Data on transboundary movement of hazardous wastes and chemicals
NEA	Air quality monitoring data; Surface and ground water quality monitoring data, data on licences for ground water use; the Black Sea water quality monitoring data; hydrological data; Data on the Black Sea biodiversity, data on biodiversity of surface inland waters, data on quotas on fishery in the Black Sea and amount of annual fishery by species; Soil quality monitoring data on non-agricultural lands; Agrometeorological data.
Geostat	Household water use per capita, water supply industry and population connected to water supply industry, water losses, population connected to wastewater treatment; Data on pesticide consumption; data on fertilizer consumption, data on annual crop and permanent crop production, data on livestock; fish production, area of waterbodies for aquaculture; Energy

⁷⁶ It is to be noted that Georgia has developed a web-based Forest Information and Decision Support (FLUIDS) System. It provides functionalities for data management. It stores, organises and integrates large number of forest and land-use related data from multiple sources, and also provides the ability to perform required analysis. Data are transmitted to the MEPA GIS information system (<http://gis.mepa.gov.ge>), which distributes the data to the website <http://atlas.mepa.gov.ge> and <http://data.mepa.gov.ge>.



Institution	Environmental Data
	intensity, energy balance, final energy consumption, total primary energy supply, renewable energy supply; Freight transport demand, passenger transport demand, composition of road motor vehicle fleet by fuel type, age of road motor vehicle fleet.
Environmental Information and Education Centre (EIEC)	The centre disseminates data on the environment and agriculture. It also supports public participation in environmental decision-making process through questionnaires, cooperation with academic, business and media sector, cooperation with municipalities and public hearings.
LEPL Scientific - Research Centre of Agriculture	Soil quality monitoring data on agricultural lands.
MOESD	Gross electricity production, final electricity consumption.
MOH	Data on medical wastes; data on diseases.
MRDI	Data on landfills for non-hazardous wastes, data on quantity of non-hazardous wastes on landfills.
MOIA	Data on violations on waste disposal.

The MEPA centralises all the data from the other institutions in order to produce its environmental reporting. It also communicates those data to GEOSTat for the publication of environmental data (indicators) and the yearly national environmental statistical report.



Environmental assessment reports

The ENI SEIS II East page⁷⁷ summarises the environmental assessment reports published in Georgia. Reports are mostly published by the MEPA, GEOSat and international organisations such as the United Nations.

Table 4 Environmental assessment report summary

Type of Report	Availability	Institution publishing the report
National environmental reports	Yes	Ministry of Environment Protection and Agriculture of Georgia Report: State of the Environment Frequency: every 4 years Link: http://eiec.gov.ge/NavMenu/Documents/Annual-Reports.aspx?lang=ka-GE
Specialized reports - climate (national communications to UNFCCC)	Yes	EIEC - eiec.gov.ge: Biennial Update Report on Climate Change Frequency: every 2 years UN Climate Change Convention - unfccc.int: Georgia's National Communication Reports to UNFCCC Link: https://unfccc.int/resource/docs/natc/geonc3.pdf Frequency: every 5 years
Specialized reports - air	Yes	Environmental information and education centre Link: http://eiec.gov.ge/NavMenu/Documents/Annual-Reports.aspx?lang=ka-GE Prepared by MEPA, EIEC, GEOSat, NEA: <ul style="list-style-type: none">• Ambient Air Monitoring Data, produced daily• Air Pollution from Stationary Sources Report, produced annually• Air Pollution from Transport, produced annually
Specialized reports - water	Yes	Environmental information and education centre, produced with the support of the National Environment Agency: Link: http://eiec.gov.ge/NavMenu/Documents/Annual-Reports.aspx?lang=ka-GE Frequency: Annual
Specialized reports - biodiversity	Yes	Environmental information and education centre: Convention on Biological Diversity - www.cbd.int Frequency: everything 4 years

⁷⁷ <https://eni-seis.eionet.europa.eu/east/countries/ukraine>

Type of Report	Availability	Institution publishing the report
		<p>Link: http://eiec.gov.ge/NavMenu/Documents/Annual-Reports.aspx?lang=ka-GE</p> <p>The new website from the Environmental Information and Knowledge Management System (https://eims.eiec.gov.ge) contains few reports about biodiversity. The publication frequency is not clear, and it seems that there is a mix reports. The data and reports metadata are not available in English.</p>
Specialised reports – land and soil	Yes	<p>Agency of protected area</p> <p>Report produced about activities (including environmental statistics)</p> <p>Link: http://apa.gov.ge/en/angariSebi</p> <p>Frequency: every 5 years</p>
Specialized reports - waste	No	
Indicator-based reports	Yes	Available on GeoStat (14 indicators available)
National Statistical Yearbook	Yes	<p>National Statistics Office of Georgia</p> <p>Link: http://geostat.ge/index.php?action=wnews_archive1&qy=1&qy1=16&lang=geo</p> <p>Frequency: annual</p>
Report on sustainable development	Yes	<p>United Nations</p> <p>https://sustainabledevelopment.un.org/content/documents/1511Georgia%20national%20reviews.pdf</p> <p>The new website from the Environmental Information and Knowledge Management System (https://eims.eiec.gov.ge) contains few reports about biodiversity. The publication frequency is not clear, and it seems that there is a mix reports. The data and reports metadata are not available in English.</p>

Note: most reports are only available on the Georgian version of the websites.

2.2.1.2 Indicators

The National Statistics Office has started environmental data publication according to UNECE environmental indicators. At the moment the data are gathered only for 14 indicators⁷⁸.

It is recommended for Georgia to continue implementing environmental indicators, and to provide mechanisms to visualise, download and analyse these indicators. It is to be noted, that to this date indicators have not been used for indicator based assessment.

⁷⁸ http://www.geostat.ge/index.php?action=page&p_id=431&lang=eng



2.2.2 Arrangements of Environmental data sharing

Data is shared both through providing environmental information on the web-sites of state agencies and as a response to certain written requests. The types of environmental information that are available on state agencies websites is defined by the Aarhus Convention. The Resolution of the Government of Georgia # 219 of 26 August 2013 also lists the information that should be accessible via organisations' web-sites⁷⁹.

Another form of data sharing is based on the formal agreement between (memoranda of understanding⁸⁰) the state agencies and academic sector for the exchange of data or/and information covering a certain period. Information are provided in an e-format officially to MEPA or its Legal Entities of Public Law. The environmental data are proactively shared can be retrieved free of charge⁸¹.

Environmental data are provided to the National Statistics Office by the Ministry of Environment and Agriculture of Georgia and its sub-ordinated entities National Forestry Agency and Agency of Protected Areas. The data on air, water, biodiversity, forests and violations of environmental legislation are gathered annually as per Memorandum of Understanding between the National Statistics Office and the Ministry. Before being published in the Statistical Publication "Natural Resources and Environmental Protection in Georgia", the data undergo quality checks (which are not publicly described). Last, data on forestry collected from all of the abovementioned entities are further aggregated to generate nationwide information on forests.

⁷⁹ The resolution 2019 on "Requesting Public Information in Electronic Form and Publishing it Proactively", established the rules for requesting public information in electronic form, and specifies the list of public information to be proactively published. The resolution does not specify the data related to environment but defines the list to be published by Administrative bodies, including (1) General information on administrative bodies, (2) Public information page, (3) Information on staffing of an administrative body, (4) Information on public procurement and privatisation of public property by an administrative body, (5) Information on financing an administrative body and its cost estimate, (6) Laws and (7) Other public information.

⁸⁰ The memoranda does not specify form of exchange of data/information are not specified

⁸¹ Requests for data are subject to a contract, as described in the legal section of this document.



2.2.3 Copyright licensing norms and portals data policies

The following tables describes the licences available on the main environmental portals:

Table 5 - Licensing norms per portal

Portal	Licensing
Open data portal	<p>The Open data portal does not provide any specific licence for the use of data. However, in the term of use it is described that the use of data in the website is free and is not limited. Overall it states that <i>“use of data taken from the portal does not require any license, permit or agreement”</i>.</p> <p>There is no limitation to the re-use of data.</p>
Environmental information portals	<p>Institutions have the obligation to publish environmental reports on their website. Once uploaded on the websites of the Ministries or their subordinated bodies, the environmental reports are freely available for users.</p> <p>Usually, neither licensing conditions nor copyright are specified on the different websites. Nonetheless, the licensing policy evolves continuously and few websites, such as the Open Data portal from the MEPA (http://data.mepa.gov.ge/) propose the Creative Common licence 4.0 for sharing public sector information.</p> <p>Reports are published in pdf formats; no environmental data published in machine-readable format.</p> <p>Portals and their environmental component:</p> <p>Mepa.gov.ge: EIA, Air,</p> <p>Nea.gov.ge: hydrometeorology, environmental pollution, geology, air pollution monitoring, fishing and the Black Sea</p> <p>Meteo.gov.ge: Natural disasters, air quality, water quality, soil quality</p> <p>Eiec.gov.ge: Air, water, climate, environmental education</p> <p>Geostat.gov.ge: Air, water, waste, energy, agriculture</p> <p>Apa.gov.ge: biodiversity</p> <p>Air.gov.ge: Air</p> <p>Eims.gov.ge: Biodiversity, climate change, soil/land</p> <p>data.mepa.gov.ge, atlas.mepa.gov.ge, gis.mepa.gov.ge: land and forests</p>
GEOStat	<p>Prices for disseminating statistics are regulated by the Resolution #23, Approved by the Board of GEOStat, November 22, 2010:</p> <p>“On Approval of Prices for Disseminating the Statistical Data Generated Beyond the Statistical Activity of Legal Entity of Public Law National Statistics Office of Georgia”⁸²</p> <p>Environmental data available on the website are available free of charge and can be downloaded in machine-readable format (Excel).</p>

⁸² Official translation provisioned by Geostat : http://www.geostat.ge/cms/site_images/FEES%2022.01.2018.pdf



2.3 Progress so far

2.3.1 Main initiatives

Creation of the open data portal

As part of the Open Government Partnership (OGP) Action Plan approved by the Government of Georgia in 2015, the Data Exchange Agency under the Ministry of Justice has created an open data portal - data.gov.ge⁸³. This portal is a single web-based resource for publishing and accessing open data from the public sector.

Creation of an environment portal⁸⁴

To fulfil the commitment provided for by the OGP Action Plan for 2016-2017 (Commitment #16), the Parliament of Georgia on June 1, 2017 adopted an “Environmental Assessment Code” (EAC). Accordingly, within the framework of this plan, the government aims at introducing such technical instrument, which will ensure timely and unimpeded access to information and effective participation of society at all the decision-making stages.

In that context, the Environmental Information and Education Centre (EIEC) has created on its website a space for public environmental documentation, Laws and reports and is now creating – jointly with the Ministry of Environmental Protection and Agriculture – a new environmental portal⁸⁵. According to the Open Government Partnership, the milestones will be:

- Identification the possibilities of creating a new portal or of using the existing portals: October 2018 - September 2019
- Correct identification of the information to be placed and functions; the portal structure development: October 2018 - January 2019
- Activation of the portal; functional loading: January 2019 - June 2019
- State-by-stage placement of taken decision before activation of the portal: June 2019 - September 2019

Launch of the Ambient Air Quality Portal

As part of the EU-Georgia Association Agreement and commitment to improve air quality and sharing of information Georgia launched a new Ambient Air Quality Portal⁸⁶, which provides full access to the air monitoring data conducted by National Environmental Agency and is stored and managed by the Environmental Information and Education Centre. This is the first attempt for a non-EU country to exchange data with the EU and to integrate it into a single European information system.

Introduction of Electronic Licensing System in the Field of Natural Resources Application⁸⁷

Through this project, the National Environment Agency will issue licenses and render other paid services entirely electronically. The new electronic system will allow for documents pertaining to the licensing field to be available electronically. As a result, the agency will be able to sort and form electronic statistical database of collected information. The system will ensure prompt, high-quality delivery of the processed information. Furthermore, the customer will have a simplified access to any public information (statistics, online map of resources, guidebook, etc.) available in the licensing field and the licensees will be able to contact and share information with one another.

The first stage of the project has been completed: general description of the business process for licensing; particularly, the types of consumers and forms, business processes of the plans for statistical forms and their

⁸³ <http://www.data.gov.ge/Home>

⁸⁴ <https://www.opengovpartnership.org/commitment/05-environment-portal>

⁸⁵ No status is available on this initiative.

⁸⁶ <http://air.gov.ge/en/>

⁸⁷ https://www.opengovpartnership.org/sites/default/files/Georgia_End-term_Self-Assessment_2016-2018_EN.pdf



assimilation have been identified. Space and respective interface designs, such as administrative space interface, staff and client interfaces have also been developed.

Creation of Spatial (Geographic) Data Web-portal for the Energy Sector⁸⁸

The Ministry of Energy will create publicly accessible electronic space with periodically updated information about spatial data. The portal will enable stakeholders (both in the country and abroad) to remotely obtain information about the location of the energy objects and their characteristics. This will facilitate investors to assess expediency of the desired project implementation at the initial, as well as at any other stage of its implementation.

The initial component of the project implementation is the training of the specialists for the work required for the Ministry of Energy to develop the publicly accessible electronic platform. Nonetheless, the collection and uploading of the given information were conducted on the webpage of the Ministry of Energy of Georgia.

Spatial data

In 2013 the country initiated a project related to National Spatial Data Infrastructure (NSDI) in order to support development of common geo-information policy across the country, to establish national standards on geospatial data and metadata and to ensure data connectivity and interoperability.

Electronic System of Doc flow

The system intends to simplify document exchange among various entities and increase efficiency. The system has been developed by the National Agency of registry of the Ministry of Justice of Georgia.

Public Administration Reform Roadmap 2020 and the Policy Planning System Reform Strategy 2015-2017 (PPSRS)

In order to implement effective public administration reforms, the Government of Georgia adopted two strategic documents: Public Administration Reform Roadmap 2020 and the Policy Planning System Reform Strategy 2015-2017⁸⁹. These two documents aim at undertaking specific actions that support development of efficient, transparent and accountable public administration system in which e-governance plays central role. According to these strategic documents, new electronic systems will be put in place to ensure effective functioning of the government. The Public Administration Reform Roadmap designates specific government agencies to take specific actions in respect of developing e-services, ICT infrastructure, training and awareness raising among the government agencies, citizens and businesses alike. While acknowledging the importance of these strategic documents, it is critical to point out that PARR forms a very basic framework for engagement of government agencies (Data Exchange Agency and Public Service Data Agency included) in electronic governance. Much needs to be done in the context of creating a legislative framework to further explain standards, processes and guidelines for the processes that are currently assigned to government agencies (Data Exchange Agency and Public Service Data Agency included) as activities/tasks, under the Public Administration Reform Roadmap.

⁸⁸ Source : https://www.opengovpartnership.org/sites/default/files/Georgia_End-term_Self-Assessment_2016-2018_EN.pdf

⁸⁹ Decree of the Government of Georgia N427 dated 19 August 2015 on Approval of strategic documents in the area of 19 November 2014, as amended to date.



Introduction of Unified Healthcare System Information Portal⁹⁰

In order to raise awareness of the population and ensure transparency of the healthcare sphere, the Ministry of Health, Labour and Social Affairs of Georgia (hereinafter, Ministry of Health) developed an information portal within the frame of the unified healthcare information system (E-Health).

The task to implement the project was assigned to the Working Group established in accordance with the decree N01-275/O of the Minister of Health, Labour and Social Affairs of Georgia. Before the development of the information Portal, the existing channels for information and service delivery were improved. Presently, citizens can access personified services of social affairs through MY.GOV.GE citizens Portal. In December 2017, the work on software for the information portal was launched. In February-March 2017 of the same year information was prepared and uploaded on the portal. The portal started functioning in April 2017, and after registration any person can find personified information.

2.3.2 International rankings

International rankings are important, as they assess progress made against other countries on the basis of internationally acknowledged methodologies.

E-government development index (EGDI)⁹¹

As a composite indicator, the EGDI is used to measure the readiness and capacity of national institutions to use ICTs to deliver public services. Its components include Online Service Index, Telecommunication Infrastructure Index and Human Capital Index.

In 2018, Georgia scored 0.6893 and was ranked in #60 out of 193 countries. Compared to ENI countries, Georgia is slightly above the average. The gap with the average in the EU is becoming smaller.

The figure below shows the change of EGDI throughout period 2003-2018.

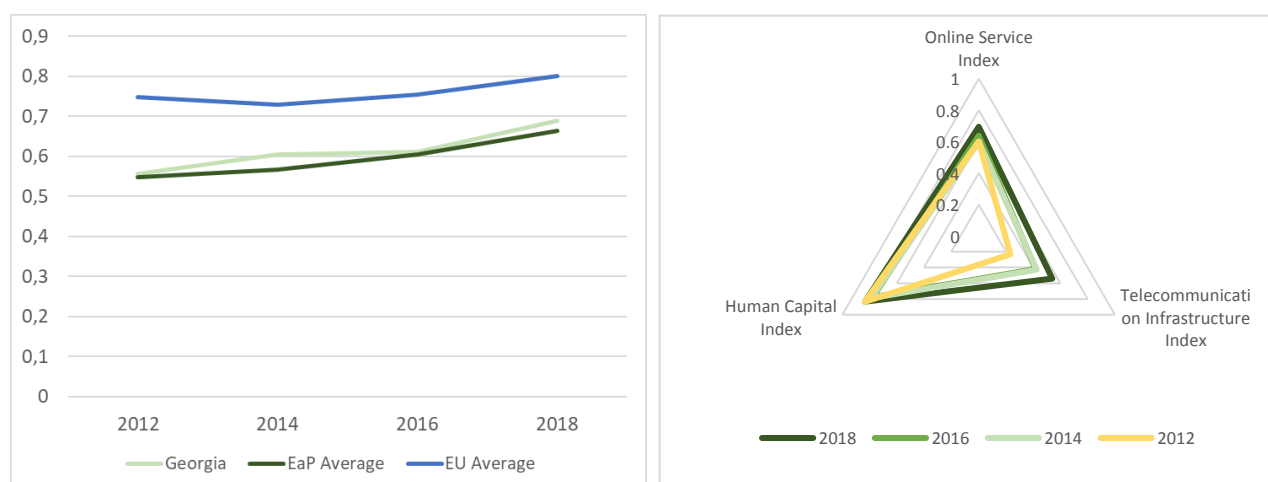


Figure 3 EGDI of Georgia

Georgia made significant progress in terms of broadband infrastructure and telecommunication. The progresses are translated in the International Telecommunication Union country profile of Georgia, which shows that the number of broadband subscriptions more than quadrupled over the last 6 years (now 80% of homes have an access to internet).

⁹⁰ Source : https://www.opengovpartnership.org/sites/default/files/Georgia_End-term_Self-Assessment_2016-2018_EN.pdf

⁹¹ <https://publicadministration.un.org/egovkb/en-us/Data/Country-Information/id/64-Georgia-Country/dataYear/2018>

Open Data Barometer⁹²

The Open Data Barometer is produced by the World Wide Web Foundation with the support of the Omidyar Network, and aims to uncover the readiness, implementation status and impact of open data initiatives around the world. It analyses global trends, and provides comparative data on governments and regions using an in-depth methodology that combines contextual data, technical assessments and secondary indicators.

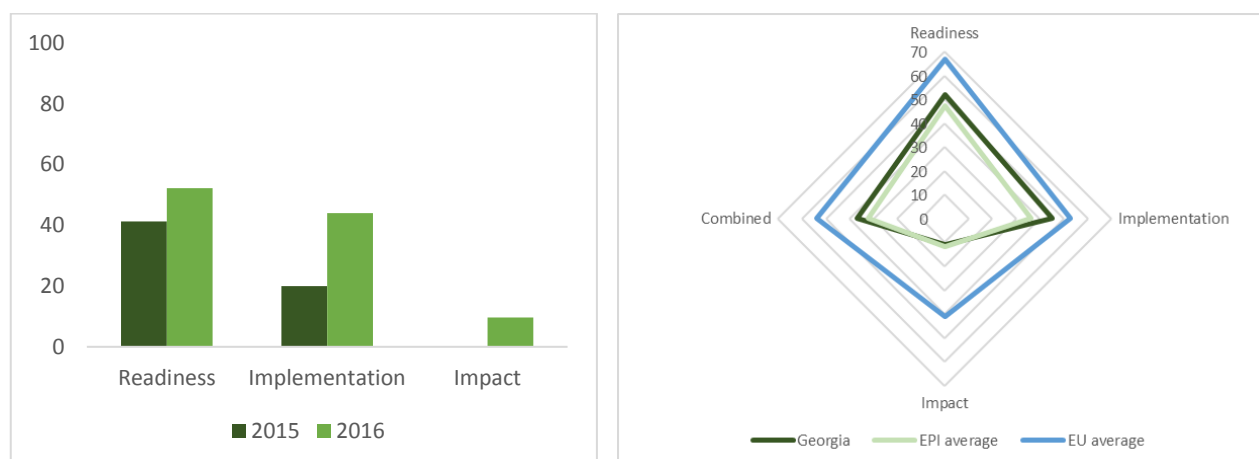


Figure 4 Open data barometer statistics

In terms of Open Data, the Open Data Barometer evaluates Georgia slightly inferior to the EaP countries average. The following table provides more details about the open data barometer assessment in terms of environmental data (or related).

Table 6 - Open Data Barometer environmental evaluation

	Environmental data	Cartography	Health sector performance
Data exists	●	●	●
Online availability	●	●	●
Machine-readable	●	●	●
Reusable data	●	●	●
Free of charge	●	●	●
Open licence	●	●	●
Data validity	●	●	●
Data update	●	●	●
Data discovery rating	●	●	●
Metadata	●	●	●

(● - Yes, ● - No, ● - Sometimes)

According to the assessment, data on health sector performance is meeting most of the evaluation criteria. However, environmental data, even though available for interested parties, fails to deliver updates, does not show validity periods and related metadata are not available. This assessment also evaluated geographic data (cartography) negatively, also reflected in the absence of environmental information on the geoportal. In addition, it is to be noted that the Open Data Barometer does not evaluate the presence of environmental data

⁹² https://opendatabarometer.org/4thedition/detail-country/?_year=2016&indicator=ODB&detail=GEO

according to specific standards. As such, this evaluation could be pondered with the fact that Georgia publishes very few environmental indicators.

Consequently, it is necessary for Georgia to adopt a metadata standard for the publication of information on the open data portal, and to refine the standard to accommodate specificities of health, geographic and environmental data. In that sense, Georgia is already implementing INSPIRE.

Global Open Data Index

The Global Open Data Index dates from 2015 and doesn't provide any actual evaluation for Georgia. This has to be updated.

More information available here: <http://global.census.okfn.org/place/ge>

The Open Data Inventory (ODIN) score⁹³

The Open Data Inventory (ODIN) assesses the coverage and openness of official statistics to help identify gaps, promote open data policies, improve access, and encourage dialogue between national statistical offices (NSOs) and data users.

Georgia ranks 38 in the Open Data Inventory 2017 with an overall score of 55%. The overall score is a combination of a data coverage sub-score of 53% and a data openness sub-score of 57%. Georgia scores higher than the regional average across all three major data categories. Within the country, the highest levels of coverage and openness are on economic information and the lowest levels are on environmental information. In particular environment coverage sub-score is 56% and openness sub-score is 38%.

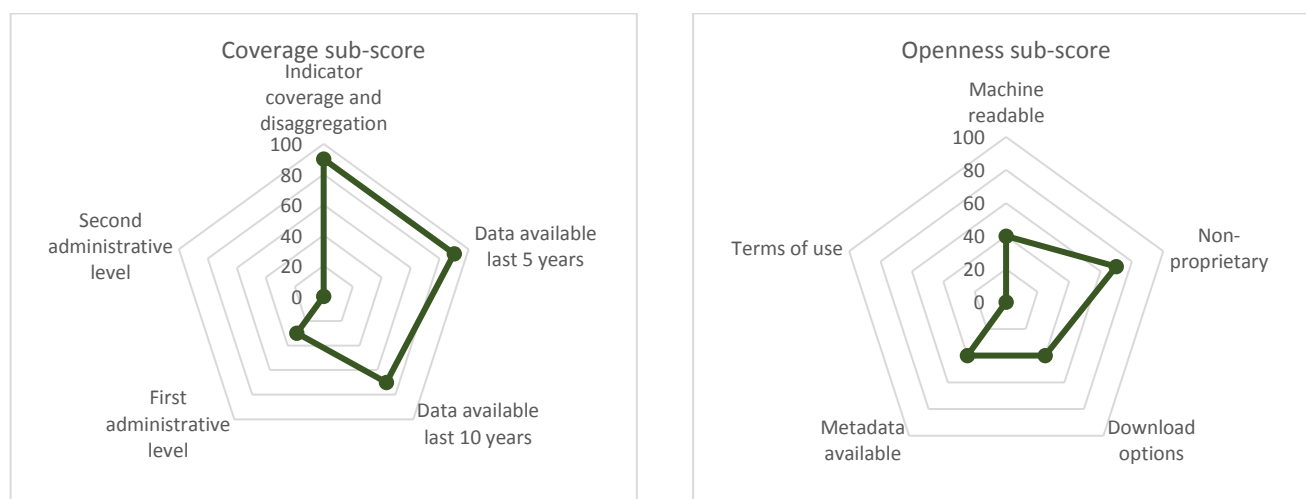


Figure 5 Coverage sub-score and Openness sub-score of Environment Statistics

The ODIN evaluation points out the same conclusion as this report: poor metadata (and not interoperable), few downloading options/file formats, and the absence of copyright/licences.

⁹³ <http://odin.opendatawatch.com/Report/countryProfile/GEO?appConfigId=4>

Environmental Performance Index⁹⁴

The Environmental Performance Index (EPI) ranks countries on 24 performance indicators across ten issue categories covering environmental health and ecosystem vitality. These metrics provide a gauge at a national scale of how close countries are to established environmental policy goals.

In 2018, Georgia ranked 94 out of 180 countries with the score 55.69 out of 100. The figure below shows the main sub-indicators of Environmental Performance Index, with light green colours indicating rating for entire category.

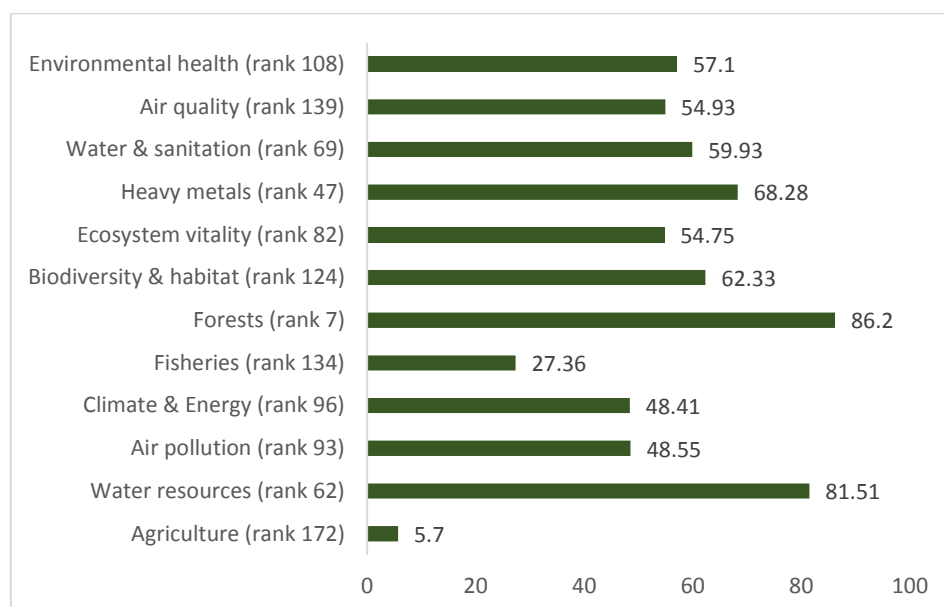


Figure 6 Indicators of EPI of Georgia

2.3.3 ICT related statistics

The communications sub-sector is relatively mature, with six mobile phone and mobile internet service providers, 17 large internet service providers with revenues over GEL 500,000 and 118 smaller internet service providers, 15 large television broadcasters with revenues over GEL 500,000 and 57 television broadcasters, and 6 large radio broadcasters with revenues over GEL 500,000 and 32 smaller radio broadcasters.⁹⁵

According to the International Telecommunication Union⁹⁶, Georgia had end of 2017:

- Fixed-telephone subscriptions per 100 inhabitants: 18.2
- Mobile-cellular subscriptions per 100 inhabitants: 140.6
- Fixed (wired)-broadband subscriptions per 100 inhabitants: 13.2
- Mobile-broadband subscriptions per 100 inhabitants: 66.7
- Households with a computer (%): 65.1
- Households with Internet access at home (%): 79.8
- Individuals using the Internet (%): 60.5

⁹⁴ <https://epi.envirocenter.yale.edu/epi-country-report/GEO>

⁹⁵ Georgian ICT Cluster Potential, Strengths, Weaknesses and Internationalisation Opportunities, 2017. Link: <http://www.eu4business.eu/files/medias/study-ict.pdf>

⁹⁶ Link to country profile with the latest data : <https://www.itu.int/net4/itu-icteye/CountryProfileReport.aspx?countryID=276>

3 Technology enablers for environmental information sharing

3.1 Portals

This section provides insights over the platforms available for the publication of environmental data and information at a national and international level.

3.1.1 Open Data portal

Since 2018, Georgia has two online platforms for open data – one is maintained by a governmental agency and the other is developed by an NGO. We will only consider the official platform in this report.

Open governmental data portal

The first and non-official open data portal, OpenData.ge, was implemented by the Institute for Development of Freedom of Information (IDFI) since 2010. In 2014, with the support of Open Society Georgia Foundation (OSGF), four Georgian NGOs worked on transparency and accountability issues: Institute for Development of Freedom of Information (IDFI), Transparency International Georgia (TIG), Georgian Young Lawyers Association (GYLA) and Green Alternative (GA). These organisations have joined the efforts for the creation of a comprehensive database of public information. The database is being constantly updated and offers public information on a variety of topics such as bonuses, salaries, spending on cultural events etc. from all existing public institutions of Georgia. This portal provides 820 datasets from 190 public institutions, including 22 datasets on environment and 12 datasets on geographic data⁹⁷. Datasets are available for download only in Georgian.

Later, as part of the Open Government Partnership (OGP) Action Plan approved by Government of Georgian in 2015, the Data Exchange Agency under the Georgian Ministry of Justice has created an open data portal - **data.gov.ge**⁹⁸, which is a unified national platform for publishing open data owned by government institutions enabling any interested person, group or entity to further process, use and re-use these data for various purposes. Data are available free of charge and can be re-used without limitation, but requires the mention of the Open Data portal as source. The portal is only available in

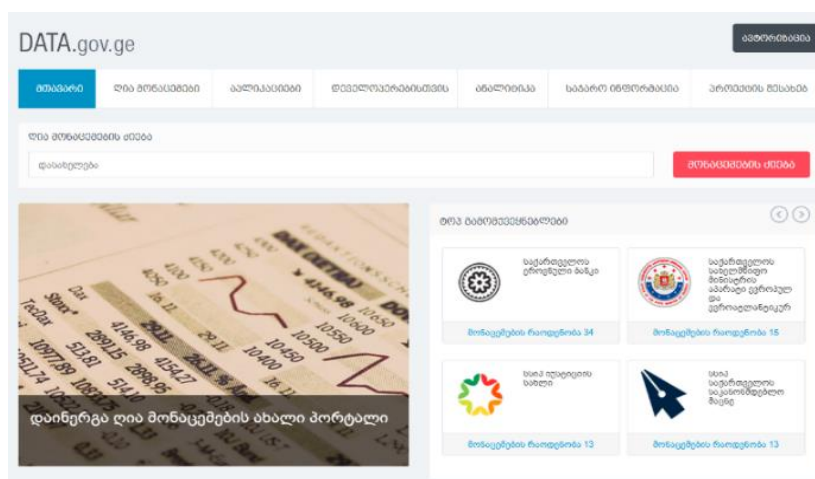


Figure 7 Georgia open data portal

⁹⁷ Evaluation from October 2018

⁹⁸ <http://www.data.gov.ge/Home>

Georgian language and the usability is good. Besides, the API for communicating with the portal is not described, neither the metadata standard (hence the negative evaluation by the Open Data Barometer on this matter).

It is to be noted that the presence of two competing open data portal undermines the collaboration of institutions and the demand for open data (i.e. institutions might not know where to publish information while user do not on which portal to find the latest open data).

E-Services portal my.gov.ge⁹⁹

My.gov.ge is the e-service portal of Georgia. It provides 70 online services that include: identification document services, environmental property services, social services, health care or business initiatives, payment of fines and utility fees and at the same time from the portal a person can request public information from public bodies.

It is important to note that statistical information can also be requested through the portal. The information can be requested from 52 public bodies and 408 departments or other legal bodies of public services.

The portal is available only in Georgian language.

⁹⁹ <https://www.my.gov.ge/ka-ge/services>



3.1.2 Environmental portals

3.1.2.1 National platforms

The following tables summarises the main environmental information platforms:

Platform	Description
Environmental Information and Education Centre website eiec.gov.ge	<p>The website is administered by the Environmental Information and Education Centre. It is the central environmental information portal, as defined by Law.</p> <p>The web page of the LEPL Environmental Information and Education Centre's (EIEC) of the MEPA provides information on environmental themes, projects, legislation, strategic documents, guidelines and so on. It also contains the texts of multilateral environmental agreements (MEAs) and national reports on the implementation of the provisions of MEAs, national reports on the state of the environment, a registry of environmental organisations, as well as infographics. The site also includes information pertaining to issued permits and other related information.</p> <p>The structure of the website is as follows: under the 18 environmental thematic areas (biodiversity, climate change, land, water, air, environmental education etc.), the information is grouped into subsections data, documents and projects (none of the areas provides raw data).</p> <p>The web-site is bilingual and some reports are available on both languages (Georgian and English).</p> <p>Information and reports can be freely downloaded; No licence is provided.</p> <p>The portal still needs improvement in terms of accessibility and multilingual support.</p>
Ministry of Environment Protection and Agriculture website mepa.gov.ge	<p>The website provides reports on the state of the environment, strategic documents, Laws, Environmental Impact Assessments and information on public hearings, environmental decisions, and air pollution monitoring data and ongoing and completed actions.</p> <p>The web-site is bilingual and some reports are available on both languages (Georgian and English). Reports are mostly available in pdf (sometimes in Word format).</p> <p>Information and reports can be freely downloaded; No licence is provided.</p> <p>The portal still needs improvement in terms of accessibility and multilingual support.</p>



Platform	Description
National Environmental Agency website nea.gov.ge	<p>The web-site nea.gov.ge is maintained by the agency. The information is grouped within the following thematic areas: hydrometeorology, environmental pollution, geology, air pollution monitoring, fishing and the Black Sea.</p> <p>Environmental data within those areas are organised in bulletins that can be downloaded in “pdf” format (non-machine readable). Under almost all topics the services of the Agency are listed.</p> <p>The web-site is bilingual and some reports are available on both languages (Georgian and English).</p> <p>Information and reports can be freely downloaded; No licence is provided.</p> <p>The portal still needs improvement in terms of accessibility and multilingual support.</p>
National Environmental Agency Meteo.gov.ge	<p>This website is managed by National Environmental Agency. It provides weather forecasts, hydrological data, data related to natural disasters, avalanche danger, environmental pollution (radiation) and an interactive map to reflect this information. The website is available in both Georgian and is a very good example of functional portal in English in Georgia.</p> <p>However, data is not available for download in any machine-readable format – it only produces PDF format documents.</p>
National Statistics Office of Georgia website http://www.geostat.ge/	<p>Annual national environmental reports and environmental data are published consistently on the National Statistics Office of Georgia. The reports published on this website are not published on other websites (unlike some other reports). Information are collected from the MEPA, which consolidates data and transmits them to the National Statistics Office.</p> <p>The portal is available in English and Georgian. It is user-friendly, but usability could still be improved. Nonetheless, other countries, such as the Republic of Moldova have a more advanced National Statistics system, which could be an example of good practice for Georgia.</p>
Agency of Protected Areas web-site apa.gov.ge	<p>The web-site provides information on the number and categories of protected areas in Georgia and list of territorial administrative units with GIS layer.</p> <p>The section on biodiversity gives general descriptive information on the biodiversity and habitats of the protected areas of Georgia that cannot be downloaded. Laws that define the framework for establishment and management of the Protected Areas in Georgia are also available on the site but only in Georgian and can be downloaded. The data on ecotourism can be found under the</p>



Platform	Description
	ecotourism section. The web-site also has an interactive map showing protected areas of Georgia.
Data Exchange Agency My.gov.ge	<p>The portal my.gov.ge is the e-service portal of Georgia. It contains at this moment very few services and it is only available in Georgian. The website is based on one-stop shop principle, for which citizens do not need to know which service belongs to which agency. The portal my.gov.ge strives to assist with all major life events, such as enrolling in higher education and/or applying for a study grant, looking for a job, retiring, applying for a driver's license (or renewing an existing one), buying, building or renovating a house, moving and changing address, declaring the birth of a child, changing marital status, etc.</p> <p>The portal is easy to use, but does not provide a quick and exhaustive view of services. Besides, the increase of public services might impact usability as the user interface occupies a lot of space on the pages.</p>
Air Quality Portal (http://air.gov.ge/)	The web-portal is maintained by the Environmental Information and Education Centre. It provides access to comprehensive information on the ambient air quality and real time monitoring data via interactive map. Results of indicative measurement are also presented on the portal. The website is in English and in Georgia. It is easy to use and a good example of environmental data portal. The data cannot be downloaded.
Environmental Information and Knowledge Management Portal (https://eims.eiec.gov.ge/)	The web-portal is maintained by the Environmental Information and Education Centre. It provides data and information on biodiversity protection, climate change and land arranged under following sections- reports, data, projects, GIS. The data can be downloaded in pdf and excel formats. The portal also provides paid-for services to access data subject of the Decree #502. The bilingual portal is in test mode.
Open Data portal from the MEPA (http://data.mepa.gov.ge/)	<p>The Open Data Portal of the Ministry of Environment Protection and Agriculture allows to download data related to various categories, including land use, land cover, biodiversity, hazard levels and protected areas.</p> <p>All data published – unless stated otherwise – are regulated by the licence Creative Commons Attribution 4.0.</p>
GIS portal of the MEPA https://gis.mepa.gov.ge/portal/home/	The "Forest and Land Use Information and Decision Support System" (FLUIDS) aims to support decision-making through the dissemination of environmental information in the areas of forest and forest landscapes.



Platform	Description
The forest and land use atlas of the MEPA https://atlas.mepa.gov.ge/?l=en	The Forest and Land Use Information and Decision Support System (Forest and Land Use Atlas) provides access to transparent and precise data on forest and land use, and also ensures active use of the information. It also supports planning, execution and monitoring of activities in the forestry sector.

In short, Georgia has developed numerous portals which sometimes appear to be overlapping. Portals are well developed in the area of forestry and land use, and air. In addition, the portal eiec.gov.ge provides an access to numerous environmental reporting.

3.1.2.2 International platforms

The ENI SEIS II East website provides a recurrent assessment of UNECE environmental indicators reporting and national environmental reporting. More information is available here: <https://eni-seis.eionet.europa.eu/east/countries/georgia>.



3.2 Portal maturity for environmental data

The Open Data Maturity in Europe 2018 report groups countries according to their open data maturity into Beginners, Followers, Fast Trackers and Trend Setters. Even though no official evaluation the Georgian open data portal was done according to European standards, based on the evaluation in this report, it is possible to conclude that Georgia would be part of the “Beginners” at the bridge of “Followers”. In particular, Georgia needs to work on its open data strategy, the publication of open data (availability), licensing policy, usage and usability of the open data portal and the multilingual aspects of the portal.

3.2.1 Statistics over availability of environmental data online

In general, according to the statutes of the “Environmental Information and Education Centre” as defined by the Law, the official environmental portal is <http://eiec.gov.ge/>. In practice, environmental data and information are published on multiple platforms and it is difficult to know which platform owns the data, and hence to know which dataset constitutes the “version of the truth”.

Open Data portal¹⁰⁰

In three years, there are 171 datasets published, which include 8 datasets on environmental protection, 3 datasets on geographic data and 6 datasets on agriculture¹⁰¹. Datasets published for the environment: Plan for Association Agenda implementation; National Action Plan for Association Agreement and Association Agenda implementation; Visitors' statistics for protected areas; Communications Strategy Action Plan; Annual Action Plans for EU Assistance; Yearly Budget Assistance by the European Union; Landfills in the capital.

The number of datasets is very little compared to other countries, including the EaP region. Compared to Europe, taking for example France, there are around 2000 datasets in the field of sustainable development, energy and housing. Consequently, it is required for Georgia to take measures to foster both supply and demand of Open Data.

It is to be noted that the non-official open data portal - Data Lab - has more datasets for the environment than the official portal. There is therefore a problem of coordination between the different actors involved in both initiative. Particularly, one country should have only one official open data portal to avoid confusion.

National Statistics Office of Georgia

The National Statistics Office publishes aggregated annual reports and environmental indicators.

In total, data for 14 environmental indicators - out of 49 UNECE environmental indicators - are published in Excel format and are available to download. Other environmental data are published as images/diagrams and can't be downloaded or reused. Hence, there is no functionality for analysing the data.

All information are provided both in Georgian and English languages.

¹⁰⁰ <http://data.gov.ge/Datasets>

¹⁰¹ Evaluation from October 2018.



3.2.2 Re-usability of data

Open Data portal

Datasets on the open data portal (<http://data.gov.ge/>) are available in CSV or XML formats and thus is machine readable format (170 out of 171 datasets are in machine-readable format). At the moment, there are very few datasets published. For each dataset, it is possible provide a feedback.

Last, no translation is available for the metadata of the dataset. This could undermine international cooperation and/or re-use of data. In particular, the portal is not harvested by the European Data Portal, unlike for portal of the Republic of Moldova and the portal from Ukraine.

National Statistics Office of Georgia

The National Statistics Office of Georgia hosts 14 environmental indicators. These indicators are all available in machine-readable format (Excel) and re-usable.



4 Achieving a high level of maturity for environmental information management

4.1 Main challenges

4.1.1 E-government

The main challenges related to e-government in Georgia are presented in the table below.




Table 7 Major problems related to e-governance

<p>Content</p> 	<ul style="list-style-type: none"> • Insufficient efficiency, effectiveness, transparency and responsibility of central government and local governments in implementation of public policy and public services provision • Weak documentation available and usability of the Data Exchange Agency website • Sparse dissemination of environmental information on multiple platforms • Absence of environmental information on the geoportal • A relatively low level of e-services provision and use, and their low adaptability to the needs of individual users in relation to the EU average • Lack of aligned/regulated business processes/administrative procedures in the public administration
<p>Infrastructure</p> 	<ul style="list-style-type: none"> • Poor multilingual support The absence of (good) translation in most government websites undermines international collaboration. • Lack of systematic coordination or a possibility to use common software and hardware resources, which results in uniform solutions for coordination and planning. • Development and promotion of interoperability standards Many public administrations still have difficulties to exchange data. It is necessary to address this issue at national level • The poor quality of information systems and infrastructure used in public administration sector require a modernisation programme of IT infrastructure
<p>Network</p> 	<ul style="list-style-type: none"> • Reluctance to implement e-services and resistance towards change, require awareness campaigns • In particular, Georgian authorities and public servants find e-government as something unnecessary.

4.1.2 Open data

The major problems and challenges related to electronic access to information and open data are presented in the table below.

Table 8 Major problems related to open data

<p>Content</p> 	<ul style="list-style-type: none"> • Lack of legislative base has been considered as major problem related to open data by the report prepared by Institute for Development of Freedom of Information¹⁰² • Poor multilingual support The absence of good translation on the open data portal, and also in most government websites undermines international collaboration. • Lack of available datasets: At the moment, few datasets are published (over a 1000). It is necessary to undertake measures to raise awareness in institutions to drive the supply of open data. Besides, there is no penalty for not sharing public information.
<p>Infrastructure</p> 	<ul style="list-style-type: none"> • Two open data portals confuse both users and publishers regarding which one to use • Absence of clear licensing on the open data portal • The lack of a common set of classifiers adds to challenges regarding the standardisation of the pool of public information held outside information systems and databases. • Unclear API for retrieving public information The lack of API well described on the open data portal jeopardises the economic potential of open data. Indeed, entrepreneurs can have difficulties creating application if they can't obtain the public data.
<p>Network</p> 	<ul style="list-style-type: none"> • Lack of awareness among public institutions for public information sharing • Lack of skills for the preparation and publication of Open Data • Lack of initiative / institutions/organisations that re-use open data <p>It is necessary to raise awareness among citizens and entrepreneurs in order for them to start creating an open data "economy"</p>

¹⁰² https://idfi.ge/en/access_to_open_data_ing_georgia_and_visegrad_countries

4.1.3 Environmental information sharing

The main problems related to environmental information management is presented in the table below.

Table 9 Major problems related to environmental information management

<p>Content</p> 	<ul style="list-style-type: none"> • Need for an explicit legal framework establishing data flow mechanisms between the state agencies and clear institutional mandates on environmental information management • Potential overlaps in mandates and a lack of clear delineation between the responsibilities of various actors. These include, for example, spatial planning, land, water and waste management, and biodiversity protection. • Lack of harmonisation of environmental standards to international ones; absence of an approved list of national environmental indicators • Lack of metadata for environmental description: at the moment, only filename or a short title are available for describing environmental information. As such, it is difficult for users to assess the accuracy of the documents/data published. Key metadata that should be included: title, description, publication date, period covered, publisher, file format, licence.
<p>Infrastructure</p> 	<ul style="list-style-type: none"> • Poor multilingual support. The absence of good translation of the open data portal, and also in most government websites is a major problem in Georgia. • Lack of an integrated, comprehensive and efficient environmental quality monitoring system that would bring together all data regarding the quality of environmental components, and strengthen cooperation and information exchange between different institutional actors. Besides, databases should be organised in a consistent way, following certain structure and technical specifications; for that standards should be developed and followed within the Ministry • No defined data sharing modality and lack of direct access to database with appropriate authorisation and/or or unlimited access through web-services (this can be solved through the publication of environmental data on the Open Data portal) • Lack of environmental data on a single geoportal: at this moment the geoportal does not connect geographic information with environmental information. Multiple portals publish environmental data with geographic data, creating confusion and undermining holistic analysis of environmental data. • Lack of licence for environmental data: at the moment, the open data portal does not specify any licence and as such discrepancies in terms of licensing could appear in the future (e.g. the Ministry of Environment would publish information with commercial limitations while the Open Data portal allow re-use of published data for commercial purpose). • Scarcity of platforms for the publication of environmental information: at the moment, there are multiple platforms on which environmental information can be found. Normally, the environmental portal should have solved this issue, but in practice Ministries still hosts environmental reports.
<p>Network</p> 	<ul style="list-style-type: none"> • Although there are a lot of institutions dealing with environmental information sharing cooperation between them is still very poor. • It is necessary to put in place concrete measures to improve collaboration. These measures could be a combination of legal, organisational and technological. Legal: review of legal framework and formalisation of collaboration Organisational: implementation of collaborative processes Technological: provision of tools to simplify processes and foster collaboration

4.2 Roadmap

This section presents key areas¹⁰³ of development for the Georgia. It is to be noted that these initiatives should be undertaken taking into account regional and international collaboration. In particular, initiatives which were undertaken in other countries could be leveraged. In addition, the development of national standards would benefit if developed regionally and/or aligned to international standards. This especially is true for the design of information systems, metadata standards, portals and interoperability standards.

In addition, the following roadmap is based on the assumption that few elements are already in place for its smooth implementation. If some of these elements are not in place in the country, it is heavily recommended to first address issues related to these topics. In particular:

- Long term Digital and Open Data strategy: a national strategy and action plan for Open Data should be in place. It should ensure scoping, management and funding of the national Open Data portal, as well as that sufficient resources are allocated to open data awareness raising activities with both publishers and potential re-users.
- General interoperability framework: the country should have in place an interoperability framework or at least its foundation in place. This is especially required for building environmental information systems and ensuring smooth integration / exchange of environmental data.
- Open Data policy: the open data policy provides the foundation for a structured approach for public sector information dissemination.
- E-government, Open Data and geo-portals: the country should have effective e-government, open data and geo-portals on which environmental information can be shared / disseminated, and where services can be built.
- Environmental strategy: this strategy should contain key objectives for fostering sharing and dissemination of environmental information.
- Enforcement mechanisms for the collection, sharing and dissemination of environmental information.

It is clear that some of these measures are already in place in Georgia (e.g. national air quality portal, beginning of single web-access for environmental information, Open Data portal, etc.). Nonetheless, it is advised to look at these elements from a perspective of environmental information sharing and dissemination, and to update them where appropriate. It is to be noted that these elements are considered to be under continuous development and hence reviewed periodically.

¹⁰³ At this moment, the roadmap does not take into account potential interdependences of measure and timeframe for their execution.



4.2.1 Content

Measure	Priority	Description
Revision of legal framework to promote accessibility and re-use of non-sensitive public information online	High	<p>Review of the legal framework for data governance related to environmental monitoring, decision-making and control, natural resources, ecosystems and pollution inventories and environmental assessments, in accordance with the Aarhus Convention, the Protocol on PRTRs (as appropriate). This can include:</p> <ul style="list-style-type: none"> improving environmental information system(s) by defining themes, sources (lists, registers, databases, funds, etc.), formats, metadata and interoperability requirements in accordance with the Aarhus Convention, Protocol on PRTRs, ECE environmental indicators and other international commitments and the e-government/open data framework improving procedures for environmental data collection in electronic forms improving procedures for environmental data update, quality assurance, reporting, online dissemination and other means of dissemination proving public participation in the design, use and update of the environmental information system(s) of the and taking on citizens science and citizens engagement initiatives division of responsibilities of the public authorities at all levels and across the sectors to ensure their clear roles and coordination reviewing the application of the exceptions in disclosure of environmental information and establishing a clear and predictable legal framework to ensure the legitimate application of these exceptions and the disclosure of information on emissions in accordance with the Convention Setting out the requirement to separate non-confidential information of public importance for its further disclosure <p>Adopt guidance defining the practical arrangements for environmental information management, sharing and dissemination:</p> <ul style="list-style-type: none"> scope of environmental information system(s) with their metadata description and registry (to be explained) environmental data management system (data architecture, data stewardship, database administration, data privacy, data security, data quality) decision-making procedure on non-confidential themes or datasets to be shared and published online and the



Measure	Priority	Description
		<p>relevant online portals (e.g. website of the public authority, environmental portals (one web access points for environmental information), geospatial portals, statistical, open data and other portals)</p> <ul style="list-style-type: none"> • separation of non-confidential information as appropriate • data quality assurance mechanism <p>stakeholder communication, including public participation procedure in the design, use and update of the environmental information system(s)</p> <p>Adopt an environment data policy:</p> <ul style="list-style-type: none"> • Types and scope of environmental information available • Basic terms of availability and accessibility, including open access and sharing policy • Stakeholder care and support • Licensing standards <p>Point of contact for access to environmental information</p>
Timely and regular collection and delivery of environmental data in accordance with the Aarhus Convention, the Protocol on PRTRs (as appropriate) and the decisions and recommendations of the Meeting of the Parties to the Convention and the Protocol	High	Consider the possibility of accession to the Protocol on PRTRs and define practical arrangements for establishing pollutant release and transfer registers within integrated environmental information system(s).
Definition of metadata description standard for all environmental information	High	<p>This action will aim to define standards for the publication/exchange of environmental data and the publication of environmental reports. As a result, it will be easier for institutions to exchange and manage environmental data, while also making easier for citizens to find information.</p> <p>An example could be implementation of EU DCAT-AP standard, which would also enable integration with the European Data portal.</p> <p>Refer to the best practice report to get more information about metadata standards for Open Data.</p>
Update/adopt interoperability standards for environmental systems and establishment of norms regarding inter-institutional data flow exchange/sharing, its format and improvement of the management of data collected.	High	This action will review the existing standards for exchanging environmental data between institutions and systems, and standardise the exchanges. This action is a prerequisite for building an effective central environmental information system.



Measure	Priority	Description
Develop and publish quality control mechanisms for environmental data	Medium	<p>This action will:</p> <ol style="list-style-type: none"> 1. Assess the current quality control mechanisms from the collection (monitoring) of environmental data to the publication (aggregation, sorting, enhancement) 2. Provide a standard mechanism for quality control and set minimum standards to respect during the data flow (data gathering, data preparation and cleaning, data publication). 3. Provide the legal framework for setting obligations at different levels, and penalties in regards with quality controls of environmental data 4. Implement the quality control mechanisms and set up an annual reporting process for the evaluation of the quality of environmental data <p>To implement these actions, refer to the best practice report to get examples.</p>
Transformation of data published to machine-readable format	Medium	<p>The true potential of environmental data lies in their usability. Ensure the publication of environmental data in machine-readable format.</p>
Inventory, re-engineering and publication of public services as e-services	Medium	<p>Ensure that environment services are described and accessible through the electronic service portal, in accordance with the national standards.</p> <p>For more information about the standardisation of the description of e-services and the development of an electronic service portal, please consult the best practice report.</p>
Harmonise licensing terms and conditions of environmental data to promote its public use and re-use	Low	<p>This action will harmonise all licensing terms and conditions on the different portals used for publishing environmental data. More information about licensing are available in the best practice report.</p>
Carry Open Data impact analysis framework in relation to the environment	Low	<p>Carry on the assessment of the impact of environmental data on the environment, as part of the open data impact assessment framework. For instance, evaluate the following criteria:</p> <ul style="list-style-type: none"> • Number of environmental data downloaded and re-used • User feedback received/collected • Apps developed using environmental data • Applications and apps developed using environmental data and having an impact on the environment (including re-use of environmental data in other disciplines, for instance transport). <p>More information about the general open data impact assessment can be found in the best practice report.</p>



4.2.2 Infrastructure

Measure	Priority	Description
Establish a single and user-friendly web-access point for environmental information	High	<p>The single access point can also be designed as an entry points for all environmental policy domains to support the implementation of decision VI/1 of the Meeting of the Parties to the Convention.</p> <p>The portal should have a standard metadata tool and a tool for the verification of the metadata quality.</p> <p>The portal should act as a public awareness and communication tool for environmental information.</p> <p>Authorities should also consider which environmental data to publish to the “eco-portal”, and:</p> <ul style="list-style-type: none"> • Ensure the continuous maintenance of the access point through the execution of an action plan to ensure the portal’s sustainability over time • Increase the discoverability of environmental data and information by having : <ul style="list-style-type: none"> • a content-driven structure of the menu and • advanced search functionality that allow the user to use multiple field search and filter options (e.g. file format) to refine a search; combining the keywords with Boolean operators; • offer the possibility to download datasets • Specific “Request data” button • Public consultations for addressing environmental data demand <p>The design of the web-access point should be done through the public consultation on its functionality and design.</p> <p>More information about single access point can be found in the best practices report.</p>
Enhance Interoperability of geospatial, statistical, health and environmental information systems	High	<p>At the moment, different information systems and portals produce, consume and disseminate environment data. This action will:</p> <ul style="list-style-type: none"> • Undertake a comprehensive review of portals and information systems, including their interfaces and technological implementation • Provide standards for the design of systems consuming, producing or disseminating environmental data • Provide interoperability standard for exchange of environmental information between public information systems (e.g. health, environment, energy, and statistics) and provide external APIs for external data consumers. • Provide mechanisms for consolidating environmental data across time and space



		<p>These actions can be also addressed within an overarching national interoperability framework.</p> <p>Refer to the best practices for more details about this action.</p>
Build an electronic registry of public environmental information	High	<p>This action will aim to make a registry of environmental information available in each institution (i.e. metadata management system), and publishable in light of the legal framework defined. This action could be coupled with the standardisation of metadata for environmental information as well as the definition of standard “environmental information” access points which would enable the registry to collect automatically these information. The registry will be used by public servants to support the continuous development of environmental information systems and the dissemination of environmental information. In particular, it will map systems, databases, institutions, datasets and reports published.</p>
Improve accessibility and use of available environmental data and information by improving the multi-lingual aspect	Medium	<p>This action will provide a full translation to English/Russian of public institutions websites, yearly reports and environmental information metadata.</p> <p>An example of multilingual portal is the GEMET¹⁰⁴, which provides a thesaurus translated in 23 languages, including Russian.</p>
Development of e-services for the environment	Medium	<p>To describe the environment services according to the national standards (service passports)</p> <p>Development of environment services as e-services according to service interoperability standard (e.g. e-signature, e-payment).</p> <p>More information about the description of public services can be found in the best practices report.</p>
Strengthening of technical capacity for environmental monitoring	Medium	<p>Provision of modernised monitoring equipment</p>
Develop and/or continue to enhance an integrated system for environmental information management, including environmental information in accordance with the Aarhus Convention and the Protocol on PRTRs.	Low	<p>Continue the integration of systems for collecting, sharing and disseminating environmental information.</p>

¹⁰⁴ <https://www.eionet.europa.eu/gemet/en/concept/4438>



Develop applications to engage citizens in environmental protection through technology, especially extending the scope of existing widely used one regarding meteo forecasts or citizens engagement tools	Low	<p>This action should aim to create a series of apps and/or an “environmental data ecosystem” which would enable citizens to consult and interact with environmental data.</p> <p>For instance, through apps:</p> <ul style="list-style-type: none"> • consult environmental information in real time according their location • public could report poaching, mark polluted areas, etc. • public could take part into environmental friendly events in their neighbourhood to fight pollution • integration of environmental data with popular national apps, where possible
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4.2.3 Institutional cooperation (network)

Measure	Priority	Description
Establish a collaborative institutional framework for the implementation of an Open Data concept	High	<p>This action will strengthen the necessary institutional framework for managing open data.</p> <p>This action will emphasis on the need to create a strong cooperation between institutions in order to ensure the publication of public sector information (PSI).</p>
Continuously ensure availability of adequate capabilities for handling environmental and open data issues	Medium	This action will assess existing capacity of organisations for dealing with environmental information. It will continuously address methods, procedures, mandates, tools & technical maturity, skills and resources for handling environmental data.
Promote international and regional cooperation on good practices, challenges and lessons learned in the implementation of the points of this roadmap	Medium	Identify forums and meetings where experience can be shared.
Building capacity for environmental monitoring	Low	<p>Provision of human resources for performing environment monitoring.</p> <p>Professional development/ training plan for civil servants and/or data stewards or data officers working with data (organised in the frame of the professional development programmes for civil servant).</p> <p>Capacity building – official training plan (Mandatory) for people responsible for data publication and recognised certifications for these people to increase the motivation and to be formally recognised as professional development training within the public bodies.</p>
Develop a framework for measuring the social, political, environmental and economic impact of Open Data	Continuous	This action will develop a framework for measuring the social, political, environmental and economic impact of Open Data. The framework will be tailored to take into consideration environmental data.



Implementation of policies regarding improvement of public awareness	Continuous	Raise public awareness on environmental information, its accessibility and related issues.
Raise awareness about open government and open data among the citizens and economic operators	Continuous	<p>Driving demand for open government and data through greater awareness.</p> <p>Undertake a series of activities for promoting re-use and sharing of environmental information:</p> <ul style="list-style-type: none"> • Hackaton • Forums • Promotion campaigns • Develop incubators • Develop public private partnership <p>Develop cooperation between national bodies and NGOs and the academic sector</p>

